

THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF FINANCE

Parental Monetary Contributions during College:
Effect on Student Post-Graduation Job Attainment

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SPRING 2021

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Finance
with honors in Finance

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ABSTRACT

Attending college is a social norm in America due to its ample benefits, especially better job opportunities and higher earning potential, which are the main motivations for most to attend college. However, a sizable downside accompanies these advantages: the incredibly high financial cost for a four-year degree. There are numerous methods to finance the large expense a college education requires, including awards without the need for future repayment or loans that accrue a great deal of interest over the life of the loan. Despite the many options to pay for school, the most common form of financial contributions toward a student's education are those directly from parents, whether from their personal income or savings, college savings plans, or borrowing parent loans. Past studies have investigated various factors, such as parental socioeconomic status or working while enrolled in school, that can impact a student's academic achievement, degree completion, or early work experiences. One study found that more parental monetary contributions increased the likelihood for degree completion, but decreased student GPA, suggesting a negative influence on an important component of a student's education. With this finding, it is imperative to understand other factors that may impact major student outcomes, such as job attainment experiences. In this thesis, the relationship between parental aid for undergraduate education and student job attainment after graduation is explored through the statistical analysis of three characteristics representing early work experiences: number of job offers received, salary, and degree of career potential at their job one year after receiving their degree. It will be determined whether there is a positive or negative effect on these experiences from parental contributions, as well as other relevant predictors, so that students and families can make more educated decisions when financing a degree.

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ACKNOWLEDGEMENTS

Dr. Christoph Hinkelmann for his guidance as my Thesis Supervisor. His helpful advice, graciousness to learn a new statistical software, and responses to a seemingly endless number of emails from me led to the completion of this thesis. I am grateful for the effort and time he spent to aid me throughout this process as I could not have achieved this paper without him.

Dr. Brian Davis for his efforts as my Honors Adviser and professor over my time as a Smeal student. His constant encouragement and care were appreciated greatly and made my experience as a Schreyer Scholar much more enjoyable.

My roommates and friends for their support during late nights writing and their hours spent editing my paper. Going through our Schreyer careers and writing our theses together created so many great memories that I will remember forever.

My parents and sister for their encouragement. I am especially appreciative of the many phone calls and conversations they spent listening to the intricate details of my thesis.

Chapter 1

Introduction

College is a hallmark of young adult life in America and is a path that generations have chosen and continue to choose. With such a high financial cost that has increased rapidly, college's return on investment and the occasionally controversial methods of financing are often debated. Parents commonly contribute a large portion to or pay the entirety of their child's educational expenses, and critics of this often challenge whether parents have a responsibility to do so. In a similar discussion, the value of attending college is frequently questioned as well; some believing the benefits undoubtedly outweigh the costs, while others view the outcomes as not nearly worth the time or financial commitment.

A key benefit used as rationale for attending college is getting a "good job," which tends to mean one of professional status, higher salary, better working conditions, and increased career and promotion potential. However, there are substantially more factors than simply having a college degree that determine the job one gets after graduating. With so many degree holders in the U.S., the market is competitive and students must position themselves well during school to get the job they desire. Students may intentionally choose a particular major, engage in internships or related work experiences, or become active in extracurricular activities to become a more attractive candidate. Since obtaining a "good job" is a contingent outcome to solidify the value of college, it is important to understand as many factors as possible that can influence that result; some of which may be less obvious than others. Many external elements can help or harm a student's performance in school, such as family background, financial circumstances, living

conditions, and so on. This thesis seeks to determine if a less evident factor than job qualifications or academic achievement can be an influence that shapes a student's job attainment after graduating. As the best method of college financing is commonly disputed, understanding the long-term effects of the various options is essential. However, little research has been conducted in the educational community on the connection between financing techniques and student success post-graduation. The contribution of this thesis will be filling the gap in the literature by determining the relationship between parents paying for college and student job attainment after graduation.

Advantages of Attending College

The qualities that constitute student success after graduation are the same aspects that many are seeking when originally deciding to pursue college. The main expected benefits include better careers, higher-paying jobs, and greater opportunities for success in life, as well as intangible benefits, such as personal development and building a social network. Perhaps the most desirable outcome is gaining higher earning potential. Compared to high school graduates, college degree holders earned on average \$33,000 more per year in 2019 with earnings of \$45,000 and \$78,000, respectively (Bahney, 2019). The annual return for an investment in a college education has been calculated to be 15%, even after adjusting for inflation, which is considerably greater than historical returns of any asset class on Wall Street (Busteed, 2019). Because of this, those with a degree will, on average, earn significantly more money over a lifetime than those without a degree. Not only do bachelor's degree holders earn a higher

income, they also typically enjoy the advantage of superior nonmonetary compensation as well, such as better benefits, health care, and travel opportunities (Loveless, n.d.).

College graduates also gain an advantage as a candidate entering the labor market because most professional jobs today require a college degree and increasingly more Americans are educated. According to the U.S. Census Bureau, the number of people over the age of 25 with at least a bachelor's degree increased from 29.9% to 36.0% from 2010 to 2019 (*U. S. Census Bureau Releases New Educational Attainment Data*, 2020). High school graduates without a degree are said to be "left behind" in today's economy, according to Luhby (2016), with increasingly more employers requiring a college education. The Bureau of Labor Statistics' January 2020 report supports this as bachelor's degree recipients faced a 2.0% unemployment rate, while those with only a high school diploma experienced 3.8% (*Unemployment Rate 2.0 Percent for College Grads, 3.8 Percent for High School Grads in January 2020*, 2020). Although a bachelor's degree boosts the likelihood of finding a job, the chances of it paying less than expected for a graduate or being a position that does not require a degree at all are high. Graduates with jobs of these characteristics are considered "underemployed," which 43% experienced in their first job in 2018 (Korn, 2018). Nevertheless, those with college degrees are still more likely to receive promotions and less likely to be laid off during economic hardship than those without a degree (Loveless, n.d.). During the Great Recession between 2007 and 2011, 5.6 million of the 7.2 million people that lost their jobs were those with only a high school diploma, and they still have not fully reclaimed those positions (Luhby, 2016).

In addition to higher compensation and job security, college graduates experience many intangible perks just by possessing a degree. Graduates tend to enjoy their jobs more and have higher satisfaction with the work, which are important aspects of quality of life that cannot be

discounted. Another popular belief is that college presents experiences unlike any other that result in personal growth, enhanced social skills, networking, and the discovery of interests, which are valuable characteristics that can shape the remainder of one's career and life (Loveless, n.d.). Clearly, the potential benefits from college are ample, supporting the claims that obtaining a degree is worthwhile.

Aside from one's personal desire to gain these benefits, there are also pressures from society and other external sources that could push a student to make the decision to go to college. High school coursework is framed around preparing students to be accepted to a good college and succeed academically in the future. Educational faculty, whether intentionally or not, give the impression to high school students that there is no alternative to doing well in school and attending college after (Stephens, 2013). Parents, who hold an even greater influence in a teenager's life, also frequently convey this idea, making the student feel as though there is nothing else to consider after high school other than college. Even more so, if the parents attended college themselves, this expectation for their child is presumably even greater (Holmstrom, Karp, & Gray, 2011). While a student may have numerous personal reasons for wanting to obtain a degree, there are almost undoubtedly some predispositions of what success requires and influences from other people guiding their decision-making.

Disadvantages of Attending College

As with anything, despite the many benefits that college provides, there are certainly negative qualities that accompany it as well; the most glaring being its extremely expensive price. In the U.S. for 2020-2021, annual tuition for four-year public schools is, on average,

\$27,437 for out-of-state and \$9,580 for in-state residents (Bustamante, 2019). This number is not even taking into account about \$16,000 or more per year in additional expenses, like room and board or off-campus living. This price is even higher for four-year nonprofit, private colleges at \$37,200 for tuition and another \$16,749 for living per year, according to EducationData.org (2019). If the student graduates timely in four years, which only 39% do, their total undergraduate education is on average over \$100,000 for in-state public schools or \$215,000 for private schools. On top of that, the lost income that these students could make during the four years had they not went to college must also be considered, which is estimated to be as large as an extra \$160,000 before taxes in addition to the tuition and expenses (Bustamante, 2019).

To make matters worse, these prices have been consistently rising over the past several decades at unsustainable rates compared to graduates' typical salaries after graduation. The average cost of a four-year college's tuition has increased by 361% since 1963 to 2021 after adjusting for inflation (Bustamante, 2019). Another source found that from 1989 to 2016, the total price for all 4 years doubled after adjusting for inflation, which is a 2.6% increase per year (Maldonado, 2018). The concerning aspect of these increases is that in the same time period, annual wages only grew by 0.3% on average, meaning the increase in the cost of college was about eight times greater than that of wages (Maldonado, 2018). With costs that are not as affordable for graduates as they once were, the price of a degree is widely argued against and the return on investment of college has been brought under scrutiny in recent years.

These unrealistically high prices require students and families to use a variety of financing options; some of which are awards that do not need to be repaid, while others are less favorable and sometimes risky in the long run. Based on the Federal Student Aid website, the forms of financial aid that do not require repayment are grants, scholarships, work-study, and a

few for specific students, like those in the military or studying internationally (*Types of Financial Aid*, n.d.). While some of these are based on merit or athletics, many are need-based aid, meaning a student only qualifies if their family is considered in need of financial help and unable to afford college based on their Expected Family Contribution (EFC) from their Free Application for Federal Student Aid (FAFSA). Consequently, many students do not receive nearly enough or any financial aid, leaving the last remaining option of borrowing. The federal government offers several types of student loans as well; direct subsidized do not require student payment on interest if need is demonstrated, but direct unsubsidized, which most students are eligible for, do require interest payments from students. Other federal loans, called Direct PLUS Loans, are specifically for parents of dependent students (*Federal Student Loans for College or Career School Are an Investment in Your Future*, n.d.). Despite all of these federal options, many students are still left with uncovered tuition and expenses and must resort to private loans or help from parents.

Private student loans usually have higher interest rates and result in students paying a great deal more in the end than the original amount borrowed, which is why private loans are recommended last after all other forms of aid have been exhausted. Borrowing large amounts of any type of loan leads to students graduating with a debt burden that takes usually ten years or more to pay off. While taking on student debt allows students that otherwise did not have the funds upfront to obtain a degree, most of these students are very young at the time and may not grasp the future ramifications of amassing large amounts of debt (Kagan, 2019). Over the past several decades, the number of loans acquired by students has increased significantly, subsequently raising the average debt burden of all students (Dickeson, 2001). According to EducationData.org, 34% of people in the U.S. between ages 18 and 29 have student debt with an

average amount of \$39,351 per person (Bustamante, 2020). As of 2020, the total student loan debt outstanding in the U.S. was at a massive \$1.71 trillion, which is growing 513% faster than that of the country's gross domestic product (Bustamante, 2020). This monumental rise has made student loan debt the second-largest form of consumer debt in America after home mortgages, shedding more of a negative view on student loans than ever before (*Value of Household Debt in the United States as of June 2020, by Type*, 2020).

The impact of student loan burdens on individuals has been researched widely and consistently effects other areas of life other than only personal finances. Depending on the length and difficulty of repayment, a graduate may struggle to be approved for a loan later in life for major purchases, like a house or car, or may take an unappealing job because of the need for a higher pay (Dickeson, 2001). The effects can also persist after one's career as those with high amounts of outstanding debt cannot make as many contributions to retirement savings (*Report on the Economic Well-Being of U.S. Households in 2019 - May 2020*, 2020). Large monthly payments may also delay or terminate plans to attend graduate school or start a family (Woo, 2013). These consequences are altering major decisions and the intended course of an individual's life, showing the unsettling power that this much student debt has on an individual. As a matter of fact, one study based on the Gallup-Purdue Index found that students with \$50,000 or more in debt were linked to having lower levels of general well-being than students that borrowed nothing (Dugan & Marken, 2014). While student loans give individuals the great opportunity of getting an education, the evident downsides to quality of life that may come with it can be extreme and life-changing.

Parents' Role in the Financial Cost

While the financial cost over four years of undergraduate education may be sizable, some students never deal with the finances or its consequences at all. Many parents in America, about 83%, choose to pay for at least some of their child's education and take a portion or the entirety of the financial responsibility away from the student (Hanson, 2020). Acknowledging the previously mentioned drawbacks of student loans, it is understandable that a majority of parents choose to do this so that their child can avoid the long-term repercussions of debt. However, this financial help from parents is not small. One report averaged that parents contribute \$11,900 for just one year of their child's education from their personal income, savings, or borrowing. Coupling this with college savings plans, the average support from parents is \$34,461 per year when they are the primary financial decision-makers. These techniques make the financial support from parents the largest financial contribution toward college for most students (Hanson, 2020).

For parents to be able to afford this, they usually must combine several methods as simply paying out of pocket is not feasible for most. Aside from a parent's income or personal savings, common financing options are long-term college savings accounts or borrowing parent loans. Popular savings plans, like 529 Plans and Coverdell Education Savings Accounts, allow parents to begin saving for their child's future education decades in advance and tend to have high yields that make them worthwhile (Hanson, 2020). As previously mentioned, Direct PLUS Loans are offered from the federal government for dependent student's parents, but private loans can also be taken out by parents (*Federal Student Loans for College or Career School Are an Investment in Your Future*, n.d.).

On the contrary, some strategies used by parents are not always financially responsible and are sometimes risky. For example, a precarious funding technique is using a home equity loan, or mortgaging property, creating the chance of one losing their house if they default on the loan (Argento, 2020). Some parents put their own future financial security in danger as 14% of parents withdraw funds from their own retirement account for their child's school (Hanson, 2020). Paying for child's education is clearly a big commitment and, at times, financially similar to that of student loan debt, but with the responsibility weighing on the parents instead of the students.

In the same manner that student loans cause many negative impacts on students later in life, it can be inquired whether parental contributions have any similar long-term effects. In this thesis, the difference between students whose parents paid for some or all of their college expenses will be compared with those whose did not, using tangible college outcomes as the differentiating factor. Because a main reason most go to college is the eventual outcome of a higher-paying job, better career opportunities, and financial success, this thesis will be focusing on student outcomes related to their post-graduation job attainment experiences for comparison.

Research Question and Hypothesis

Research Question: Are the job attainment experiences for students that receive less or no money from their parents for undergraduate education better or worse than those of students that receive more parental monetary contributions?

Hypothesis: The amount of parental monetary contributions for a student's college will have an effect on one's job attainment experiences after graduating.

Potential reasons for this proposed effect, whether positive or negative, are discussed in the following chapter. Several points suggest that parental monetary contributions provide students necessary support and alleviate financial stressors so that they may excel in their academic and career endeavors without struggle. The expectations of parents are also possible arguments for a positive relationship as parental opinions that accompany their financial aid may encourage students to perform better in school. On the contrary, too many parental contributions could diminish a student's personal desire to succeed academically as extrinsic motivations may not be as strong as intrinsic ones. Likewise, without experiencing the full magnitude of the financial responsibility of attending college, students with large amounts of parental aid may not realize the importance of making their education worthwhile by achieving good grades while enrolled or obtaining a high-paying job after graduating. With conflicting rationale for the type of effect parental monetary contributions may have on student job attainment experiences, it is necessary to study this subject further to better understand the potential effect.

Chapter 2

Literature Review

Parental Mindset on College

In America today, there is a strong culture encouraging all students to follow the same path of graduating high school, attending college, and entering the workforce, described as “nearly unquestioned blueprints for living” (Holmstrom et al., 2011). This social construct suggests that a college education is indispensable to be successful, so it is not surprising that some feel obligated to get a degree. Holmstrom et al. (2011) set out to understand why this social norm exists and the motives parents possess to support it by frequently paying for their child’s education. This support is especially true among upper middle-class parents that also went to college, whom tend to assume that attending college is necessary and an obvious decision. Several motivations for this are maintaining their family’s social image, ensuring their child receives the same benefits they did, and maximizing success in their student’s life. Many of these sought-after benefits involve personal growth, such as developing confidence, social skills, and interests, while getting a job after graduating is merely an “after-product” (Holmstrom et al., 2011).

Accompanying this common assumption that their child will attend college, upper-middle class parents tend to take on the responsibility of paying for it without question. Parents surveyed almost unanimously agreed that paying for their child’s education is an “obligation, not a burden” (Holmstrom et al., 2011). The responses only varied when discussing ability to pay and the level of difficulty it would cause financially. Their willingness to pay for such a large transaction was also determined by the anticipated performance of the particular student based

on traits, such as high school achievement, how studious they are, and if they only discussed social aspects of college instead of academics (Holmstrom et al., 2011).

Furthermore, this pattern of parents paying for their child's college expenses is supported by the modern parent-child relationship, which is described as, "parent-child relationships that provide unilateral support—economic, emotional, and social—to children, with parents not expected to receive anything tangible in return" (Holmstrom et al., 2011, p.282). Opposed to repaying parents with money as if the contributions were loans, the child's expectation is instead to make the most of the opportunity of attending college by working hard, developing personally, and eventually becoming financially independent (Holmstrom et al., 2011). The paper's survey results suggest that it is not atypical for students to attend college largely due to parents' desires, expectations, and financial contributions. With parents dedicating a great deal to pay for their child's education, it can be unclear whether this major life decision is a result of the parents making the choice for the students or if they are gifting their child an incredible opportunity. Students in this position may not be as intrinsically motivated to excel in school or their careers as students in opposite situations as they may be striving to achieve their parents' goals, instead of their own. This contrast in student motives leads to the question of how this trait can affect a student's educational performance and overall success in life.

Impacts on Student Success

Understanding the factors that can influence a student's performance in college and post-graduation are meaningful for educators, parents, and most importantly, students. When making any decision involving one's undergraduate education, the outcomes of attending college, such

as academic achievement, job prospects, and long-term careers, are valuable considerations, so it is critical to understand what contributes to them. Being one of the most significant metrics of performance, an individual's GPA in college is often positively related to earnings in a graduate's initial career (Kalenkoski & Pabilonia, 2010). With this knowledge, anything that can alter their academic performance or GPA, for better or worse, can be assumed to consequently have a role in that student's success in their careers.

In an attempt to determine one of these influences on student success, Kalenkoski and Pabilonia (2010) conducted a study on students that worked while enrolled full-time. A large number of undergraduate students fall into this category to make extra money to cover school-related or living expenses. Having a job can be a major component of daily life and consume a large portion of an individual's time, so it is interesting to observe the blend of being a student and employee simultaneously. There are many arguments for whether these students experience benefits or disadvantages in college and in their future careers as a result. The main points suggesting positive effects are that the work may provide valuable work experience or lead to better benefits, wages, and chances of being employed in the future. Arguments opposing this advocate that the reduction in amount and quality of time spent on school work results in harm to academic achievement and GPA, less likelihood of graduating, and lower career wages (Kalenkoski & Pabilonia, 2010).

To test these conflicting viewpoints, it was found, using a nationally representative study, that students working during school experienced negative effects on GPA as the number of hours increased. For four-year students, a 0.18 decrease in GPA was observed for every 15.2-hour increase in time spent working. As discussed, GPA has been directly connected to early career outcomes and earnings, so this measurable decrease is important to be aware of. To supplement

this finding, the authors explored the reasons that these students were working and discovered that the number of hours worked increased as parental monetary transfers decreased and vice versa (Kalenkoski & Pabilonia, 2010). This conclusion shows that actions while in school can affect a student's post-graduation achievements, even if they are seemingly unrelated.

With a similar intention, other studies have investigated whether specific characteristics held by a student or their family have an influence on college outcomes. A particularly significant quality is socioeconomic status, or SES, which places individuals into social classes based on income, job held, and education level (*Socioeconomic Status*, n.d.). This measure is often used to predict an individual's outcomes throughout life, including access to resources and opportunities, financial security, and physical and psychological health. Those from lower-SES families commonly encounter disadvantages in learning and schooling from early childhood through high school graduation, and the link between SES and education has been long researched (*Education and Socioeconomic Status Factsheet*, n.d.). With such a major implication on educational achievement, the relationship between SES and outcomes of postsecondary education must be explored. As mentioned previously, a student's early work experiences after graduating are one of the most important of these outcomes.

Faas, Benson, and Kaestle (2012) sought to determine the connection between student career outcomes and parental SES, which inevitably has an influence on a parent's level of investment in their child's education, as well as their expectations for the student's success. A key assumption in finding this relationship is that educational outcomes can directly predict work outcomes. The socioeconomic status is of interest in this scenario because parents with higher-SES tend to buy more learning materials for their child, take them on vacations, hire private tutors, and pay for expensive college classes or prep courses. The beliefs they instill in their child

about their future and college are also important predictors of academic performance as parents' expectations for success and the type of lifestyle their child should live is a driving motivation for students (Faas et al., 2012).

After analysis, these parent expectations were confirmed to have a significant relationship with educational outcomes, but did not have a direct link to career outcomes and experiences (Faas et al., 2012). Greater socioeconomic resources increased future expectations of students and their eventual educational performance. However, similarly with expectations, the relationship between socioeconomic resources and work outcomes was not direct. Given that educational performance is known to serve as a predictor of career outcomes and satisfaction, as parent expectations and resources predicted educational outcomes, they in turn also impacted work outcomes indirectly. The study's implication is that the influences on educational and work outcomes are dynamic and there are many perspectives to explore to truly understand student experiences. Equally important, these findings demonstrate the power that parent actions and qualities can have in shaping a student's success even after they are no longer in the same household. (Faas et al., 2012).

Effects of Parental Contributions

Similarly, if parent socioeconomic status has a strong correlation with a student's academic success, it is expected that any money they give to their child for school would also have an effect. Hamilton (2013) investigated the impacts of parental monetary contributions for college on student's GPA and degree completion. There is debate between a "more-is-more" theoretical approach, implying that the more parental help given, the more potential for student

success; and a “more-is-less” mindset, in which a student will actually do better with less assistance. Using the Baccalaureate and Beyond Study of 1993 and the Beginning Postsecondary Students Study of 1990 from the National Center for Education Statistics (NCES), it was found that parental aid led to higher rates of degree completion among students, but surprisingly lower GPAs. Analysis of three regression models for bachelor’s degree completion on parental aid showed statistically significant results that the student’s likelihood of graduating in less than five years increased with parental aid. It is notable that parental contributions offer diminishing returns on students’ chances of completing their degree in a timely manner, as in the higher the aid amount, the smaller the increase in likelihood of graduating. On the other hand, opposite results were found using a similar methodology for models observing the effect of parental aid on GPA. Student GPA decreased as parental aid increased in all three models, which were statistically significant at the 0.001 significance level (Hamilton, 2013).

These findings conclude that students with financial help from parents are “satisficing” in their college careers. This behavior means that they “meet the criteria for adequacy on multiple fronts, rather than optimize chances for a particular outcome” (Hamilton, 2013, p.90). The study’s connotation is that receiving monetary help from parents actually hinders an important component of student’s success, GPA, instead of benefiting it as most would assume (Hamilton, 2013). Considering education in America is so commonly paid for by parents, this result is surprising and raises the question of how parents’ aid influences other key outcomes of a student’s education, like career experiences. As discussed above, academic achievement can forecast career outcomes, so if parental aid has an unintended, negative effect on a key aspect like GPA, it must be explored if this is also true for a student’s post-graduation job attainment. A

discovery such as that could change the way that many students and families choose to fund their education and seems like a necessary contribution to the conversation of financing college.

Chapter 3

Methodology

Description of the NCES Baccalaureate and Beyond Study

To test this thesis's hypothesis, the 1993/03 Baccalaureate and Beyond Longitudinal Study conducted by the National Center for Education Statistics (NCES) within the United States Department of Education is analyzed (Wine et al, 2005). While there are more recent versions of this study, this year was chosen because of the specific information it provides regarding parental financial contributions and job attainment that will more effectively answer this thesis's research question. The objectives of this extensive survey were to collect information on undergraduate enrollment, financial resources, and postbaccalaureate and work experiences in order to further understand the long-term impacts of postsecondary education (Wine et al, 2005). To achieve these objectives on a nationally representative scale, the study surveyed 10,000 students in the United States and Puerto Rico and represented about 1.2 million students graduating with bachelor's degrees between July 1992 and June 1993 regardless of when they began college. (Wine, Cominole, Wheelless, Dudley, & Franklin, 2005; Bradburn, Nevill, & Cataldi, 2006). Data collection consisted of gathering student transcripts directly from institutions and surveying individuals through a web-based interview with the aid of computer-assisted telephone interviewing (CATI). The survey was either self-administered or conducted by a staff member over telephone or in-person.

To observe student experiences one year after completing their bachelor's degrees, only results from the first follow-up survey in 1994, called the Baccalaureate and Beyond Longitudinal Study 1993/94, are analyzed in this paper (Wine et al, 2005). Additionally, only

students classified as dependent and those working full-time without any type of educational enrollment one year after graduating are included.

Methodology Design

As previously stated, the research question that thesis seeks to answer is: Are the job attainment experiences for students that receive less or no money from their parents for undergraduate education better or worse than those of students that receive more parental monetary contributions? To measure the effects of parental financial aid on various job attainment metrics, a combination of multiple linear and logistic regressions is utilized appropriately for the chosen post-graduation job-related variable. This thesis's methodology is, to a large extent, based on the analysis by Hamilton (2013), in which the same 1993/03 Baccalaureate and Beyond Longitudinal Study was used to examine effects of parental aid on student GPA and degree completion. In their analysis, parental aid was used as an independent variable, while GPA and degree completion were dependent variables in individual linear and logistic regression models, respectively. To observe a comprehensive view of the effects from parental aid, three iterations of models were implemented sequentially per dependent variable. To establish results, separate from any other factors, the first regression was a bivariate model with only parental aid and the specified dependent variable. The second model then controlled for additional variables relating to student demographics and parental SES, which are valuable attributes in education research. For the third iteration, supplementary variables were added to view the outcome of numerous factors simultaneously, including student, family, and institution characteristics (Hamilton, 2013).

In a similar fashion, this paper's analysis consists of three sets of successive models per each job attainment variable of interest. The decision to replicate much of the methodology from the work of Hamilton (2013) was driven by the value this approach provides and the commonality of the predictor variable, parental aid. By starting with a single variable and iteratively enhancing the model with confounding factors, the dynamic effects on the outcome of interest are evident from multiple perspectives (1. 1. 2 - *Explanatory & Response Variables* | *Stat* 200, n.d.; Hayes, 2021). However, there are several variations to the approach in this paper that contrast from that of Hamilton (2013). Only explanatory variables found to be relevant for job attainment are also included in this study, and the order of subsequent models is switched from the sequence used by Hamilton. Instead, the approach of this paper is adding factors that directly impact job attainment, such as academics and experience, prior to less direct predictors, such as parent or demographic characteristics. Lastly, in Hamilton's models with GPA and degree, to compensate for the positively skewed nature of the monetary values, they took the log of each item instead of using the values of parental aid as reported (Hamilton, 2013). However, for this thesis, taking the log of the data is not possible, which will be explained further.

Key Variables

Dependent Variables

To holistically represent job attainment experiences of students within a year after graduating, the effect of parental aid on three different dependent variables is observed. Since many factors can constitute an individual's job attainment experiences, three key areas are established as necessary measurements for that outcome; these factors are the job search,

financial compensation, and long-term career potential. The combination of these three categories provides a comprehensive approach to measuring a graduate's job attainment experiences.

The first major component of job attainment is the search to receive an offer, which can be a difficult process from sending resumes, attending job fairs, networking, and being interviewed. Naturally, the goal of the job search is to be offered a position for a job that is desirable for a myriad of reasons. To represent the search process in analysis, the number of job offers the graduate received in 1994, their first year after obtaining their degree, is the first of three dependent variables observed. This variable was chosen because of its relevance in getting a first job and its indication for how positive and successful a student's recruiting experience was. It also partly demonstrates a student's attitude toward and satisfaction with their position as an individual with multiple offers has the freedom to compare the qualities, pay, and personal interests for each and inevitably choose the one they deem subjectively superior.

In addition to the job search, financial compensation is considered another major component of job attainment. While there are other forms of compensation, an employee's salary is paramount compared to all others provided by an employer. For most people, salary size dictates the standard of living an individual can afford and could influence long-term decisions, such as making large purchases, like houses or cars, contributing to savings or retirement, or starting a family. Because of the sheer importance of income to an individual's livelihood and lifelong choices, monetary compensation is one of the three key components of a graduate's first job experiences. The dependent variable to represent this is graduate's annual salary as of April 1994 employment, which is one year after receiving their degree.

Finally, the third key area of job attainment experiences for the purposes of this thesis are the future career possibilities that the graduate's profession prepares them for. A part of getting a "good job," which is one of the most common reasons to go to college, is the hope for a more successful career and higher earning potential for a lifetime. Because of this expectation, it is imperative to examine a first job for its qualities in the short-term, like monetary compensation, but also in the long-term. To exemplify the future ramifications of a first job, degree of career potential is used as the third and final dependent variable. This variable reflects the student's opinion of how their employment was preparing them as a professional and setting them up to succeed in their future career. This variable was measured categorically with the options of "definite career potential," "possible career potential," and "not much career potential." In analysis, these categories are grouped into two groups: "definite or possible career potential" and "not much career potential." By including a categorical variable as opposed to continuous, such as number of job offers and annual salary, a qualitative approach is added to the analysis, enhancing the representation of post-graduation job experiences.

Main Independent Variable

As expected, the main independent variable for all three dependent variables is parental monetary contributions, which states the amount of direct monetary contributions students received from parents for school expenses in their last year of college. This value was reported by the students and does not include loans or any other form of help from parents. If a student's parents were married, the amount recorded was the joint contribution; and if they were divorced, the survey item was asked separately and the amounts were combined.

Explanatory Variables

As described, to thoroughly examine the effect of parental aid on job experiences, groups of explanatory variables are added in three sequential models to control for other factors impacting the results. These sets of variables vary slightly for each dependent variable based on their relevant importance, which is addressed as needed. For each dependent variable, the first model is bivariate and includes one of the three dependent variables and the single independent variable of parental monetary contributions. For the second iteration after the bivariate models, predictors that directly impact job attainment are added: bachelor's degree major, GPA, and the relationship between the student's job and degree. For the model for number of offers, three more variables are included: number of jobs interviewed for, if the student had work experience related to their degree before graduating, and if the student participated in one or more forms of cooperative education, internships, or apprenticeships. Since many employers require some sort of interview screening to receive a job offer, the number of interviews a graduate participated in must have a relationship to the number of offers acquired. Having related work experience and further academic or professional training is a relevant qualification that may affect a student's performance in the application process. In the model for degree of career potential, participation in one or more activities of either cooperative education, internships, or apprenticeships is also included as it serves as an early career experience during college. In the models for salary, whether the employer offered health insurance is controlled for because as employer-covered health insurance costs increase, employee salaries decrease (*Effects of Employer-Sponsored Health Insurance Costs on Social Security Taxable Wages*, n.d.). Lastly, for both the models of salary and degree of career potential, critical employment characteristics are accounted for: whether the job was professional and if the job required a degree. The inclusion of these

variables was based on the assumption that professionalism and a requisite of college education results in a higher salary and increased career potential.

Finally, after each dependent variable's second model, the third iteration of regressions consists of variables related to the student's parents or demographics because of their likely secondary effect on job attainment experiences as opposed to the direct predictors added in the prior model. The demographic variables for this stage are gender, ethnicity, and age when received degree. Gender and ethnicity are necessary to control for due to the ongoing labor concerns regarding the gender wage gap and employment inequalities associated with race and ethnicity that could impact the results of the analysis (*The Simple Truth about the Gender Wage Gap*, 2020). Age discrimination is also a continuing problem in the U.S. as older adults struggle more finding a new job than younger candidates, so the age when the student received their degree was also controlled for (Lipnic, 2018). In a similar approach as Hamilton (2013), parent-related variables are added to control for factors out of the student's control, including whether parents received a bachelor's degree or less education, number of children the parents had attending college, and parent income. After understanding the implication parental resources have on a student's educational and career outcomes, it is imperative to control for their effects when examining models of parental aid and job attainment experiences (Faas et al., 2012).

Explanation of Statistical Software

Since this study's micro-level data is confidential and protected by law, a license is needed to access the restricted-use data to protect the identities of the individuals in the study (*Acquiring micro-level NCES data*, n.d.). However, acquiring this license was not possible for

this thesis, so instead, NCES's DataTools platform is used to create linear and logistic regressions. DataTools is an online data software application to access NCES surveys without a license or other data analysis software and is free from the U.S. Department of Education (Bradburn et al., 2006; Huo & Redford, n.d.). This application limits the data that is available for public use by removing direct identifiers, using disclosure risks, and implementing coarsening techniques, among other forms of privacy protections (*Acquiring micro-level NCES data*, n.d.). Within the DataTools platform, PowerStats is designed for users to produce logistic and linear regressions (*Datalab*, n.d.). However, using the NCES-provided data software does present several nuances and limitations that could be avoided by having access to the complete data with a license, which will be discussed further.

First, due to the reliance on PowerStats, the regression outputs provided are all estimates as the sample size is modified to protect individual respondents' privacy (*B&B: 93/03 Baccalaureate and Beyond Longitudinal Study*, n.d.). Instead of displaying the true sample size, a 'coarsened number of cases' is given, which is not the actual number of respondents. Because of this adjustment, the NCES suggests practicing caution when using any outputs for statistical purposes (*B&B: 93/03 Baccalaureate and Beyond Longitudinal Study*, n.d.). This discrepancy in the sample size makes it challenging to make true predictions for the population and is the largest limitation of using PowerStats. Another difference from standard statistical analysis software is the interpretation of degrees of freedom. While degrees of freedom typically correspond to the number of samples observed in the model, in PowerStats' outputs, it is instead a calculation consisting of the number of independent variables and replicate weights in the dataset.

Furthermore, considering the complexity of this large dataset and the various methods involved in its sampling design, unique care must be taken to account for any sampling error and

to calculate variance (*NCES Survey Designs*, n.d.). Because of this, standard practices for a simple random sample will not correctly find variance, and significance and hypothesis test findings will be inaccurate. To accurately manage this complication, NCES's PowerStats has built-in functions appropriate for the complex sample design. One technique is the use of the balanced repeated replication method for standard error and other variance estimates.

Additionally, sample weighting is required when using NCES datasets to accurately makes estimates for the population because of the risk of biased data from nonresponse. These weights are specific to the follow-up survey from which the data was collected and are vital to make a representative sample of the target population at that given point in time (*NCES Survey Designs*, n.d.). For the purposes of this thesis, the weighting used for all regressions is for students in their first year after graduation, which is labeled as 'WTE000' in PowerStats and includes survey items from 1993 and 1994. For statistical significance, t-values are calculated from the models' t-distributions for two-tailed hypothesis testing (*Datalab*, n.d.).

In the following section, three tables will be presented for each of the three dependent variables: number of job offers, salary, and degree of career potential. Within each table, there are three columns at the top representing each of the three iterations of models that build upon one another. Along the left side, all of the independent variables are listed with their corresponding regression coefficient under the respective model column. Statistical significance was tested at the 0.05 significance level and indications were also made for the 0.01 and 0.001 significance levels appropriately. Next to each regression coefficient, the number of asterisks corresponds with the significance level that the p-value satisfied, which is described in a key at the bottom of the table.

Chapter 4

Results and Analysis

As previously described, the effects of parental monetary aid on three dependent variables representing a student's job attainment experiences one-year post-graduation will be examined. For each dependent variable, which are the number of job offers received, salary, and job's degree of career potential, there will be three models of regressions with increasingly more explanatory variables. When stating regression results, the regression coefficients are represented in parentheses with the denotation "*b*," *p*-values with "*p*," and odds ratios with "*OR*."

Number of Job Offers Results

In Table 1, the coefficients for the linear regressions of number of job offers on parental aid and their significance can be seen. In Regression 1 with only parental aid and number of job offers, parental contributions had no effect on how many offers a student received ($b = 0.000$, $p < 0.01$). This result opposes this thesis's hypothesis that parental aid would have a negative effect on job attainment in a surprising way; instead of having the opposite effect and positively impacting the number of job offers students received, which there would also be rationale for, money from parents had no effect at all in either direction. This unanticipated result and the findings for parental aid with the other key outcomes will be discussed at the end of the results.

Table 1: Regression Coefficients for Number of Job Offers on Parental Aid and Explanatory Variables

<i>1993/03 Baccalaureate & Beyond Longitudinal Study (N approximately = 10,000 graduates; coarsened number of cases = 6,300; 2,400; and 1,900)</i>			
	Regression 1	Regression 2	Regression 3
Parental aid (total direct contribution in last year of college)	0.000**	0.000	0.000
<i>Academic-Related</i>			
Bachelor's degree: STEM major		-0.076	-0.178*
Undergraduate cumulative GPA		0.000	0.002
<i>Job Preparation Characteristics</i>			
Number of jobs interviewed for in year after college		0.132***	0.120***
One or more forms of cooperative education, internships, or apprenticeships		0.114	0.119
Relationship between job and degree: not at all related		-0.250*	-0.305*
Had work experience related to degree		0.113	0.158
<i>Student & Parent Demographics</i>			
Gender: female			-0.103
Parent's highest education: less than bachelor's degree			0.000
Number of siblings in college: one or more			-0.099
Age when received bachelor's degree			0.107
Income of parents			0.000
Student's race/ethnicity: non-white			0.000
<i>Model Information</i>			
R-squared	0.003	0.269	0.243
<i>Note:</i> filters only include dependent students and those whose main activity one year after graduating was full-time employed, not enrolled *p < 0.05; **p < 0.01; ***p < 0.001 <i>Computation by NCES PowerStats</i> Source: U.S. Department of Education, National Center for Education Statistics, <i>B&B: 93/03 Baccalaureate and Beyond Longitudinal Study</i>.			

In Regression 2 of Table 1, parental aid still had no effect, but it lost its significance with the addition of the other explanatory variables. This loss of significance for the main independent

variable indicates that the academic and career preparation characteristics had a significantly stronger effect on a student's number of offers than parental aid did. As expected, the number of interviews a student participated in one year after college had a significant positive effect on the number of offers received ($b = 0.132, p < 0.001$). This positive relationship was anticipated because more interviews would mean a greater chance of being selected for those positions and should logically result in more offers. On the contrary, working at job that was not at all related to the student's degree had a negative impact on job offers ($b = -0.250, p < 0.05$) and was also the largest effect seen in the model. This finding indicates that applying for jobs that are not related to the subject one studied in college reduces the chances of being chosen for that position. Participation in one or more forms of cooperative education, apprenticeships, or internships, as well as having work experience pertinent to a student's degree, were both associated positively with the number of offers received. While neither were significant, it is appropriate that there was a positive relationship as more career preparation activities would be expected to boost a student's qualifications for a position and likelihood of being hired. Interestingly, graduating with a bachelor's degree in a STEM major was related to obtaining slightly less job offers, and GPA had no effect, but neither of these findings were significant.

In Regression 3, student demographics and parent characteristics are added, and parental aid still had no effect on the number of offers. However, this lack of effect from parental aid was again not significant in the model, meaning other variables had more of an impact. The relationship between the student's major and job again had a significant negative effect on the number of offers received, remaining the largest predictor and even intensified in Regression 3 ($b = -0.305, p < 0.05$). The number of interviews maintained its significant, positive effect on the number of offers, but the effect was reduced slightly ($b = 0.120, p < 0.001$). The negative impact

of graduating with a STEM major gained significance in Regression 3 and its effect was even heightened ($b = -0.178, p < 0.05$). A potential explanation for this negative relationship is since STEM majors are more likely to attend graduate school or engage in research studies instead of working full-time immediately upon graduating as most other majors do, STEM students may not be as prepared during school for the job search as those in other majors that prioritize getting a job after graduating.

Moreover, several of the newly added variables had contradicting effects. Corresponding with the established disparities of women in the labor market (*The Simple Truth about the Gender Wage Gap*, 2020), females were associated with obtaining fewer job offers than males, albeit this is not a significant result ($b = -0.103, p > 0.05$). On the contrary, receiving a bachelor's degree at an older age was related to an increased amount of job offers, despite the notion that older adults have more difficulty finding a job than younger candidates ($b = 0.107, p > 0.05$). While this finding is not significant in the model, the unexpected positive association shows that less traditional college students, like older adults, may not have experienced the same disadvantages as their peers that were in search of a new job after previous employment ended late in their careers as discussed prior (Lipnic, 2018). For dependent students, a higher number of siblings in college was related to less job offers, but the impact was negligible and insignificant ($b = -0.099, p > 0.05$). The level of parent's education, parent income, and the student's race all had no effect on the number of offers ($b = 0.000, p > 0.05$), although each of these findings were insignificant.

Across all three regressions in Table 1, parental aid had no effect, neither positive or negative, on the number of job offers a student received in the first year after graduating, indicating that the job search process was not impacted by parent contributions. Factors that did

impact this key outcome of college were the number of interviews students participated in, which had a positive effect; the relationship between their job at the time and their degree, which hurt the number of offers if the two were not at all related; and receiving a degree in a STEM major, which slightly decreased offers.

Salary Results

While parental aid had no effect on a graduate's initial job search, monetary contributions during college may have impacted their financial compensation one-year post-graduation. Table 2 displays the linear regression coefficients for salary at graduates' primary jobs one year after receiving their degree on parental aid among other variables. In Regression 1, absent of any other explanatory variables, parental contributions had a statistically significant, but trivial, negative effect on salary ($b = -0.146, p < 0.05$). While a negative effect was hypothesized, the amount is so close to 0 that it cannot be deemed as a relevant finding for this thesis. In Regression 2, it was interesting that the extremely small effect of parental aid switched to a positive direction instead of its previous negative impact ($b = 0.044, p > 0.05$). However, it came even closer to 0 and lost statistical significance, demonstrating that the minimal effect of parental aid was even more meaningless than in Regression 1 and almost nonexistent.

Table 2: Regression Coefficients for Salary One Year after Graduation on Parental Aid and Explanatory Variables

1993/03 Baccalaureate & Beyond Longitudinal Study (N approximately = 10,000 graduates; coarsened number of cases = 6,300; 2,400; and 1,800)			
	Regression 1	Regression 2	Regression 3
Parental aid (total direct contribution in last year of college)	-0.146*	0.044	0.022
<i>Academic-Related</i>			
Bachelor's degree: STEM major		806.536	74.522
Undergraduate cumulative GPA		8.978	19.324
<i>Job Characteristics</i>			
Relationship between job and degree: not at all related		-2199.022**	-2,336.229*
Health insurance from employer: not provided		-4107.731***	-4,076.278***
Occupation type: professional		648.140	344.733
Job required college degree		3791.553***	4,239.295***
<i>Student & Parent Demographics</i>			
Gender: female			-4,313.372***
Parent's highest education: less than bachelor's degree			903.568
Number of siblings in college: one or more			-1,376.657
Age when received bachelor's degree			-191.932
Income of parents			0.017
Student's race/ethnicity: white, non-Hispanic			-2,153.225
<i>Model Information</i>			
R-squared	0.000	0.061	0.080
<i>Note:</i> filters only include dependent students and those whose main activity one year after graduating was full-time employed, not enrolled *p < 0.05; **p < 0.01; ***p < 0.001 <i>Computation by NCES PowerStats</i> Source: U.S. Department of Education, National Center for Education Statistics, <i>B&B: 93/03 Baccalaureate and Beyond Longitudinal Study</i>.			

Nonetheless, several variables related to a student's academics and job characteristics had large, significant impacts on salary. The largest harm to salary was from not receiving health insurance from an employer ($b = -4,107.731$, $p < 0.001$). Despite the research showing that more employer-covered health insurance takes away from employee wages (*Effects of Employer-Sponsored Health Insurance Costs on Social Security Taxable Wages*, n.d.), this unexpected

finding indicates that being offered health insurance actually resulted in higher wages instead.

The explanation for this unusual relationship may be that jobs that provided better benefits to first-year graduates, like health insurance, offered higher compensation in general and thus paid higher salaries. Additionally, a graduate's job and degree being unrelated also resulted in a detriment to salary ($b = -2,199.022$, $p < 0.01$). Being adequately prepared for a job by having a degree in a related field should make that individual more qualified than someone without a related degree, so a negative effect was expected. However, it was surprising that it resulted in such a notable deduction in salary, signaling an even greater importance on finding a job related to a graduate's degree than assumed.

In addition, students that worked at a job that required a college degree in general earned higher salaries than those who worked at jobs that did not ($b = 3,791.553$, $p < 0.001$).

Supplementing the latter finding that job and degree had to be related or that individual earned a lower salary, this outcome suggests that simply having a job that required a degree at all, regardless of major, led to a higher salary than that of a job that did not call for a degree.

Moreover, earning a bachelor's degree in a STEM major ($b = 806.536$, $p > 0.05$) and working in a professional-level occupation ($b = 648.140$, $p > 0.05$) both had a fair positive influence on salary. Although neither were statistically significant findings, careers in STEM or professional fields would be expected to pay higher than those in other fields. Similar to its effect on the number of job offers, GPA had such a negligible positive effect on salary that no conclusions can be drawn from this finding ($b = 8.978$, $p > 0.05$).

In Regression 3 of Table 2, an immaterial effect on salary from parental aid remained with the addition of student and parent demographic variables. The significant reduction in salary from not being offered health insurance by an employer also endured, only decreasing slightly (b

= -4,076.278, $p < 0.001$). The same is true for the negative impact on salary of having a job completely unrelated to a student's degree ($b = -2,336.229$, $p < 0.05$). Working at a job that required a college degree to be hired still had a significant positive effect on salary and even intensified with more explanatory variables ($b = 4,239.295$, $p < 0.001$).

Not surprisingly, females in this sample earned significantly lower salaries at their job one year after graduating than males ($b = -4,313.372$, $p < 0.001$). In line with the ongoing problems with the gender wage gap, a statistically significant reduction in salary was expected for women. Unexpectedly, a similar outcome, although statistically insignificant, was found for white, non-Hispanic students, who were associated with a lower salary than those of any other ethnicity ($b = -2,153.225$, $p > 0.05$). However, since that finding was not significant, no inferences can be concluded related to that variable. Other demographic variables included in the model had insignificant and relatively trivial effects on graduate's salary. In the same way that parental aid had virtually no effect on a graduate's number of job offers, parental aid had an even more miniscule impact on their salary one year after graduating. Alternatively, being a female, receiving inferior employment benefits like no health insurance, and working at a job unrelated to a student's degree had significantly greater, negative effects on salary. Conversely, working at a job that required a college degree significantly boosted a graduate's earnings.

Degree of Career Potential Results

While parental aid has not been found to have had any effect on a student's job search experiences or their first-year post-graduation salary, it could still have had an impact on the level of career potential at that job. In Table 3, odds ratios from logistic regressions for degree of

career potential on parental aid and additional variables are displayed. According to the NCES's guide, odds ratios serve as the "proportional change in the probability that the dependent variable equals one for each additional unit of the independent variable, all else equal" (*PowerStats Learn by Doing: Running a Logistic Regression and Interpreting Results*, n.d.). In other words, an odds ratio is the comparison of the odds of a specific independent variable resulting in the dependent variable of interest to the odds of anything else being exposed to that outcome (Szumilas, 2010). Simply put, it can be interpreted as the change in odds of the dependent variable occurring for every one unit increase in the independent variable when comparing the odds of two different situations. On a scale starting at one, an odds ratio of 1 would mean a 0% increase or no effect, 1.5 would be 50%, 2 would be a 100% increase, 3 would be 200%, and so on. An odds ratio less than one indicates a negative relationship and that group is less likely to experience the intended dependent variable than the opposite group is.

In Regression 1 of Table 3, parental aid had no effect at a statistically significant level on the degree of career potential of a graduate's job one year after college without controlling for any other factors ($OR = 1.000, p < 0.01$). While contrary to the thesis's hypothesis, this finding of no effect from parental contributions is in agreement with the results of the past two dependent variables of interest. In Regression 2, parental contributions continue to have had no effect on the degree of career potential, although the odds ratio loses its previous significance ($OR = 1.000, p > 0.05$). The graduate's job requiring a college degree created the largest increase, 194.2%, in the odds of having definite or possible career potential ($OR = 2.942, p < 0.001$). This significant boost aligns with the common belief that going to college will result in a better career and lifelong success.

Table 3: Odds Ratios from Logistic Regression for Degree of Career Potential on Parental Aid and Explanatory Variables

<i>1993/03 Baccalaureate & Beyond Longitudinal Study (N approximately = 10,000 graduates; coarsened number of cases = 7,000; 2,600; and 2,000)</i>			
	Regression 1	Regression 2	Regression 3
Parental aid (total direct contribution in last year of college)	1.000**	1.000	1.000*
<i>Academic-Related</i>			
Bachelor's degree: STEM major		0.733*	0.734*
Undergraduate cumulative GPA		1.001	1.002
<i>Job Characteristics</i>			
Relationship between job and degree: not at all related		0.338***	0.338***
One or more forms of cooperative education, internships, or apprenticeships		1.060	1.353
Occupation type: professional		1.219	1.154
Job required college degree		2.942***	2.877***
<i>Student & Parent Demographics</i>			
Gender: female			0.684*
Parent's highest education: less than bachelor's degree			1.446*
Number of siblings in college: one or more			1.069
Age when received bachelor's degree			0.915
Income of parents			1.000
Student's race/ethnicity: non-white			0.854
<i>Note: filters only include dependent students and those whose main activity one year after graduating was full-time employed, not enrolled</i>			
<i>*p < 0.05; **p < 0.01; ***p < 0.001</i>			
<i>Computation by NCES PowerStats</i>			
<i>Source: U.S. Department of Education, National Center for Education Statistics, B&B: 93/03 Baccalaureate and Beyond Longitudinal Study.</i>			

Participation in one or more forms of cooperative education, internships, or apprenticeships and having a professional occupation were both associated with a slight increase in the odds of having career potential, but neither were statistically significant. Nevertheless, both would be expected to have a positive relationship as early learning experiences better prepare a student for their career, and working in a professional field sets up graduates to get promoted or find another professional job in the future.

In contrast, working at a job that is not at all related to the graduate's degree significantly reduced the chances of having definite or possible career potential at that job ($OR = 0.338, p < 0.001$). This decrease in odds means these students only had a 33.8% likelihood of their job having career potential compared to those working at jobs that were closely or somewhat related to their degrees. Since getting a degree is the first step in beginning a career as a college student, continuing that path with a degree-related job would create a stronger foundation for one's subsequent career. In addition, the results for those with bachelor's degrees in STEM majors were surprising and also had a statistically significant negative correlation with definite or possible career potential ($OR = 0.733, p < 0.05$). This odds ratio can be interpreted as those with a STEM degree only had 73.3% likelihood of having definite or possible career potential at their job as those with a degree in any other major. This negative impact indicates that those in STEM majors were not having as favorable of early career experiences as those in non-STEM majors, which may have been because many STEM occupations require more than solely a four-year bachelor's degree. Similar to its previous ineffectual impact on job attainment, a student's GPA again had a negligible, insignificant increase in the odds of having career potential.

Finally, the demographic variables are added in Regression 3 of Table 3, and parental aid again had no effect on the odds of a student having definite or possible career potential at their job at a significant level ($OR = 1.000, p < 0.05$). As mentioned previously, an odds ratio of 1 means there is a 0% increase in the odds. While these findings of no effect from parental aid on degree of career potential disprove this thesis's hypothesis, it was interesting that the variable had no effect during every iteration of regressions and was statistically significant for the first and last.

All other previously significant explanatory variables maintained their magnitude and impact in Regression 3. A job requiring a college degree kept its significant increase in the likelihood of it having some career potential, only diminishing slightly to a 187.7% increase in the odds ($OR = 2.877, p < 0.001$). Moreover, the reduced likelihood of having degree potential caused by a job being completely unrelated to the individual's degree persisted ($OR = 0.338, p < 0.001$). Earning a bachelor's degree in a STEM major also retained its significant decline in the odds of career potential, only wavering by 0.001 ($OR = 0.734, p < 0.05$).

Of the additional variables in Regression 3, students with parents that completed less than a bachelor's degree experienced a 44.6% increase in the odds of having some career potential at their job than those with parents that had a bachelor's degree or higher ($OR = 1.446, p < 0.05$). This finding was interesting as it was assumed that students with parents that had a higher level of education were also of greater socioeconomic status, which was earlier discussed as resulting in better educational performance and indirectly improving work outcomes for those students (Faas et al., 2012). On the contrary, the odds of females having definite or possible career potential at their job were only 0.684 as great as the odds of males ($OR = 0.684, p < 0.05$). This decrease means that females were 31.6% less likely of having career potential at their job, which corresponds to the disadvantages established for women in the workforce (*The Simple Truth about the Gender Wage Gap*, 2020). On an opposite note, age did not have nearly as strong an impact as expected with only a slight reduction in odds of having career potential and no statistical significance ($OR = 0.915, p > 0.05$). Degree of career potential may not have been as negatively impacted as anticipated because individuals that earn a degree at an older age learn more modern concepts and skillsets than their similarly-aged peers that received their core education at a young age. With a more relevant education for the career options at the time, those

obtaining degrees at older ages gain an advantage over their peers that may be more likely to have unfavorable experiences in the workplace, explaining this finding's only mild negative relationship.

After all of the three regressions, parental aid had no effect on their student's job's level of career potential one year after graduating. However, several other factors did have a notable, significant impacts. The job requiring a college degree had by far the greatest positive effect, and parents having less than a bachelor's degree also increased the job's odds of having career potential. A job with no relation to the student's degree had the strongest negative impact on the chances of having career potential, as well as graduating with a STEM degree and being a female.

Outcomes from Analysis

Together, these findings disprove this thesis's hypothesis, which was that parental aid would have an impact on student's job attainment experiences in either a positive or negative way. Instead, parental contributions had no effect on any of these key outcomes. The assumption behind this research question was that students would have one of two mentalities: either taking advantage of the opportunity gifted by parents to get a superior job or one of extrinsic motivation to succeed without undergoing the financial responsibility. However, this paper's results imply that neither is true, and work outcomes after graduating and the factors that dictate those experiences are completely independent from parental aid during college. Students, at least at the time of the dataset analyzed, must not have associated parental aid or the financial burden of college with individual motivations or goals of college, such as future careers. These

immeasurable personal characteristics have a major role in a student's actions, which are absolutely influential of one's career choices after college. Qualities such as this may constitute the majority of factors affecting student's job attainment and may justify the lack of an impact found from parental contributions.

Furthermore, this analysis observed purely dependent students and those whose main activity one year after graduating was working full-time. If the analysis had included independent students, who most likely received significantly less financial assistance from parents than the students in the sample, may have provided profoundly different results and supported the hypothesis. Additionally, a large number of graduates that were part-time or unemployed may not have been so by choice and rather wanted a full-time job after receiving their degree. An outcome such as that is undoubtedly an unfavorable job attainment experience that could have changed the results of this paper by depicting a negative impact from parental aid. However, these students were not incorporated in the analysis to avoid complexity in the interpretations. This specific criteria for students to be included in the study may have prevented any effect from parental aid from being prevalent in analysis.

Lastly, the main independent variable of parental aid used for analysis was the total contribution from parents in only the student's last year of college. In the final stages of schooling, students' experiences thus far have most likely already shaped their future careers in a dynamic way, so that variable may not have been meaningful for this study. A better measure to answer this research question would be parents combined monetary contribution from all four or more years of undergraduate education, but this variable did not exist.

Chapter 5

Conclusion

Paying for college is a large responsibility with severe implications, but many students are alleviated of the financial burden as parents often willingly acquire it instead. Since attending college is such an expensive, life-changing decision, understanding the long-term consequences of parental financial contributions is necessary. As getting a “good job” after graduating is one of the main desired outcomes for many to get a degree, job attainment experiences, such as the job search, salary, and subsequent career potential, are crucial to observe in this consideration.

Through the analysis of several iterative regressions for variables representing job attainment, parental monetary contributions were found to have virtually no effect on any component of students’ post-graduation work experiences. Instead, more direct predictors and job-specific characteristics explained the variation in job experiences among students in the sample. The most notable factors that impacted job attainment were the relationship between a student’s job and degree, a position requiring a college degree, gender, and receiving a bachelor’s degree in a STEM major. For the number of job offers a student received, the number of interviews completed was a major influencer, and for salary one year after graduation, whether or not health insurance was offered by the employer had the greatest impact.

Next Steps

Going forward, this study could be improved upon in various ways to increase the understanding of the relationship between parental contributions and student job attainment. The most glaring limitation of this thesis was the inability to access the restricted data, leaving the

NCES's PowerStats software as the only option for statistical analysis. While this tool allowed for functioning regression models and provided meaningful results, there were several disadvantages that could have been avoided by having the data file and utilizing a standard statistical software, such as restrictions on the standard error calculations, fixed measures of fit statistics, and lack of ability to take the log of the monetary variables. Additionally, since the number of cases in the sample is estimated to protect individual's identities, it is difficult to make accurate population predictions from any findings deemed statistically significant from this web-based tool.

Finally, the 1993/94 Baccalaureate and Beyond Longitudinal Study used for data analysis was from 1994, so some of the information was outdated. In almost 30 years, a great deal has changed that could drastically transform these results, such as the astronomical price increases to attend college, increased per capita debt burden, and conflicting viewpoints on college. To more appropriately answer this question today, a more recent version of this dataset could be analyzed with a similar technique as this paper, which will be released by the NCES in the near future.

Appendix A

Regression Outputs for Number of Job Offers Model 1

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Linear Regression Analysis of Number of offers 1994 based on Total direct contribution from parents 1992-93

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)

Variance estimation method: BRR

Number of replicates: 44

Percentage of observed over total cases: 56

Coarsened number of cases:¹ 6300

Model Includes: 1 variable and Intercept

No problem detected

Dependent variable: Number of offers 1994

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

	b	S.E.	t	p-value	Lower 95%	Upper 95%
Intercept	1.6503	0.0468	35.2971	0.0000	1.5560	1.7446
Total direct contribution from parents 1992-93	0.0000	0	3.3736	0.0016	0.0000	0.0000

Dependent variable: Number of offers 1994.

The names of the variables used in this regression are: JOBSOFFR and SPARSPRT.

Source: U.S. Department of Education, National Center for Education Statistics, *B&B: 93/03 Baccalaureate and Beyond Longitudinal Study*.

MEASURES OF FIT

R ² :	Degrees of Freedom:	t-value:	Adjusted Wald-F:
0.0027	44	2.0167	11.3813 (df=1 44)

HYPOTHESIS TESTING RESULTS				
	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	11.3813	1	44	0.0016
Total direct contribution from parents 1992-93	11.3813	1	44	0.0016

Appendix B

Regression Outputs for Number of Job Offers Model 2

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Linear Regression Analysis of Number of offers 1994 based on Total direct contribution from parents 1992-93 and second addition of explanatory variables

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)

Variance estimation method: BRR

Number of replicates: 44

Percentage of observed over total cases: 21

Coarsened number of cases:¹ 2400

Model Includes: 7 variables and Intercept

No problem detected

Dependent variable: Number of offers 1994

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

	b	S.E.	t	p-value	Lower 95%	Upper 95%
Intercept	1.1349	0.3908	2.9037	0.0057	0.3467	1.9230
Total direct contribution from parents 1992-93	0.0000	0	1.4597	0.1515	0.0000	0.0000
Number of jobs interviewed for 1994	0.1316	0.026	5.0594	0.0000	0.0791	0.1840
Bachelor's degree major - STEM & Non-STEM STEM	-0.0762	0.0758	-1.0060	0.3199	-0.2291	0.0766
Undergraduate grade point average (cumulative) 1992-93	-0.0001	0.0011	-0.1213	0.9040	-0.0024	0.0021
Cooperative education, internship, or apprenticeship (1992-93) One or more cooperative education, internships, or apprenticeships	0.1136	0.0981	1.1582	0.2530	-0.0842	0.3113
Relationship between job and degree in 1994						

Job and major not at all related	-0.2495	0.1095	-2.2797	0.0275	-0.4703	-0.0288
Work experience related to degree						
Had work experience related to degree	0.1133	0.0971	1.1662	0.2498	-0.0826	0.3092
Dependent variable: Number of offers 1994.						
For Bachelor's degree major - STEM & Non-STEM, reference category includes: Non-STEM.						
For Cooperative education, internship, or apprenticeship (1992-93), reference category includes: No cooperative education, internships, or apprenticeships.						
For Relationship between job and degree in 1994, reference category includes: Job and major closely or somewhat related.						
For Work experience related to degree, reference category includes: No work experience related to degree.						
The names of the variables used in this regression are: JOBEXPR, CAI, JOBSINTV, DEPEND, ACT94, GPA, PJOBRELT, JOBSOFFR, B3BAMAJR and SPARSPRT.						
Source: U.S. Department of Education, National Center for Education Statistics, <i>B&B: 93/03 Baccalaureate and Beyond Longitudinal Study</i> .						

MEASURES OF FIT

R ² :	Degrees of Freedom:	t-value:	Adjusted Wald-F:
0.2695	44	2.0167	4.0074 (df=7 38)

HYPOTHESIS TESTING RESULTS

	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	4.0074	7	38	0.0023
Total direct contribution from parents 1992-93	2.1307	1	44	0.1515
Number of jobs interviewed for 1994	25.5977	1	44	0.0000
Bachelor's degree major - STEM & Non-STEM	1.0121	1	44	0.3199
Undergraduate grade point average (cumulative) 1992-93	0.0147	1	44	0.9040
Cooperative education, internship, or apprenticeship (1992-93)	1.3415	1	44	0.2530
Relationship between job and degree in 1994	5.1971	1	44	0.0275
Work experience related to degree	1.3600	1	44	0.2498

Appendix C

Regression Outputs for Number of Job Offers Model 3

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Linear Regression Analysis of Number of offers 1994 based on Total direct contribution from parents 1992-93 and third addition of explanatory variables

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)
 Variance estimation method: BRR
 Number of replicates: 44
 Percentage of observed over total cases: 16
 Coarsened number of cases:¹ 1900
 Model Includes: 13 variables and Intercept
 No problem detected
 Dependent variable: Number of offers 1994

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

	b	S.E.	t	p-value	Lower 95%	Upper 95%
Intercept	-1.5425	2.5574	-0.6031	0.5495	-6.7000	3.6151
Total direct contribution from parents 1992-93	0.0000	0	1.8775	0.0671	0.0000	0.0000
Number of jobs interviewed for 1994	0.1199	0.0304	3.9455	0.0003	0.0586	0.1811
Bachelor's degree major - STEM & Non-STEM STEM	-0.1779	0.0793	-2.2421	0.0300	-0.3378	-0.0179
Undergraduate grade point average (cumulative) 1992-93	0.0015	0.0014	1.0986	0.2779	-0.0013	0.0043
Cooperative education, internship, or apprenticeship (1992-93) One or more cooperative education, internships, or apprenticeships	0.1190	0.1083	1.0991	0.2777	-0.0993	0.3373
Relationship between job and degree in 1994						

MEASURES OF FIT

R ² :	Degrees of Freedom:	t-value:	Adjusted Wald-F:
0.2429	44	2.0167	2.2294 (df=13 32)

HYPOTHESIS TESTING RESULTS

	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	2.2294	13	32	0.0323
Total direct contribution from parents 1992-93	3.5251	1	44	0.0671
Number of jobs interviewed for 1994	15.5672	1	44	0.0003
Bachelor's degree major – STEM & Non-STEM	5.0269	1	44	0.0300
Undergraduate grade point average (cumulative) 1992-93	1.2069	1	44	0.2779
Cooperative education, internship, or apprenticeship (1992-93)	1.2081	1	44	0.2777
Relationship between job and degree in 1994	6.4930	1	44	0.0144
Work experience related to degree	2.2761	1	44	0.1385
Gender	1.5680	1	44	0.2171
Parent's highest education attained (Bachelor's or Less)	0.0000	1	44	0.9977
Parents' family: Number of children in college 1992-93	0.5209	1	44	0.4743
Age when received 1992-93 bachelor's degree	1.2282	1	44	0.2738
Income of dependent student's parents 1991	1.9896	1	44	0.1654
Student's race/ethnicity	0.0000	1	44	0.9984

Appendix D

Regression Outputs for Salary Model 1

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Linear Regression Analysis of April 1994 annual salary based on Total direct contribution from parents 1992-93

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)

Variance estimation method: BRR

Number of replicates: 44

Percentage of observed over total cases: 56

Coarsened number of cases:¹ 6300

Model Includes: 1 variable and Intercept

No problem detected

Dependent variable: April 1994 annual salary

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

	b	S.E.	t	p-value	Lower 95%	Upper 95%
Intercept	23420.4478	725.6506	32.2751	0.0000	21957.0339	24883.8618
Total direct contribution from parents 1992-93	-0.1464	0.0647	-2.2626	0.0286	-0.2769	-0.0159

Dependent variable: April 1994 annual salary.

The names of the variables used in this regression are: SPARSPRT and APRANSAL.

Source: U.S. Department of Education, National Center for Education Statistics, *B&B: 93/03 Baccalaureate and Beyond Longitudinal Study*.

MEASURES OF FIT

R ² :	Degrees of Freedom:	t-value:	Adjusted Wald-F:
0.0003	44	2.0167	5.1193 (df=1 44)

HYPOTHESIS TESTING RESULTS				
	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	5.1193	1	44	0.0286
Total direct contribution from parents 1992-93	5.1193	1	44	0.0286

Appendix E

Regression Outputs for Salary Model 2

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Linear Regression Analysis of April 1994 annual salary based on Total direct contribution from parents 1992-93 and second addition of explanatory variables

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)

Variance estimation method: BRR

Number of replicates: 44

Percentage of observed over total cases: 21

Coarsened number of cases:¹ 2400

Model Includes: 7 variables and Intercept

No problem detected

Dependent variable: April 1994 annual salary

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

	b	S.E.	t	p-value	Lower 95%	Upper 95%
Intercept	18645.3742	3445.462	5.4116	0.0000	11696.9380	25593.8105
Total direct contribution from parents 1992-93	0.0440	0.0737	0.5966	0.5539	-0.1047	0.1927
Bachelor's degree major - STEM & Non- STEM						
STEM	806.5356	750.5361	1.0746	0.2884	-707.0648	2320.1359
Undergraduate grade point average (cumulative) 1992-93	8.9782	13.49	0.6655	0.5092	-18.2270	36.1835
Relationship between job and degree in 1994						
Job and major not at all related	-2199.0224	801.825	-2.7425	0.0088	-3816.0567	-581.9881
Primary job benefits: Health insurance 1994						

No health insurance	-4107.7308	707.8284	-5.8033	0.0000	-5535.2028	-2680.2589
Type of Occupation 1994						
Occupation labeled 'Professional'	648.1404	1089.6487	0.5948	0.5550	-1549.3457	2845.6265
Primary job required college degree 1994						
Primary job did require degree	3791.5533	959.8806	3.9500	0.0003	1855.7695	5727.3371
Dependent variable: April 1994 annual salary. For Bachelor's degree major - STEM & Non-STEM, reference category includes: Non-STEM. For Relationship between job and degree in 1994, reference category includes: Job and major closely or somewhat related. For Primary job benefits: Health insurance 1994, reference category includes: Received health insurance. For Type of occupation 1994, reference category includes: Occupation not labeled 'Professional'. For Primary job required college degree 1994, reference category includes: Primary job did not require degree. The names of the variables used in this regression are: ACT94, DEPEND, APRANSAL, GPA, PJBEN01, PJOBDEGR, PJOBRELT, PJOBOCC, B3BAMAJR and SPARSPRT. Source: U.S. Department of Education, National Center for Education Statistics, <i>B&B: 93/03 Baccalaureate and Beyond Longitudinal Study</i>.						

MEASURES OF FIT

R ² :	Degrees of Freedom:	t-value:	Adjusted Wald-F:
0.0608	44	2.0167	34.2633 (df=7 38)

HYPOTHESIS TESTING RESULTS

	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	34.2633	7	38	0.0000
Total direct contribution from parents 1992-93	0.3559	1	44	0.5539
Bachelor's degree major - STEM & Non-STEM	1.1548	1	44	0.2884
Undergraduate grade point average (cumulative) 1992-93	0.4430	1	44	0.5092
Relationship between job and degree in 1994	7.5214	1	44	0.0088

Primary job benefits: Health insurance 1994	33.6781	1	44	0.0000
Type of occupation 1994	0.3538	1	44	0.5550
Primary job required college degree 1994	15.6027	1	44	0.0003

Appendix F

Regression Outputs for Salary Model 3

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Linear Regression Analysis of April 1994 annual salary based on Total direct contribution from parents 1992-93 and third addition of explanatory variables

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)

Variance estimation method: BRR

Number of replicates: 44

Percentage of observed over total cases: 16

Coarsened number of cases:¹ 1800

Model Includes: 13 variables and Intercept

No problem detected

Dependent variable: April 1994 annual salary

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

	b	S.E.	t	p-value	Lower 95%	Upper 95%
Intercept	23505.922	15715.1841	1.4957	0.1419	-8186.7671	55198.6111
Total direct contribution from parents 1992-93	0.0216	0.0877	0.2460	0.8068	-0.1553	0.1984
Bachelor's degree major - STEM & Non-STEM						
STEM	74.5217	938.3533	0.0794	0.9371	-1817.8481	1966.8916
Undergraduate grade point average (cumulative) 1992-93	19.3239	16.9881	1.1375	0.2615	-14.9359	53.5836
Relationship between job and degree in 1994						
Job and major not at all related	-2336.229	961.4106	-2.4300	0.0192	-4275.0984	-397.3597
Primary job benefits: Health insurance 1994						
No health insurance	-4076.2784	734.0089	-5.5534	0.0000	-5556.5485	-2596.0084
Type of occupation 1994						

MEASURES OF FIT

R ² :	Degrees of Freedom:	t-value:	Adjusted Wald-F:
0.0800	44	2.0167	36.0525 (df=13 32)

HYPOTHESIS TESTING RESULTS

	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	36.0525	13	32	0.0000
Total direct contribution from parents 1992-93	0.0605	1	44	0.8068
Bachelor's degree major - STEM & Non-STEM	0.0063	1	44	0.9371
Undergraduate grade point average (cumulative) 1992-93	1.2939	1	44	0.2615
Relationship between job and degree in 1994	5.9049	1	44	0.0192
Primary job benefits: Health insurance 1994	30.8408	1	44	0.0000
Type of occupation 1994	0.0596	1	44	0.8083
Primary job required college degree 1994	14.9942	1	44	0.0004
Gender of student	24.1642	1	44	0.0000
Parent's highest education attained (Bachelor's or Less)	0.3418	1	44	0.5618
Parents' family: Number of children in college 1992-93	4.0019	1	44	0.0516
Age when received 1992-93 bachelor's degree	0.0691	1	44	0.7938
Income of dependent student's parents 1991	1.7993	1	44	0.1867
Student's race/ethnicity	2.8973	1	44	0.0958

Appendix G

Regression Outputs for Degree of Career Potential Model 1

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Logistic Regression Analysis of Degree of career potential at primary job in 1994 based on Total direct contribution from parents 1992-93

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)

Variance estimation method: BRR

Number of replicates: 44

Percentage of observed over total cases: 62

Coarsened number of cases:¹ 7000

Model Includes: 1 variable and Intercept

No problem detected

Degree of career potential at primary job, reference category includes:

Dependent variable: Definite & Possible Career Potential.

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ODDS RATIO RESULTS

	Odds Ratio	S.E.	Lower 95%	Upper 95%	t	p-value	b	S.E. for b
Intercept	0.4824	0.0244	0.4356	0.5341	-14.4178	0.0000	-0.7291	0.0506
Total direct contribution from parents 1992-93	1.0000	0.0000	1.0000	1.0000	3.2862	0.0020	0.0000	0.0000

Dependent variable: Degree of career potential at primary job, reference category includes: Definite & Possible Career Potential.

The names of the variables used in this regression are: PJOBPOTN and SPARSPRT.

Source: U.S. Department of Education, National Center for Education Statistics, *B&B: 93/03 Baccalaureate and Beyond Longitudinal Study*.

MEASURES OF FIT

Negative log-likelihood(Pseudo R ²)	
-2 log-likelihood	0.0023
Log likelihood, intercept-only model	-534799.4130
Log likelihood, full model	-533544.8568
Likelihood ratio (Cox-Snell)	0.0030
Likelihood ratio (Cox-Snell) Maximum	0.7229
Likelihood ratio (Estrella)	0.0030
Degrees of freedom for Wald	44
Number of categories	1

HYPOTHESIS TESTING RESULTS

	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	10.7989	1	44	0.0020
Total direct contribution from parents 1992-93	10.7989	1	44	0.0020

Appendix H

Regression Outputs for Degree of Career Potential Model 2

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Logistic Regression Analysis of Degree of career potential at primary job in 1994 based on Total direct contribution from parents 1992-93 and second addition of explanatory variables

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)

Variance estimation method: BRR

Number of replicates: 44

Percentage of observed over total cases: 22

Coarsened number of cases:¹ 2600

Model Includes: 7 variables and Intercept

No problem detected

Degree of career potential at primary job, reference category includes:

Dependent variable: Definite & Possible Career Potential.

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ODDS RATIO RESULTS

	Odds Ratio	S.E.	Lower 95%	Upper 95%	t	P-value	b	S.E. for b
Intercept	1.5818	0.6141	0.7230	3.4610	1.1812	0.2439	0.4586	0.3882
Total direct contribution from parents 1992-93	1.0000	0.0000	1.0000	1.0000	-1.8021	0.0784	0.0000	0.0000
Bachelor's degree major – STEM & Non-STEM								
STEM	0.7333	0.0880	0.5757	0.9340	-2.5854	0.0131	-0.3102	0.1200
Undergraduate grade point average (cumulative) 1992-93	1.0009	0.0012	0.9985	1.0033	0.7679	0.4466	0.0009	0.0012
Cooperative education, internship, or apprenticeship (1992-93)								
One or more cooperative education,	1.0595	0.1485	0.7986	1.4058	0.4124	0.6820	0.0578	0.1402

internships, or apprenticeships								
Relationship between job and degree in 1994								
Job and major not at all related	0.3380	0.0464	0.2562	0.4459	-7.8967	0.0000	-1.0848	0.1374
Primary job occupation 1994								
Professional label	1.2185	0.1449	0.9587	1.5488	1.6619	0.1037	0.1977	0.1189
Primary job required college degree 1994								
Primary job did require degree	2.9417	0.3102	2.3782	3.6389	10.2319	0.0000	1.0790	0.1055
Dependent variable: Degree of career potential at job, reference category includes: Not much career potential. For Bachelor's degree major - STEM & Non-STEM, reference category includes: Non-STEM. For Cooperative education, internship, or apprenticeship (1992-93), reference category includes: No cooperative education, internships, or apprenticeships. For Relationship between job and degree in 1994, reference category includes: Job and major closely or somewhat related. For Primary job occupation 1994, reference category includes: Non-professional label. For Primary job required college degree 1994, reference category includes: Primary job did not require degree. The names of the variables used in this regression are: ACT94, DEPEND, CAI, GPA, PJOBDEGR, PJOBRELT, PJOBOCC, PJOBPOTN, B3BAMAJR and SPARSPRT. Source: U.S. Department of Education, National Center for Education Statistics, <i>B&B: 93/03 Baccalaureate and Beyond Longitudinal Study</i>.								

MEASURES OF FIT

Negative log-likelihood(Pseudo R ²)	
-2 log-likelihood	0.1399
Log likelihood, intercept-only model	-190390.1263
Log likelihood, full model	-163757.5721
Likelihood ratio (Cox-Snell)	0.1599
Likelihood ratio (Cox-Snell) Maximum	0.7123
Likelihood ratio (Estrella)	0.1711
Degrees of freedom for Wald	44
Number of categories	7

HYPOTHESIS TESTING RESULTS				
	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	34.0863	7	38	0.0000
Total direct contribution from parents 1992-93	3.2475	1	44	0.0784
Bachelor's degree major - STEM & Non-STEM	6.6845	1	44	0.0131
Undergraduate grade point average (cumulative) 1992-93	0.5897	1	44	0.4466
Cooperative education, internship, or apprenticeship (1992-93)	0.1701	1	44	0.6820
Relationship between job and degree in 1994	62.3575	1	44	0.0000
Primary job occupation 1994	2.7618	1	44	0.1037
Primary job required college degree 1994	104.6928	1	44	0.0000

Appendix I

Regression Outputs for Degree of Career Potential Model 3

National Center for Education Statistics

Computation by NCES PowerStats on 3/23/2021.

Logistic Regression Analysis of Degree of career potential at primary job in 1994 based on Total direct contribution from parents 1992-93 and third addition of explanatory variables

REGRESSION MODEL INFORMATION

Full sample weight: weight_var(WTE000)

Variance estimation method: BRR

Number of replicates: 44

Percentage of observed over total cases: 17

Coarsened number of cases:¹ 2000

Model Includes: 13 variables and Intercept

No problem detected

Degree of career potential at primary job, reference category includes:

Dependent variable: Definite & Possible Career Potential.

¹Per NCES Standards, the true sample size has been modified to minimize disclosure risk of individual survey responses.

Because this is not the actual number of cases, caution is advised when using it for statistical purposes.

ODDS RATIO RESULTS

	Odds Ratio	S.E.	Lower 95%	Upper 95%	t	p-value	b	S.E. for b
Intercept	8.4582	22.3420	0.0411	1740.9227	0.8083	0.4233	2.1351	2.6415
Total direct contribution from parents 1992-93	1.0000	0.0000	1.0000	1.0000	-2.0880	0.0426	0.0000	0.0000
Bachelor's degree major – STEM & Non-STEM								
STEM	0.7339	0.1041	0.5513	0.9768	-2.1823	0.0345	-0.3094	0.1418
Undergraduate grade point average (cumulative) 1992-93	1.0016	0.0015	0.9986	1.0047	1.0676	0.2915	0.0016	0.0015
Cooperative education, internship, or apprenticeship (1992-93)								
One or more cooperative	1.3535	0.2259	0.9666	1.8952	1.8132	0.0766	0.3027	0.1669

education, internships, or apprenticeships								
Relationship between job and degree in 1994								
Job and major not at all related	0.3378	0.0563	0.2414	0.4729	-6.5080	0.0000	-1.0852	0.1667
Type of occupation 1994								
Occupation labeled 'Professional'	1.1536	0.1593	0.8732	1.5241	1.0348	0.3064	0.1429	0.1381
Primary job required college degree 1994								
Primary job did require degree	2.8772	0.3673	2.2242	3.7220	8.2791	0.0000	1.0568	0.1276
Gender of student								
Female	0.6842	0.0978	0.5129	0.9128	-2.6553	0.0110	-0.3795	0.1429
Parent's highest education attained (Bachelor's or Less)								
Parent's education less than Bachelor's degree	1.4457	0.2590	1.0073	2.0750	2.0574	0.0456	0.3686	0.1792
Parents' family: Number of children in college 1992-93								
One or more siblings in college	1.0693	0.1772	0.7656	1.4936	0.4045	0.6878	0.0670	0.1657
Age when received 1992-93 bachelor's degree								
	0.9151	0.0993	0.7353	1.1388	-0.8184	0.4175	-0.0888	0.1085
Income of dependent student's parents 1991								
	1.0000	0.0000	1.0000	1.0000	1.2868	0.2049	0.0000	0.0000
Student's race/ethnicity								
Non-white	0.8538	0.2329	0.4925	1.4802	-0.5792	0.5654	-0.1580	0.2728
Dependent variable: Degree of career potential at job, reference category includes: Not much career potential. For Bachelor's degree major - STEM & Non-STEM, reference category includes: Non-STEM. For Cooperative education, internship, or apprenticeship (1992-93), reference category includes: No cooperative education, internships, or apprenticeships. For Relationship between job and degree in 1994, reference category includes: Job and major closely or somewhat related. For Type of occupation 1994, reference category includes: Occupation not labeled 'Professional'. For Primary job required college degree 1994, reference category includes: Primary job did not require degree. For Gender of student, reference category includes: Male. For Parent's highest education attained (Bachelor's or Less), reference category includes: Parent earned Bachelor's degree or more.								

For Parents' family: Number of children in college 1992-93, reference category includes: No siblings in college.

For Student's race/ethnicity, reference category includes: White, non-Hispanic.

The names of the variables used in this regression are: PJOBRELT, PJOBPOTN, B2AGATBA, GPA, PPOSTED, RETHNIC, DEPEND, DEPINC, PJOBOCC, B2PARED, CAI, ACT94, PJOBDEGR, B3BAMAJR, GENDER and SPARSPRT.

Source: U.S. Department of Education, National Center for Education Statistics, *B&B: 93/03 Baccalaureate and Beyond Longitudinal Study*.

MEASURES OF FIT

Negative log-likelihood(Pseudo R ²)	
-2 log-likelihood	0.1513
Log likelihood, intercept-only model	-141679.1330
Log likelihood, full model	-120249.8350
Likelihood ratio (Cox-Snell)	0.1716
Likelihood ratio (Cox-Snell) Maximum	0.7121
Likelihood ratio (Estrella)	0.1847
Degrees of freedom for Wald	44
Number of categories	13

HYPOTHESIS TESTING RESULTS

	WaldF	Num. DF	Denom. DF	Probability F
Overall Fit	11.6868	13	32	0.0000
Total direct contribution from parents 1992-93	4.3599	1	44	0.0426
Bachelor's degree major - STEM & Non-STEM	4.7624	1	44	0.0345
Undergraduate grade point average (cumulative) 1992-93	1.1397	1	44	0.2915
Cooperative education, internship, or apprenticeship (1992-93)	3.2876	1	44	0.0766
Relationship between job and degree in 1994	42.3537	1	44	0.0000
Type of occupation 1994	1.0709	1	44	0.3064
Primary job required college degree 1994	68.5439	1	44	0.0000
Gender of student	7.0507	1	44	0.0110
Parent's highest education attained (Bachelor's or Less)	4.2327	1	44	0.0456

Parents' family: Number of children in college 1992-93	0.1636	1	44	0.6878
Age when received 1992-93 bachelor's degree	0.6698	1	44	0.4175
Income of dependent student's parents 1991	1.6558	1	44	0.2049
Student's race/ethnicity	0.3355	1	44	0.5654

Appendix J

Descriptive Statistics for Parental Aid

Average Total Direct Contribution from Parents in 1992-1993 based on Parent's highest education attained, Number of children in parents' family in college, Gender, and GPA

Table only includes:

Those considered dependent in 1992-93

Those employed full-time and not enrolled in April 1994

Average: Total direct contribution from parents 1992-93

Average for all students included \$ 4,948.46

Parent's highest education attained

Bachelor's or higher \$ 6,125.06

Less than Bachelor's \$ 3,172.15

Parents' family: Number of children in college 1992-93

Two or more children in college \$ 5,452.80

One child in college \$ 4,429.09

Gender of student

Male \$ 4,924.74

Female \$ 4,964.28

Undergraduate grade point average (cumulative) 1992-93

Less than 2.0 ‡

Between 2.0 and 3.0 \$ 4,832.52

Greater than 3.0 \$ 4,854.65

‡ Reporting standards not met.

The names of the variables used in this table are: DEPEND, GENDER, PPOSTED, GPA, B2PARED, ACT94 and SPARSPRT.

The weight variable used in this table is WTE000. Variance estimation method: BRR

Computation by NCES PowerStats

Source: U.S. Department of Education, National Center for Education Statistics, B&B: 93/03 Baccalaureate and Beyond Longitudinal Study.

Appendix K

Descriptive Statistics for Number of Job Offers

Average Number of Job Offers in 1994 based on Number of jobs interviewed for, Bachelor's degree major, Gender, and GPA	
Table only includes:	
Those considered dependent in 1992-93	
Those employed full-time and not enrolled in April 1994	
	Average: Number of offers in 1994
Average for all students included	1.9476
<i>Number of jobs interviewed for 1994</i>	
At least 1 offer	1.0449
Two offers	1.3469
Three offers	1.6564
Four or more offers	2.5718
<i>Bachelor's degree major</i>	
STEM	1.9113
Non-STEM	1.9535
<i>Gender of student</i>	
Male	2.0794
Female	1.8434
<i>Undergraduate grade point average (cumulative) 1992-93</i>	
Less than 2.0	‡
Between 2.0 and 3.0	2.0548
Greater than 3.0	1.8689
‡ Reporting standards not met.	
The names of the variables used in this table are: DEPEND, GENDER, PPOSTED, GPA, B2PARED, ACT94 and SPARSPRT.	
The weight variable used in this table is WTE000.	
Variance estimation method: BRR	
<i>Computation by NCES PowerStats</i>	
<i>Source: U.S. Department of Education, National Center for Education Statistics, B&B: 93/03 Baccalaureate and Beyond Longitudinal Study.</i>	

Appendix L

Descriptive Statistics for Salary

Average Annual Salary in April 1994 based on Relationship between job and degree, Bachelor's degree major, Gender, GPA, and Race/ethnicity

Table only includes:

Those considered dependent in 1992-93

Those employed full-time and not enrolled in April 1994

Average: Annual Salary in April 1994

Average for all students included

\$22,471.05

Relationship between job and degree

Job and major not at all related \$18,928.81

Closely or somewhat related \$24,103.87

Bachelor's degree major

STEM \$23,376.28

Non-STEM \$21,796.95

Gender of student

Male \$24,576.72

Female \$20,797.19

Undergraduate grade point average (cumulative) 1992-93

Less than 2.0 ‡

Between 2.0 and 3.0 \$22,105.74

Greater than 3.0 \$22,971.11

Race/ethnicity

American Indian/Alaska Native ‡

Asian or Pacific Islander \$24,643.35

Black, non-Hispanic \$21,382.96

Hispanic \$21,429.01

White, non-Hispanic \$22,471.63

‡ Reporting standards not met.

The names of the variables used in this table are: GENDER, DEPEND, APRANSAL, GPA, PJOBRELT, ACT94, B3BAMAJR and RETHNIC.

The weight variable used in this table is WTE000.

Variance estimation method: BRR

Computation by NCES PowerStats

Source: U.S. Department of Education, National Center for Education Statistics, *B&B: 93/03 Baccalaureate and Beyond Longitudinal Study*.

Appendix M

Descriptive Statistics for Degree of Career Potential

Average Degree of career potential at job in 1994 based on Relationship between job and degree, Bachelor's degree major, Gender, GPA, and Primary job's requirement of college degree

Table only includes:

Those considered dependent in 1992-93

Those employed full-time and not enrolled in April 1994

Average: Degree of career potential at job in 1994

Average for all students included 1.9415

Relationship between job and degree

Job and major not at all related 2.3753

Closely or somewhat related 1.7642

Bachelor's degree major

STEM 1.9898

Non-STEM 1.9094

Gender of student

Male 1.9289

Female 1.953

Undergraduate grade point average (cumulative) 1992-93

Less than 2.0 ‡

Between 2.0 and 3.0 1.9975

Greater than 3.0 1.8739

Primary job required college degree 1994

Primary job did not require degree 2.2844

Did require degree 1.6855

‡ Reporting standards not met.

The names of the variables used in this table are: ACT94, DEPEND, GENDER, GPA, PJOBRELT, PJOBPOTN, B3BAMAJR and PJOBDEGR.

The weight variable used in this table is WTE000.

Variance estimation method: BRR

Computation by NCES PowerStats

Source: U.S. Department of Education, National Center for Education Statistics, B&B: 93/03 Baccalaureate and Beyond Longitudinal Study.

Appendix N

List of Variables in Analysis

<i>Name</i>	<i>Code</i>	<i>Description</i>
Total direct contribution from parents 1992-93	SPARSPRT	Student-reported amount of direct monetary contribution from both parents together for 1992-93 school expenses. Does not include loans or income-in-kind.
Number of offers 1994	JOBSOFFR	Indicates the number of job offers the graduate received in 1994.
April 1994 annual salary	APRANSAL	Calculates graduate's annual salary based on his/her employment in April 1994.
Degree of career potential at primary job	PJOBPOTN	Indicates whether graduate's primary job in 1994 had career potential. Variable categories are: Definite career potential, Possible career potential, and Not much career potential.
Bachelor's degree major (recoded)	B3BAMAJR	B3BAMAJR identifies a graduate's undergraduate major field of study. Variable categories are: Arts and humanities, Social and behavioral sciences, Life and physical sciences, Engineering/math/computer science, Education, Business and management, Medicine/health, Law, and Other.
Cooperative education, internship, or apprenticeship (1992-93)	CAI	An indicator of participation in cooperative education, an assistantship, or an internship at any time between July 1, 1992 and June 30, 1993. Variable categories are: None, 1, 2, and 3.
Undergraduate grade point average (cumulative) 1992-93	GPA	Identifies the graduate's cumulative grade point average (GPA) at the 1992-93 institution.
Primary job benefits: Health insurance 1994	PJBEN01	Indicates whether the graduate's employer in 1994 provided health or dental insurance. Variable categories are: No and Yes.
Type of occupation 1994	PJOBOCC	Indicates graduate's job occupation at their primary job in 1994. Variable categories are: Uncodeable, Clerical-Secretarial, Clerical-Financial, Clerical-Other, Craftsman/Precision Production/Repair...and Not working.
Primary job required college degree 1994	PJOBDEGR	Indicates whether graduate's primary job in 1994 required a college degree.

		Variable categories are: No and Yes.
Relationship between primary job and degree 1994 Close	PJOBRELT	Indicates how closely the graduate's degree was related to their primary job in 1994. Variable categories are: Closely, Somewhat related, and Not at all.
Number of jobs interviewed for 1994	JOBSINTV	Indicates the number of jobs the graduate interviewed for upon completion of their degree in 1994.
Main activity in April 1994	ACT94	Identifies the main activity of the graduate in April 1994. "FT" and "PT" mean "full-time" and "part-time," respectively. Full-time and part-time designations were reported by graduates. Variable categories are: Full-time employed, not enrolled; Part-time employed, not enrolled; Full-time employed, part-time enrolled; Part-time employed, part-time enrolled; Full-time employed, full-time enrolled...and Out of labor force, not enrolled.
Income of dependent student's parents 1991	DEPINC	Dependent student's parents' total income in calendar year 1991.
Parent's highest education attained	B2PARED	Reflects the education level of graduate's most-educated parent. Variable categories are: Less than high school graduation; GED; High school graduation; Voc/Trade/Bus school: less than 1 year; Voc/Trade/Bus school: 1 to 2 years...and Doctorate (PhD, EdD).
Parents' family: Number in college 1992-93	PPOSTED	Number in family who were in postsecondary education. Refers to parents' family regardless of student's dependency status. Variable categories are: 0, 1, 2, 3, 4...and 7.
Age when received 1992-93 bachelor's degree	B2AGATBA	Calculates the graduate's age when they received their bachelor's degree.
Dependency status in 1992-93	DEPEND	Describes the graduate's financial dependency status for financial aid purposes in 1992-93. Variable categories are: Dependent and Independent.
Gender of student	GENDER	Indicates the student's gender. Variable categories are: Male and Female.
Student's race/ethnicity	RETHNIC	This variable provides the race and ethnicity of the graduate. Variable categories are: American Indian/Alaska Native; Asian or Pacific Islander; Black, non-Hispanic; Hispanic; and White, non-Hispanic.

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ACADEMIC VITA

PAIGE A. HENRY

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EDUCATION

The Pennsylvania State University | Schreyer Honors College

Smeal College of Business | *Bachelor of Science in Finance*

College of Health and Human Development | *Entrepreneurship & Innovation: Hospitality Management Minor*

University Park, PA

Graduation: May 2021

PROFESSIONAL EXPERIENCE

KPMG

Incoming Full-Time Advisory Associate | Finance Transformation Intern

New York City, NY

July 2020 – Aug 2020

- Developed client-facing skills and finance transformation acumen to properly serve Fortune 500 finance leaders in better supporting profitable growth, prioritizing strategic decisions, and improving operational efficiency amid a dynamic business environment
- Built a personal network of financial consulting professionals to strengthen future teamwork and improve capabilities as a group

PPG Industries

Finance Intern | External Reporting

Pittsburgh, PA

May 2019 – Aug 2019

- Transformed the controllership's recordkeeping into a paperless system via a cloud-based platform and developed internal training materials to aid corporate members in the technological shift
- Accelerated project time by 10% for reporting financial data from 55 North American locations by using a customized progress-tracking system and reducing inefficiencies through verification of financial documents filed to the SEC, such as the Form 10-Q and 11-K

Nittany Lion Consulting Group

Senior Consultant | Consultant Training Program Graduate

University Park, PA

Sep 2018 – Present

- Curated recommendations for Campus Live, an online magazine company, in the areas of growth, content control, and social media after analysis of their operations, reader base, and long-term outlook during a hands-on consulting project
- Completed a rigorous 10-week training program, analyzing mock business cases and offering broad deliverables to consulting experts

LEADERSHIP EXPERIENCE

Alpha Kappa Psi Co-Ed Professional Business Fraternity

Vice President of Membership | Recruitment Chair | Web Development and Public Relations Chair

University Park, PA

Sep 2017 – Present

- Expanded membership by 20% during spring recruitment by designing several events, supervising interviews of 60 candidates, and publishing mass communications to the student body
- Optimized training of 18 new members by overseeing seven chairs, while ensuring the timely execution of internal operations for the 98-member organization through coordination with an executive board of seven
- Generated 200 to 250 profile visits per week by revamping the social media accounts and website with a new appearance and content

Saxbys Coffee

Team Lead | Barista

University Park, PA

Aug 2018 – Sep 2020

- Boosted efficiency of the closing routine by 60% by developing a schedule of tasks, delegating to five to 10 team members, and relaying daily operational updates to the CEO
- Maintained a speed of service of three to five minutes per order by coaching team members to achieve exceptional guest service, prepare coffee and food properly, and preserve a sanitary environment

VOLUNTEER EXPERIENCE

Schreyer Honors Orientation (SHO TIME)

Orientation Mentor

University Park, PA

Jan 2018 – Present

- Mentored 12 first-year honors students during a three-day orientation, while organizing logistics for the arrival of 300+ Scholars
- Advised new students on academics, extracurriculars, and life at University Park by reflecting on personal experience and connecting students with a network of resources to ensure a seamless transition into college

Penn State IFC/Panhellenic Dance MaraTHON

Dancer Relations Committee Member | Committee Relations Chair

University Park, PA

Sep 2018 – Feb 2019

- Assisted two of 700+ dancers by learning proper care techniques and developing inspirational activities to provide emotional and physical support during the largest student-run philanthropy in the world
- Raised \$10,621,683.76 after a year-long effort of fundraisers to offer financial support to the families impacted by childhood cancer

HONORS, SKILLS AND INTERESTS

Honors: Dean's List 6/6, Valedictorian of the Class of 2017, Academic Excellence Award, Business Achievement Award

Skills: Introductory knowledge of QuickBooks and Workiva Wdesk, working toward proficiency in Microsoft Office

Interests: *The Bachelor*, baton twirling, cornhole, event planning, jet-skiing, *The Office*, Pinterest, running, Topsail Island, UTV riding