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An Abstract of

THE ECONOMIC RETURNS FOR GRADUATES OF

4-YEAR FOR-PROFIT POSTSECONDARY INSTITUTIONS

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Submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in the
Steinhardt School of Culture, Education, and Human Development
New York University
2010

The proprietary sector's mission, students, and institutional characteristics are different in some respects from public institutions and private, not-for-profit institutions. Proprietary education has historically focused on getting individuals into the job market; however, little evidence exists that the proprietary sector's vocationally-oriented curriculum enables graduates to take their place in society at levels comparable to graduates of traditional postsecondary institutions. The question that may be the most important to understanding the value of the proprietary sector may well be "what is the value of these graduates to the labor market?" This dissertation examines the economic outcomes of graduates who earned a bachelor's degree from for-profit postsecondary institutions ten years into their work experience. The dependent variable was self-reported income and the principal independent variable was the type of school (public, a private, not for-profit, or a for-profit) from which a student graduated. The sample was from the restricted data file of the Baccalaureate and Beyond Longitudinal Study.

Findings showed the average earnings of graduates with a bachelor's degree from a for-profit institution ten years after graduation was not significantly different than the earnings of their counterparts from public and private, not for-profit postsecondary educational institutions. Findings also confirmed a gender gap in earnings: women earned 70 percent of what men earned and the earnings gender gap was significant within and across all three education sectors. Additionally, if the graduate's father had earned a bachelor's degree the effect on

the respondent's earnings was positive and significant. Marital status was shown to have an effect on earnings: unmarried respondents earned more than their married counterparts; but if separated or divorced, they earned less.

The foremost recommendation for future research would be the construction of a database that captures the salient student and institutional characteristics of the for-profit postsecondary education sector. Additional research on for-profit institutions could help answer what role for-profit institutions could play in the changing landscape of higher education, provide a rational choice model from which to chose educational sectors, and inform policy makers in their allocation of scarce financial resources.

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CHAPTER I

THE RESEARCH OBJECTIVE

Background to the Problem

The proprietary sector of higher education has existed in the United States since the colonial epoch (Clark & Sloan, 1966; Alkin, 1992; Honick, 1995). It emerged with the decline of the apprenticeship system as a way to train workers, en masse, in order to meet a market need for an increase of skilled workers. Historically, the educational focus of the proprietary sector has been geared toward the practical and applied, with an emphasis on specific skills required in a rapidly expanding and changing economy (Haynes & Jackson, 1935; Clark & Sloan, 1966; Honick, 1995; Hosler, 2000). This may be contrasted with the formative years of higher education in America, where colleges such as Harvard, Yale, William and Mary, Dartmouth, and Columbia were concerned with sectarian curricula for a select few. The proposition that education in America's early period was for the public good appeared grossly exaggerated and lacked confirmation in the literature (Wayland, 1850; Hofstadter & Smith, 1961; Whitehead, 1973; Seybolt, 1971; Snyder, 1993). It was not until the advent of the "Land Grant" colleges in America that education of a vocational nature became desirable and widespread.

Today, for-profit institutions emphasize vocational curricula tied directly to current or anticipated labor market needs and school-to-work skill development and enhancements. Moreover, degree-granting proprietary institutions are now competing with segments of traditional academe in providing academic degrees, and are now making the claim of educating the entire person (Baird, 2006). The proprietary sector's explosive growth in student enrollments and adoption of technology in course delivery modalities (on-line/distance education) have been facilitated by the sector's acceptance of economic, market-based principles. Still, the proprietary sector's "organizational model," partially guided by the profit motive and its emphasis on school-to-work curricula, has led some to question the academic rigor and educational integrity of education provided for a profit.

To some extent, the decision to enroll in postsecondary education is predicated on the many advantages, including economic, that college graduates enjoy over those who do not attain a postsecondary education. According to the U. S. Department of Education (2007), bachelor's degree holders have lower levels of unemployment or higher labor force participation rates. Additionally, the U. S Department of Commerce (2007) found that male bachelor's degree holders had median annual earnings of $55,430, while female bachelor's degree holders had median earnings of $38,220. A large body of literature describes the positive economic returns to education in the aggregate; however, there is a paucity of literature that speaks to the economic benefits of attaining a bachelor's degree from a for-profit institution. This lack of literature may contribute to sub-optimal

decisions by individuals who attend for-profit institutions as well as policy makers who allocate taxpayer monies in the form of Title IV student financial assistance.

In the current educational milieu, much of the historical foundation of for-profit education has been forgotten. (Clark & Sloan, 1966; Barlow, 1976; Honick, 1995; Kinser, 2005). One objective of this investigation is to situate the current debate within its historical perspective, separating out the increasingly polemic rhetoric concerning the merits of an education received from a for-profit institution.

Much of the debate over the merits of a proprietary education has stemmed from over-generalizations about an educational sector that defies easy classification (Chaloux, 1995; Chung, 2004). Additional scholarly attention to this sector is required to better understand its role in postsecondary education. While not the direct focus of this investigation, it has been suggested that perhaps the proprietary sector's contributions to access, equality, and educational attainment need to be documented and understood.

Statement of the Problem

The proprietary sector's mission, students, and institutional characteristics differ, in some respects, from public institutions and private, not-for-profit institutions. One key area of difference is that the proprietary sector has a profit motive or an economic return to the owners of the institution, in addition to the

educational mission. This for-profit motive is often criticized by the public, by governmental agencies, and by the sector's counterparts in traditional academe. All have ignored the sector's articulated educational mission, and data measuring whether or not the sector's mission is being accomplished (Ruch, 2001; Bok, 2003; Kirp, 2003; McCowan, 2004).

There is much to learn about the proprietary sector, including the role it plays in issues of access, attainment, and student choice. Especially of interest to this study are the economic returns associated with earning a degree from a for-profit institution. Historically, proprietary education has focused on getting individuals into the job market through a variety of educational and training programs that are either bachelor's degree-granting and above, associate's degree granting, or non-degree programs conferring a certificate or diploma. However, little evidence exists that the proprietary sector's vocationally-oriented curriculum enables graduates to take their place in society at levels comparable to graduates of traditional postsecondary institutions. One expects that students who graduate from this sector obtain jobs in their chosen field, and became tax payers. Thus the question that may be the most important to understanding the value of the proprietary sector may well be "what is the value of these graduates to the labor market?" Given the proprietary sector's vocationally-oriented curriculum and school-to-work orientation, labor market outcomes could be an important indicator of the quality of a proprietary educational institution.

Labor market outcomes for students of all postsecondary educational institutions have developed into an important indicator for assessing the quality of the educational institution (Jaeger, 1999). Extensive literature has sought to estimate the monetary returns to education (Mincer, 1958, 1974; Schultz, 1961; Bowman, 1966; Becker, 1975; Sobel, 1978; Card & Krueger, 1996) without specifically addressing labor market returns in the for-profit sector of postsecondary education. A few early studies of the for-profit sector of postsecondary education (Kincaid & Podesta, 1966; Belitsky, 1969; Wilms, 1975 & 1980) are exceptions, though much of this research has methodological flaws and restricted populations. Even scarcer are studies based on national data sets. (Grubb, 1993; Zucker & Dawson, 2001; Bradburn, Nevill, & Cataldi, 2006).

Recently, researchers using data from the 2003 survey of the Baccalaureate & Beyond Longitudinal Study (B&B: 93/03) found that the mean salary for full-time workers ten years after graduating with a bachelor's degree was $60,700 (Bradburn, Nevill & Cataldi, 2006); however, the for-profit sector was not analyzed in this study.

What are the economic returns to graduates from the for-profit sector of postsecondary education, and how do these returns compare with the economic returns to graduates from the traditional sector? Additionally, are the students' demographic and employment characteristics different from students who attend traditional postsecondary institutions? Are the economic returns to education

similar for all bachelor's degree holders from proprietary or for-profit schools, or are their differences in earnings by gender and race/ethnicity?

This study investigates student and labor market variables in the proprietary, for-profit sector of postsecondary education, with a goal to better understand how these variables come together to help explain the economic returns of proprietary school graduates ten years after graduating with a bachelor's degree.

The Theory of Human Capital

The conceptual model used in this study is based on the economic theory of human capital, which has a rich history in its development. The concept of investment in human capital in the United States can be traced back to Adam Smith (1776) and his essay on the nature and causes of a country's wealth formation. Smith suggested that division of labor was the major catalyst in the productivity gains of labor and the formation of wealth. From the colonial period to the late 1950s, education was considered to be a consumption good and therefore its contribution as an additional factor of production (in addition to the factors of land, labor, and capital) was, for the most part, ignored (Bowman, 1966). However, this changed in the late 1950s as a new paradigm emerged – one that recognized education (knowledge) as a new factor of production, and possibly its most important factor.

In 1958, Jacob Mincer brought the role of education and on-the-job training into focus by examining income differences in relation to schooling. Mincer postulated that schooling explained approximately one-third of the inequality of annual earnings, "When earnings are averaged over groups of individuals differing in schooling, clear and strong differentials emerge" (Mincer, 1958, p. 1).

In 1961, Theodore W. Schultz from the University of Chicago delivered the Presidential Address entitled "Investment in Human Capital" at the 73rd Annual Meeting of the American Economic Association in St Louis, Missouri. During this era, income levels in the United States had been increasing at a much faster rate than the combined increases in the amount of land, man-hours worked, and capital stock used to produce income. Reasons for this increase were perplexing to academic economists. Schultz was the first to suggest that traditional economic theory, with its reliance on nonhuman capital, failed to capture the importance of education and its significance in improving incomes at a faster rate than increases in the material capital stocks. According to Schultz (1961), it was knowledge and skills, in addition to the physical stock of capital, which accounted for the economic advancement of the industrialized countries like the United States.

The early works of Mincer (1958; 1974) and the views of Schultz (1961) encouraged others to investigate the *returns* to human capital investment, and a few years later Gary S. Becker (1975) from the University of Chicago published

his preliminary monograph on the returns to education, which provided a theoretical framework for human capital's contributions to economic growth and the expansion of societal investment in education. In 1992, Becker earned the Nobel Prize in Economics for his seminal work on the returns to education and education's contribution to productivity. One of the distinguishing characteristics of Becker's work was his use of an internal rate of return to assess the benefits of continued investment in human capital through schooling and on-the-job training (Bowman, 1966; Becker, 1975; Sobel, 1978). Under this nascent economic rubric, education would move from a consumption function to an investment function, judged by its yield or return rather than by its cost.

The empirical evidence for the theoretical support of human capital theory appears quite straightforward. In its simplest form, the theory attempts to answer the question, "what is the internal rate of return compared to other possible returns that an investment in a college education will make on future earnings?" If the internal rate is higher than an individual could earn from alternative investments, then the investment in education, from a purely monetary perspective, would be deemed a good investment. Becker's (1975) work investigated the lifetime returns to investments in human capital by taking into consideration not only the immediate out-of-pocket expenses (tuition, books, etc.), but also the present value of lost or forgone earnings while pursuing the human capital investment. Becker argued that the future income returns resulting from additional education more than exceeded the costs, including foregone earnings.

Around the same time, Mincer (1974) also used aggregate earnings in developing his model of the relationship between schooling and earnings using a log-linear earnings equation. According to Mincer (1974), "if log earnings are used, then the investment variables can be expressed in units of time–years of schooling and years of experience" (p. 130). This specification also allows the returns to education to be expressed as a percentage. The pioneering work in human capital theory undertaken by Mincer (1958; 1974), Schultz (1961), and Becker (1975) had set the stage for further studies guided by the precepts of human capital theory.

Conceptual Framework

The framework used in this investigation was the seminal theory of human capital as posited by Mincer (1958; 1974) and Becker (1975). Put simply, this framework attempts to answer the question; "what is the economic benefit of education on future earnings?" Previous research had found that enrollment in postsecondary schooling positively correlated with earnings – that is, more years of schooling, on average, equate to a higher level of earnings. (Mincer, 1958; Schultz, 1961; Becker, 1974; Card & Krueger, 1996). Moreover, the income gain over a lifetime for college graduates compared to high school graduates was substantial (Cohn & Addison, 1998; Zucker & Dawson, 2001; Ingels, Curtin, Kaufman, Alt & Chen, 2002; Perna, 2003; Bailey, Alfonso, Scott & Leinbach, 2004a).

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Figure 1 illustrates the variables under investigation in this study on the

economic returns to a proprietary, for-profit bachelor's degree ten years after

graduating from college. The variables selected for investigation were as follows:

Control of Institution

- Public
- Private, Not for-Profit
- Private, For-Profit

Demographic Characteristics

- Gender
- Race/Ethnicity
- Parental Education Level
- Marital Status

Labor Market Outcomes

Employment Variables

- Labor force participation rates
- Job related to academic major

Student Academic Characteristics

- College major
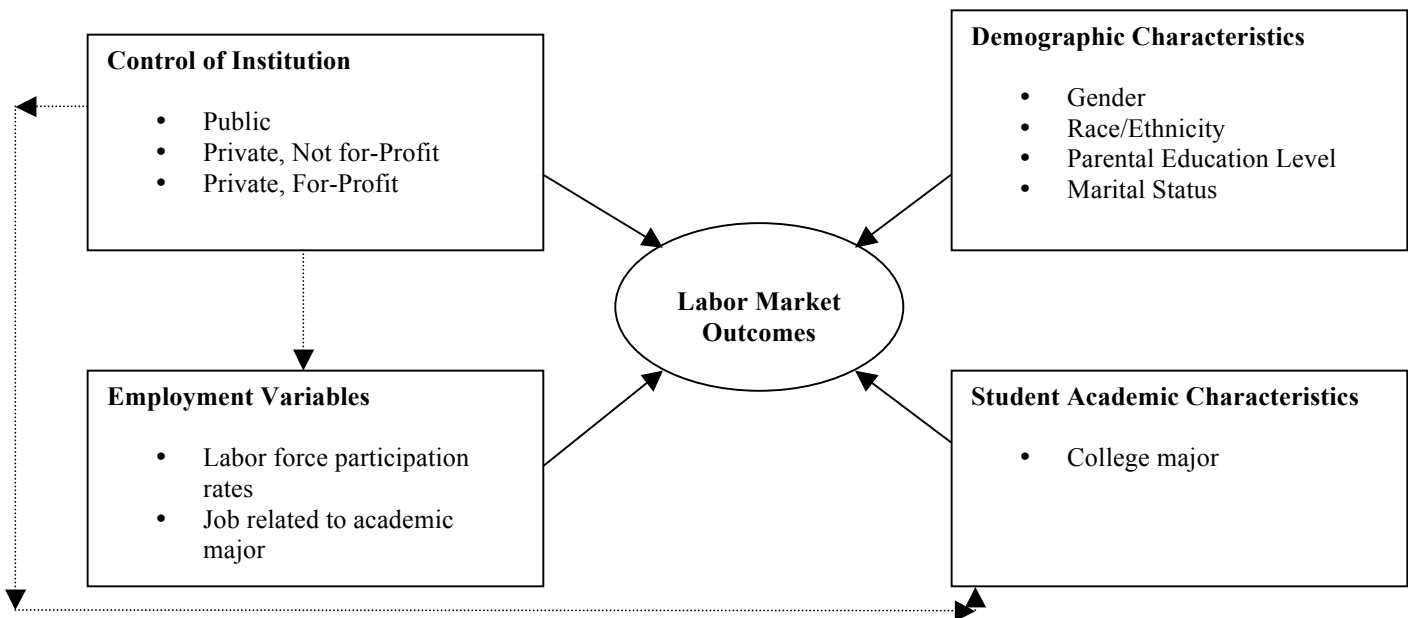
Figure 1. Variables Related to Labor Market Outcomes for Graduates of Public,

Private, Not for-Profit, and Proprietary, For-Profit Postsecondary Institutions.

The relationships between and among these selected variables were used to

answer the following research questions that were the focus of this inquiry

regarding the for-profit sector of postsecondary education.

<u>Research Questions</u>

Of interest to this study are the average earnings of bachelor's degree recipients, their labor market experiences ten years after their graduation, and control of institution. In other words, did the type of educational institution (public, private, not-for-profit, or private, for-profit) have an effect on average earnings?

The three research questions framing this inquiry are as follows:

1. What are the demographic characteristics and academic majors of graduates of bachelor's degree programs, and how do they vary by control of institution?

2. What are the average earnings of graduates ten years into their labor market experience, by gender, race/ethnicity, and control of institution?

3. Are the economic returns for a bachelor's degree similar for all graduates, or are there differences by gender, race/ethnicity, parental education, marital status and control of institution?

Significance of the Study

There are four main groups interested in the outcomes of this study: students and their parents, taxpayers, employers, and policymakers. At the individual level, one usually attempts to understand how the expenditure of both time and monies pursuing an education will "pay off" in terms of monetary benefits. The relationships between the amount, type of education, and earnings in the traditional sectors of postsecondary education (public and private, not for-profit institutions) had been well established and documented (Mincer, 1974; Becker, 1975; Card & Krueger, 1996). However, the answers to the following questions remained unanswered in the literature. What is the relationship between education received at the baccalaureate level from a proprietary institution, and wage earnings? How do bachelor's degree holders from proprietary institutions perform in the labor market when measuring their earnings against their counterparts who graduated from traditional sectors of postsecondary education?

The bachelor's degree-granting for-profit sector of postsecondary education has grown from approximately 15 institutions and 44,000 students in 1976 to 453 institutions and almost 750,000 students in 2006 (Snyder, Dillow & Hoffman, 2009). Information concerning the potential economic benefits is important for the three-quarters of a million students attending the for-profit sector as well as those contemplating attending for-profit schools.

Taxpayers, whose taxes support student tuition bills, have become more vocal in their demands for accountability from the entire postsecondary

educational system (Kirp, 2003). The advent of organized education has to some extent shifted the burden of education to the public, supported in large part from general tax dollars. From society's point of view, education had been deemed a public good and therefore worthy of public support. Increasingly however, direct public support at the postsecondary level has been curtailed or in some instances withdrawn entirely. A more informed understanding of the economic benefits to students who graduate from the for-profit sector will now allow for more informed decisions, especially along the lines of equity and access.

Employers are keenly interested in having new employees 'hit the ground running' and therefore be productive. Moreover, employers had complained a divide existed between what is learned in the classroom and what is needed on-the-job (Bastedo, Batkhuyag, Prates & Prytula, 2009). Proprietary education had historically focused on getting individuals into the job market through a variety of educational and training programs and therefore helping to bridge this learning gap. However, little evidence existed that the proprietary sector's vocationally-oriented curriculum enabled their graduates to take their place in society at levels comparable to graduates of traditional postsecondary institutions.

Lastly, policy makers had required more and better information on which to ground decisions and policy initiatives. In the 2006-2007 academic year, expenditures by all educational institutions in the United States were approximately $972 billion dollars. Postsecondary institutions accounted for approximately $370 billion or 38 % of the total expenditures (Digest of Education

Statistics, 2007). Education in the United States had become big business, accounting for almost 7 % of gross domestic product.

Moreover, as the varied assortment of providers of postsecondary education grew, the historical ways to assess performance focused on endowment amounts, selectivity in enrollments, and faculty credentials. These metrics were essentially inputs into the educational process and were no longer the only acceptable criterion on which to judge institutional performance. Increasingly, stakeholders had requested that institutional performance be assessed on outputs, including how postsecondary graduates fare in the labor market. The process of satisfying this mandate, in part, required that the providers of postsecondary education became more transparent in collecting and disseminating information that would help decision-makers regarding investments in postsecondary education. This study contributes to a better understanding of one of the key outputs of postsecondary education–labor market outcomes. Moreover, the investigation extended the body of literature on the returns to education by analyzing the proprietary sector – a subpopulation of postsecondary education – to review economic returns approximately ten years after these students had attained their baccalaureate degree.

CHAPTER II

REVIEW OF RELATED LITERATURE

Overview

       The following review of the literature on the proprietary sector of

postsecondary education focused on (a) characteristics of students attending the

for-profit sector, (b) institutional characteristics that, in some measure, distinguish

this sector from public and private not-for-profit institutions, (c) the theory of

human capital and its relationship to labor market outcomes, and (d) a review of

the literature addressing the monetary returns to education. Much of the

contemporary statistical and descriptive data were provided by the National

Center for Education Statistics (NCES), while the historical perspective and the

economic returns to education came from a review of the extant literature on

student and institutional characteristics in the proprietary sector of postsecondary

education.

What We Know About Proprietary Students

       To understand student characteristics, it is useful to first set forth two

broad definitions of postsecondary students found in the extant literature –

traditional versus non-traditional. According to the National Center for Education

Statistics (2002), a <u>traditional</u> undergraduate is "one who earns a high school

diploma, enrolls full time immediately after finishing high school, depends on

parents for financial support, and either does not work during the school year or works part time." A <u>nontraditional student</u> is characterized by any of the following: "Delays enrollment beyond the calendar year they finished high school, attends part time, works full time (35 hours or more per week), financially independent for purposes of financial aid, has dependents other than a spouse, is a single parent, and does not have a high school diploma or completed high school with a General Educational Development (GED) certificate." Additionally, Horn and Carroll (1996) postulated a scale of attributes describing a nontraditional student based on the sum of the number of nontraditional characteristics evidenced in a student. Accordingly, a student having one nontraditional characteristic is deemed to be minimally nontraditional; two or three nontraditional characteristics are deemed moderately nontraditional; and students having four or more nontraditional characteristics are labeled highly nontraditional.

It is noteworthy that the percentages of nontraditional students attending all sectors of postsecondary institutions (public, private not for-profit and private for-profit) have been increasing and three-quarters of all undergraduate students have some nontraditional characteristics (U. S. Department of Education, 2002). With these definitions in mind, the purpose of this section is to describe some of the salient characteristics of students who attend proprietary postsecondary institutions.

Student Enrollment–Traditional versus Non-Traditional

According to the U. S. Department of Education, in 2002 the percentage distribution of nontraditional undergraduates in postsecondary institutions approximated three-quarters of all students. Public 2-year and private-for-profit institutions had the highest concentration of nontraditional student enrollment, approximating 89.5 percent and 88.6 percent, respectively. This compared with public and private, not-for-profit institutions that had 57.5 percent and 50.1 percent, respectively, of their student populations classified as nontraditional. When looking at combined totals for students characterized as moderately nontraditional (two or three characteristics) and highly nontraditional (four or more characteristics) the public 2-year and private-for-profit sectors had approximately 75 percent of their student body classified as nontraditional. Public and private not-for-profit institutions had approximately 36 percent of their student body classified as nontraditional. These data indicated the proprietary sector, along with public 2-year institutions, served a much larger percentage of nontraditional students, when compared to traditional institutions.

Gender Distribution of Proprietary Students

The early literature on student characteristics in the proprietary sector (Kincaid & Podesta, 1966; Belitsky, 1969; Wilms, 1975 & 1980) was not uniform on gender characteristics in the for-profit sector. However, in 1995, Cheng &

Levin studied the proprietary sector using data from the 1980 High School and Beyond (HSB) longitudinal study and the three follow-up surveys through 1986. The researchers found that women were twice as likely as men to be enrolled in proprietary schools. A comprehensive study of students who attended for-profit postsecondary institutions exclusively was completed by Phipps, Harrison, and Merisotis (1999). Findings from the Phipps et. al study supported the findings of Chang and Levin (1995), in that students at less than 4-year for-profit institutions were more likely to be women. Subsequent investigations relying on national data sets continued to support the proposition that women account for the majority of enrollments at proprietary institutions (Chang, 2004).

Recent aggregate enrollment numbers from the Digest of Education Statistics (2007) reported that women accounted for 59 percent of total enrollments while men accounted for 41 percent of enrollments in Title IV, bachelor's degree-granting proprietary institutions.

Race/Ethnicity of Proprietary Students

The ethnic composition of student enrollments in postsecondary educational institutions speaks to questions of equity and access. The proprietary sector serves a racially diverse student population, with an over-representation of minority (Black and Hispanic) students. In 2006, minority enrollments in proprietary degree-granting institutions represented 26.7 percent of total enrollments. This is contrasted with public and private not for-profit institutions,

where minority enrollments equaled 19.5 percent and 11.8 percent, respectively (U. S. Department of Education, 2006c).

<div align="center">Risk Factors of Proprietary Students</div>

One of the early researchers to describe what has become known as "risk factors" of students attending for-profit postsecondary institutions was Wilms (1975). In a study comparing differences in student characteristics between proprietary and public institutions, he found that high school dropouts were more likely to attend proprietary schools. Wilms also found that graduates who received their postsecondary education outside the United States were more likely to attend proprietary schools, and moreover, these foreign school graduates were largely minorities and were found to have a low socioeconomic status.

Cheng and Levin (1995) found an inverse relationship between family income, parental educational level, and enrollment in a proprietary school – the lower the family income and parental education level, the more likely one was to attend a proprietary school. Findings from this study, moreover, supported the findings from prior research (Belitsky, 1969; Wilms, 1975) that graduates of urban high schools were more likely to attend proprietary institutions than were graduates of rural or suburban high schools. Employing a different rubric to ascertain student demographic characteristics within the proprietary postsecondary sector, Horn and Carroll (1996) sought to understand the different characteristics of undergraduate students, segmented by control of institution.

Relying on data from the National Postsecondary Student Aid Studies (NPSAS) of 1986-87, 1989-90, and 1992-93, the authors found important differences in student characteristics when investigating control of institution. They showed that approximately 76% of students attending proprietary postsecondary institutions were older than their counterparts at both public and private not for profit institutions. Additionally, approximately 36% of students attending proprietary postsecondary institutions had dependents in addition to a spouse, and approximately one in five was a single parent. The authors also argued that student characteristics among the three sectors (public, private not-for-profit, and for-profit) of postsecondary education were distinct. While not directly related to the for-profit sector of postsecondary education, another study found that the overwhelming majority of career and technical education majors in high school were from the lowest socioeconomic levels (Laird, Chen & Levesque, 2006).

Additional data from the National Center of Education Statistics found that students attending the proprietary sector were "… in the lowest income quartile" (Phipps, Harrison & Merisotis, 1999, p. 8) which concurred with earlier findings from Cheng and Levin (1995) and Horn and Carroll (1996). All of these studies postulated that students who attended for-profit postsecondary institutions exhibited characteristics markedly different from students who attended either public or private, not for-profit postsecondary institutions.

Students attending the proprietary for-profit sector had the largest percentage of nontraditional characteristics in five of the seven categories:

financial independence (72.9%); delayed enrollment (67.8%); dependents (44.3%); single parent (26.6%); and no high school diploma (15.6%) (Cheng & Levin, 1995; Horn & Carroll, 1996; Laird, Chen & Levesque, 2006).

<div style="text-align:center;">Proprietary Sector Student Loan Default Rates</div>

Historically, graduates of for-profit postsecondary institutions have a high rate of default on student loans (Pope, 2009). Data from the National Student Loan Data System (2009) confirmed that students who attended schools in the proprietary sector continued to have default rates almost double that of students who attended public institutions and almost three times that of students who attended private, not for-profit institutions. Students who attended schools in the proprietary sector had a default rate of 9.8 percent, compared to 4.3 percent for public institutions, and 3.6 percent for private, not for-profit institutions. A possible explanation for the high student loan default rates was that the for-profit sector serves a disproportionate share of disadvantaged students and relies almost exclusively (95%) on tuition and fees for their revenues. This high reliance on tuition translated into a higher percentage of students that had financial aid packages comprised of loans versus grants. In the public sector, tuition represented 16.4% of revenues and in the private, not-for-profit sector, tuition accounted for 29.5% of revenue (Digest of Education Statistics, 2007).

What We Know About Proprietary Institutions

This section describes some of the salient characteristics of proprietary postsecondary institutions. Moreover, a review of this literature should enable a better understanding of where for-profit institutional characteristics diverge from traditional institutions, and where the proprietary and traditional sectors are converging.

Student Enrollment by Control of Institution

The Department of Education collects and disseminates information related to education in the United States. Beginning in 1976, the National Center for Education Statistics, one of the primary entities responsible for data collection and analysis of educational statistics, expanded their data collection procedures and began to report statistics on the type of postsecondary institution. For the first time, the new criteria, labeled "control of institution," made a distinction among public institutions, private not-for-profit institutions, and private for-profit institutions.

It was useful to provide enrollment data from 1976; however, it should be noted that the 1976 enrollment numbers include both 4-year and less than 4-year institutions. Nevertheless, the data provided some context to the growth in the numbers of students attending the proprietary sector. In 1976, the total number of students enrolled in all sectors of postsecondary education was

11,012,137. Of the total, 8.6 million students or 78.6 percent were enrolled in

public institutions, 2.3 million students or 21 percent were enrolled in private,

not-for-profit institutions, and only 44 thousand students or .004 tenths of one

percent were enrolled in for-profit institutions (NCES, 1976). For the 2006

academic year, the total number of students enrolled in degree granting and Title

IV eligible institutions were 11,240,834. Of the 11.2 million students enrolled, 6.9

million students or 61.7 percent were enrolled in public institutions, 3.5 million

students or 31.2 percent were enrolled in private, not-for-profit institutions, and

811 thousand students or 7.1 percent were enrolled in private, for-profit

institutions (Digest of Education Statistics, 2008).

<u>Number of Proprietary Postsecondary Institutions</u>

The Department of Education maintains data on schools eligible to

participate in Title IV federal financial aid programs. A condition precedent for

eligibility in Title IV is that the institution is required to report a fair amount of

statistical information to the NCES. However, there are sectors of postsecondary

education that do not participate in Title IV federal financial aid activities and

therefore have limited compulsory reporting requirements. Given the disparity in

reporting requirements, the actual number of for-profit institutions in the

postsecondary universe may be underreported. Despite these limitations, I used

these current data, which included only institutions eligible to participate in Title

IV federal financial aid programs.

In 1976, the NCES began tracking proprietary schools. In that year, the total number of degree-granting for-profit institutions was 15. In the fall of 2006, the total number of degree granting proprietary or for-profit institutions had grown to 979 (Digest of Education Statistics, 2008).

In 1993, of the 120 largest degree-granting colleges and university branch campuses by enrollment, only one proprietary institution was included in the list, and it ranked number 85. In 2006, of the 120 largest degree-granting institutions, the proprietary sector had five institutions listed and the number one position was held by a for-profit institution: the online division of the University of Phoenix.

Distinctive Operating Characteristics of Proprietary Institutions

One of the most distinguishing institutional characteristics of the proprietary sector is its distinctive mission in preparing students for a particular business activity, skilled trade, semiprofessional, personal service, or other vocational activity, in a short period of time (Seybolt, 1971; Miller & Hamilton, 1964; Clark & Sloan, 1966; Trivett, 1974; Honick, 1995; Career College Association, 2005). Another distinguishing characteristic of the proprietary sector is its flexible approach to curricula in meeting and in some cases anticipating, labor market needs. Generally, the proprietary sector has the flexibility to develop, improve, or drop courses rather swiftly compared to its more traditional counterparts (Kincaid & Podesta, 1966; Moore, 1992; Career College Association, 2005). However, proprietary institutions that are degree-granting

institutions are less flexible and this flexibility is being lost as they converge with traditional academe (Clowes & Hawthorne, 1995; Hittman, 1995; Hyslop & Parsons, 1995; Prager, 1995).

For-profit institutions depart from the organizational model of the traditional sectors in many ways, including course scheduling, course duration, applied concepts, faculty, and an acute and mandatory emphasis on job placement after graduation (Levine, 2002; Lechuga, 2006). Class schedules within the for-profit sector are quite varied, with some schools beginning new classes at frequent intervals – some every month or quarter. Courses tend to be shorter in duration with an emphasis on applied techniques honed by an increasing use of clinical/experiential/externships with employers in the industry for which the students are seeking employment (Clark & Sloan, 1964; Miller & Hamilton, 1964; Podesta, 1966; Belitsky, 1969; Career College Association, 2005). Additionally, curricula is developed in cooperation with industry representatives through the use of "advisory boards," which are comprised of both faculty and industry representatives attempting to ensure that what is learned in the classroom has direct and practical implications for what will be experienced in the work environment.

Based on a review of the literature describing proprietary institutional characteristics, it seemed that the proprietary sector, in a number of ways, spent monies differently than public and private not-for-profit institutions. The

following review of the literature expands on these differences to include

expenditures on faculty, and remedial services for students.

Employee Characteristics

The proprietary sector provides education for a profit. Therefore, insights

into how it organizes its resources are an important consideration and valid

inquiry, as would be in any organization with a profit motive. Proprietary degree-

granting schools participating in Title IV federal financial aid programs have 57.8

percent of their total employees classified as faculty. The corresponding numbers

for the Public and Private, not-for-profit sectors are 36.8 percent and 35.3 percent,

respectively. However, when investigating the status of faculty employment, a

dramatic difference was found between the traditional and for-profit sectors. On a

percentage basis, proprietary schools had a larger faculty/total employee ratio;

however, 73 percent of the proprietary sector faculties were employed part-time.

In the traditional sector, part-time faculty positions accounted for 42.3 percent in

public degree-granting schools and 42.2 percent in not-for-profit schools.

Moreover, the student/faculty ratios for the respective types of postsecondary

institutions were as follows: Public, 16.2; Private, not for-profit, 7.9; and for-

profit, 13.6. The student/total staff ratio by institutional type revealed that the for-

profit sector had the highest ratio of students to total staff, approximating 7.8

students for each employee. Private, not-for-profit institutions had the lowest at

five students per staff and Public institutions had six students per staff. Based on

the self-reporting to the NCES, the proprietary sector employs significantly more contingent faculty, and has more students per staff.

<div align="center">Faculty Workloads and Compensation</div>

The average compensation of faculty across institutional control varied considerably, with average compensation of faculty in the for-profit sector appreciably lower than in public and private not-for-profit institutions. The average full-time faculty compensation in the proprietary sector was $52,758, compared to $66,780 and $67,450 in the public and private, not-for profit sectors, respectively (Li, 2006). Moreover, the overwhelming majorities of proprietary schools are teaching institutions concerned with the dissemination of knowledge, and therefore are not primarily engaged in research activities and the subsequent production of scholarly publications. As such, the faculties, most of who are employed on a contingent or part-time basis, spend upwards of 30 hours or more per week in the classroom teaching, which is their primary mandate (Lechuga, 2006).

Additionally, the percentage of the operating budget of each of the three sectors of postsecondary education spent on instruction varied by control of institution. In the proprietary sector, expenditures on instruction accounted for 25.2 percent of the operating budget, whereas instructional expenditures were 34.7 percent in the public sector and 34.9 percent in the private not-for-profit sector (Digest of Education Statistics, 2005).

Student Services, Academic, and Institutional Support

The NCES combines expenditures for student services, academic, and institutional support when reporting expenditure in the for-profit sector, however they are disaggregated in the traditional sectors. This made a direct comparison between proprietary for-profit institutions and traditional institutions problematic for analysis. Nonetheless, data revealed the proprietary sector spent a considerably larger percentage of their operating budget in the areas of student services than traditional sectors. In the 2002-2003 school year, proprietary institutions spent 69.2 percent of their operating budget on student services and academic and institutional support, whereas public schools spent 30 percent and private not-for-profit spent 42.1 percent (Digest of Education Statistics, 2005). Relying on data from the Digest of Education Statistics (2005) the percentage point change in the number of proprietary schools offering remedial services increased 9.9 percentage points from 1997/98 to 2004/05. During this same period, the number of both public and private not-for profit institutions offering remedial services to their students decreased by 9.6 percentage points and 5.8 percentage points, respectively.

In summary, this review of the literature describing institutional characteristics in the for-profit sector confirmed this sector is different from traditional public and private, not-for-profit institutions, especially in the way they allocated their resources. Expenditures for faculty were lower than in the

traditional sectors, while expenditures on student services, academic and institutional support were more than double that of public institutions, and more than one and one-half times that of private not for-profit institutions, on a percentage basis.

Labor Market Outcomes: The Monetary Returns to Education

Labor market outcomes for students of all postsecondary education have developed into an important indicator for evaluating the quality of an educational institution. An extensive literature informs the monetary returns of higher education (Schultz, 1961; Bowman, 1966; Mincer, 1974; Becker, 1975; Sobel, 1978; Card & Krueger, 1996) within the traditional sectors. However, despite the growth of enrollments in the proprietary sector, there is a paucity of literature informing labor market returns in the proprietary sector of postsecondary education, especially studies employing national datasets for their samples. Moreover, I could not find any studies employing a national data set from the NCES that investigated monetary returns to a bachelor's degree received from a proprietary school.

The purpose of this section is to briefly present findings from early studies that investigated economic returns for graduates of for-profit trade schools, studies that compared sub-baccalaureate community college graduates with proprietary school graduates, and finally, contemporary studies based on national datasets. Despite the limitations, this at least provides some context, and shows,

albeit briefly, the evolution of research into the proprietary sector of postsecondary education.

Proprietary Schools: The Early Years

The earliest studies investigating the tangential and direct economic benefits of proprietary postsecondary education found that the for-profit sector was effective in placing graduates in jobs directly related to their education (Kincaid & Podesta, 1966) Additionally, Belitsky (1969) found that high school dropouts who subsequently re-enrolled in proprietary institutions had a 78.5% completion rate and, therefore, the majority of these students completed their programs and graduated and therefore did not become "double dropouts." The finding of high completion rates for students who had previously exited the traditional system was informative given that only 34% of bachelor degree-seeking students graduate from college in 4 years (U.S. Department of Education, 2004). The Training Research Corporation (1987), investigated students attending proprietary trade schools in New York State. Findings from the study concluded that all of the students who completed their program and were placed in jobs related to their education increased their post-enrollment earnings. While none of the above studies are generalizable, they do provide some insights into the economic benefits of for-profit education.

Labor Market Outcomes: The Sub-Baccalaureate Level

A number of studies have compared the labor market outcomes of a proprietary education with a similar education from a community college. Two of the early studies were regional, covering a few states and or metropolitan areas and based on convenience samples. Wolman, Campbell, Jung and Richards (1972) investigated proprietary schools and community colleges in four major metropolitan areas and found the rate of return on the educational attainment for both types of institutions approximated 29%. Stated another way, a student would have had to earn a 29% annual rate of return on the same amount of money invested in schooling in order for the aggregate monetary benefits to equal the increased salary gained as a result of the education.

Wilms (1980) investigated 1,576 students from 29 proprietary schools (less than 4-year) and 21 public community colleges, across four states and in six occupational programs. He found that students attending proprietary schools had 1.5 times greater chance of graduating than students enrolled in community colleges, and graduates of proprietary schools earned more than community college graduates. However, when Wilms analyzed the change in earnings over a 28-month period, controlling for institutional type, the earnings differential between proprietary schools and community colleges was not significant over time. Wilms concluded that the proprietary sector was only more efficient in providing entry level education than public institutions, and recommended a high priority be placed on additional research in the proprietary sector.

One of the studies was state specific (Spencer, 1998) and investigated the differing wage returns to proprietary school versus community college graduates in Nebraska. Spencer found the average wage gap between community college graduates and proprietary schools narrowed from $1,738 in 1993 to $608.00 in 1995, and that the rate of return between the institutional types was competitive. Moreover, in one proprietary school with an emphasis on technical education, the rates of return for students were comparable and sometimes exceeded those for students from the community college sector.

Labor Market Outcomes: Studies Using National Datasets

One of the first research studies using a national dataset was conducted by Grubb (1992). Data from the fifth follow-up of the National Longitudinal Study of the Class of 1972 was analyzed to assess the earnings differentials at the sub-baccalaureate level. Grubb also found that gender differences were evident – but not in the direction that prior research had suggested. Among men, earning a "certificate" from any institution (community college, technical institute, and private for-profit school) had no impact on earnings. Having a vocational associate's degree from a community college had a positive impact, while a similar degree from a for-profit school actually had a negative effect on earnings. With respect to women, Grubb (1992) found that earning a certificate from a community college or a technical institute did have a positive effect on earnings, however the effect diminished once experience was added to the regression

equation. Moreover, a certificate from a for-profit school had no statistically significant effect on earnings. This finding surprised Grubb, since certificates are directly related to specific occupations in the labor market and therefore one could reasonably assume they would have a positive impact on earnings.

Additional research on the returns to education using data from the High School and Beyond Longitudinal Study (HS&B) and the Postsecondary Education Transcript File (PETS) was conducted by Zucker & Dawson (2001). The authors found that men with a bachelor's degree earned, on average, $30,381, while women earned $23,950. They did not look at income controlling for type of institution; however, they did investigate differences in vocational versus academic concentrations. When investigating the average earnings in 1991 along the levels of attainment and gender, men with vocational bachelor's degrees earned more than men with general educational degrees. Women earned slightly less with a vocational bachelor's degree ($124.00 annualized) than with a general bachelor's degree, but earned significantly more for an advanced degree with a vocational orientation – $26,961 versus $23,706 for an advanced degree with a general education focus. Men and women earned more in absolute dollars when comparing associate's degree holders; however this difference was not significant, a finding that concurred with Grubb's (1992) earlier findings.

Relying on data from the 1992 follow-up to the High School and Beyond Longitudinal Study of 1980 (HS&B), Perna (2003) investigated the returns to education and introduced individual characteristics into her analysis by including

race and family income as independent variables. She found that while earnings are related to sex, race/ethnicity, and socioeconomic status, the impact on earnings of graduating with a bachelor's degree was comparable across gender, across racial/ethnic groups, and across socioeconomic status. However, the study did not look at control of institution and therefore was silent on the monetary returns to a proprietary education.

Mahitivanichcha (2003) investigated gender differences in the ways human capital and ability translate into market outcomes. The author used a relatively homogenous sample from a prestigious college (Harvard Class of 1986) where abilities did not significantly differ. Female/male earnings ratio from the 2000 Census data showed that women earned .61 to .74 of what men earned. However, in the Harvard sample the ratio was .60; that is, women earned 60 percent of what men earned. Strober and Chan (as cited in Mahitivanichcha, 2003) also found gender disparities in earnings among the Stanford Class of 1981 ten years after graduation.

In both studies the hours worked per week were similar, with women working approximately 96 percent as much as men. In both homogeneous and diverse samples, women expected to earn less than men.

<center>Labor Market Outcomes: Studies Using Baccalaureate
and Beyond Longitudinal Study</center>

This section of the literature review summarizes the few studies that have

used data from the Baccalaureate and Beyond Longitudinal Study and the

respective follow-ups. It is important to note that no study using the Baccalaureate

and Beyond Longitudinal Study had addressed the economic returns to a

bachelor's degree received from a proprietary school. However, studies using the

Baccalaureate and Beyond Longitudinal data had found differences in earnings

when looking at the traditional sectors of postsecondary education – public and

private not-for profit institutions.

Relying on data from the second follow-up of the B&B: 93/97,

McCormick, Nunez, Shah, and Choy (1999) found the average full-time salary of

graduates in 1997 to be $34,252. While the authors ignored the for-profit sector in

their analysis, they did investigate earnings differences based on type and control

of institution in the public and private not-for-profit segments. The authors found

that, "graduates with bachelor's degrees from private, not-for-profit doctorate-

granting institutions earned, on average, higher annual salaries than graduates

from private, not-for-profit non-doctorate-granting institutions and public

doctorate or non-doctorate-granting institutions ($38,806 versus $33,858,

$34,340, and $31,967)" (p.44). The study also found significant gender

differences in earnings, similar to almost all studies looking at earnings between

genders. Women earned $30,578, while men earned, on average, $8,148 more

than women, or $38,430.

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Another study using data from the B&B first follow-up in 1994 and the second follow-up in 1997 found that the salary for bachelor's degree holders with no graduate education was, on average, $26,464 in 1994 (one year after graduation) and $34,310 in 1997 (four years after graduation) (Horn & Zahn, 2001). Similar to other studies of labor market outcomes, gender differences were found, with women earning less than men. Additionally, this study also found differences in average earnings based on ethnicity and control of institution classifications; however, the for-profit sector was not analyzed in this study. In 1997, four years after graduating with a bachelor's degree, Asian-pacific Islanders earned the highest salary, $39,442, Whites earned the next highest at $34,424, Hispanics earned $32,081, and lastly Blacks earned $30,583. When evaluating salary based on sector of educational institution (type of institution and control of institution combined), findings showed that graduates from private, doctorate-granting not for-profit institutions earned the highest income at $38,962, while public, doctorate-granting graduates earned $34,455. Private non-doctorate not-for-profit graduates earned $33,811; private for-profit graduates earned the fourth highest amount at $33,683, and last were public non-doctorate graduates at $32,201.

Another recent investigation into employment outcomes of the 1992/93 graduating class used data from the third and final follow-up, which was completed in 2003 (B&B: 93/03). Bradburn, Nevill, and Cataldi (2006) found the mean salary for full-time workers in 2003 was $60,700. Similar to other studies

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using this dataset, there was a gender difference in earnings; on average, women earned $50,600 while men earned $69,900. While this study informed economic returns to the receipt of bachelor's degree 10 years after graduation, it did not make a distinction based on the control of institution, which is the primary focus of my inquiry.

The most recent study of labor market outcomes using the B&B was completed by Choy and Bradburn (2008). In this study the authors investigated the labor market experiences of graduates 10 years after graduation with an emphasis on academic versus career-oriented majors. The study did not address control of institution variables, and therefore was silent on the outcomes of graduates from the for-profit sector. Nevertheless, the study did inform the returns to college for participants in the B&B survey who graduated with a career-oriented major versus an academic major. According to the authors, the average annual salary for all bachelor's degree holders was $60,600 in 2003. As a group, career-oriented majors earned more than their counterparts with academic majors. Career-oriented majors earned on average $61,700 whereas academic majors earned $58,300. The absolute dollar difference was found to be statistically significant at an alpha level of $p<.05$. However, when other variables were taken into account, the earnings difference was no longer significant.

Summary

This chapter has reviewed the relevant literature regarding the economic returns to education at various levels. The review has focused on the returns to education in general, the returns to education in the for-profit sector, the returns to education in the sub baccalaureate sector, and finally the returns to education at the baccalaureate level. The review of the literature has shown there is no consensus regarding the economic benefits of a proprietary for-profit education. Early, non-generalizable, studies have shown both direct and tangential benefits to attending a for-profit school (Belitsky, 1969; Wilms, 1975; and Bailey, Alfonso, Scott, & Leinbach, 2004)   More contemporary studies using national data sets have contradicted this assertion, albeit at the sub-baccalaureate level.(Grubb, 1992). Studies using national data sets at the baccalaureate level have not specifically investigated the economic returns to a for-profit education, although these studies have investigated differing returns within traditional segments of academe. Additionally, studies using the Baccalaureate and Beyond Longitudinal data set have found differences in earnings based on gender, educational sector, ethnicity, and in career-oriented versus academic majors. All of these investigations have ignored the proprietary sector.

This study bridges the gap in the relevant literature by investigating the relationship between bachelor degree holders' incomes and the type of postsecondary institution they graduated from with a particular emphasis on the proprietary sector. The existing research literature does not specifically address

this subpopulation of bachelor's degree holders. This study defined and described the characteristics of graduates from proprietary institutions. Additionally, the investigation analyzed characteristics of students and graduates of proprietary institutions to determine what, if any effect these characteristics have on understanding the economic returns to a for-profit education.

CHAPTER III

METHOD

<u>Overview</u>

This study investigated the labor market outcomes of bachelor's degree holders from proprietary institutions. The goal was to compare the self-reported earnings of graduates from proprietary institutions to those of graduates from private, not-for-profit and public institutions (traditional sectors) ten years after graduation to determine if there were differences in earnings which could be explained by the type of school which they graduated from.

The rationale for selecting a national data file instead of employing a convenience sample will be presented along with a detailed description of the restricted data file. Additionally, the population, sample, and sub-sample are described along with the key variables used in the analysis. The statistical methods used to analyze the data and answer the research questions that framed this inquiry are provided. Authorizations and access to the restricted data file as well as the licensing and confidentiality requirements of working with a restricted data file may be found in Appendix B and C.

This study was guided by three research questions concerning students and their earnings ten years after graduating with a bachelor's degree. The principal research questions that guided this inquiry were:

1. What are the demographic characteristics and academic majors
    of graduates of bachelor's degree programs, and how do they
    vary by control of institution?

2. What are the average earnings of graduates ten years into their
    labor market experience, by gender, race/ethnicity, and control
    of institution?

3. Are the economic returns for a bachelor's degree similar for all
    graduates, or are there differences by gender, race/ethnicity,
    parental education, marital status and control of institution?

Rationale for Selecting Baccalaureate & Beyond Longitudinal
    Study (B&B: 93/03)

Among the large number of surveys from the National Center of

Education Statistics, including the Integrated Postsecondary Education Data

System (IPEDS), High School and Beyond (HS&B), Beginning Postsecondary

Students Longitudinal Study (BPS), National Longitudinal Study of the High

School Class of 1972 (NLS-72/86), only the Baccalaureate & Beyond

Longitudinal Study (B&B: 93/03) contained the variables needed to examine the

question: What are the salaries of bachelor's degree holders from proprietary

institutions, ten years after graduation? Because the dependent variable of interest

(self-reported earnings), and the principal independent variable (control of

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institution), were only available in the restricted data file of the Baccalaureate &

Beyond, it was chosen as the source data file for the investigation. Moreover,

according to the National Center for Education Statistics, the Baccalaureate &

Beyond is the only national study that follows graduates over time. That said, the

variables in the Baccalaureate & Beyond Longitudinal data file have a number of

limitations, which will be described in more detail in chapters four and five.

Accordingly, the B&B: 93/03 provided data useful for policy evaluations

of issues related to education and work ten years after graduation, along with

other variables that may help explain the relationships among these variables and

income (Wine, Cominole, Wheeler, Dudley & Franklin, 2005).

Description of Data Source–Baccalaureate & Beyond Longitudinal
    Study (B&B: 93/03)

The restricted use data file of the Baccalaureate & Beyond Longitudinal

Study (B&B: 93/03) available from the National Center of Education Statistics

(NCES) was used to answer the research questions. This data file provided

information on students who graduated with a bachelor's degree in the 1992-93

academic year. Data for the base year were derived from respondents who

completed the 1993 National Postsecondary Student Aid Study (NPSAS: 93).

Since the base year, there had been three follow-up surveys: one in 1994 (B&B:

93/94), a second in 1997 (B&B: 93/97); and a third and final follow-up in 2003

(B&B 93/03), ten years after the original sample had graduated from college. The

three follow up surveys comprised the longitudinal component of the NPSAS: 93.

According to the methodology report of the Baccalaureate and Beyond Longitudinal Study: 93/03 (Wine, Cominole, Wheeler, Dudley & Franklin, 2005) "the NPSAS: 93 sampling design was two-stage in which eligible institutions were selected first, and then eligible students were selected from eligible, participating institutions"(p.5).

Data for all phases of the full-scale study (the base year: 93, the first follow-up survey B&B: 93/94, the second follow-up survey B&B: 93/97, and third and final survey B&B 93/03) were collected using three data collection approaches: (i) web based, (ii) computer assisted telephone interviews (CATI), and (iii) computer assisted personal interviews (CAPI). The first survey wave (B & B: 93/94) approximated 16,300 possible respondents, the second wave (B & B: 93/97) approximated 11,190 possible respondents, and the last and final survey wave (B & B: 93/03) approximated a possible 10,440 respondents.

The third and final wave (B & B: 93/03) contained the dependent variable of interest (self-reported earnings); therefore additional details are provided about the final survey wave. Of the 10,440 possible respondents to the third wave, the final respondent count was 8,970, which represented an 86 percent un-weighted response rate (Wine, et al., 2005). Of the 8,970 respondents in the third wave survey, 38.2 percent (3420) were surveyed using the web-based tool, 56.5 percent (5070) were surveyed using computer assisted telephone interviews, and 5.3 percent (480) were surveyed using computer assisted personal interviews (Wine, et al., 2005). The overall weighted response rate for the third wave by

control of institution was: public 81.4 percent; private not-for-profit 74.9 percent; and private for-profit 52.6 percent (Wine, et al., 2005, p. 107).

Population, Sample, and Sub-Sample

The population for this investigation was all bachelor's degree holders who earned the degree in 1993. The sample used was the respondents to the Baccalaureate and Beyond Longitudinal Study (B&B 93/03). The base year survey responses from 1993 were used to identify key independent variables used in this investigation, including student demographic characteristics (gender, race/ethnicity, control of institution, undergraduate major and parental educational levels). Additional independent variables (marital status, how closely the respondent's job was related to his or her major area of study, average hours worked per week at primary job, and the relationship of the job to the respondent's academic major) came from the third wave. The dependent variable (self-reported income) was derived from the third follow-up wave of responses completed in 2003 as well.

Students who graduated from for-profit institutions were the principal sub-sample of interest in this inquiry. The mean earnings for this sub-sample were calculated and then their mean earnings were compared to the mean earnings of their counterparts who graduated from public and private not-for-profit institutions.

<u>Variables Used in Study</u>

The variables used in this study were selected based on three principal considerations. First, an extensive review of the literature on the theory of human capital (the theoretical framework that guided this study) provided ample confirmation of variables that have an explanatory effect on earnings (Becker, 1975; Sobel, 1978; Rumberger & Thomas, 1993; Monks, 2000; Perna, 2003; Bailey, Alfonso, Scott, & Leinbach, 2004a; Robst, 2007).

Second, the variables needed to be available in the Baccalaureate and Beyond Longitudinal Study (B&B 93/03) restricted data file. Lastly, the variables that were selected from the Baccalaureate and Beyond restricted data file needed to make possible my ability to answer the research questions that framed this investigation. Table 1 lists and describes the variables that were used in this study as well as the original source from which the data were collected and incorporated into the Baccalaureate and Beyond Longitudinal Study (B&B 93/03).

Table 1   *Summary of Key Variable Names, Labels, and Data Sources Used in the Study*

Variable Name	Variable Label	Source	Variable Name	Variable Label	Source
B3CRSAL	Job 2003: annual salary	B & B: 93/03	SECTOR_B Public Private, not-for-profit Private, for-profit	Type of institution attended in 1992-93	IPEDS 1992
GENDER Male Female	Gender	NPSAS: 93	DADEDUC High School-GED No High School Some Postsecondary Education Bachelor's Degree Advanced Degree	Father's highest education	NPSAS: 93
RETHNIC White Black Hispanic American Indian-Asian & Island Pacific (AI/PI)	Race/ethnicity	NPSAS: 93	MOMEDUC High School-GED No High School Some Postsecondary Education Bachelor's Degree Advanced Degree	Mother's highest education	NPSAS: 93
SMARITAL Married Not-Married Divorced/Separated	Marital Status	NPSAS: 93	JBMAJREL Not Working Closely Related Somewhat Related Not Related	How close job related to major/area of study	NPSAS: 93
BAMAJOR Business & Management Education Engineering Health professions Public Affairs/Social Services Biological Sciences Mathematics & other Sciences Social Science History Humanities Psychology Other	Undergraduate major	B & B: 93/94	B3UGPRA Very Important Not Important	Undergraduate preparation: work and career	B & B: 93/03
			B3CURHRS	2003 job: hours per week at primary job	B & B: 93/03

I examined the relationship between a graduate with a bachelor's degree and their income ten years after graduation and the type of institution from which they received their degree. Additionally, this study investigated how economic returns vary with respect to gender, race/ethnicity, marital status, parental education, relatedness of academic major to job, and hours worked at primary job.

The annual salary of the graduates was the underline dependent variable, and the underline independent variables were gender, control of institution or the type of school from which one graduated, race/ethnicity, marital status, and parental education. Additionally, the relationship of academic major to the type of work and number of hours worked was analyzed.

Statistical Methods

The statistical methods used in this study were descriptive statistics and multivariate linear regression analysis. The data have been analyzed using the integrated statistical software package STATA version 10 in a secured location and on a non-networked computer as per the restricted data license. All confidentiality and security protocols required when using restricted data file were adhered to in this study. The data have been weighted, unless otherwise noted, using the appropriate panel, strata, and primary sampling unit weights provided in the Baccalaureate & Beyond data file. The various statistical commands used in the statistical software were preceded by the svy prefix, which enables STATA to

adjust for the complex survey design of the Baccalaureate & Beyond Longitudinal Study (Wine, Cominole, Wheeler, Dudley & Franklin, 2005).

Descriptive statistics were used to compare the sample (B&B: 93/03) respondents to the broader college going population using data from the Integrated Postsecondary Education Data System (IPEDS) for the academic year 1992-93. A comparison of the data found in the B&B: 93/03 to the broader college-going population provided context to better situate the results and findings of the study. The principal descriptive statistics used in this investigation were measures of central tendency (means) and variations around the mean (standard error and standard deviation), and t-test was used to determine if the average earnings of graduates were different by gender, race/ethnicity and control of institution.

Correlational statistics were used to investigate the possible relationships between and among the key variables used in this study. The intent of a correlational approach is to understand if a relationship exists and, if so, to possibly make predictions. However, it is important to note that correlation is not the same as causation (Babbie, 2004; Gay & Airasian, 2000). Correlation research has been used extensively in the extant literature investigating the relationships between schooling and earnings (Becker, 1975; Card & Krueger, 1996; Perna, 2003; Bailey, Alfonso, Scott, & Leinbach, 2004a).

Multivariate linear regression analysis was used as an extension of correlational analysis to investigate the relationships among the dependent

variable and independent variables and make predictions of the dependent

variable. Regression allowed for the control of various independent variables in

order to better understand their effects on income. Log-linear regression was also

used in this study since the extant literature addressing educations affect on

income is sometimes expressed as a percentage. In a log-linear model, only the

dependent variable is transformed into its natural logarithm. In a log-linear model,

a one unit change in an independent variable, on average, is associated with a

constant percentage change in the dependent variable (Stock & Watson, 2003).

Since this study investigated the wage gaps across race, gender, and control of

institution, these relationships were expressed as percentages.

Table 2

Summary Table of Research Questions and Statistical Treatments

Research Questions	Statistical Treatment
What are the demographic characteristics and academic majors of graduates of bachelor's degree programs, and how do they vary by control of institution?	Descriptive Statistics Student's t-test
What are the average earnings of graduates ten years into their labor market experience, by gender, race/ethnicity, and control of institution?	Descriptive Statistics Student's t-test
Are the economic returns for a bachelor's degree similar for all graduates, or are there differences by gender, race/ethnicity, parental education, marital status and control of institution?	Descriptive Statistics Multivariate linear regression Log-liner regression

First, descriptive statistics provided a statistical profile of the respondents to the Baccalaureate and Beyond Longitudinal Study (B&B 93/03). Secondly, multivariate regression was used to investigate the relationships among the independent variables and the dependent variable, which was the self-reported annualized earnings of the respondents to the third wave of the Baccalaureate and Beyond (B&B:03). Specifically, Weighted Least Squares (WLS) was used since the survey design was complex and weighted. The WLS method mathematically describes the line of best fit for the available data by reducing the differences between the actual data and the line which best fits the data (Field, 2005). The multivariate linear regression model used in this study was as follows:

$$\text{Income} = + \; b_c C_{\text{ontrol of institution}} \; + b_g G_{\text{ender}} + b_r R_{\text{ace}} +$$

$$b_{pe} P_{\text{arental education}} + b_{ms} M_{\text{arital status}} + \quad b_e E_{\text{ducation}} + \; u_i$$

Dummy variables were created for gender, race/ethnicity, and control of postsecondary institution, parental education levels, and marital status of the respondent. However, since I was interested in the earnings of students ten years after they obtained a bachelor's degree, the years of schooling variable was the same for all the students in the sample. A log-linear regression was also used where self-reported income was transformed into the natural log of wages. However since I was interested in the earnings of students ten years after they obtained a bachelor's degree, the years of schooling variable was the same for all the students in the sample.

New York University: Human Subjects

I applied to the New York University Committee on Activities Involving Human Subjects (see Appendix A) for an exemption to full Committee review. The protocol was determined to be exempt from federal oversight at 45 CFR 46.101(b), paragraph (4).

Restricted Data License: Institute of Education Sciences

The restricted use Baccalaureate and Beyond Longitudinal Study (B&B: 93/03) data file was needed to commence the investigation. I applied to and was approved (see Appendix B) by the U. S Department of Education: Institute of Education Sciences Data Security Office (IES) to have access to the restricted use data file of the Baccalaureate and Beyond Longitudinal Study (B&B: 93/03) under Assistant Professor Sean Corcoran (the Principal Project Officer). Use of a restricted use data file from the National Center of Education Statistics requires that certain protocols be followed to insure the confidentiality of the raw data. Under severe criminal and financial penalty, it is prohibited to disclose any individual or institutional information that could possibly identify any respondent to the survey. Given the restricted classification of the data file and the confidentiality agreement, which was a condition precedent to having access to the restricted data file, all computations were done in a secured location and on a stand-alone or non-networked computer node.

Summary

The purpose of this study was to investigate student, institutional, and labor market variables for graduates from proprietary or private, for-profit institutions. The goal was to understand if graduates from for-profit institutions shared labor market experiences similar to their counterparts who graduated from public and private, not-for-profit institutions. Specifically, were the self-reported annualized salaries of for-profit sector graduates different from their counterparts who graduated from the traditional sectors of postsecondary education? Did the various independent variables facilitate an understanding of the economic returns of proprietary school graduates ten years after graduating with a bachelor's degree? Comparisons were made among the graduates from the different types of higher education institutions, and various statistical procedures were applied in order to provide answers to the four over-arching research questions that guided this investigation. An analysis of the self-reported earnings and various independent variables was conducted using both multivariate and log-liner regression analysis to answer the aforementioned principal research question. The findings from this analysis are presented in Chapter Four, which follows.

CHAPTER IV

FINDINGS AND DISCUSSION

Overview

       This chapter presents the findings from the study guided by the three research questions, and discusses the findings in the context of the theory of human capital, the theoretical framework that informed the inquiry.

       I explored the labor market experiences of bachelor's degree holders from private, for-profit institutions using the restricted data file from the Baccalaureate and Beyond study. The principal research question guiding the inquiry was: What do these graduates earn on average, ten years after graduation, and how do their earnings compare with their counterparts who graduated from the traditional sectors of postsecondary education? The foremost goal, therefore, was to examine the differences in the earning outcomes of graduates of for-profit versus not-for-profit and public institutions of higher education. Could the earnings differences among bachelor's degree holders be explained by the type of institution from which they graduated? Additionally, did demographic characteristics, parental educational levels, and marital status assist in a better understanding of their earnings?

       Where appropriate, this study first presents data from the 1992-1993 academic year for the total undergraduate population, in order to provide a context for the sample in the Baccalaureate and Beyond surveys. Information on

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the total college going population is derived from the appropriate annual Digest of Education Statistics. According to the Department of Education (2008):

> The primary purpose of the Digest of Education Statistics is to provide a compilation of statistical information covering the broad field of American education from prekindergarten through graduate school. The Digest includes a selection of data from many sources, both government and private, and draws especially on the results of surveys and activities carried out by the National Center for Education Statistics (http://nces.ed.gov/programs/digest).

The Digest of Education Statistics provides a rich source of information about the broader college population from which the Baccalaureate & Beyond sample was taken, and therefore provided context for the study. Proceeding in this manner enables the reader to situate the survey data from the Baccalaureate & Beyond in a broader perspective, and provides a more meaningful insight into the collective world of higher education circa 1993.

1993: Total Fall Enrollment by Gender and Control of Institution

This study was interested in the labor market outcomes of bachelor's degree holders; therefore, the aggregate enrollment data from the Digest of Education Statistics was confined to undergraduate enrollment.

According to the Digest of Education Statistics (1995), of the approximately 8.7 million undergraduate students enrolled in bachelor's degree-granting institutions in the 1992-93 academic year, public institutions enrolled 5.8 million students, private not-for-profit institutions enrolled 2.8 million students,

and proprietary institutions enrolled approximately 87,000 students. The data

presented in Table 3 show that in 1993, students enrolled in public institutions

represented 66.9 percent of total undergraduate enrollments; students enrolled in

private, for-profit institutions accounted for 32.1 percent; and the remaining one

percent (approximately 226,815 students) was enrolled in proprietary institutions

(Digest of Education, 1995).

In terms of enrollment by gender (see Table 3), women accounted for the

majority of students in both public and private, not-for-profit institutions. In 1979,

enrollment by women exceeded enrollment by men for the first time, and this

trend continues to the present in both public and private, not-for-profit sectors of

postsecondary education. However, this was not the case in private, for-profit

institutions where men were enrolled in greater numbers than women. This

finding is contrary to the overall enrollment trends in postsecondary institutions.

According to the data, men accounted for 58.6 percent of enrollment in private,

for-profit institutions (Digest of Education, 1995).

In order to determine if the gender enrollment data in the 4-year for-profit

sector was an anomaly, the analysis was extended to capture 1992-93 enrollment

in all 4-year and above institutions of higher education. The data presented in

Table 4 showed that, once again, enrollment in for-profit institutions did not

follow the pattern found in public or private, not-for-profit institutions; men were

enrolled in greater numbers than women. Of the 226, 815 students enrolled in

proprietary institutions, men represented 116, 605 or 51.4 percent while women accounted for 110,210 students or 48.6 percent.

Table 3

1993-Total Fall Enrollment in 4-year Institutions by Gender and Control of Institution (in thousands)

Control of Institution	Enrollment	%	Men %	Women %
Total	8739.8	100.0	46.7	53.3
Public 4-year	5851.7	66.9	46.8	53.2
Private 4-year not-for-profit	2803.3	32.1	46.1	53.9
Private 4-year for-profit	84.6	1.0	58.6	41.4

Note. Data derived from Table 165 in the Digest of Education Statistics 1995

Table 4

Total 1993 Fall Enrollment in 4-Year and Above Postsecondary Institutions

Control of Institution	Total	Men	%	Women	%
Public	11189.1	4984.5	44.5	6204.6	55.4
Private, not-for-profit	2889.5	1326.5	45.9	1563.0	54.1
Private, for-profit	226.8	116.6	51.4	110.2	48.6

Note. Data derived from Table 167 in the Digest of Education Statistics 1995

The racial/ethnic distribution of the broader undergraduate college population is presented in Table 5. For ease of comparison and to accommodate the small sample size, the classifications of American Indian, Alaskan Indian,

Asian, and Pacific Islander were recoded into one race/ethnicity category, hereafter referred to as AI/PI. The data presented in Table 5 indicated that in 1993, the overwhelming majority (75.5 percent) of undergraduate students were White. Black students represented 10.7 percent and Hispanic and AI/PI students represented 7.6 percent and 6.2 percent, respectively. Moreover, irrespective of the race/ethnicity category, more women were enrolled than men in every race/ethnic category. By way of illustration, Black women were enrolled at approximately 1.5 times the rate of Black men, and White, Hispanic, and American Indian women were enrolled at approximately 1.3 times that of men.

The gender distribution within the race/ethnicity categories indicated that women accounted for the majority of undergraduate students in all race/ethnicity categories. The percentage point difference was the largest (10.6) among White students, with White women representing 55.3 percent of enrollments while White men accounted for 44.7 percent. The smallest differential was found in the AI/PI race/ethnicity category, where there was a 9.4 percentage point difference. The Baccalaureate and Beyond sample (the data source for this study) closely approximated the gender and race/ethnicity distribution found in the broader undergraduate population in the 1992-93 academic year.

Table 5

1993-Percentage Total Undergraduate Enrollment by Gender and Race/Ethnicity

(in thousands)

Race/Ethnicity	Total	Men	%	Women	%
White (73.8)	9102.9	4067.6	44.7	5035.3	55.3
Black (10.4)	1288.4	499.0	38.7	789.4	61.3
Hispanic (7.4)	918.0	409.2	44.6	508.7	55.4
AI/PI (6.0)	746.6	361.3	48.3	385.3	57.7
Total	12324.0	5483.7		6840.3	

Note. Data derived from Table 201 in the Digest of Education Statistics 1995 Totals do not equal 100% because non-resident alien enrollment was not included.

Total Respondents to the Baccalaureate & Beyond Base Year: 93

All respondents to the B&B were analyzed and compared to the broader college-going population (Table 3). The total number of respondents and their percentage distribution by control of institution to the 1993 base year of the Baccalaureate & Beyond study are summarized in Table 6.

The data indicated that the respondents to the B&B compared favorably to the enrollment distribution found in the broader undergraduate college population in the 1992-93 academic year.

Table 6

Total Number of Respondents to the Baccalaureate & Beyond Base Year

Survey:93 by Control of Institution

Control of Institution	Total Respondents	Percentage
Total	10, 946	100
Public	7, 113	64.9
Private, not-for-profit	3, 763	34.2
Private, for-profit	88	0.8

1993: Total Number of Eligible Undergraduate Institutions Compared to Total
Number of Institutions Included in the B&B Sample

Table 7 presents the total number of institutions eligible to participate in

the Baccalaureate & Beyond study, along with the actual number of institutions

selected for the survey and their percentage distribution by control of institution.

Table 7

1993: Total Number of Institutions Eligible Compared to the Total Number of

Institutions Included in the Baccalaureate & Beyond Base Year Survey

Control of Institution	Number of Institutions Eligible	Total Number Included	% Included
Total	6358	674	10.6
Public	4972	352	7.1
Private, Not for profit	1285	315	24.5
Private, For-profit	101	7	6.9

The total number of 4-year and above institutions in the1992-93 academic

year approximated 6,358. The number of institutions selected for inclusion in the

Baccalaureate & Beyond sample was 674 institutions. Of the 674 institutions

included in the B&B survey, public institutions represented 7.1 percent, private,

not-for-profit institutions represented 24.5 percent, and private, for- profit

institutions accounted for approximately 6.9 percent of the total eligible

population of institutions.

The confidentiality agreement I executed in order to receive permission to

work with the restricted data file from the National Center for Education Statistics

prohibited a detailed description of any respondent, including institutional

respondents. This is a condition precedent to working with restricted data, and

avoids the possibility that any participant to any of the surveys could be

identified. Because only seven unique private, for-profit institutions were

included in the final sample, I am not able to provide a detailed description. The

sub-sample is so small that almost any description could potentially lead to

identification and therefore violate the confidentiality agreement. That said, of the

seven proprietary institutions included in the B&B sample, all offered a

bachelor's degree, all were accredited by a regional accreditation agency, and one

of the schools could be deemed a specialized vocational school rather than an

academic institution. That said, the institutions included in the B&B sample may

not be representative of the for-profit educational sector.

Research Findings and Discussion

The following section presents the findings from the analyses guided by the three research questions. In addition, a discussion of the findings relevant for each research question will follow along with the appropriate human capital literature that has framed this inquiry.

Research Question One

The first research question asked: What are the demographic characteristics and academic major of graduates of bachelor's degree programs, and how do they vary by control of institution?

Demographic Characteristics: Gender and Race/Ethnicity

The first demographic characteristic investigated in this study was gender. We know from the data presented in Table 3 that women accounted for the majority (53.3 percent) of the total enrollment in 4-year institutions in the academic year 1992-93. However, we also know that the gender distribution across enrollment changed when enrollment was analyzed by the control of institution variable. The aggregate enrollment data for the private, for-profit sector showed that men were enrolled in greater numbers than women. This finding is contrary to that found in both public and private, not-for-profit institutions where enrollment by women exceeded that by men (Tables 3 and 4).

Respondents in the public and private, not-for-profit sectors mirrored the

broader college-going population in respect to gender distribution by control of

institution (Table 8). However, in the B&B, graduates from private, for-profit

institutions were predominately women, accounting for 70.0 percent of

enrollments. Table 8 showed the percentage of respondents to the B&B survey by

control of institution. It should be noted however that the small sample size in the

private, for-profit sector may have affected the gender enrollment distribution for

this sector.

Table 8

Total Number of Respondents to the Baccalaureate and Beyond Longitudinal

Study by Control of Institution and Gender

Control of Institution	Total	Male	%	Female	%
Total	10, 946	4934	45.0	6030	55.0
Public 4-year	7, 113	3272	46.0	3841	54.0
Private 4-year Not-for-profit	3, 763	1655	44.0	2107	56.0
Private 4-year For-profit	88	26	30.0	62	70.0

The second demographic characteristic of interest to this study was the

race/ethnicity of the respondents to the B&B. The data presented earlier in Table

5 summarized the race/ethnicity of the total undergraduate population in the 1992-

93 academic year. Whites were the majority at 73.8 percent. Blacks represented

the next largest population at 10.4 percent, and Hispanics and AI/PI students

accounted for 7.4 percent and 6.0 percent, respectively. Table 9 summarizes the

percentage distribution of respondents to the B&B by race/ethnicity and control of

institution. The data summarizing the race/ethnicity for the respondents to the

B&B indicated Whites represented 83.6 percent; Blacks 5.9 percent; Hispanics

5.1 percent; and AI/PI 6.0 percent.

Table 9

Percentage Distribution of Respondents to the Baccalaureate and Beyond

Longitudinal Study by Race/Ethnicity and Control of Institution

Race/Ethnicity	Total	Public	Private Not-For-Profit	Private For-Profit
White	83.6	83.6	83.5	83.8
Black	5.9	5.5	7.3	2.9
Hispanic	5.1	5.2	5.0	6.4
AI/PI	6.0	5.7	4.2	6.9

Reviewing minority enrollment the data indicated that Black and Hispanic

respondents to the B&B who graduated from private, for-profit institutions

accounted for 2.9 percent and 6.4 percent, respectively. However, this finding

may be problematic, as private for-profit institutions historically have served a

larger percentage of minority students than traditional postsecondary institutions.

According to the Digest of Education Statistics (1995), aggregate total

undergraduate minority enrollment in 1993 (Black and Hispanic students) equaled

17.9 percent. That was 8.6 percentage points higher (17.9% versus 9.3%) than the

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number of Black and Hispanic students who responded to the Baccalaureate and

Beyond survey. Table 10 summarized the difference in overall undergraduate

enrollment versus respondents to the Baccalaureate and Beyond survey.

Table 10

Percentage Distribution of Total Enrollment by Race/Ethnicity in 1993 versus

Percentage Distribution of Respondents to the Baccalaureate and Beyond Survey

Race/Ethnicity	Actual Enrollment	Respondents B&B	Percentage Point Difference
White	73.9	83.6	+ 9.7
Black	10.5	5.9	- 4.6
Hispanic	7.4	5.1	- 2.3
AI/PI	6.0	5.4	- 0.6

Academic Major

Academic major has been shown to influence earnings (Thomas, 2001;

Zucker & Dawson, 2001). The Baccalaureate and Beyond provides the

respondent's undergraduate major field of study in twelve categories. (A complete

list of the twelve categories and the major fields of study under each category may

be found in Appendix D.) Table 11 lists the various academic categories and

provides the percentage distribution for the twelve categories by control of

institution.

Table 11

Percentage Distribution of Respondent's Undergraduate Major Field of Study by Control of Institution

Academic Major	Public	Private, Not-For-Profit	Private, For-Profit
Business	20.5	24.8	28.1
Education	14.2	11.4	2.4
Engineering	7.5	4.2	9.8
Health	7.6	6.6	4.2
Public Affairs/Social Services	3.3	3.3	1.3
Biological Science	4.2	5.0	0.5
Mathematics/Other Sciences	5.9	5.6	1.1
Social Science	10.1	9.1	0.0
History	1.5	2.2	0.0
Humanities	7.0	11.5	35.0
Psychology	3.6	3.4	0.0
Other	14.6	12.8	17.5

The most common academic concentrations for graduates of proprietary institutions were humanities at 35.0 percent, followed by business at 28.1 percent, engineering at 9.8 percent, and "other," at 17.5 percent. These four academic concentrations were categorized as follows:

- Humanities – this category includes Spanish; foreign languages; English/American literature;

  creative/technical writing; philosophy; religious studies; clinical pastoral

care; design, speech/drama; film arts; music; art history/fine arts; other fine and performing arts.

- Engineering – includes electrical, chemical, mechanical, civil, or other engineering; engineering technology.

- Business – included accounting; finance; business/management systems; management/business administration; secretarial; business support; marketing/distribution.

- Other – included agriculture; agricultural science; natural resources; forestry; architecture; American civilization; area studies; African-American studies; Ethnic Studies; journalism; communications; communication technology; cosmetology; consumer/personal services; textiles; home economics; vocational home economics including child care; other vocational home economics; paralegal or pre-law; law; liberal studies; library/archival science; military sciences; women's studies; interdisciplinary including environmental studies, biopsychology, integrated/general science, and other interdisciplinary studies; leisure studies; basic/personal skills; city planning; industrial arts including construction and electronics; transportation and other mechanics; commercial art; precision production; air transportation; other transportation; no major.

Labor Market Experiences

The variables investigated in labor market outcomes included the number of hours worked at their primary job along with the relationship of their academic major to their job.

Hours Worked at Primary Job

Graduates of for-profit institutions reported working longer hours at their primary jobs than graduates of both pubic and private, not-for-profit institutions. Table 12 identified the hours worked by gender and control of institution.

Table 12

Hours Worked at Primary Job by Gender and Control of Institution

Gender	Public	Private, Not-For-Profit	Private, For-Profit
Total	42.88	43.52	44.82
Male	46.39	47.97	46.24
Female	40.20	40.24	43.48

According to the data, graduates of proprietary institutions worked on average 44.82 hours per week, while their counterparts from private, not for-profit institutions worked 43.52 hours, and public sector graduates reported working 42.88 hours. Despite the fact that graduates from the private, for-profit sector reported working longer hours per week than their counterparts, their annual

average earnings were the lowest. Graduates from private, for-profit institutions

earned $52,177, compared to $55,947 for graduates of public institutions, and

$56,491 for graduates of private, not-for-profit institutions.

Education Major Related to Work

The respondents were asked in the final wave of the Baccalaureate &

Beyond:03 if they were working, and if so, whether their job related to their

education. Responses to the question of the relationship of postsecondary

education to the job ranged from "closely related" to "not related." Responses

were summarized in Table 13 by control of institution.

Table 13

Job Related to Education by Respondents to the Baccalaureate and Beyond

Longitudinal Study: 03 by Control of Institution

	Public	%	Private, not for-profit	%	Private, for-profit	%
Not Working	109	14.2	52	14.3	4	22.0
Closely Related	259	33.8	131	36.0	8	44.4
Somewhat Related	80	10.4	35	9.6	1	5.5
Not related	317	41.4	145	39.9	5	27.7

Forty-four percent of graduates from private, for-profit institutions

reported that their job was closely related to their education, which was the

highest percentage among the three sectors. Thirty-six percent of graduates from

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private, not-for-profit institutions reported that their job was closely related to their education, and 33.8 percent of graduates from public institutions reported their job was closely related to their education.

Interestingly, the percentage of respondents who reported "not working" when asked about job relatedness to education was highest for graduates of proprietary institutions (22 percent), while the percentage of graduates from public and private, not-for-profit institutions who reported not working were 14.2 and 14.3 percent respectively, a surprising finding given that the average annual unemployment rate in 2003 was 6.0 percent (U. S. Department of Labor, 2009).

Proprietary institutions tend to have a career orientation; a low finding of job relatedness to education could be quite problematic for this sector. However, the fact that 22 percent of the respondents from the private, for-profit sector reported not working may be a greater cause for concern. Possibly the vocational nature of proprietary education is not well received outside of the respective vocational field and therefore an education received from proprietary institutions might not be transferrable to other job endeavors. This may account for the fact that slightly more than one-in-five respondents to the survey who graduated from for-profit institutions in 1993 were not employed when surveyed in 2003.

Discussion of Research Question One

The demographic characteristics of the respondents to the base year B&B
were representative of the broader college-going population in the 1992-93
academic year. A comparison of B&B respondents to the aggregate data from the
Digest of Education Statistics confirmed the representativeness of the B&B
sample. An exception was found in the gender distribution by control of
institution. As shown in Table 8, the gender distribution of respondents in the
public and private, not-for-profit sectors mirrored that of the broader college-
going population. However, in the B&B, the gender distribution of respondents
who graduated from private, for-profit institutions was predominately women
(70.0 percent). This finding was contrary to the gender enrollment distribution
found in the broader college going population of for-profit students, where men
outnumbered women in total enrollments.

Black and Hispanic respondents to the B&B who graduated from private,
for-profit intuitions accounted for 2.9 percent and 6.4 percent, respectively.
However, according to the Digest of Education Statistics (1995), aggregate total
undergraduate minority enrollment (Black and Hispanic students) in 1993 equaled
17.9 percent, which was 8.6 percentage points higher (17.9% versus 9.3%) than
the number of Black and Hispanic students who responded to the Baccalaureate
and Beyond survey. Given their response rate, Black and Hispanic students could
have been underrepresented in the B&B. This could have affected the various

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earning calculations, since Black and Hispanic graduates, on average, earned less than White and AI/PI graduates (Horn & Zahn, 2001).

Unfortunately, the sample size in the private, for-profit sector was not sufficient to enable a through analysis of academic major and its relationship to earnings. Moreover, prior research has shown there is a positive earnings difference associated with vocational sub-baccalaureate degree holders (Bailey, T. Alfonso, M. Scott, M. & Leinbach, T., 2004) and bachelor's degree holders with a career-oriented major versus an academic major (Choy and Bradburn, 2008).

<u>Research Question Two</u>

The second research question was: What are the average earnings of graduates ten years into their labor market experience, by gender, race/ethnicity, and control of institution?

Earnings Within Each Educational Sector

The first part of the analysis compared the average earnings for all graduates within the B&B survey sample. To examine earnings by control of institution, the income data were initially summarized by the key independent variables: public, private, not-for-profit, and private, for-profit postsecondary institutions. The results of this first part of the analysis are provided in Table 14.

Table 14

Weighted Mean Earnings for All Respondents to the Baccalaureate and Beyond

Longitudinal Study: 03 by Control of Institution

Mean (standard deviation)				t (Pr (|T| > |t|))		
All	Public	Private not for-profit	Private for-profit	Public vs. private not for-profit	Public vs. private for-profit	Private not for-profit vs. private for-profit
56081	55947	56491	52177	-0.518	0.564	0.670
(39813)	(40047)	(38560)	(16224)	(0.605)	(0.573)	(0.503)

The weighted mean earnings for all respondents to the final wave of the Baccalaureate and Beyond was $56,081. Students who graduated from private, for-profit institutions were found to have a weighted mean salary of $52,177, while students who graduated from private, not for-profit and public institutions were found to have a weighted mean salary of $56,491 and $55,947, respectively. The earnings difference between graduates of private, for-profit institutions and their counterparts in public and private, not-for-profit institutions was approximately $3,770 and $4,314, respectively. In this analysis, no statistically significant differences existed in the average earnings of the respondents to the Baccalaureate and Beyond by the key independent variable, control of institution. The smaller standard deviation found in the private for-profit sector could be due to the concentration of academic majors found for the private, for-profit respondents. In this sub-population, 80.6 percent of the academic majors were concentrated in three fields: business, humanities, and other. Moreover, the small

sample size (N=36) in the private, for-profit sector limited reliability and prevented generalizations beyond the existing sub-sample. Nonetheless, the fact that earnings data on graduates from the private, for-profit sector is available is worthy of analysis and consideration regardless of the data limitations.

Earnings Within Each Educational Sector by Gender

The second part of the analysis for research question two analyzed the mean earnings within each sector of postsecondary education by gender to determine the average salaries of men and women in the B&B sample by control of institution. Table 15 summarizes the earnings for men and women by the key independent variable control of institution. Moreover, Table 15 presents the dollar differences in earnings along with the female/male earnings ratio and the significance of the earnings differentials found along gender.

Table 15

Comparison of Mean Earnings within Each Sector by Control of Institution and Gender

	Mean (standard deviation)		$ Difference	t (Pr ($|T| > |t|$)) Men vs. Women	Female/Male Earnings Ratio
	Men	Women	Difference	Men vs. Women	Earnings Ratio
Public	67019 (47282)	46319 (29030)	-20700	17.414* (<0.001)	69.1
Private not for-profit	67507 (46699)	47307 (25787)	-20200	12.738* (<0.001)	70.1
Private for-profit	63408 (23846)	45703 (2830)	-17705	3.128* (0.004)	72.1

* Statistically significant alpha <0.05

A review of the human capital literature strongly supports the existence of a gender gap in earnings between men and women (Grubb, 1992; McCormick, Nunez, Shah & Choy, 1999; Zucker & Dawson, 2001; Perna, 2003; Bradburn, Nevill, & Cataldii, 2006; U. S. Department of Labor, 2009). Was there a gender gap in earnings in the Baccalaureate and Beyond sample by control of institution?

The data presented in Table 15 indicates the existence of a large absolute dollar difference in earnings based on gender and control of institution. With respect to gender, the female/male earnings ratio was considerably less than one, which indicated that women consistently earned less than men. A comparison of the mean earnings for public sector graduates showed that women earned $20,700 less than men. On average, men earned $67,019 while women earned $46,319, or approximately 69.1 percent of what men earned. The gender gap in earnings between men and women in the public sector was statistically significant.

With respect to graduates from private, not-for-profit institutions, women earned, on average, $20,200 less than men who graduated from private, not-for-profit institutions. Similar to the findings in the public sector, this gender earnings gap was significant.

In the for-profit sector, women earned approximately $45,703, versus $63,408 for men. Women earned almost $17,700 less than men - a female/male earnings ratio of approximately 72.1 percent. The results for graduates of private, for-profit institutions were similar to the results found in the other two sectors of

postsecondary education, in that the female/male earnings differential was also statistically significant.

In summary, the data indicated that women earned less than men when comparing mean earnings within the same educational sector or control of institution. The female/male earnings ratio was the lowest for pubic sector graduates (0.69). The female/male earnings ratio was 0.70 for graduates from private, not-for-profit institutions, and was highest (0.72) for graduates of proprietary institutions. Moreover, as shown in Table 15, the dollar difference in annual average earnings between women and men was statistically significant in all three sectors – public, private not-for-profit, and proprietary. However, the gender earning gap was the least pronounced for graduates from for-profit institutions.

Earnings Within Each Educational Sector by Gender and Race/Ethnicity

The third part of the analysis analyzed the mean earnings within each sector of postsecondary education by gender and race/ethnicity to determine the average salaries of men and women in the B&B sample by control of institution. From the above analysis and summary data presented in Table 15, we know a gender gap in earnings does exist across the three educational sectors in the B&B sample. This portion of the analysis addressing research question two analyzed the earnings of men and women by gender and race/ethnicity and explored the significance of any earnings differences found within each of the three

educational sectors. The data presented in Table 16 summarized the findings from

this portion of the analysis.

Table 16

Summary of Mean Earnings Data within each Sector by Gender and

   Race/Ethnicity

	Mean (standard deviation)		t (Pr ($|T| > |t|$))
	Men	Women	Men vs. Women
Public:	67019 (47282)	46319 (29030)	17.414 (<0.001) *
White	67634 (48782)	45882 (28755)	16.697 (<0.001) *
Black	60543 (18581)	46513 (15963)	5.205 (<0.001) *
Hispanic	65342 (28708)	44297 (17134)	6.260 (<0.001) *
AI/PI	63482 (29201)	54908 (23165)	2.263 (<0.025) *
Private not for-profit:	67507 (46699)	47307 (25787)	12.738 (<0.001) *
White	67482 (47782)	47203 (25825)	11.686 (<0.001) *
Black	63188 (42976)	46399 (20519)	2.796 (<0.001) *
Hispanic	66090 (20980)	47764 (11098)	5.724 (<0.001) *
AI/PI	72826 (21904)	50994 (12803)	4.921 (<0.001) *
Private for-profit:	63408 (23846)	45703 (2830)	3.128 (0.004) *
White	68034 (26136)	40302 (3295)	4.213 (<0.001) *
Black	N/A	N/A	N/A
Hispanic	N/A	N/A	N/A
AI/PI	N/A	N/A	N/A

*Significant at an alpha p < 0.05

N/A= Cell size too small for comparison

Public Sector Graduates

The average earnings of all public sector graduates ten years into their labor market experience was $55,947 in 2003, as per the data presented earlier in Table 14. Parsing the aggregate earnings data by gender showed that men earned, on average, $67,019, while women earned $46,319. Therefore, the female/male earning ratio for public sector graduates was 0.69. The data for graduates of public institutions also showed that men earned more than women irrespective of which sector one graduated from and irrespective of race/ethnicity.

Additional segmentation of the earnings data by race/ethnicity showed that White men earned, on average $67,634 and White women earned $45,882, or approximately one-third less than men. Black men who graduated from public institutions earned the least among their male counterparts from the public sector with average earnings of $60,543. Black women earned $46,513 which was almost $16,000 less than Black men and equaled a female/male earnings ratio of 0.77. Hispanic men were shown to have the second highest mean earnings of men who graduated from public institutions at $65,342. However, Hispanic women earned, on average, $ 44,297, or approximately one-third less than Hispanic men. American Indians- Asian and Pacific Island (AI/PI) men were shown to have the third highest level of mean earnings at $63,482. AI/PI women earned, on average, $54,908 or approximately $8,574 less than AI/PI men. While AI/PI men earned more than AI/PI women, the difference in earnings was the smallest of all the

other race/ethnicity categories; AI/PI women earned approximately 86 percent of what AI/PI men earned.

The earnings data presented in Table 16 strongly evidenced an absolute dollar difference in earnings between men and women who graduated from public institutions. White, Black, and Hispanic women earned approximately 25 percent to 33 percent less than their male counterparts. While AI/PI women evidenced the smallest gender gap in earnings, their average earnings were still 14.0 percent less than AI/PI men. Moreover, the gender earnings gap for public sector graduates was found to be significant both in the aggregate and also when analyzed by race/ethnicity. In all race/ethnicity categories, women earned less than men, and the differences were significant.

In summary, the earnings data for graduates of public institutions by gender and race/ethnicity presented in Table 16 distinctly exposed an absolute dollar difference in earnings between men and women who graduated from public institutions. Additionally, the gender earnings gap between men and women was significant across all race/ethnicity categories.

Private, Not For-Profit Sector Graduates

The average earnings of all private, not for-profit sector graduates ten years into their labor market experience was $56,491 in 2003, as per the data presented earlier in Table 14. The aggregate earnings data by gender showed that men earned, on average, $67,507 while women earned $47,307. Therefore, the

female/male earnings ratio for public sector graduates was 0.70. The data for graduates of private, not for-profit institutions also showed that men earned more than women irrespective of which sector one graduated from and irrespective of race/ethnicity. This finding is similar to the earlier analysis of public sector graduates.

Additional segmentation of the earnings data for this educational sector by race/ethnicity showed that White men who graduated from private, not-for-profit institutions earned, on average, $67,482 and White women earned $47,203 or approximately 30.1 percent less than men. Black men who graduated from private, not-for-profit institutions earned the least with average earnings of $63,188. This finding is similar to the finding for Black graduates of public institutions who also earned the least in that educational sector. Black women earned $46,399 which was approximately 73 percent of what Black men earned. Hispanic men were shown to have mean earnings of $66,090 while their female counterparts earned $47,764 or 27.8 percent less than Hispanic men. AI/PI men were shown to have mean earnings of $72,826, while AI/PI women had average earnings of $50,994 or 30 percent less than AI/PI men. .

In summary, the earnings data for graduates of private, not-for-profit institutions by gender and race/ethnicity presented in Table 16 distinctly exposed an absolute dollar difference in earnings between men and women who graduated from private, not-for-profit institutions. Additionally, the gender earnings gap between men and women was significant across all race/ethnicity categories. This

finding of gender earnings inequality coincides with the finding for graduates of pubic sector institutions presented earlier.

Private, For-Profit Sector Graduates

The average earnings of all private, for-profit sector graduates ten years into their labor market experience was $52,177 in 2003, as per the data presented in Table 14. Parsing the aggregate earnings data by gender showed that men earned, on average, $63,408, while women earned $44,703. Therefore, the female/male earnings ratio for private, for-profit sector graduates was 0.71. The data for graduates of private, for-profit institutions also showed that the difference in earnings between men and women was significant. This finding is similar to the earlier analysis of public sector graduates and private, not for-profit sector graduates, where a significant gender gap in earnings existed between men and women.

Additional segmentation of the earnings data for this educational sector by race/ethnicity showed that White men earned, on average $68,034 and White women earned $40,302, or approximately 59.0 percent of what men earned who graduated from for-profit institutions. The earnings difference between White men and White women was also significant. This finding is similar to the earlier analysis of public sector graduates and private, not for-profit sector graduates. Unfortunately, sample size in the for-profit sector was too small to facilitate meaningful comparisons of earnings by gender and race/ethnicity excepting the

White race/ethnicity category where there were 31 respondents (Men=15 & Women=16).

In summary, the data presented in Table 16 clearly evidenced the existence of a gender gap in earnings between men and women in the Baccalaureate and Beyond sample. In each of the three educational sectors (public, private, not for-profit, and private, for-profit) and in each of the race/ethnicity categories women earned less than men and the difference in earnings were significant in all cases. Unfortunately, the data for the for-profit sector was not sufficient to permit a more granular analysis of earnings along gender and race/ethnicity. Still, the analysis showed that men who graduated from for-profit institutions earned more than women who graduated from a like-kind institution, and that the difference was significant. Moreover, in the White race/ethnicity category for this sector, a gender gap in earnings was found and the earnings differential was significant.

Earnings Across Educational Sectors by Gender and Race/Ethnicity

The final part of research question two analyzed average earnings across the three educational sectors by gender and race/ethnicity. In other words, this portion of the analysis was focused on comparing the average earnings of men and women across private, not for-profit and private, and for-profit institutions. Were there earnings differences and if so, were they significant? Prior analysis in this paper had shown gender earnings gaps among graduates within the same

educational sector – i.e., women from public institutions earned less than men

from public institutions, therefore would this earnings disparity continue across

educational sectors. Table 17 summarized the average earnings by the principal

independent variable, control of institution, along with gender and race/ethnicity,

and provided a summary of the significance of earnings differences by gender and

race/ethnicity among the various educational sectors.

Table 17   *Mean Earnings Differences between Educational Sectors by Gender and Race/Ethnicity*

	Public	Mean (standard deviation) Private not-for-profit	Private for-profit	t (Pr (|T| > |t|)) Public vs. private not-for-profit	Public vs. private for-profit	Private not for-profit vs. private for-profit
Total Men	67019 (47282)	67507 (46699)	63408 (23846)	0.258 (0.796)	0.324 (0.746)	0.371 (0.711)
Total Women	46319 (29030)	47307 (25787)	45703 (2830)	0.997 (0.319)	0.090 (0.928)	0.264 (0.792)
White Men	67634 (48782)	67482 (47782)	68034 (26136)	0.073 (0.942)	-0.317 (0.975)	-0.045 (0.964)
White Women	45882 (28755)	47203 (25825)	40302 (3295)	-1.244 (0.893)	0.776 (0.438)	1.068 (0.286)
Black Men	60543 (18581)	63188 (42976)	N/A	-0.419 (0.676)	N/A	N/A
Black Women	46513 (15963)	46399 (20519)	N/A	0.043 (0.966)	N/A	N/A
Hispanic Men	65342 (28708)	66090 (20980)	N/A	-0.134 (0.894)	N/A	N/A
Hispanic Women	44297 (17134)	47764 (11098)	N/A	-1.481 (0.140)	N/A	N/A
AI/PI Men	63482 (29201)	72826 (21904)	N/A	-1.900 (0.060)	N/A	N/A
AI/PI Women	54908 (23165)	50994 (12803)	N/A	-0.884 (0.378)	N/A	N/A

*significant p < 0.05

N/A= cell size too small for comparison

The analysis of earnings for all men by control of institution showed that men who graduated from public institutions earned, on average, $67,019. Men who graduated from private, not-for-profit institutions earned the most at $67,507. Men who graduated from private, for-profit institutions earned, on average, $63,408.

Men who graduated from public institutions earned $488.00 less than their counterparts from private, not-for-profit institutions, and approximately $3,600 more than their counterparts from private, for-profit institutions. Men who graduated from private, for-profit institutions earned approximately $4,099 less than their counterparts from private, not-for-profit institutions and $3,611 less than their public institution counterparts.

In order to establish if the earnings differences among men were significant across educational sectors group means were compared to determine the t-statistic and statistical significance. The difference in average earnings between men who graduated from public institutions and men who graduated from private, for-profit institutions approximated $3,600; however, this difference was not significant. The largest absolute dollar difference in average earnings of men was found between graduates of private, for-profit institutions and their counterparts who graduated from private, not-for-profit institutions. On average, the earnings difference was found to be approximately $4,100; however; this earnings differential was not statistically significant.

In summary, the investigation into the average earnings of men established the existence of an absolute dollar difference in average earnings for men across the three educational sectors. However, none of the earnings differences for men by control of institution were found to be significant.

The analysis of earnings for all women by control of institution showed that women who graduated from public institutions earned, on average, $46,319. Women who graduated from private, not-for-profit institutions earned the largest amount at $47,307. Women who graduated from private, for-profit institutions earned, on average, $45,703.

Women who graduated from public institutions earned $988 less than their counterparts from private, not-for-profit institutions, and approximately $616 more than their counterparts from private, for-profit institutions. Women who graduated from private, for-profit institutions earned approximately $1,604 less than their counterparts from private, not-for-profit institutions.

The earnings of women were compared by control of institution to determine statistical significance. The difference in average earnings between women who graduated from public institutions and women who graduated from private, for-profit institutions was small (approximately $616), and the difference was not significant. The largest absolute dollar difference in average earnings of women was found between graduates of private, for-profit institutions and their counterparts who graduated from private, not-for-profit institutions. On average,

the earnings difference was found to be approximately $1,604; however, this earnings differential was not statistically significant.

In summary, the investigation into the average earnings of women established the existence of an absolute dollar difference in average earnings for women across the three educational sectors. However, none of the earnings differences for women by control of institution were found to be significant.

Earnings across Educational Sectors by Gender, Race/Ethnicity and a Comparison of Earnings against the Reference Group

The final portion of research question two analyzed the average earnings of men and women by race/ethnicity across the three educational sectors (public, private, not for-profit, and private, for-profit) and compared the earnings of White bachelor's degree holders (the reference group) to Black, Hispanic and AI/PI bachelor's degree holders. Table 18 provides of summary of the findings for this portion of the analysis.

Table 18

Summary of Earning Differences by Gender, Control of Institution, and Selected Race/Ethnicity Categories

| | Mean (standard deviation) | | | | *t* (Pr (|T| > |t|)) | | |
	White	Black	Hispanic	AI/PI	White-Black	White-Hispanic	White-AI/PI
Men:							
Public	67634 (48782)	60543 (18581)	65342 (28708)	63482 (29201)	1.104 (0.270)	0.398 (0.691)	0.808 (0.419)
Private not-for-profit	67482 (47782)	63188 (42976)	66090 (20980)	72826 (21904)	0.577 (0.564)	0.167 (0.868)	-0.746 (0.456)
Private for-profit	68034 (26136)	N/A	N/A	N/A	N/A	N/A	N/A
Women:							
Public	45882 (28755)	46513 (15963)	44297 (17134)	54908 (23165)	0.238 (0.812)	0.580 (0.562)	-3.087 (0.002)*
Private not-for-profit	47203 (25825)	46399 (20519)	47764 (11098)	50994 (12803)	0.255 (0.799)	-0.177 (0.860)	-0.801 (0.423)
Private for-profit	40302 (3295)	N/A	N/A	N/A	N/A	N/A	N/A

*Significant at alpha 0.05

N/A =Cell size too small for comparison

Graduates from Public Institutions

White men who graduated from public institutions earned approximately $7,100 more per annum than their Black counterparts – $67,634 versus $60,543. However, as per the t-statistic (0.270), the earnings differential was not significant. White men who graduated from public institutions earned approximately $2,292 more per annum than Hispanic men; however, the difference was also not significant (0.691). Comparing the average earnings of White men to AI/PI men showed that White men earned approximately $4,152 more per annum than their AI/PI counterparts. However, as per the t-statistic (0.419), this earning differential was not significant.

White women who graduated from public institutions earned approximately $631 less per annum than their Black counterparts – $45,882 versus $46,513. However, as per the t-statistic (0.812), the earnings differential was not significant. White women who graduated from public institutions earned approximately $1,585 more per annum than Hispanic women; however, the difference was also not significant (0.562). Comparing the average earnings of White women to AI/PI women showed that White women earned approximately $9,026 less per annum than their AI/PI counterparts. Moreover, as per the t-statistic (0.002)* this earning differential was significant.

Graduates of Private, Not-For-Profit Institutions

White men who graduated from private, not-for-profit institutions earned $67,483 on average compared to Black men graduates who earned $63,188 or approximately $4,295 less than their White counterparts. However, as per the t-statistic (0.564) in Table 18 the earnings differential was not significant. The finding of no statistical difference in this educational sector coincides with that found for White graduates versus Black graduates from public institutions. Hispanic men who graduated from private, not-for-profit institutions earned $66,090 or approximately $1,393 less than their White ($67,483) counterparts. The earnings difference however was not significant (0.8676).

White men who graduated from private, not-for-profit institutions earned $67,483 on average compared to AI/PI men graduates who earned $72,826 or approximately $5,343 more than their White male counterparts. The earnings differential was not (0.4562) significant. This finding was similar to the findings found when analyzing earnings differences for men by race/ethnicity in the public sector. In that earnings comparison White men earned more than AI/PI men on an absolute dollar basis but the difference was not statistically significant.

In the private, not for-profit educational sector White women earned $47,203 which was approximately $800 per annum more than Black women. The small earnings differential was not significant (0.799) and the finding of non-significance coincides with the finding comparing White versus Black women graduates from public institutions. White women earned $47,203 and Hispanic

women earned $47,764 or approximately $561 less per annum. However, this small earnings differential was not significant (0.860). This finding of non-significance is similar to the finding comparing White women versus Hispanic women who graduated from public institutions. AI/PI women who graduated from private, not-for-profit institutions earned, on average, $50,994 while their White counterparts earned $47,203 or approximately $3,791 less. This earnings difference was not significant (0.4234). However, the finding of non-significance is different from the finding when comparing White versus AI/PI women from the public sector where their earnings differentials were found to be significant (0.002).

<div align="center">Graduates of Private, For-Profit Institutions</div>

Unfortunately, sample size (N=36) in the for-profit sector was too small to facilitate comparisons of mean earnings by gender across the various race/ethnicity categories. There were thirty-one White respondents, one Black, two Hispanic, and two AI/PI respondents to the earnings question in the B& B survey. Their responses indicate that men continued to earn more than their women, irrespective of institutional sector.

Percentile Rankings

In general, percentiles provide the relative standing in a population (Gay & Airasian, 2000) and the 50th percentile is the median which indicates that half

the incomes lie above and half lie below the median. The median salary of male

graduates from public institutions was $46,000 for men and $40,000 for women.

Graduates of private, not-for-profit institutions had midpoint earnings of $57,200

for men and $41,000 for women. Graduates from private, for-profit institutions

evidenced midpoint earnings of $53,600 for men and $42,500 for women.

Table 19

Percentile Rankings of Graduates by Gender and Control of Institution

	Public		Private, not for-profit		Private, for-profit	
Percentile	Men	Women	Men	Women	Men	Women
10th	22,880	19,900	29,000	18,936	24,000	22,080
25th	33,000	30,000	40,000	30,000	39,000	26,499
50th	46,000	40,000	57,200	41,000	53,600	42,500
75th	65,000	54,000	80,000	57,600	75,000	54,000
90th	90,000	74,880	104,000	80,000	150,000	60,000

Discussion of Research Question Two

The weighted average annual earnings for all the respondents to the 2003 final

wave of the Baccalaureate and Beyond was $56,081. Students who graduated

from private, for-profit institutions were found to have a weighted mean salary of

$52,177, while students who graduated from private, not for-profit and public

institutions were found to have a weighted mean salary of $56,491 and $55,947,

respectively.

The finding that there were absolute dollar earnings differences between the postsecondary educational sectors has some tangential support in the prior research of McCormick, Nunez, Shah, and Choy (1999). Relying on data from the second follow-up of the B&B: 93/97, the authors investigated the differences between private, not-for-profit doctoral institutions and public doctoral institutions. The authors found, "graduates with bachelor's degrees from private, not-for-profit doctorate-granting institutions earned, on average, higher annual salaries than graduates from private, not-for-profit non-doctorate-granting institutions and public doctorate or non-doctorate-granting institutions." (p. 44).

Bradburn, Nevill, and Cataldi (2006) found the mean salary for all full-time workers in 2003 was $60,700. Similar to other studies using the B&B data set, there was a gender difference in earnings, with mean female earnings of $50,600 and mean male earnings of, on average $69,900. While this study informed economic returns to the receipt of a bachelor's degree 10 years after graduation, it did not make a distinction based on the control of institution, which was the primary focus of my inquiry. Choy and Bradburn (2008) studied labor market outcomes using the B&B and found the average annual salary for all bachelor's degree recipients ten years after graduation was $60,600.

The average earnings of public sector graduates ten years into their labor market experience was $55,947 in 2003. Men earned, on average, $67,019 while women earned $46,319. Therefore, the female/male earning ratio for public

sector graduates was 0.69. The data for graduates of public institutions also showed that men earned more than women, irrespective of race/ethnicity.

White men earned, on average $67,634 and white women earned $45,882, which was approximately one-third less than white men. Black men earned $60,543 and black women earned $46,513 which was almost $16,000 less than black men. Hispanic men earned $65,342 while their counterparts earned $ 44,297 or approximately one-third less. Lastly, AI/PI men earned $63,482 and AI/PI women earned approximately 86 percent of what AI/PI men earned or $54,908. The findings from the analysis of public sector graduates indicated the strong presence of a gender earnings gap between men and women and the differences were significant. This finding supports prior human capital literature where a strong gender gap in earnings was evident (Connor & Kemp, 1987; Horn & Zahn, 2001; Bailey, Alfonso, Scott, & Leinbach, 2004a; Wolford, 2005).

When the earnings were analyzed for men across race/ethnicity categories (within the same gender) absolute dollar differences were found however, none of the earnings differences were significant. The average earnings of female graduates from public institutions by one race/ethnicity category however were significant. AI/PI females earned more than their White, Black, and Hispanic counterparts, and the earnings difference was significant.

According to the Bureau of Labor Statistics (2005) "Asian women were more likely than employed White, Black, or Hispanic women to work in management, professional, and related occupations. Moreover, Hispanic and

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black women were more likely than white or Asian women to work in service

occupations" (p.1). The occupational segregation choices could possibly explain

the earnings gap found within the female category by control of institution.

The average earnings of private, not-for-profit sector graduates ten years

into their labor market experience was $56,491 in 2003. Men earned, on average,

$67,507 while women earned $47,307. The female/male earnings ratio for private,

not-for-profit sector graduates was 0.70, which was found to be significant. The

data for graduates of private, not-for-profit institutions also showed that men

earned more than women, irrespective of race/ethnicity and the differences found

by race/ethnicity were also statistically significant.

White men earned, on average, $67,483 and White women earned $47,203

or approximately 30.1 percent less than white men. Black men earned $63,188

versus $46,399 for black women, which was approximately 73 percent of what

black men earned. Hispanic men earned $66,090 while Hispanic women earned $

47,764 or 27.8 percent less than Hispanic men. Lastly, AI/PI men earned $72,826

while women earned $50,994 or 30 percent less than their counterparts. In every

race/ethnicity category for graduates of private, not for-profit institutions men

earned more than women. The gender earning gaps in this analysis were also

significant. This finding of female/male earnings inequality was identical to the

findings for graduates of public sector institutions.

The finding from analyzing the average earnings of men who graduated

from private, not-for-profit institutions by race/ethnicity showed there were

absolute dollar differences however they were not significant. This finding coincided with the findings above which analyzed graduates from the public sector.

The analysis of the average earnings of women who graduated from private, not-for-profit institutions showed no statistically significant differences in earnings across race/ethnicity. This result however was different from the discovery in the public sector where the average earnings for women graduates from public institutions were statistically different.

The average earnings of private, for-profit sector graduates ten years into their labor market experience was $52,177 in 2003. Men who graduate from private, for-profit institutions earned, on average, $63,408 and women earned $45,703. The female/male earnings ratio for private, for-profit sector graduates was 0.72, which was found to be statistically significant.

The investigation into graduates from private, for-profit institutions was problematic because the private, for-profit sub-sample was too small for a meaningful comparison along gender and race/ethnicity variables. There were thirty-one White respondents, one Black, two Hispanic, and two AI/PI respondents to the earnings question in the B& B survey. Despite the data limitations, a comparison of average earnings was made between white men (N=15) and white women (N=16). White men earned approximately $68,034 while White women earned $40,302 or approximately 60 percent of what men earned. The earnings differential in this sector between men and women was

statistically significant. This finding, albeit with the data limitations, were similar to the findings in both the public and private, not-for-profit sectors where white men earned more than white women and the differences were significant.

With respect to the female/male earnings ratio, the analysis showed that women consistently earned less than men. Women who graduated from public institutions earned $20,700 less than their male counterparts, while women who graduated from private, not-for-profit and proprietary institutions earned $20,200 and $17,705 less than their male counterparts, respectively. Moreover, the dollar difference in mean earnings between men and women graduates were statistically significant in all three sectors – public, private, not-for-profit, and proprietary. The gender earnings gap evidenced in this investigation is in agreement with a large body of labor market literature and therefore supports the existence of a gender gap in earnings between men and women found in the human capital literature (Connor & Kemp, 1987; Horn & Zahn, 2001; Bailey, Alfonso, Scott, & Leinbach, 2004a; Wolford, 2005; U. S. Department of Labor, 2009).

The analysis of mean earnings for men by control of institution showed an absolute dollar difference among graduates from different postsecondary sectors. Men who graduated from private, not-for-profit institutions earned the most at $67,507, while men who graduated from public and private, for-profit institutions earned $67,019 and $63,408 respectively. The differential in earnings among the graduates from the respective educational sectors was the most pronounced for graduates from private, for-profit institutions; they earned approximately $3600

less than their counterparts who graduated from public institutions and $4100 less than their counterparts who graduated from private, not-for-profit institutions. Importantly however, none of the earnings differences among men by control of institution were found to be statistically significant.

The analysis of mean earnings for women by control of institution showed that graduates from private, not-for-profit institutions earned $47,307, the highest across the three educational sectors. Women who graduated from public institutions earned $46,319 or $988 less than their private, not-for-profit counterparts and approximately $616 more than their counterparts who graduated from private, for-profit institutions. Women who graduated from private, for-profit institutions earned, on average, $45,703, which was $1,604 less than their counterparts from private, not-for-profit institutions and $616 less than their counterparts from public institution. There was an absolute dollar difference in the reported earnings among women by control of institution; however, the earnings differentials among women were not statistically significant.

The small sample size (N=18) in the private, for-profit sector limited the reliability of the t-statistic and prevented generalizations beyond the existing sample. Nonetheless, the fact that reported earnings of women across the three educational sectors were not statistically different from one another is noteworthy.

Research Question Three

The third research question was: Are the economic returns for a bachelor's degree similar for all graduates, or are there differences by gender, race/ethnicity, parental education, marital status and control of institution?

Multivariate Linear Regression Analysis

Multivariate linear regression and log-linear regression were the principal statistical methods used to investigate the relationships among the dependent variable (self-reported income) and the independent variables reported by the respondents to the Baccalaureate and Beyond Longitudinal Study (B&B:93/03). To reflect the complex survey design of the Baccalaureate and Beyond the data were weighted by the appropriate strata, primary sampling unit, and panel weights found in the data file. The weighted data were used in all calculations in this study, except the regression analysis found in the Supplemental Analysis section where non-weighted data were used.

Multivariate linear regression was used since it mathematically describes the line of best fit for the available data by reducing the differences between the data and the line which best fits the data (Field, 2005). Additionally, multivariate regression was used to discover the interaction of the independent variables on the dependent variable to determine which of the independent variables contributed to an understanding of graduates' labor market outcomes by determining their statistical significance.

A log-linear regression was also used since many econometric studies attempting to understand earnings or labor market outcomes use the natural log of earnings as the dependent variable (Miner, 1958, 1974; Becker, 1975; Card & Krueger, 1996). In a log-linear model, only the dependent variable is transformed to its logarithm while the independent variables remain unchanged. Converting the dependent variable, which is self-reported earnings, into a log linear form enables percentage comparisons since the various coefficients in the log-linear regression may be interpreted as a percentage change, enabling relatively straightforward interpretation against other groups. Moreover, a log-linear model address the association of categorical or grouped data and looks for the most parsimonious model to help explain the comparative importance of diverse independent variables in predicting the dependent variable (Stock & Watson, 2003).

The principal research question framing this investigation was an attempt to understand if graduates from for-profit or proprietary institutions were earning equivalent wages compared to their counterparts who had graduated from public and private, not-for-profit institutions. To answer this question, multivariate linear regression was used and the regression model and results are presented in Table 20.

Table 20   *Multivariate Weighted Linear Regression Analysis*

Variable	Control of Institution (Std Error)	Demographic Characteristics	Parental Education	Marital Status
Constant	$55,947 (858.80)	$66,855 (1411.78)	$64,781 (1727.73)	$62,507 (1715.95)
Private, for-profit	-3769.64 (5318.64)	-1826.25 (5190.03)	-476.40 (5110.71)	-271.55 (5207.68)
Private, not-for-profit	544.15 (1294.83)	811.77 (1231.71)	596.78 (1179.90)	624.99 (1176.00)
Female		-20,433.50 (1427.04) (0.0005)*	-20,111 (1404.69) (0.0005)*	-19, 997 (1388.16) (0.0005)*
Black		-2367.99 (2145.17)	-1519.88 (2209.78)	-1713.94 (2185.17)
Hispanic		-791.24 (3088.11)	1049.79 (2969.16)	880.73 (2962.26)
AI/PI		2995.25 (2594.25)	2859.90 (2593.67)	2530.79 (2609.07)
Father No High School			-2341.19 (1922.76)	-1984.11 (1902.35)
Father Some PSE			633.94 (1643.51)	432.43 (1648.03)
Father Bachelor Degree			6257.17 (2417.48) (0.010)*	5989.80 (2372.94) (0.012)*
Father Advanced Degree			3275.42 (1877.58)	2995.12 (1849.96)
Mother No High School			-1545.44 (2360.10)	-1270.17 (2356.40)
Mother Some PSE			-1523.15 (1713.75)	-1702.48 (1731.06)
Mother Bachelor Degree			-264.01 (2215.86)	-541.00 (2250.75)
Mother Advanced Degree			1511.91 (2523.02)	1167.29 (2542.28)
Not Married				3169.21 (1223.18) (0.010)*
Divorced/Separated				-8709.02 (3707.93) (0.020)*

The reference groups in the multivariate linear regression were male, graduates from public institutions, father had graduated from high school, mother had graduated from high school, respondent's race/ethnicity was White, and the respondent was married.

The overarching research question framing this inquiry was to understand if graduates from the for-profit sector of postsecondary education were earning comparable wages compared to their counterparts who had graduated from public and private, not-for-profit institutions. The primary finding from the regression was that there were no statistically significant differences in average earnings by the key independent variable, control of institution. The type of institution from which a student graduated had no significant effect on their average earnings. The first regression model contained only the control of institution variable and showed graduates from public institutions, earned $55,947. Students who graduated from private, not-for-profit institutions earned $56,491 or $544.15 more than the reference group; however, this was not statistically significant ($p>0.675$). Graduates from private, for-profit institutions, the sub-population of interest in this investigation, earned $52,178, which was approximately $3769.64 less than their counterparts who graduated from public institutions and $4313 less than their counterparts who graduated from private, not-for-profit institutions. However, while for-profit graduates were shown to earn less in absolute dollars

than their counterparts who had graduated from traditional sectors of higher education, these earning differentials were not statistically significant (p>0.479).

There were, however, statistically significant differences found along gender, father's education level, and the respondent's marital status. Women, according to the regression results, earned $46,422 or approximately 31.0 percent less than what men were shown to earn. This difference was statistically significant at an alpha level of 0.05, as evidenced by the t statistic p<.000 found in Table 20.

Race/ethnicity was not found to be statistically significant although there were absolute dollar differences in earnings by race/ethnicity. The regression analysis presented in Table 20 illustrates the earnings of Blacks was negatively correlated at -$2367.99 (p> 0.271) with the White reference group: although this amount was not statistically significant. Hispanics earned $791.24 (p> 0.798) less than the White reference group while AI/PI graduates earned approximately $2995.25 (p> 0.249) more than their White counterparts; however, none of the race/ethnicity categories were shown to be significant.

The educational level of the respondent's father was found to positively affect the earnings in the multivariate linear regression. The father's educational level was recoded into five educational categories of attainment. The recoded variables used in the regression model were no high school, high school graduate (reference group), some postsecondary education, received a bachelor's degree, and received an advanced degree. It was found that if the respondent's father had

attained a bachelor's degree, the earnings affect on the respondent was significant and the coefficient positive in the amount of $6257 ($p>0.010$). If the father reported not having a high school diploma, the coefficient was negative in the amount of -$2341.19 but was not significant ($p> 0.225$). If the father reported having some postsecondary education, the coefficient was positive in the small amount of $633.94 but was not significant ($p> 0.700$). If the father reported attainment of an advanced degree, the coefficient was also positive in the amount of $3275.42 however, the difference was not statistically significant ($p> 0.082$).

The same recoding used for the father's education was used for the mother's. As such, the mother's educational level was recoded into five educational categories of attainment. However, none of the attainment categories were statistically significant and only one educational attainment level was positively correlated. If the respondent's mother had no high school diploma, some postsecondary education, or a bachelor's degree, the coefficients were negative in the amounts of -$1545.44, -$1523.15, and -$264.01, respectively. If the mother had an advanced degree the coefficient was positive in the amount of $1511.91. However, as stated previously, none of the educational attainment levels of the mother were statistically significant.

The marital status of the respondent was found to have a significant relationship with the dependent variable, self-reported earnings. The marital status variable was recoded into three variables: not married, separated or divorced, and married, which was used as the reference group in the regression model.

Respondents who were not married reported earning approximately $3169.21 (p>.010) more than their counterparts and the difference was significant. Additionally, respondents who were separated or divorced reported earning $8709.18 (p> .020) less than their married counterparts and the difference was significant

Log-linear Regression Analysis

The log-linear regression analysis used the weighted data to reflect the complex sample design used in the Baccalaureate and Beyond Longitudinal Study data file. This approach is consistent with the linear regression analysis that was presented above. The log-linear regression and the results are presented in Table 21.

Many econometric studies attempting to understand earnings or labor market outcomes (Miner, 1958, 1974; Becker, 1975; Card & Krueger, 1996) have used the natural log of earnings as the dependent variable. Converting the dependent variable, which is self-reported earnings, into a log linear form enables straight forward comparisons since the coefficient may be interpreted as a percentage change, enabling relatively easy interpretation against other groups (Stock & Watson, 2003).

Table 21   Log- Linear Weighted Regression Analysis

Variable	Control of Institution (Std Error)	Demographic Characteristics	Parental Education	Marital Status
Constant	10.72 (.0139)	10.91 (.0209)	10.94 (.0245)	10.865 (.0352)
Private, for-profit	.0171 (.1021)	.0499 (.1019)	.0578 (.1015)	.0676 (.1020)
Private, not for-profit	.0119 (.0248)	.0169 (.0245)	.0144 (.0242)	.0140 (.0239)
Female		-.3691 (.0252) (0.0005)*	-.3666 (.0251) (0.0005)*	-.3640 (.0248) (0.0005)*
Black		.0322 (.0406)	.0339 (.0417)	.0330 (.0416)
Hispanic		.0369 (.0552)	.0585 (.0544)	.0563 (.0536)
AI/PI		.1021 (.0419) (0.016)*	.1096 (.0419) (0.009)*	.1024 (.0419) (0.015)*
Father No High School			-.0248 (.0426)	-.0185 (.0422)
Father Some PSE			.0137 (.0351)	.0117 (.0345)
Father Bachelor Degree			.0064 (.0401)	.0029 (.0401)
Father Advanced Degree			.0123 (.0368)	.0081 (.0361)
Mother No High School			-.0374 (.0445)	-.0315 (.0444)
Mother Some PSE			-.0109 (.0372)	-.0154 (.0374)
Mother Bachelor Degree			-.0078 (.0346)	-.0133 (.0349)
Mother Advanced Degree			.0796 (.0388) (0.041)*	.0726 (.0387)
Not Married				.0524 (.0325)
Divorced/Separated				-.4521 (.3741)

The reference groups in the log- linear regression were male, graduated from a public institution, father had graduated from high school, mother had graduated from high school, respondent's race/ethnicity was White, and the respondent was married. The reference groups used in the log-linear regression were exactly the same as used in the multivariate regression analysis. The overarching research question framing this inquiry was to understand if graduates from the for-profit sector of postsecondary education were earning comparable wages compared to their counterparts who had graduated from public and private, not-for-profit institutions. The principal finding from the full model log-linear regression was there were no statistically significant differences in reported earnings by the type of institution from which they graduated. Students who graduated from private, not-for-profit institutions earned approximately 1.4 percent more than the reference group however this was not statistically significant ($p > 0.554$). Graduates from private, for-profit institutions, the sub-population of interest in this investigation, earned approximately 6.8 percent more. However, their earning differentials were not statistically significant ($p > 0.507$).

In the log-linear regression, gender was also found to be statistically significant; however, parental educational attainment and marital status were no longer significant. The AI/PI race/ethnicity classification was positive and significantly related to earnings. This finding was contrary to the multivariate

regression finding where none of the race/ethnicity categories were shown to be statistically significant.

Women in the log-linear regression results earned approximately 36.4 percent less than men. This gender gap in earnings was similar to the finding from the multivariate regression analysis, where women were shown to earn approximately one-third less than men. The gender gap in earnings was statistically significant at an alpha level of 0.05, as evidenced by the p statistic p>0.000 found in Table 21.

In the log-linear regression, the father's educational attainment was not statistically relevant to earnings. This result was different from the finding in the multivariate regression analysis where a father who achieved a bachelor's degree was found to have a positive and statistically significant relationship with earnings. In the log-linear regression if the father reported not having a high school diploma, then the coefficient was a negative 1.8 percent but was not significant (p> 0.662). If the father reported having some postsecondary education or reported an advanced degree the coefficients were a positive 1.2 percent and .08 percent respectively, however they were not statistically significant.

Investigating the effect of the mother's education level, none of the educational levels were significant. If the respondent's mother had no high school diploma, some postsecondary education, or a bachelor's degree the coefficients were negative 3.1 percent, 1.5 percent, and 1.3 percent respectively. If the mother had an advanced degree, the coefficient was found to be a positive 7.4 percent.

However, as stated previously, none of the educational attainment levels of the mother were significant in a statistical sense, although it should be noted that if the mother had an advanced degree, the p value was very close to significant at p>0.58.

The marital status of the respondents in the log-linear regression was found to have no significant relationship with the dependent variable of self-reported earnings. This finding is different than the finding in the multivariate analysis where marital status was found to have an effect.

In the log-linear analysis we find that being AI/PI had a positive impact on earnings. If the respondent was AI/PI their earnings were approximately 10.3 percent higher and statistically significant p>0.015. This was the only race/ethnicity classification found significant in the log-linear analysis. This finding is different than the finding from the multivariate linear regression analysis where race/ethnicity was not found to be statistically significant.

Discussion of Research Question Three

The multivariate linear regression found the key independent variable, control of institution (public institutions; private, not-for-profit institutions; and private, for-profit institutions), were not statistically significant in the full model multivariate linear regressions. The reference group – graduates from public institutions – earned $62,507. Students who graduated from private, not-for-profit institutions earned $63,132 or $625.00 more than the reference group.

Graduates from private, for-profit institutions, the sub-population of interest in this investigation, earned $62,236, approximately $271 less than their counterparts who graduated from public institutions and $896 less than their counterparts who graduated from private, not-for-profit institutions.

The analysis also confirmed the existence of a gender gap in earnings. According to the regression results, women earned $42,510 or approximately one-third less than men. This earnings difference of approximately $19,997 was statistically significant (p< 0.000).

In the multivariate linear regression, only one level of educational attainment for the father had an effect. If the father earned a bachelor's degree, the relationship on earnings was positive in the amount of $5,989 and significant (p<0.012).

The marital status of the respondent was found to have an effect. If the respondent was not married, the relationship was positive with average earnings increasing by approximately $3,169. If, however, the respondent reported being divorced and/or separated, then the relationship was negative with earnings decreasing by $8,709. Being divorced and/or separated (p< .020) and not being married (p< .010) were statistically significant.

The log-linear regression analysis also found no statistical significance in earnings by the key independent variable, control of institution. The finding of no significance in the log-linear supports the earlier finding of no significance in the multivariate linear regression.

The gender gap in earnings between men and women remained evident in the log-linear regression since women earned approximately 36 percent less than their male counterparts. The only other independent variable of significance in the log-linear regression was the AI/PI race/ethnicity category. It was found to be a positive contributor to earnings by almost 10 percent and statistically significant $p<0.015$.

Supplemental Regression Analysis

I was curious to understand if the findings from using the weighted data due to the complex survey design used in the Baccalaureate and Beyond Longitudinal Surveys would have an effect on the key outcomes of this investigation compared to using un-weighted data. As such, I ran both a multivariate linear regression and a log-linear regression using the same dependent variable and independent variables, excepting the data were not weighted.

The un-weighted regression showed some minor changes in which independent variables effected earnings; however, the statistical significance of the principal independent variable, control of institution did not change. Therefore, the weighted and un-weighted data in the regressions produced almost identical results. The un-weighted multivariate linear regression may be found in Appendix E and the un-weighted Log-linear regression may be found in Appendix F.

Summary

This study has attempted to bridge the gap in the relevant literature by

investigating the relationship between bachelor degree holders' incomes and the

type of postsecondary institution they graduated from with a particular emphasis

on the proprietary, for-profit sector. The existing research literature does not

specifically address the for-profit subpopulation of students who have graduated

with a bachelor's degree. This study defined and described the characteristics of

students who have graduated from for-profit institutions. Additionally, the

investigation analyzed these student characteristics to determine what, if any,

effect they have on understanding the economic returns to a for-profit education.

The study showed the overall gender and race/ethnicity distribution in the

Baccalaureate and Beyond sample closely mirrored that found in the broader

undergraduate going population for the academic year 1992-93. However,

enrollment data in the private, for-profit sector appeared skewed. According to

the weighted gender analysis in the Baccalaureate and Beyond; women

represented 70.0 percent while men accounted for 30.0 percent. This finding is

unusual in that in 1993, men enrolled in private, for-profit institutions equaled

58.6 percent and women accounted for 41.4 percent (U. S. Department of

Education, 2006c).

The weighted mean earnings for all respondents to the final wave of the

Baccalaureate and Beyond was $56,081. Students who graduated from private,

for-profit institutions were found to have a weighted mean salary of $52,177, while students who graduated from private, not for-profit and public institutions were found to have a weighted mean salary of $56,491 and $55,947, respectively. The differences in earnings, however, were not statistically significant. As such, the key independent variable in this study, control of institution, was not found to have a meaningful effect of the average income of students who were sampled in the Baccalaureate and Beyond in 2003.

CHAPTER V

SUMMARY AND CONCLUSIONS

Overview

This chapter summarizes the principal research objectives, provides a summary of the relevant literature that explored the monetary returns to postsecondary education, the statistical methods utilized to answer the principle research questions, and the summary findings and conclusions for the three research questions that framed this inquiry. The limitations that constrained the analysis are identified and discussed along with recommendations for future research.

Study Summary

To some extent, the decision to enroll in postsecondary education is predicated on the many advantages, including economic, that college graduates enjoy over those who do not attain a postsecondary education. From a monetary perspective, college graduates earn more on average than people who do not graduate from college. By way of example, the difference in medium earnings between bachelor's degree holders and high school graduates was approximately $22,360 for men and $16,610 for women (U. S. Department of Commerce, 2007). Additionally, bachelor's degree holders have lower levels of unemployment and

higher labor force participation rates. However, while a large body of literature exists about the positive economic returns to education in the aggregate, there is a scarcity of literature that speaks to the economic benefit of attaining a bachelor's degree from a for-profit institution. The lack of information on the monetary returns to a degree from a for-profit institution may have contributed to sub-optimal decisions by college-going individuals. Moreover, policy makers responsible for allocating significant taxpayer monies in the form of Title IV student financial assistance could benefit from this information, given their increasing focus on student outcomes and school accountability.

The principal research objective framing this study was to answer the overarching research question: What were the economic outcomes of graduates with a bachelor's degree from a private, for-profit institution ten years into their labor market experience? Was the type of postsecondary institution one graduated from related to average earnings? While the literature that informed the monetary returns to a college education was extensive, the literature addressing the for-profit sector of postsecondary education was rather limited in scope. A few early studies had investigated the direct and tangential economic merits of for-profit education at institutions that offered certificates (less than two year schools) and institutions that awarded associates degrees (Belitsky, 1969; Wilms, 1975, 1980; Grubb, 1993). However, there was no consensus in the literature regarding the fiscal impact of an education completed at a for-profit institution. The most recent study informing earnings of bachelor's degree holders was conducted by Choy

and Bradburn (2008) using the same sample frame employed in this study, the Baccalaureate & Beyond Longitudinal Study. Choy and Bradburn did not specifically investigate earnings by control of institution, but did compare the earnings between degree holders with "career-oriented" majors versus academic majors. The authors found the career-oriented majors earned more than their academic counterparts, and the difference in earnings by degree type alone was significant. However, missing from the large body of literature that studied earnings for college graduates were studies that specifically investigated bachelor's degree holders from for-profit institutions. Furthermore, earlier studies using the Baccalaureate and Beyond Longitudinal data set had found gender differences in earnings, differences in earnings between graduates from public versus private, not for-profit institutions, differences in earnings based on career versus academic majors, and differences based on ethnicity, but these investigations had ignored the for-profit sector. Therefore, the lack of literature speaking to the economic effect of a for-profit education was the gap that this study hoped to fill.

I reviewed a large body of literature on the economic returns to education to better understand the relationship between the type of college graduated from and the earnings of graduates. Additionally, I decided that I would use a national data set rather than a convenience sample. I reviewed the available public use data files from the National Center of Education Statistics, including the Integrated Postsecondary Education Data System (IPEDS), the High School and Beyond

(HS&B), the Beginning Postsecondary Students Longitudinal Study (BPS), the

National Longitudinal Study of the High School Class of 1972 (NLS-72/86), and

the public use version of the Baccalaureate & Beyond Longitudinal Study,

accessible from the Data Analysis System (DAS) of the National Center of

Education Statistics.

The Baccalaureate & Beyond contained the variables needed to examine

the question: What were the economic outcomes of graduates with a bachelor's

degree from a private, for-profit institution ten years into their labor market

experience? The decisive fact that the dependent variable of interest, self-reported

earnings, and the principal independent variable, control of institution, were

available in the Baccalaureate & Beyond Longitudinal Study was the principal

reason for the selection of this data set. I applied for and was approved by the

Institute of Educational Science (see Appendix B) to be added to the existing New

York University restricted use data file license. Only after reviewing the restricted

data file did I become aware that the subsample in the for-profit sector, the

principal focus of this inquiry, was small and therefore would preclude

generalizability of any findings.

Findings and Conclusions

Three research questions guided this inquiry into the economic returns for

bachelor's degree holders' from for-profit institutions. The research questions that

framed this inquiry and the salient conclusions from the findings in this study are

the focus of this section. The conclusions will be organized by the respective research questions.

Research Question One

What are the demographic characteristics and academic majors of graduates of bachelor's degree programs, and how do they vary by control of institution?

Data analysis showed the total gender distribution in the Baccalaureate and Beyond sample closely mirrored that found in the broader undergraduate population for the academic year 1992-93. In the total student population, women were slightly more than half of all enrollments, and this gender enrollment distribution was found to be very similar in the overall Baccalaureate and Beyond sample. However, when enrollment was analyzed by control of institution in the B&B sample, an anomaly was found in the for-profit sector. The weighted gender distribution showed that 70 percent of the respondents to the B&B survey in the for-profit sector were women. This finding was contrary to the gender distribution of enrollment in the broader population in the 1992-93 academic year where women accounted for only 41.4 percent of total enrollment in for-profit institutions (Digest of Education Statistics, 1995).

Thirty-five percent (the largest percentage) of graduates of for-profit institutions reported their academic major was in the humanities. The second most

popular academic major was business, which accounted for 28.1 percent. Of the remaining majors, the "other" category accounted for 17.5 percent of graduates, while engineering and health accounted for 9.8 percent and 4.2 percent, respectively. None of the graduates from private, for-profit institutions reported their academic major as social science, history or psychology, and only a small percentage responded that their academic major was the biological sciences (0.5), Mathematics and other sciences were reported by 1.1 percent and education by 2.4 percent. (A complete listing and description of the twelve academic categories may be found in Appendix D.)

Due to the small sample size in the private, for-profit sector, an analysis of academic major to labor market outcome was not feasible. The for-profit sector was represented by only seven institutions out of a possible 100 institutions in the B&B sample. Moreover, the type of for-profit institution selected for inclusion and the programs they offered would have an effect on the reported academic major and therefore could possibly account for the reasons why the majority of students graduated with degrees in the humanities, business, and the "other" category. Also, because a large majority of graduates from for-profit institutions chose business, and almost ten percent of graduates chose engineering as a major–both relatively high-paying professions – choice of major could be one reason no statistically significant differences in income were found across the three educational sectors.

With respect to working hours or labor force participation rates ten years after graduation, graduates from for-profit institutions reported working longer hours at their primary jobs than graduates from either pubic or private, not-for-profit institutions. Graduates from for-profit institutions reported working longer hours per week than their counterparts; however, they earned 93.2 percent of what their counterparts from public institutions earned, and 92.3 percent of what their counterparts from not for-profit institutions earned. However, the differences were not significant.

Last, of the graduates from the three educational sectors who reported their job was closely related to their major, graduates from for-profit institutions reported the highest percentage of relatedness of education to job. This finding was not surprising and frankly, an opposite finding would have been problematic for the for-profit sector. Students are assumed to self-select into for-profit schools (Chung, 2004), course offerings tend to be career-oriented, and job placement is a strong selling point of for-profit schools (Apling, 1993.) It is not surprising, then, that graduates from for-profit institutions find employment closely aligned to their academic major: students choose to attend a for-profit school because the vocationally oriented curriculum is closely aligned with their job aspirations.

According to the Bureau of Labor (1992), economic and employment projections for the 1990-2005 periods indicated that health, business, and social services would account for one-third of all jobs added to the economy from 1990 to 2005. These occupational groups also included eight of the ten fastest growing

industries. The academic majors pursued by graduates of for-profit institutions closely mirrored the occupations projected to grow by the Department of Labor and hence these occupations appear to have had economic viability in terms of employment opportunities. The ability of the for-profit sector of postsecondary education to find jobs for its graduates – or at least take credit for doing so – is a central aspect of the institutional mission and its recruitment policies. It is also crucial to academic accreditation – a necessary condition to maintain Title IV student financial aid eligibility. The for-profit sector is almost entirely dependent on tuition for its revenue stream, and without Title IV student financial aid eligibility, the economic viability of the for-profit sector as a going concern would be questionable.

<u>Research Question Two</u>

What are the average earnings of graduates ten years into their labor market experience, by gender, race/ethnicity, and control of institution?

The first part of research question two compared the average earnings for all graduates within the B&B survey sample. The average earnings for all respondents to the final wave of the Baccalaureate and Beyond were $56,081. Bachelor's degree holders from private, for-profit institutions were found to have a weighted mean salary of $52,177 while bachelor's degree holders from private, not for-profit and public institutions had a weighted mean salary of $56,491 and

$55,947, respectively. However, no significant differences existed in the aggregate average earnings of the respondents to the Baccalaureate and Beyond survey by the key independent variable, control of institution (see Table 14).

The second part of research question two analyzed the mean earnings within each sector of postsecondary education by gender to determine the average salaries of men and women in the B&B sample by control of institution. Table 15 summarized the earnings for men and women by the key independent variable control of institution. The analysis of earnings by gender within the same educational sector showed that women consistently earned less than men. Women earned approximately two-thirds of what men earned, and the dollar differences in average earnings between men and women were statistically significant in all three educational sectors; public, private, not-for-profit, and private, for-profit. The finding of a gender gap in earnings in this study supports the conclusions found in the large body of human capital literature that has shown women, on average, earn less than men (Grubb, 1992; McCormick, Nunez, Shah & Choy, 1999; Zucker & Dawson, 2001; Perna, 2003; Bradburn, Nevill, & Cataldii, 2006; U. S. Department of Labor, 2009). In 2009, the World Economic Forum released the Global Gender Gap Report (Hausmann, Tyson, & Zahidi, 2008), which ranks approximately 130 countries on a number of measures regarding gender disparities. The United States was ranked 53rd on the gender gap sub-index--- wage equality for similar work. Additionally, the estimated earned income for women was $25,005 and for men $40,000, which equaled a female/male

estimated earnings ratio of 0.63. This ratio was lower than the earnings ratio found in this study. Therefore, the gender disparity found in these data supports the proposition that little has changed in the U.S. in the last five years in terms of earnings equality between the sexes. Women earn less, period!

The third part of the analysis addressing research question two looked at the earnings within each educational sector by gender and race/ethnicity. The conclusions for each educational sector are presented below beginning with the public institutions.

In the public sector, aggregate earnings for graduates were shown to be $55,947. Men earned $67,019 while women earned $46,319. Therefore, the female/male earning ratio for public sector graduates was 0.69. The analysis also showed a dollar difference in earnings between men and women who graduated from public institutions with respect to race/ethnicity. White, Black, and Hispanic women earned approximately 25 to 33 percent less than their male counterparts. The analysis of earnings by race/ethnicity between men and women, within the same educational sector (see Table 16) showed that in every race/ethnicity category, where data was available, woman earned less than men and the earnings differences were significant.

In the private, not for-profit sector, graduates ten years into their labor market experience had average earnings of $56,491 in 2003. Men earned, on average, $67,507 while women earned $47,307. Therefore, the female/male earning ratio for private, not for-profit sector graduates was 0.70. The data also

showed that men earned more than women irrespective of educational sector and irrespective of race/ethnicity. This finding is similar to the finding from analysis of public sector graduates.

In the private, for-profit sector, graduates ten years into their labor market experience were shown to have average earnings of $52,177 in 2003. Men earned, on average, $63,408 while women earned $44,703. Therefore, the female/male earnings ratio for private, for-profit sector graduates was 0.71. The data for graduates of private, for-profit institutions also showed that the difference in earning between men and women was significant. This finding is similar to the earlier analysis of public sector graduates and private, not for-profit sector graduates, where a significant gender gap in earnings existed between men and women.

The fourth part of research question two analyzed average earnings across the three educational sectors by gender and race/ethnicity (see Table 17). In other words, this portion of the analysis was focused on comparing the average earnings of male and female graduates of public institutions to their counterparts in private, not for-profit and private, for-profit institutions. Were there earnings differences and if so, were they significant? Prior analysis in this paper had shown gender earnings gaps among graduates within the same educational sector; women from public institutions earned less than men who graduated from public institutions. Would the earnings disparity found within educational sectors be found when analyzing the data across educational sectors?

The study established the existence of an absolute dollar difference in average earnings for men across the three educational sectors; however, none of the earnings differences by control of institution were significant. The average earnings of women showed the existence of an absolute dollar difference in average earnings for women across the three educational sectors; however, none of the earnings differences by control of institution were found to be significant.

The final portion of research question two analyzed the average earnings of men and women by race/ethnicity across the three educational sectors (public, private, not for-profit, and private, for-profit), and compared the earnings of White bachelor's degree holders (the reference group) to Black, Hispanic and AI/PI bachelor's degree holders (see Table 18). The analysis showed the existence of a dollar difference in earnings for men with respect to race/ethnicity across the three educational sectors; however, the differences were not significant when compared against the White reference group. For women, the analysis showed the existence of a dollar difference in earnings across the three educational sectors; however, the only significant difference in earnings was found between White women and AI/PI women $p<0.002$. AI/PI women earned more than White women. The investigation into graduates from for-profit institutions was problematic because the for-profit sub-sample was too small for a meaningful comparison along gender and race/ethnicity variables. There were thirty-one white respondents, one black, two Hispanic, and two AI/PI respondents to the earnings question in the third wave of the B& B survey. Despite the data

limitations, a comparison of average earnings was made between white men (N=15) and white women (N=16). White men earned approximately $68,034 while women earned $ 40,302, or approximately 60 percent of what men earned. More importantly, the gender gap in earnings found between men and women was significant in the private, for-profit sector.

The findings, notwithstanding the data limitations, were similar to the findings in both the public and private, not-for-profit sectors, where White men earned more than White women and the differences were also statistically significant.

<div align="center">Research Question Three</div>

Are the economic returns for a bachelor's degree similar for all graduates, or are there differences by gender, race/ethnicity, parental education, marital status and control of institution?

The principal independent variable of interest in this study was control of institution. The regression analysis showed the earnings differences among the educational sectors were not significant. Labor market outcomes, defined as self-reported income, were not affected by the type of school from which the bachelor's degree was earned.

The regression analysis confirmed the existence of a gender gap in earnings and showed women earned approximately one-third less than men. The

earnings difference was statistically significant ($p < 0.001$.) This finding was consistent with earlier findings and was consistent with the results of prior research on labor market outcomes (McCormick, Nunez, Shah & Choy, 1999; Zucker & Dawson, 2001; Perna, 2003; Bradburn, Nevill, & Cataldii, 2006; U. S. Department of Labor, 2009). In addition, the multivariate linear regression showed a number of the independent variables to have a significant effect on earnings. Parental educational level had a positive and significant effect if the bachelor's degree holder's father earned a bachelor's degree ($p < 0.012$.) Marital status of the respondent was also found to have an effect on earnings. If the respondent was "not married," the relationship to earnings was positive; however, if the respondent reported being divorced and/or separated, the relationship was negative, with the respondent earning less then their "not-married" counterparts. A status of divorced and/or separated ($p < 0.020$) or not married ($p < 0.010$) was found to be significant. None of the other independent variables in the linear regression were found to be significant.

The log-linear regression also showed no statistical significance in earnings by the key independent variable, control of institution variable (public; private, not-for-profit; and private, for-profit). The finding of no significance in the log-linear regression coincides with the finding of no significance in the multivariate linear regression analyzed earlier.

The gender gap in earnings between men and women remained evident in the log-linear regression, with women earning approximately 36 percent less than

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their male counterparts. The only other independent variable of significance in the log-linear regression was race/ethnicity among AI/PI bachelor's degree holders, where race/ethnicity was found to be a positive contributor to earnings by almost 10 percent, and statistically significant at $p<0.015$.

In summary, the type of institution one graduated from was not found to be a contributing factor to earnings in this study. While there were absolute dollar differences, the differences were not significant.

Limitations and Delimitations

One problem discovered when reviewing the Baccalaureate and Beyond methodological report was the method of data collection in the third and final survey (B & B: 93/03). In the final wave, one percent of the respondents were partial interviews, which means the respondents' answers were broken-off before the end of the full interview. According to the methodology report (Wine, Cominole, Wheeler, Dudley & Franklin, 2005), approximately 56 percent of these break-offs occurred when responding to the employment section of the survey, which contained the dependent variable of interest for this study (p. 48). Analysis was limited to bachelor's degree holders who represented the smaller of the for-profit sector enrollments in this time period. In 1993, enrollments were higher in 2-year for-profit institutions than 4-year for-profit institutions. Moreover, since self reported income was the dependent variable of interest in this study, there was room for error or omission resulting in self-reporting bias in the data.

Another potential limitation was the race/ethnicity variable for Hispanics, American Indians, Asians, and Pacific Islanders. These race/ethnicity categories are not homogeneous, as suggested when combining them together for analysis. This had the potential to hide possibly relevant information since these populations are heterogeneous. However, small sample size precluded disaggregating the data.

Lastly, the major limitation in this study, however, was the lack of an appropriate sample size in the sub-sample of interest; for-profit sector graduates. Insufficient numbers for graduates of this sector prohibited generalizability.

Implications and Recommendations for Future Research

The possible constituents who would be interested in the findings from this study would include, but not be limited to, educational researchers, policy makers at the federal and state level, the proprietary sector of postsecondary education, and parents and college-bound students.

The foremost recommendation would be the construction of a database that captures the salient student and institutional characteristics of the for-profit sector. Such a database would prove crucial to the scholarly analysis of what role for-profit institutions could play in the changing landscape of higher education. We know significantly more about students and institutions that are categorized as Historically Black Colleges and Universities (HBCU's) than we know about private, for-profit students and institutions, although the enrollments are not

dramatically different. By way of illustration, in 1993, students enrolled at

HBCU's equaled 282,856, while those enrolled in private, for-profit schools

approximated 226,818 (Digest of Education Statistics, 1995). As such, it appears

students attending the for-profit sector of higher education were not a population

of interest, and therefore, a vast amount of information needs to be collected and

analyzed to better understand this growing population.

Policy makers, especially those responsible for the Title IV student

financial aid eligibility and accreditation agencies could benefit from a

comprehensive understanding of the for-profit sector in light of the sector's

attempts to educate beyond purely vocational degrees. Increasingly, the for-profit

sector competes with public and private, not for-profit institutions for the

recruitment of students. Much of the recruitment efforts of the for-profit sector are

focused on the sector's ability to place their students in jobs upon graduation.

Some for-profit schools boast of their placement rates in their advertisements as a

way of distinguishing themselves from the traditional sectors of postsecondary

educational institutions. While not the focus of this paper, the formula for

deriving placement rates permits for-profit institutions to take credit for placing

students–even students who already had a job while attending school. Moreover,

students who found a job through their own efforts and were not placed directly

by the for-profit school are also included in the placement numbers of the

institution. This has the effect of inflating the job placement rates of for-profit

institutions. Additionally, the formula for reporting placement rates permits the

for-profit institution to include job placement in fields that are related to the major; however, what constitutes a "related" field is ambiguous and left to the individual institution to define. Moreover, the ability of an accreditation evaluator to appropriately sample and verify placement rates is increasingly problematic given time constraints on evaluation visits and the reluctance of employers to verify employment status over the telephone. Therefore, the veracity of the job placement claims made by some for-profit institutions should be questioned.

The Career College Association, the industry trade association for the sector, would be interested in the construction of a database that might better capture the educational benefits of attending a for-profit school. The proprietary sector serves a large segment of minority students and therefore provides equity and access to underserved postsecondary populations. The sector is market driven and is, therefore, more responsive to vocational educational needs; it provides an important educational pipeline to occupations that are projected to grow in the domestic economy. A bit more in the way of transparency regarding satisfactory academic performance measures, placement rates, and some follow-up labor market data could go a long way in helping policy makers better understand the contributions of the for-profit sector in assisting students to achieve worthwhile increases in their stock of human capital.

Parents and college-bound students would be interested in additional research on the for-profit sector as an independent, third party analysis of the

various claims by the sector. From a college cost perspective, the data suggest that for-profit schools are more expensive than public institutions. All being equal, when parents and students are comparing educational institutions, a rational choice model would suggest choosing the less expensive school if there were no difference in economic outcomes.

Concluding Remarks

Since Gary Becker (1975) postulated that expenditures on education were an investment, scholars have attempted to understand the relationships between schooling and labor market outcomes. Presently, almost 18.2 million students are enrolled in various postsecondary institutions in the United States and territorial possessions. Of this total, the for-profit sector of postsecondary education accounts for approximately 7.6 percent of all students enrolled in Title IV participating postsecondary institutions. Moreover, the for-profit sector of postsecondary education continues to grow in enrollments, and education has become a very profitable business. In 2008, the Apollo Group, Inc, the corporate parent of the University of Phoenix Online, reported revenue of $3.1 billion and enrollments in excess of 400,000 students making the University of Phoenix Online the largest university in the United States by enrollment (Barons, 2009).

The for-profit sector needs additional scholarly attention and should be on the radar screen of policy makers given the number of degrees conferred by this educational sector, increasing enrollments, and the sector's consumption of vast

amounts of Title IV monies in the form of Pell grants and student financial aid. In the 2006-07 academic year, the proprietary sector conferred 16.7 percent of all associate's degrees. 4.6 percent of all bachelor's degrees, 8.4 percent of all master's degrees, and 3.1 percent of all doctoral degrees. Approximately $4.5 billion in Pell grants are awarded to students attending for-profit schools, which represents nearly a quarter of all Pell grants awarded. Furthermore, of the top five institutional recipients of Pell grants, all five are for-profit institutions (Lederman, 2009; Pope, 2009; GAO, 2009).

This study has attempted to bridge the gap in the relevant literature by investigating the relationship between bachelor's degree holders' incomes and the type of postsecondary institution from which they graduated, with a particular emphasis on the for-profit sector. Irrespective of the deficiencies identified in the data, the findings will hopefully serve as a clarion call for a more systematic acquisition of data on the for-profit sector of postsecondary education. Quite possibly, room exists for all at the table of higher education, distinguished by the educational/institutional mission of the enterprise. A metric to assess the articulated educational mission of the sector against the actual results is needed – in other words, institutional output versus input – is needed. Such a metric could (and should) include labor market outcomes of graduates – both in the interest of educating the consumer, and in creating a rational choice model from which policy makers legislate and allocate (scarce) public financial resources.

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APPENDIX A

Letter

MEMORANDUM

TO: Dr. Bridget O'Connor for Everett Myers

FROM: Alison Dewhurst, CIP
Human Research Compliance Director
University Committee on Activities
Involving Human Subjects

DATE   November 12, 2008

RE: HS#6932: Factors Contributing to Labor Market Outcomes of Individuals
with Bachelor's Degree from a Proprietary for-Profit Institution

The above-referenced protocol has been determined to be exempt from federal oversight at 45 CFR 46.101(b), paragraph (4). No further review is necessary unless modifications to the protocol related to human research subjects are proposed. Your study will remain active for a three-year period after which time it will be placed in the UCAIHS Offices' deactivated files.

This determination was made with the understanding that the proposed research only involves the following activities:

Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

If you have any questions, please feel free to contact the UCAIHS office at 212-998-4808 or at ask.humansubjects@nyu.edu.

We wish you success with your research.

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APPENDIX B

IES Restricted Data License

Gmail

Sean Corcoran <spcorcor@gmail.com>

Amend IES Restricted Data License - Add User
1 message

IESData.Security@ed.gov <IESData.Security@ed.gov>   **Tue, Dec 16, 2008 at 10:14 AM**
To: sean.corcoran@nyu.edu

License Number: 07090033

Dear Sean,

We received your request to add project staff to your License.

Review and approval of this amendment will not start until we receive the completed, signed, and notarized Affidavit of Nondisclosure for each named staff person. Please write your License number on the Affidavit(s) and send them to IES:

IES Data Security Office
Department of Education/IES/NCES
1990 K Street, NW, Room 9060
Washington, DC 20006
202-502-7307

IESData.Security@ed.gov

These proposed new project staff may not have access to any restricted-use data until IES approves their access.

The Amendment Request information is shown below for the additional staff. Please review it for accuracy. If any of the information is incorrect, please correct it and resubmit.

Proposed Staff to Add:
Name: Everett Myers
Title: Re! searcher
Location: 19 Delafield Avenue, Rutherford, NJ 07070
Phone: (551) 655-1766

APPENDIX C

AFFADAVIT of Nondisclosure

Application number:
07090033

Affidavit of Nondisclosure

Doctoral Candidate
_____
(Job Title)

NYU Institute for Education & Social Policy
_____
(Organization, State or Local Agency Name)

82 Washington Sq E. 7th fl. NY, NY 10003
_____
(Organization or Agency Address)

_____
(Date Assigned to Work with NCES Data)

Restricted use Baccalaureate and Beyond (B&B) base year survey and all subsequent follow-up surveys.

(NCES Database or File Containing
Individually Identifiable Information*)

I, Everett Myers _____, do solemnly swear (or affirm) that when given access to the subject NCES database or file, I will not -

(i) use or reveal any individually identifiable information furnished, acquired, retrieved or assembled by me or others, under the provisions of Section 183 of the Education Sciences Reform Act of 2002 (P.L. 107-279) and Title V, subtitle A of the E-Government Act of 2002 (P.L. 107-347) for any purpose other than statistical purposes specified in the NCES survey, project or contract;

(ii) make any disclosure or publication whereby a sample unit or survey respondent (including students and schools) could be identified or the data furnished by or related to any particular person or school under these sections could be identified; or

(iii) permit anyone other than the individuals authorized by the Commissioner of the National Center for Education Statistics to examine the individual reports.

_____
(Signature)

[The penalty for unlawful disclosure is a fine of not more than $250,000 (under 18 U.S.C. 3571) or imprisonment for not more than five years (under 18 U.S.C. 3559), or both. The word "swear" should be stricken out when a person elects to affirm the affidavit rather than to swear to it.]

City/County of _Bergen_ Commonwealth/State of _N J._ .
Sworn to and subscribed before me this ___16___ day of
December, 20_08_ . Witness my hand and official Seal.

SYLVIA C. SIBILIA
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES APRIL 17, 2012

_____
(Notary Public/Seal)

My commission expires _April 17. 2012._

* Request all subsequent follow-up data that may be needed. This form cannot be amended by NCES, so access to databases not listed will require submitting additional notarized Affidavits.

Form last revised 02/08/07

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APPENDIX D

Major Field of Study by Category

1. Business and management: Accounting; finance; business/management systems; management/business administration; secretarial; business support; marketing/distribution

2. Education: Early childhood, elementary, secondary, special, physical, or other education

3. Engineering: Electrical, chemical, mechanical, civil, or other engineering; engineering technology

4. Health professions: Dental/medical technicians; community/mental health workers; health/physical education/recreation (HPER); nurse assisting; general and other allied health; audiology; clinical health science; dentistry; medicine; veterinary medicine; nursing; health/hospital administration; public health; dietetics; other health

5. Public affairs/social services: Protective services; social work; public administration other than social work

6. Biological sciences: Zoology; botany; biochemistry; biophysics; other biological sciences

7. Mathematics and other sciences: Data processing, computer and information sciences; statistics; mathematics excluding statistics; chemistry; earth sciences; physics; other physical sciences

8. Social science: Anthropology/archaeology; economics; geography; sociology; political science; international relations; psychology

9. History: History

10. Humanities: Spanish; foreign languages; English/American literature; creative/technical writing; philosophy; religious studies; clinical pastoral care; design, speech/drama; film arts; music; art history/fine arts; other fine and performing arts

11. Psychology: Psychology

12. Other: Agriculture; agricultural science; natural resources; forestry; architecture; American civilization; area studies; African-

American studies; Ethnic Studies; journalism; communications;

communication technology; cosmetology; consumer/personal services;

textiles; home economics; vocational home economics including child

care; other vocational home economics; paralegal or pre-law; law;

liberal studies; library/archival science; military sciences; women's

studies; interdisciplinary including environmental studies,

biopsychology, integrated/general science, and other

interdisciplinary studies; leisure studies; basic/personal skills;

city planning; industrial arts including construction and

electronics; transportation and other mechanics; commercial art;

precision production; air transportation; other transportation; no

major

APPENDIX E

Multivariate Linear Regression Analysis Using Un-Weighted Data

N=6358
Design df =238
F (16, 223) = 16.01
R-squared = 0.0765

Earnings	Coefficient	Std Error	t	P> t	
Female	-19274.2	931.09	-20.70	0.0005	*
Private, for-profit	-710.30	6140.64	-0.12	0.908	
Private, not-for Profit	593.31	978.51	0.61	0.544	
Dad No HS	-1743.71	1944.16	-0.87	0.382	
Dad Some PSE	1389.03	1470.15	0.94	0.345	
Dad Bach-Deg	5333.05	1374.92	3.88	0.0005	*
Dad Adv Deg	5091.74	1484.01	3.43	0.001	*
Mom No HS	-112.15	2174.64	-0.05	0.959	
Mom Some PSE	-459.86	1305.52	-0.35	0.725	
Mom Bach-Deg	-214.64	1380.88	0.16	0.876	
Mom Adv Deg	1298.73	1665.09	0.78	0.435	
Black	593.11	2214.86	0.27	0.789	
Hispanic	779.39	2258.28	0.35	0.730	
AI/PI	6468.33	2296.13	2.82	0.005	*
Not Married	3424.96	1199.78	2.85	0.004	*
Divorced/Separated	-2607.71	7265.99	-0.36	0.720	
Constant	59214.81	1409.58	42.01	0.0005	

*Significant at the 0.05 level.

Findings from the second regression analysis, Un-Weighted Linear

Regression Analysis does not reflect the complex sample design used in the

Baccalaureate and Beyond Longitudinal Study but rather the raw or un-weighted

data. The results are presented in Table 31.

The major finding of this model is that there are no statistically significant

differences in reported earnings by control of institution. The reference group

used in Model 2: Un-Weighted Linear Regression Analysis was students that had

graduated from Public institutions. It was found they earned on average $59,214.

Students who graduated from a private, not-for-profit school earned $59,807 or

$593.00 more than the reference group. Graduates from private, for-profit

institutions earned $58,504, which was $710.00 less than their counterparts who

graduated from public institutions and $1303.00 less than their counterparts who

graduated from private, not-for-profit institutions. While there are absolute dollar

differences among the various sectors, none of the differences in reported

earnings were statistically significant at an alpha level of 0.05. This is similar to

the findings in Model 1: Weighted Linear Regression Analysis illustrated in Table

30.

There was however, statistically significant differences found along the

lines of gender, fathers education level, being in the American Indian/Pacific

Islander (AIPI) race classification, and marital status.

Women in the sample earned approximately one-third less what men

earned. Accordingly, women earned, on average $39,940 which was

approximately $19,274 less than men in the sample. This dollar difference in earnings by gender was statistically significant as evidenced by the t statistic, p<.000, in Table 31. The respondent's parents' education levels from the original dataset were collapsed and recoded into five levels of education. The recoded variables used in the regression model were no high school, high school graduate (reference group), some postsecondary education, received a bachelor's degree, and received an advanced degree. It was found that if the respondent's father had a bachelor's degree the earnings affect on the respondent was significant and the coefficient positive in the amount of $5333 p<.0000. Moreover, in Model 2: Un-Weighted Linear Regression Analysis, one additional education level of the father was found to be statistically significant. If the father had an advanced degree the earning's of the respondent increased by an additional $5091.00 increasing their annualized earning's to $69,638 (p> 0.001). The two remaining paternal education levels were not found to be significant. However, if the father reported some postsecondary education the coefficient was positive in the amount of $1389.00. If the father did not graduate from high school the coefficient was negative in the amount of minus $1743.00.

All educational levels for the mother were not found to be significant when using the un-weighted data however there were, once again, absolute dollar differences in the earnings of the respondent depending on the mother's education level. If the mother reported no high school, some postsecondary education the coefficient was negative in the amount of -$112.00 and -$459.00 respectively. If

the mother reported a bachelor's degree or an advanced degree, while still not statistically significant, the coefficients were found to be positive in the amounts of $214.00 and $1298.00 respectively. This finding for the mother's education level is somewhat different than the findings illustrated in the first regression analysis using Model 1: Weighted Linear Regression. In that analysis, presented in Table 30 above, if the mother reported no high school, some postsecondary education, or a bachelor's degree the coefficient was negative. Only if the mother reported having an advanced degree was the coefficient found to enhance the salary of the respondent although it must be remember that in all cases dealing with the mother's education level, none of the education levels were found to be statistically significant.

With respect to race/ethnicity the analysis showed Blacks and Hispanics earned approximately $593.00 (p>0.789) and $779.00 (p>0.730) dollars more than Whites however, the results of these two minority groups were not statistically different from Whites, which was the reference group. There was however, a statistically significant difference in earnings found in the American Indian/Pacific Islander race classification. The AI/PI ethnic group was found to earn $65,682 (p> 0.005) which was almost $6500.00 more than the reference group.

The marital status of the respondent was also found to be significant in the second regression, Model 2: Un-Weighted Regression, analysis. The marital status variable from the original dataset was collapsed and recoded into three

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variables. The three recoded variables were not married, separated or divorced, and married; which was used as the reference group in the regression model. Respondents who were not married reported earning approximately \$3424.00 (p>.004) <u>more</u> than their counterparts. Respondents who were separated or divorced reported earning minus -\$2607.00 (p> 0.720) which was <u>less </u>than their married counterparts however this difference was not found to be statistically significant like in Model 1: Weighted Linear Regression.

APPENDIX F

Log Linear Regression Analysis Using Un-Weighted Data

N=6358
F (16, 6341) = 19.77
R-squared = 0.0475

Log Earnings	Coefficient	Std Error	t	P> t	
Female	-.3693024	.0224393	-16.46	0.0005	*
Private, for-profit	-.0187021	.1479879	-0.13	0.899	
Private, not-for Profit	.0075048	.0235819	0.32	0.750	
Dad No HS	-.0129104	.0480588	-0.27	0.788	
Dad Some PSE	.023359	.0354303	0.72	0.475	
Dad Bach Deg	.025354	.0331353	0.77	0.444	
Dad Adv Deg	.0602652	.0357642	1.69	0.092	
Mom No HS	-.0025408	.0524083	-0.05	0.961	
Mom Some PSE	.0156437	.0314627	0.50	0.619	
Mom Bach Deg	-.0111294	.033279	-0.33	0.738	
Mom Adv Deg	.0669583	.0401283	1.67	0.095	
Black	.0559948	.0533776	1.05	0.294	
Hispanic	.0190075	.0544242	0.35	0.727	
AI/PI	.1671865	.0553362	3.02	0.003	*
Not Married	.0434909	.02289144	1.50	0.133	
Divorced/Separated	-.2968193	.1751088	-1.70	0.090	
Constant	10.81383	.0339705	318.33	0.0005	

*Significant at the 0.05 level.

Summary of Earning Differences by Gender, Control of Institution, and Selected
Race/Ethnicity Categories

	Mean (standard deviation)			t (Pr $(|T| > |t|)$)		
	Black	Hispanic	AI/PI	Black-Hispanic	Black-AI/PI	Hispanic-AI/PI
Men:						
Public	60543	65342	63482	-1.1024	-0.6837	0.4094
	(18581)	(28708)	(29201)	(0.272)	(0.495)	(0.683)
Private not for-profit	63188	66090	72826	-0.3563	-1.3342	-1.3658
	(42976)	(20980)	(21904)	(0.723)	(0.186)	(0.176)
Private for-profit	N/A	N/A	N/A	N/A	N/A	N/A
Women:						
Public	46513	44297	54908	1.0220	-3.1690	-3.8281
	(15963)	(17134)	(23165)	(0.308)	(0.002)*	(0.0005)*
Private not for-profit	46399	47764	50994	-0.4813	-1.1338	-1.2626
	(20519)	(11098)	(12803)	(0.631)	(0.260)	(0.210)
Private for-profit	N/A	N/A	N/A	N/A	N/A	N/A

*Significant at an alpha 0.05
N/A=Cell size too small for comparison

In the body of the paper the earnings differential by gender and control of institution were compared to the reference group (whites) for tests of significance. The data presented in Appendix G compares the earnings differences by gender and control of institution against the non-reference race/ethnicity categories such as Black vs. Hispanic and Hispanic vs. AI/PI.

The data presented in Appendix G showed that while there were dollar differences in earnings for men by race/ethnicity they were not significant. However, when analyzing average earnings for women the results showed that there was a significant earnings differential between AI/PI women versus Black (0.002)* and Hispanic (0.000)* women.

APPENDIX H

Definitions

According to the U. S. Department of Education (2009), National Center

for Education Statistics, Integrated Postsecondary Education Data System

Glossary, the following terms used in this study are defined as follows:

Control of Institution- Beginning in 1976, the National Center for Education Statistics began to report statistics on the type of postsecondary institution. The new criteria, labeled "control of institution" made a distinction among public institutions, private not-for-profit institutions, and private for-profit institutions.

Public Institution- An educational institution whose programs and activities are operated by publicly elected or appointed school officials and which is supported primarily by public funds.

Private Institution- A private institution in which the individual(s) or agency in control receives no compensation other than wages, rent, or other expenses for the assumption of risk. These include both independent not-for-profit schools and those affiliated with a religious organization. Private institutions may be not-for-profit or for-profit.

Private, Not-for-Profit- An educational institution controlled by a private individual(s) or by a nongovernmental agency, usually supported primarily by other than public funds, and operated by other than publicly elected or appointed officials.

Private, For-Profit Institution- A private institution, such as University of Phoenix and/or ITT Educational Services, in which the individual(s) or agency in control receives compensation other than wages, rent, or other expenses for the assumption of risk.

Proprietary- For the purpose of this study, "proprietary" is used interchangeably with for-profit. It refers to institutions in which the individual(s) or agency in control receives compensation other than wages, rent, or other expenses for the assumption of risk (Snyder, T.D., Dillow, S. A., and Hoffman, C.M. (2009).

Labor Market Outcomes- Self-reported salaries of individuals in the labor market.

Nontraditional Student- Characterized by any of the following: delays enrollment beyond the calendar year they finished high school; attends part time; works full time (35 hours or more per week); is financially independent for purposes of financial aid; has dependents other than a spouse; is a single parent; and does not have a high school diploma or completed high school with a General Educational Development (GED) certificate. (U. S. Department of Education, 2002)

Title IV of the Higher Education Act of 1965- governs student financial assistance programs including grants and loans. The provisions govern institutional and student eligibility, interest rates on student loans, and lenders' financial remuneration. (U. S. Department of Education, 2002)

Title IV Institution- To be eligible to participate in federal Title IV financial aid programs, a postsecondary institution must offer: "a program of study at least 300 clock hours in length; have accreditation recognized by the U.S. Department of Education; have been in business for at least 2 years; and have a Title IV participation agreement with the U.S. Department of Education (U. S. Department of Education, 2002)