Earnings After Graduation

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Introduction

Being able to accurately estimate your earnings after graduation is an important task for anyone ready to join the workforce. Knowing how much you will make influences many decisions. For example, where you will live after graduation can be influenced by your earnings. Will you live on your own, with roommates, or will you move back home with your family? Having an idea of how much you will be paid can affect how much you save or spend. Doing this task is also important to ensure that you take acceptable offers from firms.

The first major task of this assignment is to choose multiple occupations that I would be interested in pursuing after graduation. Next, I will research and collect data from reputable sources that align with those occupations. Finally, I will analyze the data and estimate final wage ranges.

The occupations I will be analyzing are data scientist and budget analyst. Aside from the occupations themselves, there are various other factors that could influence wages that I will be exploring. I will examine how wages differ by industry and geographical location. Degree, age, and gender will also be variables that are worth analyzing in order to estimate wages.

Data Collection

Throughout this report, I will be using multiple different sources of data in order to estimate wages. The main source will be the United States Bureau of Labor Statistics website. I chose this website in particular because it contains a wealth of information and statistics about wages. To begin with, it displays wage distributions in terms of median annual wages, mean annual wages, as well as percentiles. These wage distributions are available for various occupations and industries. The website also shows how different geographic locations have

different wages for the same occupation. Additionally, you are able to compare wages for one occupation across multiple industries. All in all, the website is very useful for analyzing the wage distributions for different occupations, industries, and geographic locations.

Despite this, the United States Bureau of Labor Statistics website does not contain all of the necessary data needed for estimating earnings after graduation. The United States Census Bureau website supplements the BLS website well. This website contains factors that can affect wage distributions that the BLS does not have. These factors include degree, age, and gender. These two websites will be the sources of the data I use to estimate my potential earnings after graduation.

Analysis

The first occupation I will analyze is that of a data scientist, specifically a data scientist in different geological locations. The following table, which I will refer to as Figure 1, was obtained from the United States Bureau of Labor Statistics website. Figure 1 depicts the wage distributions for a data scientist in the Boston-Cambridge-Nashua, Chicago-Naperville-Elgin, and New York-Newark-Jersey City areas.

Area name	Annual mean wage (2)	Annual 10th percentile wage (2)	Annual 25th percentile wage (2)	Annual median wage (2)	Annual 75th percentile wage (2)	Annual 90th percentile wage (2)
Boston-Cambridge-Nashua, MA-NH (00-71650)	$126,040	$76,430	$92,750	$122,020	$146,990	$185,750
Chicago-Naperville-Elgin, IL-IN-WI (00-16980)	$116,570	$62,320	$81,500	$108,580	$139,590	$174,260
New York-Newark-Jersey City, NY-NJ-PA (00-35620)	$141,460	$75,460	$97,520	$133,560	$173,890	$215,130

Figure 1 (U.S. Bureau of Labor Statistics, 2023)

By looking at Figure 1, it is clear to see the impact the geographical region has on data scientists. The Chicago area has the lowest annual mean range at $166,570, the Boston area the middle at $126,040, and the New York area the highest at $141,460. The same trend appears when looking at almost all of the percentile ranges and the annual median range. The only variable that breaks this pattern is the annual 10th percentile wage, with the Boston area overtaking both Chicago and New York for the highest. This trend is possibly correlated with the cost of living in these areas.

The wages of a data scientist are also affected by the industry they are in. The following figure, which I will refer to as Figure 2, was also obtained from the United States Bureau of Labor Statistics website. Instead of geographical locations, Figure 2 depicts the wage distributions of a data scientist in the Information, Health Care and Social Assistance, and Government industries.

Occupation (SOC code)	Annual mean wage (2)	Annual 10th percentile wage (2)	Annual 25th percentile wage (2)	Annual median wage (2)	Annual 75th percentile wage (2)	Annual 90th percentile wage (2)
Sector 51 - Information (51--52)	$143,180	$61,740	$91,830	$135,990	$175,420	$218,500
Sector 62 - Health Care and Social Assistance (62--63)	$92,880	$53,130	$66,260	$84,390	$109,160	$138,990
Sector 99 - Federal, State, and Local Government, excluding Schools, Hospitals, and the USPS (99-100)	$89,800	$57,820	$70,550	$87,070	$100,130	$125,030

Figure 2 (U.S. Bureau of Labor Statistics, 2023)

Figure 2 shows the large gap that can exist between industries, even if the occupation is the same. The annual mean wage for a data scientist in the Information Industry is $143,180, which is much larger than the other two industries. The same can be said for the annual median wage. The gap only grows wider as you move across the wage distribution.

The second occupation I was interested in was that of a budget analyst. Again, I first wanted to see if geographical location has an effect on earnings. Figure 3 below shows the same areas as Figure 1, but for a budget analyst instead of a data scientist.

Area name	Annual mean wage (2)	Annual 10th percentile wage (2)	Annual 25th percentile wage (2)	Annual median wage (2)	Annual 75th percentile wage (2)	Annual 90th percentile wage (2)
Boston-Cambridge-Nashua, MA-NH (00-71650)	$95,740	$65,130	$78,140	$92,840	$109,730	$128,360
Chicago-Naperville-Elgin, IL-IN-WI (00-16980)	$92,280	$55,700	$69,320	$92,370	$109,720	$129,580
New York-Newark-Jersey City, NY-NJ-PA (00-35620)	$106,070	$66,750	$80,330	$99,500	$130,000	$159,710

Figure 3 (U.S. Bureau of Labor Statistics, 2023)

Figure 3 shows that the annual mean and median wages are highest in the New York area, followed by Boston and Chicago. This is very similar to what was shown in Figure 1. However, the gap is not as large for a budget analyst as it is for a data scientist. Overall, it appears that a data scientist gets paid more than a budget analyst, regardless of location.

Just like with data scientists, I then wanted to see the different wage distributions for budget analysts in different industries. Figure 4 shows those distributions for the same industries as in Figure 2.

Occupation (SOC code)	Annual mean wage (2)	Annual 10th percentile wage (2)	Annual 25th percentile wage (2)	Annual median wage (2)	Annual 75th percentile wage (2)	Annual 90th percentile wage (2)
Sector 51 - Information (51--52)	$104,700	$52,570	$68,360	$100,490	$130,540	$161,930
Sector 62 - Health Care and Social Assistance (62--63)	$83,910	$50,220	$63,680	$80,830	$100,430	$126,210
Sector 99 - Federal, State, and Local Government, excluding Schools, Hospitals, and the USPS (99-100)	$91,340	$58,450	$70,000	$87,050	$108,860	$129,540

Figure 4 (U.S. Bureau of Labor Statistics, 2023)

Similar to data scientists, budget analysts earn a good deal more in the Information industry as opposed to the HealthCare and Government industries. Budget analysts earn less than data scientists in all three of the chosen industries.

After looking at factors such as geographical location and industry, I wanted to see how degree, age, and gender affected earnings after graduation. First, I focused just on an Economics degree versus other degrees. According to the United States Census Bureau (2023), the median annual earnings of someone with a Bachelor's Degree in Economics was estimated to be $89,570. This is higher than most other science degrees, but lower than engineering degrees. It is also higher than other business degrees besides finance. It is clear to see that someone with a Bachelor's Degree in Economics is likely to earn more than most other degrees.

Next, I wanted to see how the median annual income of someone with a Bachelor's Degree in Economics differs by age group. The United States Census Bureau (2023) states that the income was estimated to be $81,450 for ages 25-34. This is the lowest out of all the age groups in the dataset. The median annual income rises for ages 35-44, and rises again to a maximum of $121,800 for ages 45-54, before declining slightly for ages 55-64. It appears that age does have an effect on median annual income, with income generally rising with age.

Lastly, I wanted to see how the median annual income of someone with a Bachelor's Degree in Economics differs by sex. The United States Census Bureau (2023) states that the median annual earnings was estimated to be $107,300 for men. This was much higher than women, with their median annual earnings estimated to be $84,750. This data suggests that a man with a Bachelor's Degree in Economics is more likely to earn more than a woman.

Wage Range Estimation

By using this data and analysis, the wage range for a data scientist can be estimated to be $60,000-$72,000. This is similar to the 10th percentile for annual median wages, which I suspect I will be making right out of graduation. By using this same logic, the wage range for a budget analyst can be estimated to be $55,000-$66,000. It is evident to see that this is lower than the annual median wages for someone with an economics degree. However, I found that industry plays a big role in wages. I also suspect that my wages will increase as I gain more experience and skills.

Discussion

To summarize, I found that the annual median ages are higher for a data scientist than a budget analyst. These wages are higher in areas around New York and lower in areas around Chicago. Someone working in the Information industry also generally earns more than someone in the Healthcare industry. Furthermore, the data suggest that obtaining a Bachelor's degree in economics raises earnings. Men generally earn more than women, and those whose ages are between 45-54 earn more than any other age bracket. These findings align with my expectations. Economics is a broad subject, so it makes sense that wages vary depending on occupation, industry, and age.

References

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