THE INTERNSHIP GAP: THE RELATIONSHIP BETWEEN INTERNSHIP SALARY AND THE PROBABILITY OF RECEIVING A JOB OFFER

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the degree of Master of Public Policy in Public Policy

By

Danielle K. Held, B.A.

Washington, DC
April 10, 2016
THE INTERNSHIP GAP: THE RELATIONSHIP BETWEEN INTERNSHIP SALARY AND THE PROBABILITY OF RECEIVING A JOB OFFER

Danielle K. Held, B.A.

Thesis Advisor: Andrew S. Wise, Ph.D.

ABSTRACT

Despite the ubiquity of internships in college life, there is little empirical research that examines their value in the job market. What little research has been done tends to agree that there is a strong, positive relationship between having internship experience on a college student’s resume and receiving a job offer upon graduation. This study seeks to go one step further, examining if the probability of receiving a job offer varies by whether the student completed a paid or unpaid internship. The results indicate that completing a paid internship (as opposed to completing an unpaid internship) is associated with a 14.2 percent increase in the probability of receiving a job offer, holding other factors included in the model constant. Encouraging college students to pursue paid internship experiences is expected to improve their prospects in the labor market upon graduation.
ACKNOWLEDGEMENTS

I would like to thank my thesis advisor Andrew S. Wise for his assistance, patience, and reliability while guiding me through the process. Many thanks to Edwin W. Koc, Director of Research at the National Association of Colleges and Employers (NACE), who generously provided his time and the data set without which this thesis would not have been possible.

Last but not least, I would like to thank my parents for supporting me in every possible way throughout my higher education; for believing in me and for getting me through the stressful times.

This thesis is dedicated to you, and to the interns who make the world go ‘round.

Many thanks,
Danielle K. Held
**TABLE OF CONTENTS**

I. INTRODUCTION ............................................................................................................................... 1

II. BACKGROUND AND LITERATURE REVIEW .............................................................................. 4  
   Early Career Success ..................................................................................................................... 4  
   What Does “Internship” Mean? .................................................................................................... 7  
   Regulations and Laws .................................................................................................................. 8  
   Labor Market and (Socio-) Economics of Internships .............................................................. 10  
   Effect of Internships on Job Opportunities: Previous Research ............................................ 14  
   Contribution to the Field ............................................................................................................ 18

III. CONCEPTUAL MODEL .............................................................................................................. 19

IV. EMPIRICAL MODEL .................................................................................................................. 21

V. DATA AND METHODS ................................................................................................................. 25

VI. RESULTS ..................................................................................................................................... 31

VII. CONCLUSION AND POLICY RECOMMENDATIONS ............................................................ 42

VIII. APPENDIX ............................................................................................................................... 46

IX. BIBLIOGRAPHY ......................................................................................................................... 48
**LIST OF TABLES AND FIGURES**

Table I. DESCRIPTIVE STATISTICS ........................................................................................................ 28

Table II. MODELS OF THE RELATIONSHIP BETWEEN INTERNSHIP EXPERIENCE AND THE PROBABILITY OF JOB OFFERS........................................................................................................ 33

Table III. ODDS RATIOS AND MARGINS FOR MODELS 2, 3, AND 4 ................................................. 35

Table IV. RELATIONSHIP BETWEEN FREQUENCY OF CAREER SERVICES VISITS AND THE PROBABILITY OF JOB OFFERS........................................................................................................ 37

Table V. CODING AND GENERATION OF THE *INTERNPAID* VARIABLE........................................ 46

Table VI. CODING AND GENERATION OF THE *HELP* VARIABLES .................................................. 46

Figure I. CODING AND GENERATION OF THE *MAJOR* VARIABLE CATEGORIES ....................... 47
I. INTRODUCTION

Despite the ubiquity of internships for college students, empirical research into the effect of internships on a student’s career prospects is relatively scarce. Parents, career counselors, and employers alike tout the benefits of completing an internship before graduation: the real-world experience that cannot be gained in a classroom, the connections made in the student’s chosen field, and the new skills to add to an otherwise anemic resume. Yet when an anxious college senior finally gets a job offer, is it the internship that made the candidate a more attractive hire?

This is a question that raises some — though still surprisingly little — debate. Most of the support seems to be for the status quo, that is, any internship is better than no internship. Even if a student is not compensated with pay, the work experience is expected to give him or her a leg up in the job market. Because of this, “experiential knowledge has unfolded and become institutionalized,” as much a part of the college experience as football games or final exams (Benavides, Dicke and Holt 2013). In this paper, I seek to add to this debate by establishing if the institutionalization of internships can be upheld with empirical evidence and data rather than simply by theory. My hypothesis comes in two parts. First, I seek to test the hypothesis that having a paid internship (compared to an unpaid internship) results in a higher probability of receiving a job offer. Second, I hypothesize that there is no statistically significant difference in having an unpaid internship versus having no internship on the probability of receiving a job offer upon graduation.

In recent years, however, there have been several objections to the status quo. Many of these challenges occurred in court, as labor issues tend to. In June 2013, a federal judge ruled that Fox
Searchlight pictures broke federal labor laws when it employed two interns for no pay, on the grounds that the interns performed tasks with no educational value such as answering phones and taking out the trash (Adams, 2013). That same month, two former interns filed a class action suit against Condé Nast. “Both got paid far less than minimum wage for jobs the magazines would have had to pay someone else a full salary to do” (Adams, 2013). (As will be shown in later sections of this paper, the case was filed on the grounds that Condé Nast had failed one portion of the six-part test employers must meet in order to have unpaid workers.) Employers who offer internships, some critics say, cannot be trusted to have the best interest of the intern in mind. Without the educational value, an internship is simply free labor, and therefore of no value to the intern.

Outside of the courtroom, there is a more fundamental question to answer: Do internships pay off for the intern? In other words, do internships, particularly the unpaid variety, truly give interns a leg up in the job market when they are ready to seek a full-time position? While there is little empirical research into this question, one organization has administered annual surveys of graduating seniors: The National Association of Colleges and Employers (NACE). Since 2011, the survey has included detailed questions about their internship experiences. Among the questions asked in the survey are:

- Have you had an internship? If so, was it paid or unpaid?
- Have you received a job offer? If so, for how much?

I will give more detail in the Literature Review section of this paper, but for now, suffice it to say that NACE’s findings can be disheartening for the unpaid interns of the world. “They found that 63.1 percent of students with a paid internship under their belt had received at least one job
offer. But only 37 percent of former unpaid interns could say the same — a negligible 1.8 percentage points more than students who had never interned” (Weissmann, 2013). In other words, the little empirical research into internships indicates that it pays off for the intern — both literally and figuratively — if the employer offers at least the minimum wage. In this paper I seek to take NACE’s research one step further by extending their data and using more sophisticated techniques. Through the analysis of NACE’s Internship and Job Outlook data sets across several years, I hope to analyze the effects of internship salary on job offers and career development.

This paper proceeds as follows:

**Section II:** Background and Literature Review

**Section III:** Conceptual Model

**Section IV:** Empirical Model including Variables, Methodology and limitations

**Section V:** Data and Methods, including Analysis sample and Data limitations/challenges

**Section VI:** Empirical results possibly including Variables, Methodology and limitations

**Section VII:** Discussion/Conclusions and Policy implications, caveats/limitations, and directions for future research

**Section VIII:** Appendix

**Section IX:** Bibliography
II. BACKGROUND AND LITERATURE REVIEW

Before examining internships specifically, let’s first take a look at the dependent variable: early career success. What factors affect early career success?

*Early Career Success*

*Higher Education*

Higher education has been dubbed the “ticket to economic security,” and with good reason: “Individuals with a bachelor’s degree earn 50 percent more in their lifetime than individuals with no more than a high school diploma” (Barrow, 2013, p. 3). The benefits are not strictly monetary either: college graduates generally report higher job satisfaction and better health than those who have not earned at least a bachelor’s degree. Achieving a higher degree not only benefits the individual, but also society as a whole by increasing productivity in the labor force and therefore spurring economic growth.

*Majors and Fields of Study*

Research shows that a student’s major area of study has an even greater impact on earnings than degree level does. Firstly, the field a student majors in can influence the likelihood of him receiving post-graduation offers: think about parents who urge their children to study computer science instead of the arts. Secondly, some industries, such as finance and computer science, tend to pay more than industries such as journalism or psychology. In fact, “the difference in earnings between the most- and least-paid college graduate [is] greater than the difference between the average college and high school graduates” (Carnevale & Hanson, 2015, p.79).
Degree Level within Occupations

Chosen major aside, degree level within occupations still does matter: The higher your degree, the higher your annual earnings on average. For example, among engineers:

- Associate’s degree holders earn $65,000 each year;
- Bachelor’s degree holders earn $85,000 each year; and
- Graduate degree holders earn $103,000 each year (Carnevale & Hanson, 2015, p.80).

Geography

Where a student chooses to live and work can also influence career success as it relates to salary: “Workers earn more in cities with higher proportions of college graduates, suggesting that more educated workers generate positive ‘spillovers’ to other workers” (Barrow, 2013, p. 4). Such cities tend to become known as hubs of innovation and experience faster economic growth than cities with less educated populations.

Non-Traditional Academic Support Services of Institutions

Increased diversity on campuses means that some students may need more support outside of class as they balance work, school, and family obligations. Some institutions now offer mentoring, tutoring, workshops, robust student advising, and child-care services to address the needs of this new generation of students (Barrow, 2013, p. 9). This diversity is not confined to academia: Mothers, for example, would be more likely to enter and stay in the workforce if reliable childcare were available. Thus, comprehensive support services both in academia and in the workforce can contribute to career success.
“Work-Based Learning” Such as Internships and Co-ops

Lastly, hands-on experience such as internships and co-ops are expected to increase the likelihood of college students receiving a job offer, and in some cases, of receiving a better offer (e.g., a higher salary, more benefits, and so on) than those who have not completed such work-based learning programs. More empirical evidence regarding this claim will be presented later in this section.

Most notably for the purposes of this thesis, there is evidence to suggest that paid work-based learning experiences (relative to unpaid experience) leads to more positive outcomes both in academia and in the workforce. Unfortunately, many of these examples are based on limited samples or special situations. For example, the Center for Economic Opportunity (CEO) specializes in implementing anti-poverty programs in New York City. One of CEO’s chief strategies for its young adult programs has been subsidized jobs and — believe it or not — paid internships. In particular, CEO has found that coupling educational programs with paid work-based learning experience leads to promising results for young adults hoping to enter the labor market: “Students in the … program who also held a paid internship while in pre–General Educational Development classes were more likely to graduate, attend class, and stay enrolled in the program longer than students at sites that did not offer internships” (Berman, 2015, p. 487).

The fact that the internship experiences are paid is of special importance for this program because it helps a low-wage worker meet the immediate need for income while keeping him engaged in classes, learning valuable skills, and allowing him to explore careers (Berman, 2015, p. 489). Of course, this example is restricted to low-wage workers in New York City. But does this have some relevance to other populations, particularly American undergraduates? That is
what this paper seeks to determine. But first, it is beneficial to define the key variable in this analysis: internship.

**What Does “Internship” Mean?**

An internship, put simply, is a gateway between the academic and working worlds. NACE, the organization that collects the data that has made this research possible, recommends the following definition:

> “An internship is a form of experiential learning that integrates knowledge and theory learned in the classroom with practical application and skills development in a professional setting. Internships give students the opportunity to gain valuable applied experience and make connections in professional fields they are considering for career paths; and give employers the opportunity to guide and evaluate talent” (2011).

Beyond the general agreement that internships are meant to provide the student with real-world experience in the workplace, there are no specific parameters for what an internship is or is not. As a result, internship experiences vary widely. They can be paid or unpaid and may count for academic credit in place of a traditional course at the student’s university. They are usually short-term, generally from three to 12 months long. “Internship” can mean anything from dropping off the boss’s dry cleaning to number-crunching at a consulting firm to hands-on experience in the medical profession. “No one knows what [internships] mean,” writes Ross Perlin, author of *Intern Nation*. “They remain such a recent, chaotic phenomenon that there are seldom any rules of the road … only vague expectations for which no one is held accountable” (2011, p. xi).

“Intern,” Perlin muses, is more a “brand than job description” that encompasses “roles we might otherwise call volunteer, temp, summer job, and so on” (Perlin, 2011, p. xi).
One could say that the history of internships began with the history of apprenticeship. Dating as far back as medieval times, apprentices worked side-by-side with a skilled expert in order to learn a trade. While some study in a classroom may have been required for an apprenticeship, the core of the experience was the on-the-job training. Like modern-day internships, apprenticeships were meant to cultivate new generations of practitioners. Though bona-fide apprenticeships still exist today (there were about half a million apprentices across the U.S. in 2011) and are seen as the origin of modern-day internships, apprenticeships and internships have fundamental differences in contemporary society (Perlin, 2011, p. 44). Apprenticeships are far more regulated via labor laws, are long-term, and provide financial compensation to the apprentice, sometimes including healthcare and pensions. For Dan Jacoby, a historian of apprenticeship, internships by contrast are “a chance to look at an environment rather than as a chance to learn the job” (Perlin, 2011, p. 45). Despite the relative sophistication of apprenticeships, the majority of experiential learning activities now generally take the form of internships. Unfortunately, specifics into why this is the case are beyond the scope of this paper.

The complexity of modern-day internship policies began with The Fair Labor Standards Act (FLSA) of 1938 (WHD, 2011). The FLSA is the crown jewel of labor law because it (among other things) established the minimum wage and youth employment standards in the United States. Though the Act does not mention the word “intern” specifically, it establishes what work can be volunteered. Specifically, it establishes that the word “employee” does not include individuals who:

- volunteer for government service, understanding that he or she will not be compensated
volunteer services solely for humanitarian purposes in private nonprofit organizations (WHD, p.14)

Through these exceptions to the minimum wage law, certain internships, specifically unpaid positions in government and nonprofits, are legal. But plenty of private organizations provide unpaid internships. With the minimum wage laws as they are, how is this acceptable?

The answer lies in the 1947 Supreme Court decision of Walling v. Portland Terminal Co. In the case, a “prospective rail yard brakemen sought compensation for a week-long training course” (Keleher, 2013). The court developed a six-part test to determine whether the brakeman was a trainee (or using modern-day language, an intern) or if he was an “employee” and therefore entitled to wages. The court determined that a trainee or intern is not an employee, and therefore is not entitled to compensation, if:

1. The internship, even though it includes actual operation of the facilities of the employer, is similar to training which would be given in an educational environment;
2. The internship experience is for the benefit of the intern;
3. The intern does not displace regular employees, but works under close supervision of existing staff;
4. The employer that provides the training derives no immediate advantage from the activities of the intern; and on occasion its operations may actually be impeded;
5. The intern is not necessarily entitled to a job at the conclusion of the internship; and
6. The employer and the intern understand that the intern is not entitled to wages for the time spent in the internship (WHD, 2010, p. 1)

The Walling trainees “displaced no employees, the trainees were closely supervised, and the employees did most of the work themselves” (Keleher, 2013). Therefore, the Court determined the trainees were not employees and not entitled to compensation. Though it would be decades before internships would become commonplace, this 1947 court case provides precedent for the legality of the modern-day unpaid internship.
The Wage and Hour Division (WHD) of the Department of Labor, which is responsible for administering the FLSA, requires that every one of these six criteria be met in order for an organization to have an unpaid intern. Otherwise, the intern must be considered an employee and is entitled to at least minimum wage. With recent media attention given to illegal unpaid internships, enforcing minimum wage laws as they apply to “trainees” has newfound importance (Adams, 2013). It turns out that complying with all six of the Walling factors is somewhat difficult: There “aren't going to be many circumstances where you can have an internship and not be paid and still be in compliance with the law,” the WHD said in a statement (Keleher, 2013). It seems that the prevalence of internships — and the abuses of them — has demanded the attention of the Department of Labor. Unfortunately, many interns are afraid to file complaints to the Department of Labor. Even so, within three years of issuing its internship fact sheet (WHD Fact Sheet #71), the Department cited 11 companies for wage violations and closed 16 investigations into unpaid internships (Brandeisky, 2014). Whether or not this attention will result in policy changes or simply better enforcement of existing policies remains to be seen.

**Labor Market and (Socio-) Economics of Internships**

Like a specific definition of “internship,” actual statistics regarding internship participation are slippery at best. Even so, it is obvious that the prevalence of internships for college students has multiplied in recent years, and new research has shed some light on the scale of internships. Phil Gardner of the College Employment Research Institute “estimates that 70 to 75 percent of students at four-year schools undertake at least one internship” (Perlin, 2011, p. 26). This figure is at least double what it was in the early 1980s, according to Gardner. The leading explanations
among various analyses for this explosion of internships are (1) the failure of the Department of Labor to enforce the minimum wage via the FLSA and (2) the economic recession of 2008, which (in theory) made people desperate enough to work for low wages or even for free in the name of gaining experience and increasing their job marketability.

What are the effects of internships on the labor market? It is a classic chicken-or-the-egg question. For instance, one criterion from the Walling case regarding internships is that “the intern does not displace regular employees” (1947). It is widely acknowledged, however, that employers do indeed hire interns in place of full-time employees, thereby discharging the obligation to provide health insurance, retirement plans, and in many cases, wages to those workers. Like the apprenticeships they were based on, internships are meant to gracefully usher the next generation of practitioners into companies. Instead, interns are often viewed as cheap labor: It is common for employers to cycle through several interns each year, having no intent to hire any of them on a full-time basis. This cycling displaces full-time employees and contributes to the unemployment rate. Then these displaced employees, figuring that they need to go back to school to make themselves more marketable, seek higher education which often involves — what else? — completing an internship. Thus, research shows that some unpaid and low-wage internships “contribute to recessions as well as are triggered by them” (Pologeorgis, 2012). There are other economic effects as well, such as the fact the free labor cuts the amount of state income tax collected, which has an impact on government entities at the state and local levels. On the other hand, unpaid internships may increase a firm’s productivity and efficiency because there are no labor costs (Pologeorgis, 2012). Internships may also increase hiring efficiency by giving employers a free or low-cost preview of prospective workers.
When examining the economics behind internships, another socio-economic trend must be noted: Internships, particularly the unpaid variety, favor students who come from middle- and upper-income families. As will be explained in the following section, previous research indicates that having an internship greatly increases the likelihood of a student getting a full-time job in his or her field. This, of course, is the entire point of getting an internship in the first place. However, these career-enhancing internships are often closed off to the lower-income members of society.

Consider this example: a college junior who has just received an internship offer at a public relations firm in Chicago. Like most summer internships, this internship is full-time and will give this student exposure to the PR firm’s experienced employees, big-name clients, and day-to-day activities. She will be writing press releases and pitching stories to clients — real, bona-fide experience in her chosen field. However, the internship is unpaid. Among her expenses is renting half a bedroom in an apartment ($400), a monthly public transportation pass ($100), and meals (about $250 per month if she spends very, very wisely). This does not include round-trip airfare if she is not from Chicago, nor does it budget for work-appropriate clothing if she does not yet have it (nor does it budget for cleaning that clothing). If she is doing this internship for college credit, it will likely be a three credit hour class, which means she will end up paying anywhere from $350 (at a community college) to $4,000 (at a flagship private university) in order to receive class credit. This summer, she will pay at least $750 per month to work for free — at least $1,100 if she is taking it for college credit — coming to a grand total of $2,250 to $3,300 for the entire summer. If she were working full-time for federal minimum wage, she would have earned around $3,480, including a few days off without pay.
In most cases such as this, the student’s parents will likely pay the way. In other cases, there may be a scholarship that covers living expenses, or maybe there are savings to dig into. But what about the qualified men and women who cannot depend on their families or do not have savings? Can they forsake all other opportunities, even if it is only the chance to work for minimum wage, in order to accept an unpaid internship and follow their dreams? Of course there may be some exceptions, but the answer is likely no. This answer is incredibly troubling when one considers the fact that internships are seen as a prerequisite to getting hired and moving up the economic ladder. Thus, “internships quietly embody and promote inequalities of opportunity that we have been striving diligently to reduce in courts, schools, and communities” (Perlin, 2011, p. xv).

This inequality is perhaps most alarming in professions where diversity is most treasured: politics and journalism. Ideally, a representative democracy should be representative of its population, not skewed toward those whose families could fund their summer on Capitol Hill. In an opinion article titled “Unpaid internships and a culture of privilege are ruining journalism,” David Dennis, a freelance journalist, asserts that “media companies that rely on unpaid interns marginalize the voices of low-income communities and minorities” (2013). “All of my classmates were qualified to work in any newsroom or publication in the city,” he writes, “but those who could afford the lifestyle got their feet in the door with internships.” Like those former serial-interns on Capitol Hill, a fleet of journalists consisting solely of middle- and upper-class backgrounds cannot possibly embody the entire American story (Dennis, 2013).

Though study of the labor and economic factors behind internships are just beginning, these issues are essential to understand in policy debates.
Effect of Internships on Job Opportunities: Previous Research

As noted in the previous section, existing research shows that, in general, having an internship increases the number of full-time job opportunities upon graduation. In fact, most serious research that has been conducted on internships is meant to study just that: The effect of internships on job marketability, job offers, and so on.

The most thorough study of internships and job offers to date has been conducted by NACE. NACE administers an annual job survey of college students, with questions focused on their plans after graduation, their full-time job search, and their employment attitudes and preferences. Since 2011, the survey has also asked detailed questions on their internship experiences. “That internships are positively correlated with an improved chance of getting a full-time job offer is virtually indisputable at this point,” NACE reports in its 2014 analysis (p. 39). Not only were graduates with internship or co-op experience more likely to receive a job offer, but they were also likely to receive greater compensation in a full-time position than those who did not have such experience. Most notably for the purpose of this thesis, NACE reports that students who had paid internships were much more likely to get full-time job offers than those who had unpaid internships. This trend is clear across all sectors, whether it is state or local government, federal government, nonprofits, or for-profits. Similarly, graduates who came from paid internship programs also generally had higher starting salary offers than those who had unpaid internships. The precise effect of unpaid internships on receiving a full-time job offer is unfortunately somewhat inconclusive. The data are limited to graduating seniors who apply for and receive a job prior to their graduation. It can be expected that most students will receive an offer at some
Researchers at the Institute for the Study of Labor (IZA) in Bonn, Germany sought to study the effect of “student internship experiences on labor market choices on wages later in life” (Saniter & Siedler, 2014). They use surveys from a random sample of the student population at German Universities, and limit their scope to three different cohorts: those students who graduated in 2001, 2005, and 2009. These surveys followed the same students for up to five years after graduation in order to track their career progress. Two key dummy variables were generated: One to indicate whether a student completed an internship and another for whether completing an internship was a requirement by the university in order to graduate. This mandatory internship dummy was used as an instrumental variable. OLS and IV regressions showed a positive and statistically significant relationship between wages and internship experience; OLS coefficients “suggest that a student who gained labor market experience through an internship during the course of his or her studies has around 6 percent higher wages later in life” (Saniter & Siedler, 2014). Unfortunately, while the authors used perhaps the most intricate method in the existing literature to estimate the effect of internship participation on labor market outcomes, their research did not extend to estimating the effect of intern compensation on labor market outcomes.

In an article published in *The Journal of Applied Business Research*, four researchers in the fields of business and economics reported the results of an empirical study that examined “the relationship between participation in an accounting internship and increased job opportunities” (Rigsby, 2013, p. 1131). The authors collected data from professional accountants below the
level of manager in southeastern United States, asking what their undergraduate GPA was, what their internship experience was, their involvement in student groups, and the number of job offers they received. The authors then used probit analysis to predict the probability of receiving multiple job offers using the following equation:

\[ Prob(Multiple\ Job\ Offers) = f(\text{Internship, No Offer, Rejected Offer, Beta Gamma Sigma, Undergraduate GPA}) \]

The results indicate that internships are often helpful for students in gaining full-time employment, with one exception: Students who completed an internship and accepted a related job offer (i.e., with the same firm they interned with) received fewer job offers than students who did not complete an internship. Meanwhile, students who did not receive an offer from the internship firm or who rejected an offer from the firm received more offers than their peers who did not complete an internship. In either scenario, there is a clear trend that having an internship experience is helpful in getting full-time job opportunities.

Brooke Chatterton used a similar model in her college thesis. Using data from a post-graduate survey of 574 students from The Office of Career Services at Southwestern University, Chatterton conducted a probit analysis to explore the value of college internships. She found that students “who reported completing one internship during their time at Southwestern University were 13 percent more likely to find full-time employment over those that did not” (Chatterton, 2014). Additionally, the more internships a student completed, the greater their odds of receiving full-time employment.

An additional paper from West Chester University examines the effects of business internships on job marketability. The study is based on 185 employers and 392 interns enrolled
in an accredited business college in a northeastern American University. (It is important to note that while the focus of this study was on internships, the authors also included co-ops in their report, including those students who participating in co-ops under the umbrella term of “intern”.) Using mean scores from the survey, the authors measured internship benefits from both the employer’s and the intern’s point of view. Not only do the results indicate “significantly more full-time opportunities for undergraduates with business experience,” but also that the best-performing interns received the best starting salaries (Gault, 2010, p.1). In other words, as a business intern, you get what you give.

Not all research reports a positive trend between number of internships and number of job offers. In Edward Horowitz’s 1996 survey of 112 journalism majors, there was no clear relationship between having an internship and receiving a greater number of job offers. The results did indicate, however, that the students who had internships had higher starting salaries than those who did not have an internship experience (Horowitz, 1996, p. 1). Thus, while the precise effect of having an internship on job offers is still somewhat debated, existing literature does seem to agree that there is some sort of benefit to having an internship. How that benefit is said to manifest itself varies from paper to paper.

---

\(^a\) The researchers at West Chester University distinguish co-op, or cooperative education, from an internship in the following ways: compensation is usually required for co-ops but optional for intern programs; co-op students tend to work full-time while interns usually work part-time; co-ops tend to get less academic supervision than interns; and co-op programs are heavily concentrated in manufacturing and technically-oriented fields, particularly engineering. However, both co-ops and internships require professional employment and supervision, and academic credit and supervision are usually provided for both program types. Thus, for the West Chester University report, the differences between co-ops and internships were largely irrelevant, and both were included in the study.
Contribution to the Field

While the current literature provides much-needed snapshots into the world of internships and the job market, I seek to take my research further. Previous analyses:

- use small sample sizes (e.g., 574 students from Southwestern University; 112 journalism majors at the University of Wisconsin-Madison);
- are often limited to one field (e.g., accounting, business, or journalism majors);
- often use averages to make conclusions, not regression analysis (West Chester University, NACE);
- are limited to data gathered from a single year or single survey; and/or
- with the exception of the annual NACE reports, examine the effect of having an internship, any internship, on job offers — not the effect of internship salary specifically.

In order to better understand if the relationship between internships and job opportunities varies by contrasting paid and unpaid internships, I use a sample of 13,636 students from several academic disciplines. In order to control for other factors that may be at work (such as perhaps gender or help from career services offices), I use the regression model outlined in Section IV. I also combine five years’ worth of data in order to observe these trends across time, rather than limiting any conclusions to a single year. Finally, and though there may be researchers who disagree, I am willing to accept the conclusion drawn from previous research that having an internship increases the likelihood of receiving a job offer, of receiving a higher salaried job offer than those peers who did not complete an internship, or both. What I am interested in is a more detailed question: Does that relationship between internships and job offers vary between paid and unpaid internships?
III. CONCEPTUAL MODEL

In order to examine whether the relationship between internships and job offers varies by internship salary, I use the theoretical model below. The model provides a framework for the following discussion by describing the factors that should, in theory, greatly influence the likelihood of receiving a job offer, as well as the starting salary of that position. I use this framework to develop my empirical model in the following section:

\[
\text{Job Offers} = f(\text{Work Ethic, Support, Experience, } e) \quad (1)
\]

This model is a snapshot of the key factors that influence job offers. First, there is work ethic. Students who work hard in school will most likely have higher GPAs than their less diligent peers, and will also be more likely to join student organizations, pursue internships, and begin looking for full time employment sooner. All of these factors will make such students more attractive to employers, and therefore these students will be more likely to receive a job offer. Second in the framework is support. For most students, searching for full time employment is a long, tedious process. Having a robust support system, from friends and family to professionals in a career services office, is invaluable to what are likely first-time job seekers. Lastly, there is experience. An employee’s experience is perhaps the most determining factor in their marketability, as companies are increasingly unlikely or unwilling to provide training to their employees. This could be a result of unaffordability due to the recession, because of an increased labor supply, or because of some other factor. Most importantly for the purposes of this thesis, an internship is included under “experience” on a resume or cover letter. In fact, the main purpose of an internship is to gain work experience. Thus, experience is an essential element in the theoretical framework.
Next, I demonstrate how I will operationalize this theoretical model.
IV. EMPIRICAL MODEL

The econometric model I will estimate is below:

\[
Pr(\text{job offer}) = \beta_0 + \beta_1 \text{internpaid} + \beta_2 \text{intern} + \beta_3 \text{coop} + \beta_4 \text{int_finance} + \\
\beta_5 \text{int_consult} + \beta_6 \text{MonthsJobSearch} + \beta_7 \text{cs_visits} + \beta_8 \text{help_cs} + \beta_9 \text{help_alum} + \\
\beta_{10} \text{help_fac} + \beta_{11} \text{help_friends} + \beta_{12} \text{help_parents} + \beta_{13} \text{help Relatives} + \\
\beta_{14} \text{plan_startbusiness} + \beta_{15} \text{plan_gradschool} + \beta_{16} \text{plan_military} + \beta_{17} \text{plan_travel} + \\
\beta_{18} \text{major_business} + \beta_{19} \text{major_science} + \beta_{20} \text{major_tech} + \beta_{21} \text{major_libarts} + \\
\beta_{22} \text{major_lowearn} + \beta_{23} \text{male} + \beta_{24} \text{race_asian} + \beta_{25} \text{race_hispanic} + \beta_{26} \\
\text{race_black} + \beta_{27} \text{race_other} + \epsilon
\]

(2)

Where:

\text{JobOffer} is the dependent variable. It is an indicator variable that equals 1 if the student has received at least one full-time job offer and zero if otherwise;

\text{InternPaid} is an indicator variable that equals 1 if the student has had a paid internship experience and zero if otherwise;

\text{Intern} is an indicator variable that equals 1 if the student has completed an internship and zero if otherwise;

\text{Coop} is an indicator variable that equals 1 if the student has participated in a coop and zero if otherwise;

\text{Int_finance} is an indicator variable that equals 1 if the student participated in at least one internship that was in the finance sector and zero if otherwise;

\text{Int_consult} is an indicator variable that equals 1 if the student participated in at least one internship that was in the consulting sector and zero if otherwise;

\text{MonthsJobSearch} states how many months the student has been actively looking for a full-time job;

\text{Cs_visits} captures the frequency of visits to the career services office, from a scale of “never” to “4 or more visits per semester”;

\text{Help_cs} is an indicator variable that equals 1 if the student thought career services was “somewhat helpful” or “very helpful” in preparing for the job search and zero if the student “did not use” this resource or found this resource to be “not at all helpful” or “not very helpful”;

\text{Help_alum} is an indicator variable that equals 1 if the student thought the college’s alumni were “somewhat helpful” or “very helpful” in preparing for the job search and zero if the student “did not use” this resource or found this resource to be “not at all helpful” or “not very helpful”;
Help_fac is an indicator variable that equals 1 if the student thought the college’s faculty was “somewhat helpful” or “very helpful” in preparing for the job search and zero if the student “did not use” this resource or found this resource to be “not at all helpful” or “not very helpful”;

Help_friends is an indicator variable that equals 1 if the student thought his or her friends were “somewhat helpful” or “very helpful” in preparing for the job search and zero if the student “did not use” this resource or found this resource to be “not at all helpful” or “not very helpful”;

Help_parents is an indicator variable that equals 1 if the student thought his or her parents were “somewhat helpful” or “very helpful” in preparing for the job search and zero if the student “did not use” this resource or found this resource to be “not at all helpful” or “not very helpful”;

Help_relatives is an indicator variable that equals 1 if the student thought his or her relatives were “somewhat helpful” or “very helpful” in preparing for the job search and zero if the student “did not use” this resource or found this resource to be “not at all helpful” or “not very helpful”;

Plan_startbusiness is an indicator variable that equals 1 if the student plans to start his or her own business after graduation and zero if otherwise;

Plan_gradschool is an indicator variable that equals 1 if the student plans to pursue further education after graduating with a bachelor’s degree and zero if otherwise;

Plan_military is an indicator variable that equals 1 if the student plans to enter the armed forces after graduation and zero if otherwise;

Plan_travel is an indicator variable that equals 1 if the student plans to travel after graduation and zero if otherwise;

Major_business is an indicator variable that equals 1 if the student’s major was in business or a related field (i.e., accounting, business administration, economics, and/or finance) and zero if otherwise;

Major_science is an indicator variable that equals 1 if the student’s major was in science or a related field (i.e., biology, chemistry, environmental science, physics, and/or healthcare) and zero if otherwise;

Major_tech is an indicator variable that equals 1 if the student’s major was in a technical or related field (i.e., computer science, engineering, and/or math) and zero if otherwise;

Major_libarts is an indicator variable that equals 1 if the student’s major was in liberal arts or a related field (i.e., humanities, English, a foreign language, history, political science, and/or communications) and zero if otherwise;

Major_lowearn is an indicator variable that equals 1 if the student’s major was in a traditionally low-paying field (i.e., education, sociology, social work, psychology, and/or performing arts) and zero if otherwise;
Male is an indicator variable that equals 1 if the student is male and zero if female;
Race_asian is an indicator variable that equals 1 if the student is Asian and zero if otherwise;
Race_hispanic is an indicator variable that equals 1 if the student is Hispanic and zero if otherwise;
Race_black is an indicator variable that equals 1 if the student is African American and zero if otherwise;
Race_other is an indicator variable that equals 1 if the student is a minority race, where the student indicated on his or her survey a race of Native American, multiracial, or “other,” and zero if otherwise; and
\( e \) is the random error.

InternPaid, Intern, and Coop capture the student’s experience and skills acquired outside of the classroom. Because the industry a student chooses greatly influences the likelihood of a job offer, the student’s major is controlled for. Additionally, because internships in the finance and consulting sectors typically result in a full-time job offer (which is often not the case in other sectors), the int_finance and int_consult variables control for any bias this may cause in the results. Male and the Race dichotomous variables are the key demographic controls.

MonthsJobSearch and the Plan categories are behavioral variables that will likely influence the job search outcome. For example, if an individual spends significantly more time applying to graduate programs than full-time positions, that individual will naturally be less likely to receive a full-time job offer. Simply put, these variables are meant to capture the tenacity of individuals in their pursuit of full-time positions.

Cs_visits and the help categories are variables that control for “third party” influences that will likely affect a student’s job prospects. In other words, in addition to controlling for factors in the student’s personal academic and workforce experiences, I also want to capture any help the student had along the way. In particular, help_parents controls for parental influence; chiefly,
it is meant to capture the likelihood that the parents have a network that can help their child secure an internship or a full-time job. As I state in the following section, these variables are not perfect controls for the relationships I want to capture: Parent education level was not recorded for every year and so was not used in this analysis, and when a student says that a parent was “very helpful,” it is a subjective measure and not entirely clear what specific assistance was received. Similarly, the help_cs variable is highly subjective. While there are certainly limitations to the model, there are key variables that do provide some, though not perfect controls, for a student’s work ethic, support, and experience.

Next, I describe the data I use.
V. DATA AND METHODS

The main difficulty in studying internships is that there are very few institutions that collect such data. The Bureau of Labor Statistics, for example, has several robust data sets available on employment, unemployment, pay, and benefits, but it was not possible to find data on workers who are technically employed but receive no compensation — i.e., interns. Interns seem to fall through the cracks of the labor world: technically working so not counted as “unemployed,” but often unpaid and so are not counted as “employed” either. Standard labor measures and surveys simply do not apply to internships.

After studying several newspaper and journal articles regarding internships, I noticed that one organization was almost always referenced: The National Association of Colleges and Employers (NACE). NACE conducts an annual survey of undergraduate students, and since 2011 has included detailed questions regarding internships. Thanks to the cooperation and generosity of the association, I am able to analyze data sets for the years from 2011 to 2015. Because my research questions are specific to internships and full-time job offers, the data set I will examine is abridged to only include those observations who are graduating seniors who have both begun looking for and have applied for at least one full-time position. Variables of particular interest are:

1. Internship-specific variables, such as:
   • Have you had an internship or co-op since entering college?
   • If so, was it paid or unpaid?
   • In which industry?
2. Demographic variables, such as:
   • Gender
   • Race
3. Education variables, such as:
   • Major
• Applicants to graduate schools/Ph.D. programs

4. Job search variables, such as:
   • Number of interactions with career services
   • Number of months engaged in the full-time job search

5. Job-offer variables, such as:
   • Have you received a full-time job offer?

In its raw form, NACE has one data set for each academic year: Class of 2011, Class of 2012, and so on. Though the variables in each data set measure the same parameters, the variable names vary extensively. For example, in the Class of 2011 data set, the variable indicating a respondent’s college major is named “Q100_Inwhichofthefollowingsubjec”. In the Class of 2015 data set, the college major variable is “q0005_0001_0001”. Because it is important to study the effects of internships across time, these differences in variable names presented problems when combining the individual data sets. Variables that measure the same parameter, such as the choice of major variables listed above, were renamed in each data set and then combined to form a single, pooled data set with 24,228 observations.

Besides ensuring cohesion of variable names across data sets, I also changed the makeup of certain variables. Most important were the changes I made to the key independent variable that measured internship type. There were 10 types, ranging from unpaid in federal government to unpaid at a for-profit to student teaching. I dropped the observations who indicated a “student teaching” internship type for two reasons. First, student teachers can be paid or unpaid, and student teachers were not obliged to indicate one or the other in the NACE survey. Second, anyone who wants to become a teacher must complete a student teaching experience, so there is no variation among the student teachers anyway. For these reasons, student teachers were excluded from the sample. Those who indicated an internship type of “other” were also
excluded, simply because I had no way of knowing whether they were paid for their work or not. After these observations were dropped, I collapsed the 10 internship type categories into two: Those who had paid internships and those who did not. This variable is named *internpaid*. Similarly, I collapsed the “help” variables that measure helpfulness of certain resources on a scale of zero to four (“did not use” the resource to “very helpful” resource) into two categories. A zero indicated that the student did not use the resource or thought it was not at all helpful or not very helpful. A one indicated that the resource was somewhat helpful or very helpful. 

The college majors that were included in the survey varied slightly across data sets, however there were 20 that were included every year. Again, to generate meaningful results, I collapsed these 20 individual majors into five categories: *major_business*, *major_science*, *major_tech*, *major_libarts*, and *major_lowearn*. On a related note, because the Native American and multiracial categories had so few observations, they were combined and placed into the “other” race category.

It should also be noted that there was something strange about the key variables of interest *intern* and *internpaid*. There were just over 1,000 observations in the final data set who indicated that they did not complete an internship in college, but then shortly after in the survey indicated that their most recent internship experience was either paid or unpaid. Upon closer inspection, however, more than 70 percent of these individuals, though they had never completed an internship, had instead completed a co-op. It has become evident that when it came time to indicate their “internship type,” they were in fact indicating their co-op type. Because there is a *coop* variable in the regression models, this is not a concern, however it is a notable anomaly.

\[b\] For more detail on the structuring of the *internpaid* and *help* variables, see Table 4 and Table 5 in the Appendix.
My data cleaning resulted in the following variables:

**Table I: Descriptive Statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>internpaid</td>
<td>14,653</td>
<td>0.608</td>
<td>0.488</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>intern</td>
<td>23,003</td>
<td>0.650</td>
<td>0.477</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>coop</td>
<td>23,003</td>
<td>0.071</td>
<td>0.257</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>int_finance</td>
<td>24,228</td>
<td>0.067</td>
<td>0.251</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>int_consult</td>
<td>24,228</td>
<td>0.105</td>
<td>0.307</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>MonthsJobSearch</td>
<td>24,113</td>
<td>5.993</td>
<td>3.195</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>cs_visits</td>
<td>24,168</td>
<td>2.748</td>
<td>1.359</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>help_cs</td>
<td>23,227</td>
<td>0.546</td>
<td>0.498</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>help_alum</td>
<td>24,228</td>
<td>0.463</td>
<td>0.499</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>help_fac</td>
<td>23,289</td>
<td>0.677</td>
<td>0.467</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>help_friends</td>
<td>23,302</td>
<td>0.768</td>
<td>0.422</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>help_parents</td>
<td>23,323</td>
<td>0.667</td>
<td>0.471</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>help_relatives</td>
<td>23,288</td>
<td>0.522</td>
<td>0.500</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>plan_startbusiness</td>
<td>24,228</td>
<td>0.003</td>
<td>0.057</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>plan_gradschool</td>
<td>24,228</td>
<td>0.024</td>
<td>0.152</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>plan_military</td>
<td>24,228</td>
<td>0.002</td>
<td>0.041</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>plan_travel</td>
<td>24,228</td>
<td>0.007</td>
<td>0.085</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>major_business</td>
<td>24,228</td>
<td>0.259</td>
<td>0.438</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>major_science</td>
<td>24,228</td>
<td>0.104</td>
<td>0.305</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>major_tech</td>
<td>24,228</td>
<td>0.161</td>
<td>0.368</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>major_libarts</td>
<td>24,228</td>
<td>0.154</td>
<td>0.361</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>major_lowearn</td>
<td>24,228</td>
<td>0.177</td>
<td>0.382</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>male</td>
<td>23,387</td>
<td>0.335</td>
<td>0.472</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>race_asian</td>
<td>22,212</td>
<td>0.078</td>
<td>0.268</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>race_hispanic</td>
<td>22,212</td>
<td>0.073</td>
<td>0.259</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>race_black</td>
<td>22,212</td>
<td>0.057</td>
<td>0.231</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>race_other</td>
<td>22,212</td>
<td>0.060</td>
<td>0.238</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Though the data contain an extensive number of variables, there are some missing variables that may be a source of bias. Most notable is the scarcity of variables describing a student’s family background. A dichotomous variable indicating whether any parent possesses a bachelor’s degree is the only variable that captures parents’ education, and that variable is not provided for the years 2011 or 2012. There is no variable in any of the data sets that describe parental income. This omission is especially concerning: Parents in higher income brackets are more likely to encourage their children to obtain an internship, as these parents would be financially able to support their children as they work for no wage. Furthermore, parents in higher income brackets may have more extensive networks and connections, and may be more able to assist their children in obtaining internships while in college and full-time positions upon graduation. Similarly, a variable describing what fields the parents work in, similar to asking what field the student wishes to work in, would also limit bias: If a student’s mother is in finance and the student wishes to start a career on Wall Street, that mother has many more resources at her disposal that can help her child.

In future surveys, including variables such as these would be incredibly useful in limiting potential bias. As the data are currently, there is one variable that may address these concerns of potential bias: The survey includes a question asking how helpful parents and relatives were in the student’s full-time job search. Though this is a more subjective measure and perceptions are highly varied (“very helpful” could mean that a parent read every single resume and cover letter for the student as she applied to 42 jobs, or it could mean that the parent connected the student to a friend who offered a full-time job), this variable provides one way to control for bias and account for parental influence.
Lastly, there is a limitation to the data that does not concern bias: It only includes undergraduate students, not graduate or Ph.D. students. While I would be curious to know if the relationship between internship salary and career development varies with degree level, I have yet to find a data set that sorts internship information by degree level. Therefore, this research question will have to wait until there is a data set available to explore such a relationship. Because internships are rarely studied anyway, researching only graduating seniors in this thesis still provide a useful baseline for future analyses.

I next turn to the results of my estimations.
VI. RESULTS

Using the conceptual model and these data, I developed four versions of the model to best describe the relationship between internship salary and job offers. Each version includes basic experiential learning factors — whether the student completed an internship or co-op — and controls for students who completed finance or consulting internships. Behavioral controls such as months dedicated to the job search and frequency of career services visits were controlled for in each regression as well, along with support system factors (help from parents, friends, and so on), plans after graduation, and college major. Lastly, I included demographic variables for gender and race. The versions differ in that Model 1 is an LPM regression, Model 2 is a logit regression, Model 3 is a probit model that does not include the internpaid variable, and Model 4, the primary model for estimating the relationship between internship salary and job offers, is a probit regression that includes all variables.

First, notice the similarities across the models: Overall statistical significance is consistently high, with an F-statistic or chi-squared equivalent to 0.000. The R-squared across specifications ranges from 0.075 to 0.125. When the internpaid variable is included in Models 1, 2, and 4, it is highly significant (p = 0.000) and positively correlated to the probability of receiving a job offer.

Aside from functional form — LPM versus logit versus probit estimations — the main difference to note between specifications is the absence of the internpaid variable in Model 3. Because the intern and internpaid variables are expected to be highly correlated, it is likely that the negative coefficient on intern can be explained due to this multicollinearity issue: The internpaid variable is pulling significance out of the intern variable, making it inefficient. The omission of the internpaid variable in Model 3 results in a positive and highly significant
coefficient (p = 0.000) on *intern*, indicating that multicollinearity was indeed a factor. This will, no doubt, be a relief to college interns who would be dismayed to see a negative relationship between completing an internship and the probability of receiving a job offer. Similarly, the *coop* variable, which was consistently positive across the models but failed to breach the 90 percent significance level (both had a p-value of approximately 0.15) in Models 1, 3, and 4, was highly significant in Model 3 when the *internpaid* variable was omitted. Once the collinearity issue is addressed, both the *intern* and *coop* variables have the expected significance and positive correlation with job offers. Completing an internship is associated with a 4.4 percent increase in the probability of receiving a job offer, and completing a co-op is associated with a 5.3 percent increase in the probability of receiving a job offer, relative to those students who did not have such experiences.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1 LPM</th>
<th>Model 2 Logit</th>
<th>Model 3 Probit</th>
<th>Model 4 Probit</th>
</tr>
</thead>
<tbody>
<tr>
<td>internpaid</td>
<td>0.145*</td>
<td>0.658*</td>
<td>—</td>
<td>0.401*</td>
</tr>
<tr>
<td>intern</td>
<td>-0.006</td>
<td>-0.028</td>
<td>0.122*</td>
<td>-0.017</td>
</tr>
<tr>
<td>coop</td>
<td>0.024</td>
<td>0.107</td>
<td>0.147*</td>
<td>0.066</td>
</tr>
<tr>
<td>int_finance</td>
<td>0.065*</td>
<td>0.288*</td>
<td>0.261*</td>
<td>0.181*</td>
</tr>
<tr>
<td>int_consult</td>
<td>0.017</td>
<td>0.077</td>
<td>0.097*</td>
<td>0.048</td>
</tr>
<tr>
<td>MonthsJobSearch</td>
<td>0.035*</td>
<td>0.154*</td>
<td>0.094*</td>
<td>0.094*</td>
</tr>
<tr>
<td>cs_visits</td>
<td>-0.015*</td>
<td>-0.068*</td>
<td>-0.020*</td>
<td>-0.042*</td>
</tr>
<tr>
<td>help_cs</td>
<td>0.013</td>
<td>0.057</td>
<td>0.050†</td>
<td>0.036</td>
</tr>
<tr>
<td>help_alum</td>
<td>0.038*</td>
<td>0.177*</td>
<td>0.111*</td>
<td>0.106*</td>
</tr>
<tr>
<td>help_fac</td>
<td>0.011</td>
<td>0.055</td>
<td>0.033</td>
<td>0.033</td>
</tr>
<tr>
<td>help_friends</td>
<td>0.009</td>
<td>0.041</td>
<td>0.012</td>
<td>0.026</td>
</tr>
<tr>
<td>help_parents</td>
<td>0.033*</td>
<td>0.154*</td>
<td>0.104*</td>
<td>0.093*</td>
</tr>
<tr>
<td>help_relatives</td>
<td>-0.028*</td>
<td>-0.128*</td>
<td>-0.078*</td>
<td>-0.077*</td>
</tr>
<tr>
<td>plan_startbusiness</td>
<td>-0.115 (0.076)</td>
<td>-0.585 (0.400)</td>
<td>-0.360 (0.228)</td>
<td>-0.336 (0.233)</td>
</tr>
<tr>
<td>plan_gradschool</td>
<td>-0.156 (0.025)</td>
<td>-0.799 (0.139)</td>
<td>-0.482 (0.080)</td>
<td>-0.483 (0.084)</td>
</tr>
<tr>
<td>plan_military</td>
<td>-0.243†</td>
<td>-1.081†</td>
<td>-0.692†</td>
<td>-0.679†</td>
</tr>
<tr>
<td>plan_travel</td>
<td>-0.147*</td>
<td>-0.779*</td>
<td>-0.550*</td>
<td>-0.461*</td>
</tr>
<tr>
<td>Variable</td>
<td>Model 1 LPM</td>
<td>Model 2 Logit</td>
<td>Model 3 Probit</td>
<td>Model 4 Probit</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------</td>
<td>---------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>major_business</td>
<td>0.024† (0.013)</td>
<td>0.101‡ (0.059)</td>
<td>0.126* (0.032)</td>
<td>0.063† (0.036)</td>
</tr>
<tr>
<td>major_science</td>
<td>-0.002 (0.017)</td>
<td>-0.006 (0.079)</td>
<td>-0.031 (0.041)</td>
<td>0.000 (0.048)</td>
</tr>
<tr>
<td>major_tech</td>
<td>0.020 (0.015)</td>
<td>0.075 (0.066)</td>
<td>0.153* (0.035)</td>
<td>0.048 (0.041)</td>
</tr>
<tr>
<td>major_libarts</td>
<td>-0.065* (0.014)</td>
<td>-0.315* (0.067)</td>
<td>-0.171* (0.036)</td>
<td>-0.189* (0.041)</td>
</tr>
<tr>
<td>major_lowearn</td>
<td>0.018 (0.016)</td>
<td>0.083 (0.073)</td>
<td>-0.082‡ (0.035)</td>
<td>0.054 (0.044)</td>
</tr>
<tr>
<td>male</td>
<td>0.025* (0.009)</td>
<td>0.111* (0.040)</td>
<td>0.060* (0.021)</td>
<td>0.067* (0.025)</td>
</tr>
<tr>
<td>race_asian</td>
<td>0.001 (0.015)</td>
<td>0.001 (0.069)</td>
<td>-0.005 (0.037)</td>
<td>0.004 (0.042)</td>
</tr>
<tr>
<td>race_hispanic</td>
<td>0.064* (0.017)</td>
<td>0.292* (0.078)</td>
<td>0.134* (0.039)</td>
<td>0.183* (0.047)</td>
</tr>
<tr>
<td>race_black</td>
<td>-0.027 (0.018)</td>
<td>-0.123 (0.087)</td>
<td>-0.080‡ (0.045)</td>
<td>-0.072 (0.052)</td>
</tr>
<tr>
<td>race_other</td>
<td>-0.027‡ (0.016)</td>
<td>-0.127‡ (0.077)</td>
<td>-0.052 (0.041)</td>
<td>-0.077‡ (0.047)</td>
</tr>
<tr>
<td>F-Stat/Chi-sq</td>
<td>0.000* 0.125</td>
<td>0.000* 0.096</td>
<td>0.000* 0.075</td>
<td>0.000* 0.096</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.000* 0.125</td>
<td>0.000* 0.096</td>
<td>0.000* 0.075</td>
<td>0.000* 0.096</td>
</tr>
</tbody>
</table>

* p ≤ 0.01  | † p ≤ 0.05  | ‡ p ≤ 0.10

For interpretation, magnitude discussions are based on the following margins generated from Model 3 and Model 4. Odds ratios come from Model 2.
Table III: Odds Ratios and Margins for Models 2, 3, and 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 2 Odds Ratios</th>
<th>Model 3 Margins</th>
<th>Model 4 Margins</th>
</tr>
</thead>
<tbody>
<tr>
<td>internpaid</td>
<td>1.93</td>
<td>—</td>
<td>0.142</td>
</tr>
<tr>
<td>intern</td>
<td>0.97</td>
<td>0.044</td>
<td>-0.006</td>
</tr>
<tr>
<td>coop</td>
<td>1.11</td>
<td>0.052</td>
<td>0.023</td>
</tr>
<tr>
<td>int_finance</td>
<td>1.33</td>
<td>0.093</td>
<td>0.064</td>
</tr>
<tr>
<td>int_consult</td>
<td>1.08</td>
<td>0.035</td>
<td>0.017</td>
</tr>
<tr>
<td>MonthsJobSearch</td>
<td>1.17</td>
<td>0.033</td>
<td>0.033</td>
</tr>
<tr>
<td>cs_visits</td>
<td>0.93</td>
<td>-0.007</td>
<td>-0.015</td>
</tr>
<tr>
<td>help_cs</td>
<td>1.06</td>
<td>0.018</td>
<td>0.013</td>
</tr>
<tr>
<td>help_alum</td>
<td>1.19</td>
<td>0.040</td>
<td>0.038</td>
</tr>
<tr>
<td>help_fac</td>
<td>1.06</td>
<td>0.012</td>
<td>0.012</td>
</tr>
<tr>
<td>help_friends</td>
<td>1.04</td>
<td>0.004</td>
<td>0.009</td>
</tr>
<tr>
<td>help_parents</td>
<td>1.17</td>
<td>0.037</td>
<td>0.033</td>
</tr>
<tr>
<td>help_relatives</td>
<td>0.88</td>
<td>-0.028</td>
<td>-0.027</td>
</tr>
<tr>
<td>plan_startbusiness</td>
<td>0.56</td>
<td>-0.128</td>
<td>-0.119</td>
</tr>
<tr>
<td>plan_gradschool</td>
<td>0.45</td>
<td>-0.172</td>
<td>-0.171</td>
</tr>
<tr>
<td>plan_military</td>
<td>0.34</td>
<td>-0.247</td>
<td>-0.241</td>
</tr>
<tr>
<td>plan_travel</td>
<td>0.46</td>
<td>-0.196</td>
<td>-0.163</td>
</tr>
<tr>
<td>major_business</td>
<td>1.11</td>
<td>0.045</td>
<td>0.023</td>
</tr>
<tr>
<td>major_science</td>
<td>0.99</td>
<td>-0.011</td>
<td>0.000</td>
</tr>
<tr>
<td>major_tech</td>
<td>1.08</td>
<td>0.055</td>
<td>0.017</td>
</tr>
<tr>
<td>major_libarts</td>
<td>0.73</td>
<td>-0.061</td>
<td>-0.067</td>
</tr>
<tr>
<td>major_lowearn</td>
<td>1.09</td>
<td>-0.029</td>
<td>0.019</td>
</tr>
<tr>
<td>male</td>
<td>1.12</td>
<td>0.021</td>
<td>0.024</td>
</tr>
<tr>
<td>race_asian</td>
<td>1.00</td>
<td>-0.002</td>
<td>0.002</td>
</tr>
<tr>
<td>race_hispanic</td>
<td>1.34</td>
<td>0.048</td>
<td>0.065</td>
</tr>
<tr>
<td>race_black</td>
<td>0.88</td>
<td>-0.029</td>
<td>-0.026</td>
</tr>
<tr>
<td>race_other</td>
<td>0.88</td>
<td>-0.018</td>
<td>-0.027</td>
</tr>
</tbody>
</table>
As I predicted, there is a positive correlation between completing a paid internship and receiving a job offer: Completing a paid internship is associated with a 14.2 percent increase in the probability of receiving a job offer, holding other factors included in the model constant.

When I interpret the results via odds ratios, the results are also promising. If the odds ratio shows the proportion of people who had a positive outcome and received “treatment” relative to those who had a positive outcome without “treatment”, then the relationship can be illustrated in the following way:

| Students who complete a paid internship and receive a full-time job offer | Students who do not complete a paid internship and receive a full-time job offer |

Using Model 2’s logistic regression and associated odds ratios, the resulting odds ratio on the internpaid variable is 1.9. In other words, a student who has a paid internship experience on his resume is 1.9 times as likely to receive a full-time job offer as a student who did not complete a paid internship.

As one might expect, completing an internship in finance is quite beneficial to career prospects. Completing a finance internship is associated with a 6.4 percent increase in the probability of receiving a job offer, holding other factors included in the model constant.

Consulting interns also enjoy a positive correlation to full-time job offers (an increase of 1.7 percent probability), and though the magnitude is lower than for finance interns, it just barely missed the cutoff for significance ($p = 0.112$) and is worth mentioning.

It likely comes as no surprise that the longer a student has been looking for a job, the more likely she is to find one. According to Model 4, each additional month on the job search is predicted to increase the probability of receiving a job offer by 3.3 percent, holding all other
factors included in the model constant. Put a different way, for each additional month on the job search, the odds of receiving a full-time job offer increase by a factor of 1.17.

The career services variables, on the other hand, are more surprising: positive and insignificant at best; negative and highly significant at worst. Upon further examination, however, the negative coefficient on `cs_visits` is not all that surprising:

**Table IV: Relationship between Frequency of Career Services Visits and the Probability of Job Offers**

<table>
<thead>
<tr>
<th>cs_visits</th>
<th>Coefficient (Standard Error)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once</td>
<td>0.013 (0.031)</td>
<td>0.686</td>
</tr>
<tr>
<td>One visit per semester</td>
<td>-0.036 (0.035)</td>
<td>0.307</td>
</tr>
<tr>
<td>2 or 3 visits per semester</td>
<td>-0.189 (0.037)</td>
<td>0.000</td>
</tr>
<tr>
<td>4 or more visits per semester</td>
<td>-0.093 (0.040)</td>
<td>0.019</td>
</tr>
</tbody>
</table>

Comparison group: Students who never visited the career services office.

Breaking up the variable by category shows that there is a positive correlation between visits to career services and probability of receiving a job offer for those who go once. One visit per semester shows a negative correlation, but is not statistically significant. A steep downward and statistically significant trend only occurs at “2 or 3 visits per semester” or more. The odds ratio on the `cs_visits` variable is also enlightening. The odds of receiving a full-time job offer decreases by 1.5 percent with each increase in the career services visits scale. The question to ask here, I think, is not “are the students who go to career services different from the ones who do not,” but rather “are the students who go to career services once or twice different from the ones
who go more regularly?” I would argue that the answer is certainly yes: The students who need the most help — perhaps who had an impractical major or who did not have fruitful internship experiences — will go to career services the most. In other words, these students were already at a disadvantage before they set foot in the career services office, and as graduation approached they were becoming acutely aware of it. A similar explanation can be applied to the help_cs variable. There is a positive, though insignificant (p = 0.135) relationship between students who found the career services office at their university “somewhat” or “very helpful” and the probability of receiving a job offer. Naturally, the kinds of students who claimed career services was helpful would be the kinds of students who saw a clear result from that help — i.e., a job offer. Those who are more frustrated in their job search may place some blame on the career services office, well-founded or not. Simply put, there are high expectations of career services offices and much variation between the students who go there, which may help to explain these more surprising statistical reports.

Next, there are the help variables. Three of the variables in that category — help from alumni, parents, and relatives — are statistically significant with p-values of 0.004 or less. According to the model, alumni are a graduating student’s best resource. Students who reported that alumni were “somewhat” or “very helpful” in the job search were 3.8 percent more likely to receive a full-time job offer than those who did not approach alumni or reported that alumni were “not at all” or “not very helpful”. Though such a statistically significant p-value was unexpected, the results are not altogether surprising. Alumni have knowledge of both the university structure and the job market, and most importantly, they can counsel a college senior on how to best couple the two during a job search.
Help_parents is also worth noting. Students who had somewhat or very helpful parents were predicted to be 3.3 percent more likely to receive a job offer than students who had less than helpful parents. It may be worth mentioning here that the high school graduates who go to college probably tend to have at least one parent who is supportive; actively involved in their child’s life; and has more access to resources, both monetarily and through his or her networks. Therefore, the parents who are referenced in this survey are likely better equipped to help their children than those who come from disadvantaged communities and are unlikely to send their children to college. Lastly, there is the help_relatives variable, which shows a statistically significant and negative effect. If the reader has a comment about the general merits of extended family, feel free to insert it here. Otherwise, a potential explanation may be that after pursuing assistance from faculty, alumni, parents, friends, and career services, there is only so much help that other individuals on the outer rings of a student’s network can offer. The remaining help variables, help_fac and help_friends, are positively correlated with the probability of receiving a job offer, though at a statistically insignificant level.

All of the plan variables showed a negative correlation to job offers, and no surprise there: If a student plans to do something other than work full time after graduation, then she will probably not be applying for full-time jobs and therefore will not be likely to receive a full-time job offer. Plan_gradschool and plan_travel were significant at conventional levels, and both were associated with a decrease of receiving a job offer by 17 and 16 percent respectively. Plan_military had the highest magnitude of the plan control variables. Planning to go into the military after graduation was predicted to decrease a student’s probability of receiving a job offer by 24.1 percent.
Outside of the internship-related key variables of interest, the college major predictions may be the most interesting. There is bad news for liberal arts majors, who are predicted to be 6.7 percent less likely to receive a job offer than those who choose another field (or to put a more positive spin on it, 73 percent as likely to get a full-time job offer as those who chose another major). Business majors, on the other hand, are more likely to be employed by graduation: 2.3 percent more likely than those who did not declare a major related to business, all other factors held constant. Majors in the field of technology were more likely to get a job offer, as were those in the traditionally low-earning fields of education, sociology, social work, psychology, and performing arts. The variables that controlled for technology and low-earning majors were not significant, however, each with p-values around 0.2. Lastly, there are the science majors. While there is technically a positive correlation between majoring in science and receiving a job offer, the predicted magnitude is less than a hundredth of a percent. Additionally, a p-value of 0.996 indicates that there is no meaningful relationship between this major and the probability of receiving a job offer. Given the fact that education beyond a bachelor’s degree is needed to pursue most, if not all, careers in science, these results are not especially worrying or surprising.

Finally, there are the key demographic variables that control for gender and race. The predicted probability of males to receive a job offer is 2.4 percent higher than that of females, holding all other factors included in the model constant. The results for race, meanwhile, are not particularly meaningful. While the coefficients for the Hispanic and “other” races were both statistically significant (Hispanics are 6.5 percent more likely to receive a job offer than non-Hispanics; students who identified with a race not included in the survey were 2.7 percent less likely), the coefficients for the Asian and black races were not (Asian was positively associated;
black negatively). Here again, the argument can be made that the young adults who are about to graduate from college likely have certain characteristics and resources — positive role models, supportive parents, enough funding to make it through higher education — that void the disadvantages traditionally associated with certain minority groups.

Unfortunately, there are likely omitted variables that have a relationship with internship salary and the probability of receiving a full-time job offer. A Ramsey RESET test strongly supports this hypothesis. The results are highly significant, leading me to reject the null hypothesis that the model has no omitted variables.

\[
\text{Ramsey RESET test using powers of the fitted values of } f_t\text{ offered} \\
\text{Ho: model has no omitted variables} \\
F(3, 13605) = 36.82 \\
\text{Prob} > F = 0.0000
\]

There were variables that were not available in the data set, particularly those that would help to measure an individual’s ability, quality of the school, GPA, and parents’ level of education.\(^c\) Although it is not a perfect control, it is my hope that the empirical model, to some extent, controls for the more ambitious students via the MonthsJobSearch variable: Those students who have actively pursued a full-time position before graduation, sometimes long before graduation, are likely more motivated than those who have not. Similarly, the help_parents variable helps to control for parental influence and involvement in the job search, though admittedly it is a subjective measure.

In the next section, I summarize my results and discuss the policy implications.

\(^c\) A GPA variable and a dichotomous variable that indicated whether at least one parent had a bachelor’s degree were include in some of the NACE data sets, but were not reported every year.
The goal in conducting this research was to examine whether and how the effect of internships and job offers varies with internship salary. Despite the fact that internships have become so ubiquitous for college students, there is little research and debate around this topic; the research that has been done largely examines the effect of having an internship, paid or unpaid, on job prospects. Simply by raising the question “are paid internships more beneficial than unpaid ones,” I hoped to shine a new light on the status quo of unpaid internships.

In line with previous research, I expected to find a positive and statistically significant relationship between having an internship and receiving a job offer. In addition to previous research, I expected to find a positive and statistically significant relationship between having a paid internship and receiving a job offer. Both of these hypotheses were supported by the regression models. Specifically:

- Completing a paid internship is associated with a 14.2 percent increase in the probability of receiving a job offer, holding other factors included in the model constant.

- Using odds ratios, a student who has completed a paid internship is 1.9 times as likely to receive a full-time job offer as a student who did not complete a paid internship.

- Though the coefficient on the intern variable was initially negative, further research indicated that multicollinearity with the internpaid variable was to blame. Removing the internpaid variable from the regression model resulted in a positive and highly statistically significant coefficient on the intern variable. Completing an internship (paid or unpaid) is associated with a 4.4 percent increase in the probability of receiving a job offer, and completing a co-op is associated with a 5.3 percent increase in the probability of receiving a job offer, relative to those students who did not complete experiential learning activities.

Two explanations for why completing a paid internship is associated with a greater probability of receiving a job offer can be proposed based on these data: (1) unpaid internships
create a “confidence gap,” and (2), paid versus unpaid internships act as a “prescreen” for future full-time employers.

First, the confidence gap: A student with unpaid internship experience who receives a full-time job offer may not negotiate for a higher salary (he will have considered himself lucky simply to have a job that pays), and if he does negotiate, he will likely price himself below market value — having no benchmark to go by (except $0), he will be unsure of what his labor is worth and perhaps under confident of his value. Second, the prescreen: An employer looking to hire an entry-level employee will likely conduct a background check of some sort, require references, and perhaps request some sort of test or writing sample. But what will likely be of most value to the employer is looking at employment history. In the case of an entry-level employee, this history will likely be made up of internships. These internships are essentially a “pre-screen” for future employers: If a previous company was willing to pay this student while he was still in school, a potential employer will likely conclude that this is an exceptional worker. Alternatively, if the potential employer sees that this person was unpaid, he may conclude (rightly or wrongly) that the student may have been unable to obtain a paid position because he is a mediocre worker at best. Both the confidence gap and pre-screen scenarios may help account for a positive relationship between internship salary and job offers.

The heart of my policy recommendation is to enforce existing minimum wage laws and the Walling vs. Portland Terminal Co. guidelines. Admittedly, this process will be turbulent, as unpaid internships are the status quo of higher education institutions and the end of free labor will not be an easy pill to swallow for employers.
Of course, not all employers have unpaid interns because they want free labor — some businesses simply do not have the money to have more people on payroll. To financially aid such businesses, some sort of “Internship Tax Credit,” which would be worth a certain amount of money per qualifying intern, could be established. What is the determinant of a “qualifying intern”? If the employer’s internship program meets all six criteria of the Walling vs. Portland Terminal Co. guidelines.

There is also a less formal solution, but one that can make a great deal of difference: When students seek advice from alumni, parents, and faculty, these individuals should emphasize paid internship opportunities as opposed to unpaid ones. Currently, most career advice to college students is that “any experience is good experience”. A slight alteration is recommended: “Any experience is good experience — except paid experience, which is the best experience”. Students indicated that alumni, parents, and faculty were the most helpful individuals in the search for a full-time job; clearly trusted counselors often emerge from these groups. By tweaking their advice (or adding to it, really), they can make an impact on the supply side of the internship labor market: Fewer students might be willing to work for free. Employers, in turn, may have difficulty recruiting new talent unless they promise compensation, thus lessening the number of unpaid internships and increasing the number of paid opportunities.

Future research can greatly influence what policies are pursued. In addition to the research that NACE is already doing, it would be helpful if the organization could follow up with the surveyed students, or even a subset of these students, five years after graduation to track their career progress. This strategy would provide more comprehensive research into long-term salary and job offer effects of completing a paid internship. In particular, researchers could study
whether the effects of internships have long lasting career implications. It would be possible to
determine if the relationship between paid internships and the probability of receiving a job offer
goes beyond landing that first full-time job.

Most importantly, if the Bureau of Labor Statistics were to begin tracking interns and
internships like they do employees and employers, this important data would be available to
researchers. While I am not advocating for interns to be included under the term “employee” in
this situation (the culture around internships is much too disparate to be included in any existing
employment category), I would strongly advocate for a government entity to track and monitor
the number of internships and their curriculums. In this way, the effects of internships on
individuals, employers, and the national labor market can be thoroughly studied and monitored.
VIII. APPENDIX A

Table V: Coding and Generation of the Internpaid Variable

<table>
<thead>
<tr>
<th>Which of the following best describes your most recent internship experience?</th>
<th>internpaid value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid internship at a for-profit</td>
<td>1</td>
</tr>
<tr>
<td>Unpaid internship at a for-profit</td>
<td>0</td>
</tr>
<tr>
<td>Paid internship at a nonprofit</td>
<td>1</td>
</tr>
<tr>
<td>Unpaid internship at a nonprofit</td>
<td>0</td>
</tr>
<tr>
<td>Paid internship at a federal government</td>
<td>1</td>
</tr>
<tr>
<td>Unpaid internship at a federal government</td>
<td>0</td>
</tr>
<tr>
<td>Paid internship at a state or local government</td>
<td>1</td>
</tr>
<tr>
<td>Unpaid internship at a state or local government</td>
<td>0</td>
</tr>
<tr>
<td>Student teaching assignment</td>
<td>Observations dropped</td>
</tr>
</tbody>
</table>

Table VI: Coding and Generation of the Help_* Variables

<table>
<thead>
<tr>
<th>How helpful were the following?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career services, alumni, faculty, friends, parents, relatives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Raw Data Set Label</th>
<th>Numeric Value</th>
<th>Modified Label</th>
<th>help_* Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not use</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all helpful</td>
<td>1</td>
<td>Not Helpful</td>
<td>0</td>
</tr>
<tr>
<td>Not very helpful</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat helpful</td>
<td>3</td>
<td>Helpful</td>
<td>1</td>
</tr>
<tr>
<td>Very helpful</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure I: Coding and Generation of the Major_* Variable Categories

**major_business**
- Accounting
- Business Administration
- Economics

**major_science**
- Biology
- Chemistry
- Environmental Science
- Physics
- Healthcare

**major_tech**
- Computer Science
- Engineering
- Math

**major_lowearn**
- Education
- Sociology/Social Work
- Psychology
- Performing Arts

**major_libarts**
- Liberal Arts/Humanities
- English
- Foreign Language
- History/Political Science
- Communications
IX. BIBLIOGRAPHY


