

Is It Worth Your Time? Biggest Contributors to Starting Salary for Bryant University Students

The Honors Program
Senior Capstone Project
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ABSTRACT

Students often wonder what curricular, co-curricular, and extra-curricular activities contribute to initial starting salary. Previous studies on this topic have indicated that the factors GPA, major/field of study, gender, and having an internship all increase starting salary. Prior research showed a positive and significant relationship between GPA and starting salary (Jones and Jackson, 1990), fields that require mathematical abilities had higher starting salaries in comparison to those fields without quantitative abilities (Paglin and Rufolo, 1990), 95% of the gender gap in starting salaries with women earning less than men could be attributed to college majors selected (McDonald and Thorton, 2007), and experience is beneficial, but only up until a certain point. Using a linear regression approach on a sample of 386 Bryant University graduates from 2013 to 2015, this study found that GPA, major/field of study, ethnicity, employer size, having an internship, commission-based salaries, global companies, and reasons for accepting the position all had significant effects on starting salary.

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INTRODUCTION

Looking at an online article entitled “Best Value Colleges” from SmartAsset 2016, Bryant University ranked fourth in the state of Rhode Island coming in behind Brown, University of Rhode Island, and Providence College. Nationally, Bryant was ranked 327th. The average starting salary stated in this article for Bryant University students was \$52,400, which turned out to be the second highest in Rhode Island behind Brown. On average, Bryant University awarded about \$17,910 in scholarships and grants. College tuition costs \$37,234 and student living costs \$16,364. The student retention rate at Bryant is 87%. Using 25% starting salary, 25% tuition, 25% living costs, 12.5% scholarship and grants, and 12.5% retention rate, Smart Asset created a college education value index number. The number one ranked school in the nation received a college education value index of 100. Bryant University’s college education value index was 44.89.

With this information, I specifically wondered about starting salary and what exactly contributed to that. Seeing as Bryant was ranked second in Rhode Island, I wanted to know what went into that and how I could maximize my starting salary as a Bryant University student. Now that I am a senior, there is little that I can change, but if I was a freshman, it might have been helpful to know what I could have done differently to try and have a higher starting salary upon graduation.

Research Question

The research question that I examined for my Honors Capstone Project was what has the largest impact on the starting salary of a Bryant University student. Is it major/field of study, International Business majors, GPA, gender, ethnicity, whether the student has experience in

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the field with an internship or not, the reason for accepting the position, signing bonuses received, commission-based salaries, global companies, or employer sizes?

Goals & Objectives

The objectives of this Senior Capstone project consisted of seeing what the main driver(s) of the starting salary for Bryant University students are. It would be very useful to be able to inform students what contributes the most to starting salary. I hoped to provide Bryant students insights on specifics such as the majors with higher starting salaries, aspects of potential employers/companies that contribute to higher starting salaries, involvements that lead to higher starting salaries, and potential effects that benefit packages and other opportunities available at a company might have on starting salary.

This information would allow students to possibly choose a major that may have a higher starting salary if they were undecided or wanted a good salary. It would also provide students with the information on what aspects to look at in companies when looking for a full time job upon graduation, such as whether the company is global or whether it is a small firm or a large firm. By being informed of involvements that lead to higher starting salaries, students would have the opportunity to spend more of their time on things that will actually matter come their graduation in four years. Depending on the outcome of the variables GPA and internship, students would be able to see if it's worth it to spend time getting good grades or spend time on an internship. This research would also provide students with the positive or negative effects that the reason for accepting the position have on starting salary. By choosing benefits packages or opportunities for growth or location, a student's starting salary would most likely decrease, but by how much? Many times, students become wrapped up in short-

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term aspects and fail to see or even know the long-term benefits or drawbacks from choosing a major, or building a GPA, or building work experience through an internship. If this project would let students know what to focus on both during their four years of college as well as what to look for in a company upon graduation, it may help them be more successful in the long-run in terms of a higher starting salary.

Hypotheses

My hypothesis was that major/field of study would have a large impact on a student's starting salary. I thought that being an International Business major would increase starting salary. I would also hope that GPA does matter and I was curious to see what the results say about it. I also definitely thought that an internship or prior experience would be necessary when looking at a student's starting salary. I thought that I would find commission-based salaries to be lower than non-commissioned based starting-salaries. Lastly, I did not think that gender would affect starting salary.

Scope and Focus

I had been informed by the Honors Program Director Jim Segovis that Bryant University collected data on its graduating seniors to find out information such as where they are working, what their starting salaries are, whether they went to graduate school or not. He informed me that it would be better to try and get this data from Bryant rather than send out my own survey. With this knowledge, I contacted the Director of Strategic Planning and Research Robert Jones to see if I would be allowed access to the data. I was granted access to the data through an Excel file that Bob Jones organized himself. This file contained only the relevant information for my studies and the student ID's were coded to ensure that the

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confidentiality of the students was kept and that I could not trace back to figure out who the students were. The variables that I was given included major/field of study, International Business major, gender, ethnicity, GPA, internship, starting salary, reason for accepting the position, signing bonus, commission, global company, and employer size. Originally, I had wanted to analyze other variables as well such as leadership positions, extra-curricular activities, honors students, and other involvements students have during college. However, Bryant did not have data on these variables for me to analyze. Thinking that these variables were going to be a major part of my analysis, I did background research on them, but unfortunately wasn't able to see what the results were for students at Bryant. Instead, I used the other variables mentioned earlier, with many of them proving to be a significant contributor to starting salary. My Senior Capstone Project focused mostly on the last three years of Bryant University graduates, including the most recent year of 2015 graduates.

When I was using this data, it was important to keep in mind that all of this data was self-reported. Those with higher starting salaries were probably more apt to report them whereas those with lower starting salaries were probably more apt to not report them. This could potentially skew some of the results and analysis. With this data, I then used all of these variables and the information attained from them to run various regressions on the data and find what the largest contributors were to a student's starting salary. Extensive research was done to see what results should be expected. The results I found would then be compared to the results found from projects done already.

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“So What?”

This project was worth doing because it can really pinpoint for students entering college what areas they should focus their time on to make them most successful in terms of 1. Getting a job upon graduation and 2. Getting a job with a good starting salary. If students had access to what really mattered when it came time to graduate, then maybe they would spend more time on getting internships or maybe getting a higher GPA. With so many things to focus on now-a-days and too little time, it would be very helpful to hear what really mattered when it came time to get a job and have a starting salary. Students would know what to look for in companies to increase their starting salary. This project would also really help Bryant University publicize these facts to potential students looking to come to Bryant. The information would be useful to the AMICA Center too. They can use this information help students from all grade levels. They would be able to provide information to freshman about average starting salaries for each of the majors. They would be able to help sophomores and juniors find internships and emphasize the importance of these internships in terms of starting salary. Lastly, the AMICA Center would be able to help seniors find jobs for companies that offered higher starting salaries by emphasizing what aspects of a company increase starting salary.

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RESEARCH METHODOLOGY

Approach

The approach to my capstone project first included doing research on as many previous studies involving a similar analysis on starting salary. I looked at what variables have been analyzed, what methods were used, and what the results turned out being. This information gave me a good idea of where my project was headed in terms of how I should expect each variable to affect starting salary. I then got data from Bryant University on the last three years of graduates from Bob Jones. Once I gained access to the data, I began running tests on the data to find out results and draw conclusions to answer my questions. I did an overall model analysis that included all of the variables because none of the variables proved to be highly correlated as well as a statistics summary on the data. I then summarized my results and my findings. This approach proved accurate in providing me significant results and findings.

Techniques

A very important part of my project included the statistical analysis of the data. I ran a summary statistics test on the variable 'starting salary' to see what the mean, median, mode, standard deviation, minimum, maximum, first quartile, and third quartile are. I then ran a stepwise regression on the data with starting salary as the dependent variable. This went through each of the independent variables and only keep those that make a significant to the model. It allowed me to see what the most important contributors to starting salary were. Once I had this model and the significant independent variables, I then analyzed each of the variables in an overall regression model to see how they contributed to the overall model of starting salary. I also checked for multicollinearity in Excel using a correlation matrix. For my

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data set, there were no highly correlated variables to be concerned about in the analysis. This made sure that there was no significant interaction between the variables that would skew the results.

Relevance

My approach was relevant because by first doing research I had a good idea of what results I should have be looking for. Once I had the background knowledge, the next most logical step was to get the data. With the data, I was able to run tests on the data to find the answers to my questions. There would not be any other logical or more efficient way to approach analyzing the data. By running many different tests and analyzing the data in many different ways, I found interesting results and answers to my questions that mainly coincide with my research.

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EXPLANATION OF DATA SOURCES

Context

This research project provides students with the information they need about what contributes to starting salary for their job upon graduation. This research is relevant today because most people attend college in order to get a job in the workforce upon graduation. In previous years, not everybody went to college, so attending a university already distinguished yourself as a job applicant. Now-a-days though, with so many people attending colleges, it does not act as a distinguishing factor on a resume. Yes, it is usually necessary to have a college diploma, but it no longer gives the advantage needed to be offered a high paying job. It has now become crucial for students to distinguish themselves in other ways, through things such as grades and GPA, internships, or choosing a certain major over another. My hopes for this study are to provide those students attending Bryant University with the information that they need to plan accordingly and use their time effectively in their four years here. I am hoping that they can make the right choices that enable them to distinguish themselves on a resume or in an interview and earn or at least be offered a higher starting salary upon graduation.

Lens

I am examining this topic as an Actuarial Mathematics major with a concentration in Applied Statistics and a double minor in both Business Administration and Finance. I will be earning the SAS Certification as part of my Applied Statistics concentration. I am completing this Honors Capstone Project in my senior year. I have a 4.0 GPA and I am year round Division 1 athlete on the Women's Cross Country and Track and Field teams. I am a Master Peer Tutor for Mathematics at the Academic Center of Excellence. My viewpoints are shaped by the fact

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that I think all of these involvements, achievements, and accomplishments will indeed be shown through how high my starting salary is. I was most curious about this topic because I was wondering which of these plays the biggest role in getting a job and the starting salary of that job. When examining studies and analyzing the results, I am biased in looking for those with higher GPA's to have better salaries, or those with an Actuarial Mathematics degree to have more opportunities. I am hoping that being involved in a leadership position aids in the starting salary as well as being a Division 1 athlete. The academic sources that I looked at all analyzed at least one of the variables that I plan to analyze with starting salary. However, each of these variables were chosen because I have analyzed myself in each of these areas and strived over the years to be above average in them all. Each study had slightly different outcomes and conclusions, but each gave me a general idea of what I should be looking for in my results when I run these tests with the data that I will be analyzing from Bryant University. Throughout this analysis, I am hoping that all the effort I have put forth in these various contributing factors to starting salary actually do pay off and are valuable. This is a bias that I will have to keep in mind throughout my analysis and interpretation of the results. Even though I was interested in all of these variables and did background research on them, it is important to keep in mind that I did not end up having data to analyze leadership positions, extra-curricular activities, honors students, and other involvements students have during their four years.

Background/History

One pioneer study in this field involved analyzing salary (and to some extent starting salary) with age and tenure. This study by Hoffmann and Thompson created three regression lines

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that predicted starting salary. One looked solely at age, another only at tenure, and the third at both age and tenure. While age and tenure are highly correlated, the regression equations show that tenure is a higher predictor of salary than age is. This study also adds that back in 1954, the average starting salary of women was higher than that of men. This carried over through the time span of ten years into what the current salaries were for men and women in 1964 when this study was done. The purpose of this study was to have some generalizations in the trend of salaries to be able to forecast salaries in the future. Hoffmann and Thompson acknowledge that “salaries are frequently thought of as being dependent upon a man’s skill, education, experience and other individual characteristics”, but were looking for a more generalized prediction factor (437). This shows that in the past, salary was analyzed. It began with just looking at its trend over time. Over time though, many more aspects of salary were analyzed. Now with my research project, I am able to analyze salary further and see what actually affects the starting salary of Bryant students today and if these other contributors actually play as big of a role in starting salary as I predicted they will.

Theories

As stated in the context portion of this review, it is important to keep in mind that ideals have shifted from only the upper class being privileged enough to attend college to now everybody attending college. Before getting a higher level education beyond high school was enough to separate a person from the pack in the perspective of employers and increase the starting salary accordingly. Now though, ideas have shifted in that everyone goes to college and it is almost seen in society as not good or potentially not acceptable to be college educated, especially in the workforce. This has caused employers to seek out the best for the job going

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beyond just having a college degree. It is important to keep that in mind when reviewing my study because it is a key reason for why this study is being done.

GPA

When looking at the variable GPA, the general consensus was that it does play an important role in determining starting salary as well as being a good predictor for job performance.

Those with higher GPA's tend to not only work harder, but also have attendance rates and higher aptitude scores. The academic source from Schuman, Walsh, Olson, and Etheridge examines the idea that GPA is not just about actual studying and effort put into earning good grades, but that other factors also contribute. The authors found that there was a stronger relationship between grades as measured by GPA with both aptitude tests and self-reported class attendance. For my capstone project, this information was good to keep in mind while I doing my testing. I tested to see if GPA does contribute significantly to starting salary.

However, I kept in mind the fact that it may just be an indicator of a person's potential, knowledge, or work ethic and not necessarily a direct contributor to starting salary.

Besides being just an indicator of starting salary, GPA should also be viewed as an indicator of a hard worker and good job performance. In an academic article, Jones and Jackson analyze the effect that GPA has on starting salary and the salary of a graduate five years later. The study found that there is a positive and significant relationship between GPA and starting salary. However, the study calculated an estimate of starting salary whereas I had the self-reported starting salary of the recent Bryant graduates. This academic article relates to my capstone because I analyzed the effect that GPA had on starting salary as well. I was curious to see if Bryant's population had a positive and significant relationship between GPA and

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starting salary. The academic source from Wise (also mentioned in Jones and Jackson) analyzes the relationship between academic achievement (GPA) and other characteristics of job productivity that college graduates have. The results show that academic achievement is an important contributor to job performance. The results also indicate that nonacademic attributes are also just as important as academic abilities in determining job performance. For my capstone project, I analyzed the effect of both academic achievements (GPA) and nonacademic achievements (internships) on starting salary. I was curious to see if both aspects play a significant role in determining the starting salary of graduates at Bryant University. I was very interested to see how much GPA does contribute to starting salary and if it played a significant role or if it was just an indicator for an employer of a hard worker.

Major/Field of Study

When looking at the variable of field of study, an overwhelming majority of sources indicated that it plays a major role in starting salary. Most of the studies indicated that it is the most significant contributor to starting salary and that there are significant differences between fields of study when analyzing starting salary. The academic article from McMahon and Wagner examines the expected salaries that those with higher education should have. The results include that there is a relative difference across the fields of study. Specifically, those in health, technical, and science fields should expect higher salaries than those in education, liberal arts, and humanities. This relates to my capstone project in that I analyzed the differences in starting salaries across the various fields of study. I looked to see if the findings in this academic article held true to what I found at Bryant University.

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The academic article from Dorceta examines the work preferences and starting salary expectations of college students, specifically in science and engineering fields. Only looking at the starting salary expectations, Dorceta had a couple of interesting findings. First, the students who expected the highest starting salaries were those majoring in engineering and the different sciences. This was very interesting to look at in my capstone project to see if there was a significant difference across the fields for starting salary, specifically the mathematics and science majors from the other fields. The academic source from Sharp and Weidman focuses on jobs and starting salaries of humanities majors. In the recent years, there has been a decline in the number of graduates in this field due to the switch to other majors. This switch can be explained by the lower pay for humanities majors upon graduation and the lack of knowledge about what jobs can be obtained with a humanities major. The study compared humanities majors with many other majors including social sciences, liberal arts, business fields, and education. For my capstone, I analyzed the variations in starting salaries across majors. I was curious to see if those in the Arts and Sciences School at Bryant have lower starting salaries than those in the Business School.

The academic article from Cebula and Lopes analyzes the major contributors that drive a student's choice in deciding his/her undergraduate major/field of study. Cebula and Lopes find that the salaries between the fields of study and the rate of change in those salaries among the fields of study are the top two most important factors in a student's decision, even accounting for recent trends toward Accounting and Business Administration. This article relates to my capstone project in that I analyzed the difference in starting salary among the fields of study to see if there was a significant difference that exists between any of the

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majors. I was able to look and see how much of a difference there was and how many students ended up choosing the major with the higher starting salary versus the major with the lower starting salary. Having both a School of Business and a School of Arts and Sciences, I was interested in seeing what results I would find in starting salary between the schools and the individual majors.

Paglin's and Rufolo's academic source analyzes the gap between male and female starting salaries as well as the occupational field chosen of the college graduates. The results included that mathematical ability is an important factor in determining what field to study in college as well as a significant contributor to the starting salaries in certain fields. Those students with mathematical abilities tend to enter fields which have higher starting salaries in comparison to those fields without quantitative abilities. For my capstone project, I analyzed the difference of starting salary between genders as well as between majors. I was especially curious to see if this observation held true though because I am an Actuarial Mathematics major. It was interesting to see if those fields with mathematical abilities do have a higher starting salary in comparison to the fields without mathematical abilities.

Gender

Analyzing the variable gender, most of the studies indicate that there is a difference in starting salary between men and women. Some sources indicate that this is because of the fields that women choose versus the fields of study that men choose. Other sources indicate that this difference exists because women are more likely to accept a lower offer than their male counterparts in anticipation of leaving the labor force for a few years for family reasons/obligations. The academic article from Blau and Ferber analyzes the reasons for the

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differences in male and female earnings. Blau and Ferber contribute the lower salaries for women as part of women's choices to maintain household responsibilities. Due to having less time to invest in a job, women choose jobs that have lower human capital investments, but more leniency when it comes time to step out of the labor force for some time. Overall, this article emphasizes that a major part of the male-female earnings gap stems from females choosing certain occupations, sometimes occupations requiring less effort, which in turn leaves them earning less than males. This academic source will help me in my capstone in that I looked for these stated observations when I ran tests on the data. I checked to see if there was a significant difference between the starting salaries of the two genders.

An academic article from Joy examines the potential reasons for why male college graduates earn more than their female counterparts. The major factors analyzed include both educational effects, such as majors and GPA, as well as labor market effects, such as industry, job sector, and hours worked. Joy found that labor market effects is the main reason for the salary gap, specifically looking at the fact that women are now not only attending college, but also majoring in previously male-dominated majors. This relates to my capstone in that Bryant University used to be a very male-dominated school. Only in the past few years has the ratio between male and female been close to 50:50. With many women majoring in Business and other previously male-dominated fields, I was interested in finding out what effect this had on the starting salaries of Bryant graduates and if there exists a difference between male and female starting salary within those majors. I was curious to see if gender differences were still significant among Bryant graduates.

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Another observation, to be noted from the academic article by Dorceta, was that on average, women claimed to be willing to accept lower starting salaries than men. I would be interested to test to see if there is a gap in earnings between men and women in their starting salaries. It was good to keep this in mind when testing to see how gender affects starting salary. Also, an academic source from McDonald and Thornton examines the gap between male and female starting salaries and analyzes what the major contributor is to the difference. McDonald and Thornton find that 95% of the gender gap in starting salaries can be attributed to the difference in college majors selected. For my capstone, I tested to see if a difference existed between male and female starting salaries. It was interesting to see if this finding by McDonald and Thornton held true at Bryant.

Age

Observing the variable age, one study indicated that graduating and working full time at a younger age does show signs of being very knowledgeable and having the ability to learn quickly. However, the drawbacks include not having enough work experience in the given field of study. On the other end, those that graduate later than average end up having much more work experience, but lack the ability or the drive to learn and end up being set back in their careers by those weaknesses. The academic article from Klevmarken and Quigley examines the effects that physical age and experience have on starting salary. It looks at the potential starting salary for those who graduated early, but with little work experience, as well as the potential starting salary for those who graduated late, but with more work experience. The results conclude that starting salary does peak at about 3 or 4 years of experience and that graduating early can help if enough potential is seen in a person's learning ability. This article

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applies to my capstone in that I analyzed the impacts of experience on starting salary. I tested the data to see if the amount of experience (i.e. internships) does peak. I was interested to see how age impacts the starting salaries of those graduating from Bryant University. However, Bob Jones mentioned that most students graduate at or around the same age. Analyzing the variable age may just create background noise in the analysis and potentially should be taken out of the equation of independent analysis variables.

Leadership Positions

When looking at the variable of leadership positions held prior to graduation, one source indicated that it positively impacts starting salary. By having a leadership role, it shows that the student has leadership skills. With these skills, more jobs become available to them that have leadership skills necessary to do the job, which therefore increases their salary. The article from Kuhn and Weinberger analyze the effect that leadership skills have on starting salary. Kuhn and Weinberger find that men who occupy leadership positions in school end up earning more as an adults. Leadership skills, which are gained by holding leadership positions, do demand a higher starting salary, especially in managerial occupations. This article relates to my capstone in that I also wanted be analyzing the effect of leadership positions on starting salary. I was curious to see if holding a leadership position at Bryant University had a significant effect on starting salary. Though I was interested to see if leadership roles with students at Bryant played a role in their starting salaries, the data provided by Bob Jones did not include those students who held leadership positions during their time in college. In the future, this will hopefully be tracked through the new software Bryant is using called OrgSync and the data will be pulled in and organized by student ID.

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Extra-Curricular Involvement

Analyzing extra-curricular involvement with starting salary, one source emphasized the importance of getting involved in after-school activities. By having structured time, the students are more likely to succeed in the classroom environment, and therefore set themselves up for a more successful future. However, students who are not involved and have unstructured time end up being negatively affected in the classroom, and therefore are not set up for a successful future. This article by Cosden, Morrison, Gutierrez, and Brown relates to my capstone in that I would have viewed the variable of extra-curricular activities more as an indicator of how successful someone would be. When looking at the graduates of Bryant University, it would have been helpful to keep in mind the fact that all the activities students are involved in many not directly affect starting salary, but instead my indirectly attribute to it through positively impacting their GPA's and other aspects that influence starting salary. Similarly to leadership positions though, Bob Jones did not have data about the extra-curricular activities students were involved in. OrgSync could also be used in the future to help keep track of involvements that students are in during their time in college. Another variable that I was particularly interested in was the impact on starting salary from being a Division 1 athlete. It would have been interesting to analyze whether being a student-athlete was truly beneficial or not in terms of starting salary. However, there was no way that I was able to get this data while still upholding the confidentiality of the students.

Internships

Observing prior experience such as internships, one source revealed that experience is definitely beneficial, but only up to a certain point. After a couple of years of experience, it

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can no longer increase a student's starting salary. This indicates that internships are necessary, but many are not needed. I was interested in seeing how many internships students at Bryant had upon graduation and how it impacted (or didn't impact) their starting salaries. After speaking with Bob Jones, the only data collected on graduates was if they had an internship, not how many internships they had. This was still very valuable information that I was able to use, just in a different way than I originally had expected.

Summary of Literature Review

Overall, I had a general idea of where my study was headed and what my results should potentially look like. Major/field of study should have a large impact on starting salary. Age appears to be a variable that would not have any effect on the outcome of starting salary. GPA may not play a role in the model on its own, but if GPA is analyzed within each major, it might have a higher effect on starting salary. Unfortunately, there was no data right now on extra-curricular activities or leadership roles, so those variables had to be removed from the model. Gender would be very interesting to analyze. I was curious as to whether gender plays a significant role in starting salary and if discrepancies still exist between male and female starting salaries. I was also interested in adding a couple of more variables to the model such as location, company, and ETS scores. Unfortunately, ETS scores were not able to be added to the data and using location and the company did not seem beneficial to add to the model. In the end, I was very curious to see if any differences did apply to Bryant University and the data that I analyze compared to what my literature review discussed.

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Moving Forward

The data that I needed access to included both the quantitative and qualitative answers to questions that the university asks Bryant graduates to find out statistics about the jobs students receive after graduation. This would include the information on starting salary, major, gender, ethnicity, internships, commission, signing bonus, GPA, global company, and employer size.

I needed access to this data in order to analyze it to get my results and find answers to my questions. After speaking with Bob Jones, I was able to have access to the data once the names of the students were taken away and identification numbers of the students were coded. This allowed me to clean up the data to then use it for my analysis.

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ETHICAL CONSIDERATIONS

Potential Problems

A potential problem that I encountered was not having a large enough sample to analyze some of the majors. Certain fields of study such as Accounting and Finance had many data entries, creating a large enough sample to figure out an average starting salary for them. However, other majors such as Sociology and Economics only had a couple of data entries. This would have caused the results and analysis to be skewed by any outliers in the data. To solve this, I decided to combine the minority Arts and Sciences majors into one group. This would allow the analysis to use the combined Arts and Sciences as a baseline and provide an average starting salary for those students graduating from all the other majors.

Ethical Issues

Yes, the ethical issues of my project were considered. I know that there is a privacy aspect to finding out this personal information from students. By getting it from the university, I had access to the data sets with no names attached so that the confidentiality of Bryant graduates is not broken. The student ID's were also coded so that I would not be able to trace the data back to any students. Bob Jones and David Ketcham made sure that the confidentiality of the students was maintained by providing me access to the data with no names or Bryant identification numbers.

Reviewed by University Institutional Review Board

No, the project was not reviewed by the University Institutional Review Board. Since I had access to the data, I did not need to send out a survey, and therefore did not need a review from the University Institutional Review Board.

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RESULTS

Statistics Summary

Overall, there were 753 total data entries, but only 386 had complete data and could be used for analysis purposes. By complete data, I mean that only 386 of the entries had starting salary and could be used to see what factors contributed to starting salary. Looking at the statistics summary of this data, the mean starting salary came out to be \$51,482.77. The median was \$53,600 and the mode was \$55,000. The standard deviation of the starting salaries was \$8,684.29. The minimum was \$25,000, the first quartile was \$47,000, the third quartile was \$56,000, and the maximum was \$72,000. These results are summarized in Appendix A.

Overall Model

Through my analysis, I found that the biggest contributors to starting salary were ethnicity, the reason for accepting the position, major, employer size, internship, GPA, commission, and global company. Even though gender was not significant, it is still something that provided interesting findings. The overall model proved to be significant at the 5% level with a p-value of $<.0001$. Looking at the R-Squared value, approximately 50% of the response variable variation was explained away by this linear model. The adjusted R-Squared value came out to be fairly high as at about 46%. These results are shown in Appendix B.

When analyzing the results of each of the variables, the intercept of the model turns out to be \$43,610. This becomes the baseline for how much the variables will be increasing or decreasing this salary amount. The significant variables at the 5% level included commission, GPA, ethnicity, large employer size, global company, accepting the position because of benefits, accepting the position because of opportunities for growth, accepting the position

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because of location, internship, and the major Communication. The significant variables at the 10% level were the majors Computer Information Systems (CIS), Human Resource Management, and Marketing. These results are shown in Appendix C with the yellow variables indicating 5% significance and the orange variables indicating 10% significance.

Stepwise Regression

The results for the stepwise regression point out the top five variables that contribute to starting salary. In their respective order, the top five variables that contribute to starting salary are commission, large employer size, GPA, CIS, and Actuarial Mathematics. The Partial R-Squared for the variable commission turned out to be around 20%, meaning that commission is explaining away about 20% of the variation in the model. Next, large employer size had a Partial R-Squared value of about 9.4%. Then there was GPA with a Partial R-Squared of about 3.3%, CIS with 2.6%, and Actuarial Mathematics with 2.65%.

Commission

Analyzing the results for the variable commission shows that only approximately 8% of the students in the data set had a commission-based salary. The other 92% did not. The variable commission did significantly decrease starting salary with a p-value of $<.0001$. Holding every other variable constant, commission brought down the base salary or intercept of \$43,610 by about \$9,000. These results make sense seeing as commission-based salaries are usually lower off of the assumption that the person will be properly compensated according to sales he/she made during that year. These results are shown in Appendix D.

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Signing Bonus

The results for the variable signing bonus point out that only about 17% of students received a signing bonus in addition to their starting salary. The variable signing bonus did not contribute significantly to the model predicting starting salary with a p-value of .1707. The results for signing bonus are displayed in Appendix E.

Gender

The data was almost evenly split for the variable gender with about 46% females and 54% males. This happens to be a very good depiction of Bryant University as a whole seeing as the split between males and females is roughly equal with females have a slightly lower percentage. The variable gender did not end up contributing significantly to the model predicting starting salary with a p-value of .5567. However, with males being the baseline, the negative parameter estimate of about \$435.31 did correlate to my previous research that females do make slightly less than males even though it did not turn out to be statistically significant. These results are presented in Appendix F.

Ethnicity

The data set that I used specified that approximately 81% of students had a white ethnicity with the other 19% classified as non-white. The variable ethnicity did contribute significantly to the model predicting starting salary with a p-value of .0317. However, with non-whites as the baseline, the negative parameter estimate of \$1,918.85 shows that non-whites make more than whites. These results are shown in Appendix G.

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Employer Size

The data set that I used categorized employer size into either small, medium, or large. A small employer size was classified as a firm that had less than 250 employees. A medium employer size was classified as a company that had anywhere between 250-1000 employees. A large employer size was a firm that had over 1000 employees. In the data set, there were approximately 78% of the students working for a large employer, 12.5% working for a small employer, and 9.5% working for a medium-sized employer. The baseline used for the analysis was medium-sized employer.

The variable large employer size did contribute significantly to the model predicting starting salary with a p-value of $<.0001$. It increased the starting salary intercept of \$43,610 by \$5,525.06. Small employer size, though, did not contribute significantly to the model with a p-value of .9475. These results are displayed in Appendix H.

Global Company

Approximately 85% of students worked for a global company in the data set. The variable global company did contribute significantly to the overall model predicting starting salary with a p-value of .0299. However, the negative parameter estimate shows that those who work for global companies make less than those who don't. Working for a global company decreases the starting salary intercept by \$2,787.28, holding every other variable constant. These results are pointed out in Appendix I.

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Reasons for Accepting the Position

One variable that I decided to analyze was the reason that the student decided to accept the position. The choices that the student could choose from for this variable included salary, benefits, nature of work, opportunity for growth, location, or other. Approximately 5% of the students chose salary, 1% chose benefits, 14% chose nature of the work, 30% chose the opportunities for growth at the company, 6% chose location, and the remaining 44% was classified as either choosing other or left blank. The baseline used for analyzing this variable was other/blank.

The statistically significant reasons for accepting the position turned out to be benefits with a p-value of .0136, opportunity for growth with a p-value of .0009, and location with a p-value of .0001. All three of these statistically significant reasons decreased the starting value intercept of \$43,610. Choosing a position based off of its benefits decreased this intercept by \$7,016.24, holding every other variable constant. Accepting a position based off of the opportunities for growth at the company decreased the starting salary intercept by \$2,792.69. Picking a position at a company based on its location decreased the intercept by \$5,866.05. Accepting a position based on the nature of work also decreased the starting salary intercept, but not significantly.

These results would be expected because it would be assumed that if a student was choosing a position for something other than salary, the starting salary would have to take a hit in order to compensate for the other benefits provided by the company or other opportunities available at the company. However, the one result that may be contradictory is the sign of the parameter estimate for salary. It indicates that accepting a position for its salary would decrease the

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starting salary. Even though it is not significant, this meaning can still be difficult to understand. The main explanation for this is that in comparison to the baseline of other/blank, the starting salary was lower for students who put salary as the reason for accepting the position compared to those students who responded as other or left it blank. The students who chose salary could have also been in a field where there is a lower starting salary and so the salary that they accepted was higher than others in that field. However, when comparing them to the rest of the data set, it turned out to be lower than other students. All of these results are summarized in Appendix J.

Prior Internship

Analyzing the variable internship, approximately 81% of students had an internship prior to accepting a full time position. The variable internship did contribute significantly to the model predicting starting salary with a p-value of .0113. Having an internship prior to accepting a full time position increased the starting salary intercept by \$2,353.83. These results were expected based off of the prior research that I had done. Previous sources had indicated that starting salary should increase as experience increases. Unfortunately, I do not know how many internships students had, so this could factor of internships could not be tested. These results are demonstrated in Appendix K.

International Business Major

Looking at the variable International Business major, only approximately 8% of students in the data set majored in International Business. The variable International Business did not contribute significantly to the model predicting starting salary with a p-value of .4884. These results are shown in Appendix L.

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Majors

The final variable that I decided to analyze was the major that students decided to study while attending Bryant University. The distribution for majors in the data set were about 27% Accounting, 9% Actuarial Mathematics, 1% Applied Mathematics and Statistics, 3% Computer Information Systems, 2% Communication, 2% Entrepreneurship, 22% Finance, 4% Global Supply Chain, 1% Human Resource Management, 1% Information Technology, 11% Management, 13% Marketing, and 2% other Arts and Sciences majors. The baseline used for analyzing this variable was the other Arts and Sciences majors. This category was created because these kind of majors (i.e. Economics, Psychology, Sociology, etc.) were too small to be evaluated on their own, so instead, they were incorporated into the analysis as a group.

The results indicated that the only major significant at the 5% level was Communication with a p-value of .0094. The major Communication decreased the starting salary intercept of \$43,610 by \$8,043.74. Looking at the 10% level of significance, there were three more majors that came out to be significant. First, the major Computer Information Systems (CIS) proved to be significant at the 10% level with a p-value of .0569. CIS increased the starting salary intercept by \$5,615.36, holding every other variable constant. Next, the major Human Resource Management came out to be significant at the 10% level with a p-value of .0577. Human Resource Management decreased the starting salary intercept by \$6,650.16. The last major significant at the 10% level was Marketing with a p-value of .0597. Marketing decreased the starting salary intercept by \$4,618.76. These results connected to the prior research that I had done in that the majors requiring more mathematical abilities such as CIS and Actuarial Mathematics demonstrated higher starting salaries in the model, whereas majors

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without qualitative abilities showed a decrease in starting salary. These results are summarized in Appendix M.

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CONCLUSIONS

One of the first main conclusions that I came across in my results and analysis was that if a student's salary is commission-based, the student needs to be able to sell in order to increase his/her salary for the first year. Commission-based salaries proved to be significantly lower, so if a student want to make good money off of a commission-based salary, he/she needs to be a good salesperson. Another strong conclusion that I came to through my results and analysis was that when students are looking for a job, they should prioritize large employers. Larger firms who have over 1,000 employees offered higher starting salaries than any other size firm.

A third conclusion that I ended up finding was GPA does matter. Regardless of what anyone else may say, think, or feel, going to class, working hard, and getting good grades is worth it in terms of having a significantly higher salary upon graduation. This result coincided with my previous research in that GPA and starting salary have a positive and significant relationship (Jones and Jackson, 1990). My final central conclusion was that anyone who is undecided with their major and wants a higher starting salary should consider CIS or Actuarial Mathematics. These two majors proved to be higher than any other majors offered at Bryant University. This conclusion also held with my prior research in that those in health, technical, and science fields should expect higher starting salaries than those in education, liberal arts, and humanities (McMahon and Wagner, 1981). It was also proven that those students with mathematical abilities tend to enter fields which have higher starting salaries in comparison to those fields without quantitative abilities (Paglin and Rufolo, 1990).

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Future Steps

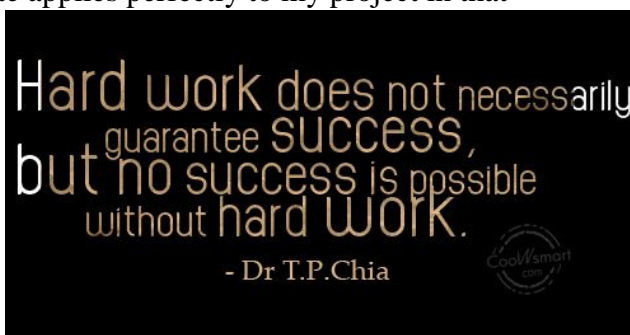
Originally, I wanted this project to look at a few other variables as well that would have been more applicable to me and the activities that I have gotten involved with during my time here at Bryant. Unfortunately, Bryant did not have data on these variables and I was unable to do this analysis. In the future, I think it would be great to look at variables such as leadership positions, extra-curricular activities, student athletes, and business students' performance on the Educational Testing Service (ETS) Field Exam. Some of these were variables that I did background research on in hopes of analyzing them for Bryant University students. It would be interesting if data could be collected for these variables and then this project could be built upon in the future to include this data. One technological advance that Bryant now has and could use is the online website OrgSync. This website has all of the clubs, organizations, and leadership positions that students are involved in. If Bryant could connect this to student ID's and compile the data into a spreadsheet in Excel, then this data could be easily accessed and used to further this study that I have started. In terms of the ETS Field Exam, it would be interesting to see if competency pays. However, Bryant would have to figure out a way to connect this data with the student ID's in order to make them useable for this project and in the analysis without breaking the confidentiality of the students.

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Closing Thoughts

I wanted to end this entire project with a quote that will bring my research and analysis full circle. Dr. T. P. Chia said, “Hard work does not necessarily guarantee success, but no success is possible without hard work”. I think this quote applies perfectly to my project in that working hard to get a higher GPA and an internship, as well as choosing a major that should give a higher starting salary or picking a firm that should pay more will not necessarily guarantee success or guarantee that higher starting salary. However, the opposite is true as well in that if students do not work hard, then no success is possible and that higher starting salary will be out of reach.



Another strong takeaway from this research is that there are still so many other variables that I was not able to account for that can influence starting salary such as who the students know, how the students got the job, what direction they decided to take their major in, etc. If students work hard, it is still very likely that students be successful and earn a high starting salary regardless of their major or company that they end up choosing. In the end, it is best for the students to enjoy what they are doing by choosing a field of study that interests them. This will naturally cause them to work harder because they like what they are doing and set them up for a successful career.

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APPENDICES

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Appendix A – (Statistics Summary of Data)

Number	386
Mean	\$51,482.77
Median	\$53,600.00
Mode	\$55,000.00
Standard Deviation	\$8,684.29
Minimum	\$25,000.00
First Quartile	\$47,000.00
Third Quartile	\$56,000.00
Maximum	\$72,000.00

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Appendix B – (ANOVA Model)

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	P-Value
Model	27	14,409,178,873	\$533,673,292	13.06	<.0001
Error	358	14,626,312,027	\$40,855,620		
Corrected Total	385	29,035,490,900			

Root MSE	\$6,391.84	R-Square	49.63%
Dependent Mean	\$51,483.00	Adjusted R-Square	45.83%
Coefficient of Variation	12.41549		

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Appendix C- (Overview of Variables in Model)

Variable	Parameter Estimate	P-Value
Intercept	\$43,610.00	<.0001
Signing Bonus	\$1,294.91	0.1707
Commission	-\$8,900.88	<.0001
GPA	\$2,677.59	0.0078
Gender	-\$435.31	0.5567
Ethnicity	-\$1,918.85	0.0317
Small Employer Size	\$95.52	0.9475
Large Employer Size	\$5,525.06	<.0001
Global Company	-\$2,787.28	0.0299
Accepted Position: Salary	-\$2,002.31	0.1922
Accepted Position: Benefits	-\$7,016.24	0.0136
Accepted Position: Nature of Work	-\$1,211.48	0.2526
Accepted Position: Opportunity for Growth	-\$2,792.69	0.0009
Accepted Position: Location	-\$5,866.05	0.0001
Internship	\$2,353.83	0.0113
International Business	-\$908.32	0.4884
Accounting	\$307.88	0.8956
Actuarial Mathematics	\$3,773.32	0.1246
Applied Mathematics & Statistics	\$3,313.56	0.3400
Computer Information Systems	\$5,615.36	0.0569
Communication	-\$8,043.74	0.0094
Entrepreneurship	-\$2,255.72	0.4750
Finance	-\$1,648.54	0.4933
Global Supply Chain	-\$1,433.71	0.6132
Human Resource Management	-\$6,650.16	0.0577
Information Technology	\$5,468.50	0.2226
Management	-\$2,957.45	0.2309
Marketing	-\$4,618.76	0.0597

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Appendix D- (Commission Results)

Commission		
Yes	32	8.29%
No*	354	91.71%
Total	386	100%

*Baseline=No

Variable	Parameter Estimate	P-Value
Commission	-\$8,900.88	<.0001

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Appendix E- (Signing Bonus Results)

Signing Bonus		
Yes	65	16.84%
No*	321	83.16%
Total	386	100%

*Baseline=No

Variable	Parameter Estimate	P-Value
Signing Bonus	\$1,294.91	0.1707

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Appendix F- (Gender Results)

Gender		
Female	179	46.37%
Male*	207	53.63%
Total	386	100%

*Baseline=Male

Variable	Parameter Estimate	P-Value
Gender	-\$435.31	0.5567

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Appendix G- (Ethnicity Results)

Ethnicity		
White	313	81.09%
Non-White*	73	18.91%
Total	386	100%

*Baseline=Non-White

Variable	Parameter Estimate	P-Value
Ethnicity	-\$1,918.85	0.0317

Variable	Parameter Estimate	P-Value
Ethnicity	-\$1,918.85	0.0317

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Appendix H-(Employer Size Results)

Employer Size		
Small (<250)	48	12.44%
Medium (250-1000)*	37	9.58%
Large (>1000)	301	77.98%
Total	386	100%

*Baseline=Medium

Variable	Parameter Estimate	P-Value
Small Employer Size	\$95.52	0.9475
Large Employer Size	\$5,525.06	<.0001

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Appendix I- (Global Company Results)

Global Company		
Yes	329	85.23%
No*	57	14.77%
Total	386	100%

*Baseline=No

Variable	Parameter Estimate	P-Value
Global Company	-\$2,787.28	0.0299

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Appendix J- (Reasons for Accepting the Position Results)

Reasons for Accepting Position		
Salary	21	5.44%
Benefits	6	1.55%
Nature of Work	53	13.73%
Opportunity for Growth	114	29.53%
Location	23	5.96%
Other/Blank*	169	43.79%
Total	386	100%

*Baseline=Other/Blank

Variable	Parameter Estimate	P-Value
Salary	-\$2,002.31	0.1922
Benefits	-\$7,016.24	0.0136
Nature of Work	-\$1,211.48	0.2526
Opportunity for Growth	-\$2,792.69	0.0009
Location	-\$5,866.05	0.0001

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Appendix K- (Prior Internship Results)

Prior Internship		
Yes	312	80.83%
No*	74	19.17%
Total	386	100%

*Baseline=No

Variable	Parameter Estimate	P-Value
Prior Internship	\$2,353.83	0.0113

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Appendix L- (International Business Major Results)

International Business Major		
Yes	31	8.03%
No*	355	91.97%
Total	386	100%

*Baseline=No

Variable	Parameter Estimate	P-Value
International Business Major	-\$908.32	0.4884

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Appendix M- (Major/Field of Study Results)

Majors		
Accounting	105	27.20%
Actuarial Mathematics	36	9.33%
Applied Mathematics & Statistics	6	1.55%
Computer Information Systems	13	3.37%
Communication	9	2.33%
Entrepreneurship	9	2.33%
Finance	84	21.76%
Global Supply Chain	16	4.15%
Human Resource Management	6	1.55%
Information Technology	3	0.78%
Management	41	10.62%
Marketing	49	12.69%
Other: Arts & Sciences*	9	2.33%
Total	386	100%

*Baseline=Other: Arts & Sciences

Variable	Parameter Estimate	P-Value
Accounting	\$307.88	0.8956
Actuarial Mathematics	\$3,773.32	0.1246
Applied Mathematics & Statistics	\$3,313.56	0.3400
Computer Information Systems	\$5,615.36	0.0569
Communication	-\$8,043.74	0.0094
Entrepreneurship	-\$2,255.72	0.4750
Finance	-\$1,648.54	0.4933
Global Supply Chain	-\$1,433.71	0.6132
Human Resource Management	-\$6,650.16	0.0577
Information Technology	\$5,468.50	0.2226
Management	-\$2,957.45	0.2309
Marketing	-\$4,618.76	0.0597

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