The Economic Value of an Undergraduate Economics Degree

An Honors Thesis (HONRS 499)

by

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Abstract

Business degrees are traditionally considered safe and lucrative. Over the years, this assumption has held true, but not all business degrees are equal. I have performed an economic analysis of the profitability and stability of the various business school undergraduate degrees. I have utilized the important economic principles of supply and demand to explain the employment variations and wage gaps between two specific degrees: Business Administration and Economics. Having performed this analysis and determined Economics to be a profitable degree based upon economic principles. I have also presented an outline of some of the possible career paths for undergraduate economics degree-holders.

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Introduction:

Business has long been considered a safe and prosperous degree area for college students. The basics of business can be applied to many areas of life and career options are vast. However, are all business majors created equally? This paper will examine several business majors offered at Miller College of Business, Ball State University. For each degree I will be examining two aspects: compensation and availability of employment. The majors will be compared based on average salary, both entry-level and mid-career, as well as unemployment rates on a national basis. The purpose of this comparison is to offer an assessment of some of the longer-term differences that result from major selection even within the same college.

The next step will be to analyze those differences in detail among two majors in which the salary and employment gap is prevalent. Using the important economic tools of supply and demand, I will address the factors that affect the variation in salary and unemployment between economics and business administration. In economics, value is based on how much people are willing to pay for a good (I will be using good in a broad sense throughout this paper to address something that is bought and sold) as well as how much the supplier requires to surrender the good. To put this in terms of degree-holders, value is based on how much employers are willing to pay for a given set of skills and how much the degree-holder requires for the use of such skills. Using this principle, I will compare and explain the differences in the two degrees.

In addition, to explore further the skills acquired with an undergraduate economics degree, this paper includes an overview of several possible career paths for
There is no clearly defined career path for an undergraduate economics major. This section serves to illustrate how undergraduates pursuing an economics degree can utilize the supply and demand factors that make this particular degree comparatively valuable to their advantage in the work force.

To present all of this information, I will undertake the following steps:

Part I: Presentation of Data
Part II: Introduction of the Labor Market
Part III: Application of Supply and Demand in Comparing Two Degrees
Part IV: Results and Explanation
Part V: Career Paths
Part I: Presentation of Data - An Analysis of Business Degrees

The first step in this analysis is to consider business majors as a group to compare and contrast the individual majors. The variables in this case are salary data and unemployment rate. Salary data, both entry-level and mid-career, illustrate how much employers are willing to pay for each major. Unemployment rates display how likely it is that a graduate with each major will be able to find and retain a job. These are important considerations for students when deciding on a major. The economic influences on these factors will be discussed in Part II of this paper.

The first element I will be investigating is salary differences between business college majors. The data, collected from Georgetown University's report, "College Majors, Unemployment, and Earnings," (Carnevale, 2013) is shown in Figure 1 below. The data used by Georgetown was gathered from the American Community Survey (ACS). Let us first investigate the "Recent College Graduate" numbers, shown with a blue bar when available.
As you can see, some majors do not have a recent graduate statistic available. A possible explanation for the missing recent graduate statistics is that few graduates with these majors immediately enter a career pertaining to their degree. Additionally, some graduates will perform their degree function for a firm that has a different function. For example, many human resources degree-holders will work for firms that do not specialize in human resources. It is difficult for statistics to capture this degree-to-job relationship. These explanations are speculative, as ACS offers no explanation for the missing data.

The first and most noticeable observation of the degrees present is that the liberal arts economics degree graduates seem to fare best immediately out of school. The next two leading majors are finance and accounting, and there is a significant
salary gap between those three majors and business administration and marketing. The reasons for this gap will be analyzed further in Part II of this paper.

For the purposes of this survey, the ACS defines "Experienced College Graduates" as 30-54 years of age. When these statistics are compared, illustrated by the red bars on the Figure 1, economics, both business and liberal arts degrees, tend to fare the best. Finance, information systems, and logistics are closely behind, followed by accounting and marketing. Finally, international business, human resources, and business administration are the lowest paying of the degrees listed.

Though comparing averages for these data sets can be skewed, due to the lack of entry-level statistics for some majors, there are a few things we can conclude. First, it appears that economics majors, both liberal arts and business degrees, are positioned as the highest paid degrees, based on this data. Other degrees that do comparatively well in the long-run are finance, information systems, accounting, and logistics. Some majors that continually fall below the average are: marketing, international business, human resources, and business administration.

The next criterion on which I will base this comparison is employment rates. Statistics on this factor can be observed in Figure 2, below. Again, I will be examining the data for recent college graduates as well as experienced graduates. As in the salary comparison above, some entry-level data is missing. I will consider this deficiency in my analysis so as not to allow it to skew my observations.
The blue bar in Figure 2 illustrates the recent college graduates statistic, when available. In this category, liberal arts economics is again leading. However, in these statistics that is not a positive aspect. Business administration is the second highest in unemployment rates, followed by marketing and accounting. It appears that, of the entry level statistics available, finance has the lowest unemployment rates.

The red bar in Figure 2 demonstrates the experienced college graduate unemployment rates. Again, it is important to note that ACS defines experienced college graduates as 30-54 years of age. The highest statistic in this grouping goes to international business degree holders. International business is noticeably higher than the other degrees evaluated. Significantly lower, human resources is the next highest unemployment rate. Marketing follows human resources, followed by business
administration, economics (both business and liberal arts), and logistics. The degrees with the lowest unemployment rates, based on this data, are finance, accounting, and information systems.

An analysis of the unemployment rates as a whole leads me to conclude that the least employable major overall seems to be international business. Human resources and liberal arts economics degrees also present degree holders with difficulty in finding or keeping a job. Marketing, business administration, business economics, and logistics make up the averages of this category. The highest performing degrees based on unemployment rates are finance, accounting, and information systems. Finally, Figure 3 illustrates the total quantity of degrees issued for each major.

Figure 3: Total Bachelor's Degrees granted by major (Carnevale, 2011)
Business administration majors are the most prevalent by a large margin. Accounting and marketing are the next most frequent. Finance and liberal arts economics are fairly common, followed by human resources, information systems, international business, business economics, and logistics. We will later examine how the quantity of degrees impacts other relevant factors.
Part II: An Introduction to the Labor Market

In this section, I will be comparing the value an undergraduate business economics degree to that of an undergraduate business administration degree. In order to perform this comparison, I must first define how I will be determining the value of a degree. Using the statistics outlined in Part I of this paper, salary and unemployment rate, I will define value as a function of employability and profitability of the degree. To examine the concept of value economically, I will begin by deriving the supply and demand graph of the labor market.

The labor market can be examined as any other good on the aggregate. We have an upward-sloping supply curve, illustrating the marginal cost and benefits for laborers, which is equivalent to the leisure/labor valuation made by employees. For each hour worked, employees are giving up an hour of leisure. As the wage rates increase, the trade-off becomes easier. People work for goods. Currency, in and of itself, offers us no real value. We work in order to attain the things we need and want. That is why the supply curve is upward sloping. At higher wages, the marginal value of working additional hours, and buying additional goods, outweighs the marginal value of leisure time; laborers will work more until the marginal value of working is equal to the marginal value of leisure time. The downward-sloping demand curve exemplifies marginal costs and revenues for the hiring firms. There is a certain amount of marginal revenue that can be attained by hiring additional workers. Firms will hire up until the point where that marginal revenue is equal to the marginal cost of hiring one additional worker. In economics, it is understood that firms will hire up to the point where the wage rate equals the value of the marginal product (W=VMP). Diminishing marginal
productivity causes the demand curve to be downward-sloping. The addition of workers can only benefit the company up until a certain point; at some point the crowding alone will slow down the productivity of all of the other workers. The equilibrium quantity, $L_{eq}$ units of labor at $W_{eq}$ occurs at the intersection of the supply and demand. The intersection of the curves is the point at which the marginal costs are equal to the marginal benefits for both firms and laborers. The value I will be examining throughout this paper is based on this important economic concept. Salary for each major represents $W_{eq}$, while employability represents $L_{eq}$.

For this analysis, we will be ignoring the minimum wage price floor. Let us assume – with good reasoning- that it is a non-binding floor for these specific labor markets. This means that for the markets we are examining, the assumption is that the equilibrium wage falls above the minimum wage, and therefore has no direct effect.

Of course, a multitude of factors can influence where the equilibrium price ($W_{eq}$) and quantity ($L_{eq}$) land in a particular market. Most notably, we will be examining shifts in the supply and demand curves, and the causes and implications of those shifts.
Part III: Application of Supply and Demand in Comparing Two Degrees

Using the data initially presented, as well as the information we now have about the labor market in the aggregate, we are prepared to make an economic comparison of two degrees: Economics and Business Administration.

LABOR SUPPLY

Labor supply within a certain degree is a little more complicated than the general labor market. This difference is primarily due to timing. Degrees are not chosen overnight. Generally, there is at least a year, usually more, between the time a student decides upon a degree path and the time he or she enters the labor market. Because of this time delay, the supply of labor is a steeper line, as expressed in Figure 4 below.

Figure 4: Labor Supply
There are a certain number of graduates entering the labor market at any given point in time. This makes the supply of labor for a certain degree inelastic. Of course, not all of these graduates are going to enter the work force. Some graduates may decide to continue their education, and this could vary by major as well as year. There are any number of other paths a degree-holder may choose over the work force, such as starting a family or joining the military. Because not all graduates immediately enter the labor market in their degree field, the line is not perfectly vertical, but upward sloping. This will be the supply curve used to evaluate differences among degrees.

The supply curve is dependent upon the number of graduates within a certain degree field. Influences on the number of graduates include tastes, preferences, and historical wage information. Again, due to a timing lag between degree selection and graduation, this number is highly dependent upon past information.

SUPPLY SHIFTERS IN PLAY

Analyzing the supply differences between the two degrees is pretty simple. Again referencing Carnevale (2011), business economics makes up 1% of total business bachelor’s degrees granted, according to the 2009 American Community Survey. Business administration, however, makes up 33%, the largest portion of business degrees granted to one major. According to U.S. Census data (2009), total business bachelor’s degrees granted have increased from 256,070 in the year 2000 to 347,985 in 2009. That is a nearly 36% increase in business degrees granted. If we consider that about one-third of those are in the business administration field, it’s clear that the business administration field is growing more quickly than the business economics field.
A large increase in supply, assuming a constant demand, will flood the market. Wages would be pushed down from \( W \) to \( W' \) due to increased competition, as illustrated below. Employment would increase from \( L \) to \( L' \), ceteris paribus.

Figure 5: Business Administration Supply

We can speculate on the reasons for the supply increase. As we mentioned, supply in this market is determined by past information. An October 20, 2000 article by CNN Money, lauds the benefits of a business degree, with a focus on business administration. Khalil Matta of Notre Dame declared to CNN Money, "A bachelor's degree in business administration knows no bounds," (Schwartz, 2000). The perception created by this and similar articles of the time could influence the current supply increase dramatically for a given year or future years, even if data indicates that the supply should not be increasing. Tastes and preferences can also play key roles in supply shifts, but to those we can only speculate.
Because total business bachelor's degrees have increased, we can assume that the 1% of business economics degree-holders has increased as well. However, because the major composes such a minor portion of overall degree-holders, the supply shift is less dramatic; therefore the wage decrease due to an increase in supply would be less prevalent, ceteris paribus.

An additional consideration to supply is the number of degree-holders actually entering the workforce. Carnevale (2011) illustrates an important difference between business administration bachelor's degree holders as opposed to economics bachelor's degree holders. Twenty percent of business administration degree-holders will go on to get a graduate degree. In contrast, thirty percent of economics degree-holders will go on to pursue a graduate degree. This means that, of the already smaller supply of undergraduate economics degree-holders, a smaller percentage of them are going on to enter the job market after graduation.

LABOR DEMAND

Now it is necessary to derive the demand for labor. As mentioned earlier, labor demand is generally derived from the equation \( W = VMP \), where \( VMP = \text{Price} \times \text{Marginal Product} \). We know that the demand curve is downward-sloping, because the law of diminishing product tells us that as we increase labor, marginal product falls. Price, in this case, is not quite as simple as the selling price for a good or service. Price can depend upon the value that the employer gains from hiring this particular degree-holder. It entails a lot of different factors, such as reputation, belief in future successes, demand for the good produced, experiences, and other intangibles that will help the company
maximize something other than revenues. Price may also entail factors not relevant to our analysis, because changes in price do not necessarily clearly reflect labor changes. For example, consider an assembly line. We can estimate the marginal product of an employee by simply counting the number of gizmos that employee assembles in a given time period, and we know the price we can sell those items for; the product of those terms would give us MP*P, or the value of the marginal product. Most bachelor's degree holders will not work an assembly line. The portion of work attributable to a specific employee is less easily measured. If, for instance, we consider a file clerk in a law firm, we can count the number of files the employee files, but attributing that work to a portion of the price received for a case is less obvious. This is true of many professions, but especially economists. This is because the product of an economist's work is often a portion of a whole project, and it is hard to determine the percentage of the project attributable to the economist. Even if we can determine the number of hours that the economist spent on his or her portion of the project, it is too subjective to assign a value to that portion of the project, because there is no standardized good being produced. Changes in price are difficult to correlate to changes in the degree-specific labor market. Because of this inconclusive relationship, we will focus on marginal product in our analysis and assume price is fixed.
DEMAND SHIFTERS IN PLAY

Marginal product is generally known to be influenced by technology and education. For instance, if a computer program is developed which allows for workers to be twice as productive, the marginal product will double. Likewise, if employees are trained on an existing system and that training results in twice the productivity, marginal product will again be doubled.

The demand shifter I would like to focus on in this section is technology. Technological developments have allowed workers to be significantly more productive over the last decade- increasing marginal product. This is especially true within the field of economics. Modeling and forecasting software has improved leaps and bounds since the turn of the millennium. Additionally, technology has allowed for economies to become more global. This increases the demand for economics majors, because they
have the skill sets to help businesses understand this fast-paced global economy and the company's role within it. In acquiring these skill sets, companies are able to expand internationally and capitalize on emerging markets and economic booms within other countries. Due to the value of these analytical skill sets and the positive past experiences with degree-holders in the field, the value associated with hiring an economics major goes up. The field has also expanded in scope. Economics majors are performing more jobs than ever before. I will illustrate these changes in Part V: Career Paths, but economics degree holders are no longer simply economists; they can be analysts, actuaries, statisticians, and other fields not previously associated with economics. I assert that this is the reason for increasing demand for economics majors.

A recent article in the *Wall Street Journal* elaborates on recent changes in the demand for economists. According to the author Bob Tita, private sector economists are more in demand due to the large amounts of data now available, and the ever-increasing need for accurate forecasts. Tita references a BLS statistic that between 2009 and 2012, the quantity of economists employed in the private sector increased 57% (Tita, 2014). In other words, economics degrees are more in demand because they are being used for services that are more in demand from more firms in the market. The increase in demand for those final products leads to an increasing demand for the economics degree-holders that aid in their production. Increasing demand, as we know, results in a higher wage and higher employment, as illustrated by the following graph.
Of course, technology has affected other degree paths as well, but because the field of business administration is so broad, the results are somewhat different. I would argue that these technological advances have allowed the degree field to keep pace, but not rise above other degrees. The value of the marginal product of business administration majors has grown with the economy, but not surpassed it. This is because, while technology has made business administration majors more efficient, they have not had the same magnitude of advancements. For example, there is no parallel in the business administration field to what technology has allowed economists to do with big data. I do not believe there has been a significant shift in the demand for undergraduate business administration degrees.
Part IV: Results

Below are the supply and demand graphs for the individual labor markets for undergraduate economics degrees and undergraduate business administration degrees, applying the factors discussed in this paper.

It is worth noting that we cannot determine, based on the data available, whether the supply or demand shift occurred first within the economics labor market. Additionally, these large shifts are a representation of many smaller shifts over time. The graphs represent changes in supply and demand for the individual degrees over time. The results of the shifts show what our data indicated.

Business administration degree holders are facing higher wages— from W1 to W2 on the graph. These wages are in nominal terms, so it is worth considering that the real wage may have stayed the same or even decreased. Though employment has also
increased (L1 to L2), it is comparatively lower than economics, due to increasing supply that has not been matched with a significant increase in demand.

The market for economics degrees has also faced a supply increase, though this shift is much smaller due to the relative number of economic degree-holders as well as a smaller amount of workforce participation upon graduation. However, there has also been an increase in the demand for undergraduate economics degree holders due to technological developments within the field and increased need for analytical skills in globalization. The increase in demand more than offsets the decrease in supply, which explains the increase in equilibrium wages within this market (from W1 to W2) and the increase employment (from L1 to L2) which is reflected in the relatively low unemployment rate.

To summarize, the supply and demand shifts in the above graphs illustrate the changes that have taken place in the labor market for each degree as well as the implications of those shifts. Business administration has seen an increase in supply as well as a small increase in demand, resulting in a higher equilibrium wage and employment. In contrast, economics degree-holders have encountered a smaller increase in supply and a larger increase in demand, resulting in a comparatively higher increase in wages and employment. The charts clearly illustrate what the data told us in the initial stages of this paper: Economics degree-holders are facing higher wages and less unemployment than business administration degree-holders.
Part V: Career Paths

Undergraduate economics degrees are lucrative, as illustrated by the economic analysis above. The career path, however, is less definite than for many other degrees. Accounting degree holders generally land a career in accounting. Human resources graduates usually enter the job market through the HR department. With economics, there is a broad array of careers that value the analytical skills acquired by degree holders.

One option is, of course, the pursuit of a higher degree. As noted in our analysis, 30% of economics graduates continue their education (Carnevale, 2011). These graduates may go on to get their Masters or Doctoral degrees. At the conclusion of their schooling, these graduates will enter the work force. Many of them will then go on to careers requiring these additional degrees, such as governmental and research economists or college professors. Economics degrees are also a great stepping stone to law school. According to the American Economic Association, law school requires a significant amount of logical reasoning and the ability to process large amounts of information, both skills prevalent in economics majors. Additionally, a general understanding of economics is often essential in contract disputes, mergers and acquisitions, and tax issues (American Economics Association, 2013).

Another viable option for economics majors is a career in financial analysis. According to the Bureau of Labor Statistics’ (BLS) Occupational Outlook Handbook, financial analysts focus primarily on investment decisions and valuations for both businesses and individuals. Areas of focus within the financial analysis field include: risk analysts, rating analysts, and portfolio or fund managers. The BLS determined that
The median salary for financial analysts based upon 2012 data was $76,950 per year. The job outlook, according to the Handbook, is above average. This is because investing has become increasingly complex due to the global environment, increased regulatory requirements and the development of new, complicated types of financial assets. The reputation attributed to financial analysis for being a well-paying, stable career has led to increased competition, which has spurred more graduates interested in this career to attain graduate degrees or additional certification, such as achieving their Chartered Financial Analyst Certification (CFA) (Bureau of Labor Statistics, 2014). Economics degree holders are valuable in the field of financial analysis because they are known to have the analytical skills necessary to understand the causation within the market, and can often use those skills to provide clients with current and future stability or wealth. Some business schools, such as Miller College of Business, offer concentrations allowing students to focus on the financial analysis aspect of economics.

Many economics degree holders enter the work force as actuaries. Actuaries serve to measure risk, often to insurance companies. They use mathematics and statistical modeling to determine how likely a risk is to occur and how to mitigate that risk. For example, actuaries within health insurance companies compile large amounts of data about the population within a plan, the risk pool, and use that data to determine the estimated expenditures the company will face in the next year. Given the likely costs associated with a risk pool, the health insurance company determines how much it needs to charge for the plan in order to earn a profit. Additional certification is required for actuaries after completion of their degrees. Through the Casualty Actuarial Society and Society of Actuaries, graduates complete a series of intense exams to achieve
certification. Both certifications have an exam focused on financial economics. As of 2012, the median annual salary for an actuary was $93,680. The Bureau of Labor Statistics indicates that the job outlook for actuaries is, "Much faster than average," (Bureau of Labor Statistics, 2014). Actuaries also benefit from the analytical skills developed with an undergraduate degree-holder. They also require the statistical and modeling skills gleaned through their economics education.

Underwriting is another possible career path for economics degree-holders. Insurance underwriters work closely with actuaries in the field to determine coverage and premiums to be charged for a person or group. While actuaries deal primarily with the numbers, underwriters deal with the more qualitative risks associated with a client. According to the Bureau of Labor Statistics, insurance underwriters generally specialize in one of three fields: life, health, or property & casualty. Because they have to make judgment calls based on the risks associated with their particular area, specialization is important, and additional certification in one’s area of expertise is often suggested or required. Economics degree-holders possess the problem-solving skills, math skills, and economic understanding to be successful in this career field. The median salary for insurance underwriters is $62,870. The BLS finds a negative current job outlook due to increased automation of the process, but because this field is dominated by an older generation, demand is expected to increase as current underwriters retire (BLS, 2014).

The last of the career paths I would like to discuss is politics. Economics is often a stepping stone into politics, because it is generally understood that analytical skills and an understanding of the economic environment are crucial to positions of power. The Bureau of Labor Statistics indicates that political scientists generally require a
master’s degree, but many politicians have gotten their start in the field with an undergraduate economics degree (BLS, 2014). According to Marietta College, former Presidents George H.W. Bush and Ronald Reagan both held degrees in economics (Marietta College, 2013). Bachelor’s degree holders may not immediately become presidents or even senators, but an economics degree gives them the general skills required to get their foot in the door.

It should be noted that these are not the only career path for undergraduate economics degrees, but are a few of the more direct paths. Because of the extensive skill set and knowledge gained from an economics education, the possibilities are broad. According to PayScale’s College Salary Report, economics ranks 15th out of 129 majors analyzed based on starting-level and mid-career salaries (2013). It is the highest-ranking business major surveyed. Based on our economic analysis, it is clear to see why this is the case.
Works Cited:


