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# The Economics of College Majors: Degrees that Pay You Back



**T**he process of picking a college major can be a difficult one, especially since there are so many options, not to mention the pressure that it leads to a career that you will most likely have for the next 40 years or so. While it is important to pick a major that suits your skills and interests, it is also essential to take into account future earnings. With the rising cost of college tuition, frequently leading to mountains of student loan debt, many wonder how and when that debt will be paid off. You would want to earn enough so that you could pay off that debt, therefore meaning that your degree was worth the cost, economically.

The problem is that a college degree does not ensure economic success, but the right college major could increase your chances. Therefore, students need to choose one that maximizes their chances of graduating, as well as minimizes their chances of ending up in the lowest-earning 25 percent of college graduates.

Here, we'll be taking a look at many different college majors to understand how big of a financial difference picking a major could make. Future expected salary and unemployment rates are just a few of the many aspects that should be taken into account before making that informed final decision, in order to increase the chance of landing a job after graduation.

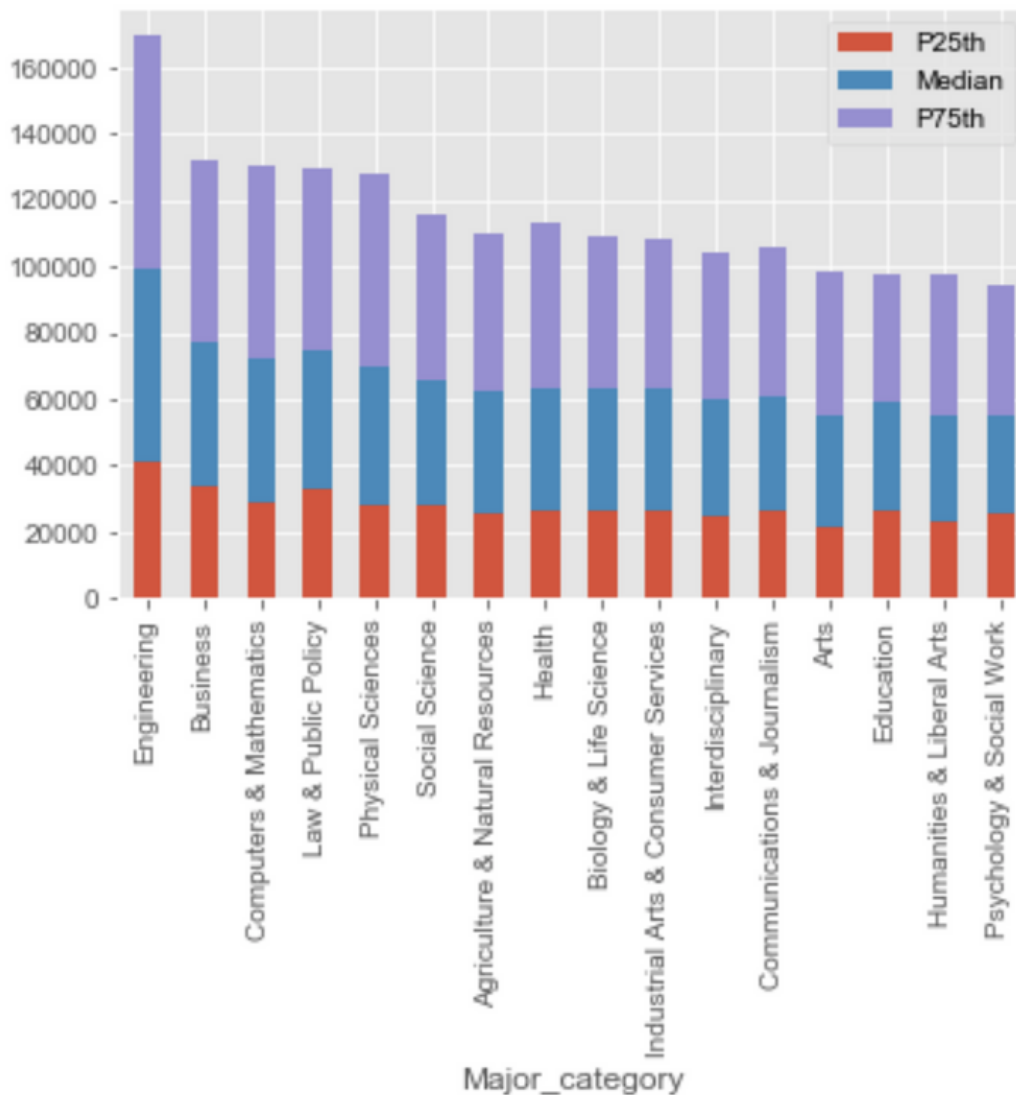
All data is from the American Community Survey's Public Use Microdata Series of 2010– 2012.

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First, we are going to take a look at the 30 highest paying majors (below).

Rank	Major	Total	Median
1	PETROLEUM ENGINEERING	2339.0	110000
2	MINING AND MINERAL ENGINEERING	756.0	75000
3	METALLURGICAL ENGINEERING	856.0	73000
4	NAVAL ARCHITECTURE AND MARINE ENGINEERING	1258.0	70000
5	CHEMICAL ENGINEERING	32260.0	65000
6	NUCLEAR ENGINEERING	2573.0	65000
7	ACTUARIAL SCIENCE	3777.0	62000
8	ASTRONOMY AND ASTROPHYSICS	1792.0	62000
9	MECHANICAL ENGINEERING	91227.0	60000
10	ELECTRICAL ENGINEERING	81527.0	60000
11	COMPUTER ENGINEERING	41542.0	60000
12	AEROSPACE ENGINEERING	15058.0	60000
13	BIOMEDICAL ENGINEERING	14955.0	60000
14	MATERIALS SCIENCE	4279.0	60000
15	ENGINEERING MECHANICS PHYSICS AND SCIENCE	4321.0	58000
16	BIOLOGICAL ENGINEERING	8925.0	57100
17	INDUSTRIAL AND MANUFACTURING ENGINEERING	18968.0	57000
18	GENERAL ENGINEERING	61152.0	56000
19	ARCHITECTURAL ENGINEERING	2825.0	54000
20	COURT REPORTING	1148.0	54000
21	COMPUTER SCIENCE	128319.0	53000
22	FOOD SCIENCE	NaN	53000
23	ELECTRICAL ENGINEERING TECHNOLOGY	11565.0	52000
24	MATERIALS ENGINEERING AND MATERIALS SCIENCE	2993.0	52000
25	MANAGEMENT INFORMATION SYSTEMS AND STATISTICS	18713.0	51000
26	CIVIL ENGINEERING	53153.0	50000
27	CONSTRUCTION SERVICES	18498.0	50000
28	OPERATIONS LOGISTICS AND E-COMMERCE	11732.0	50000
29	MISCELLANEOUS ENGINEERING	9133.0	50000
30	PUBLIC POLICY	5978.0	50000

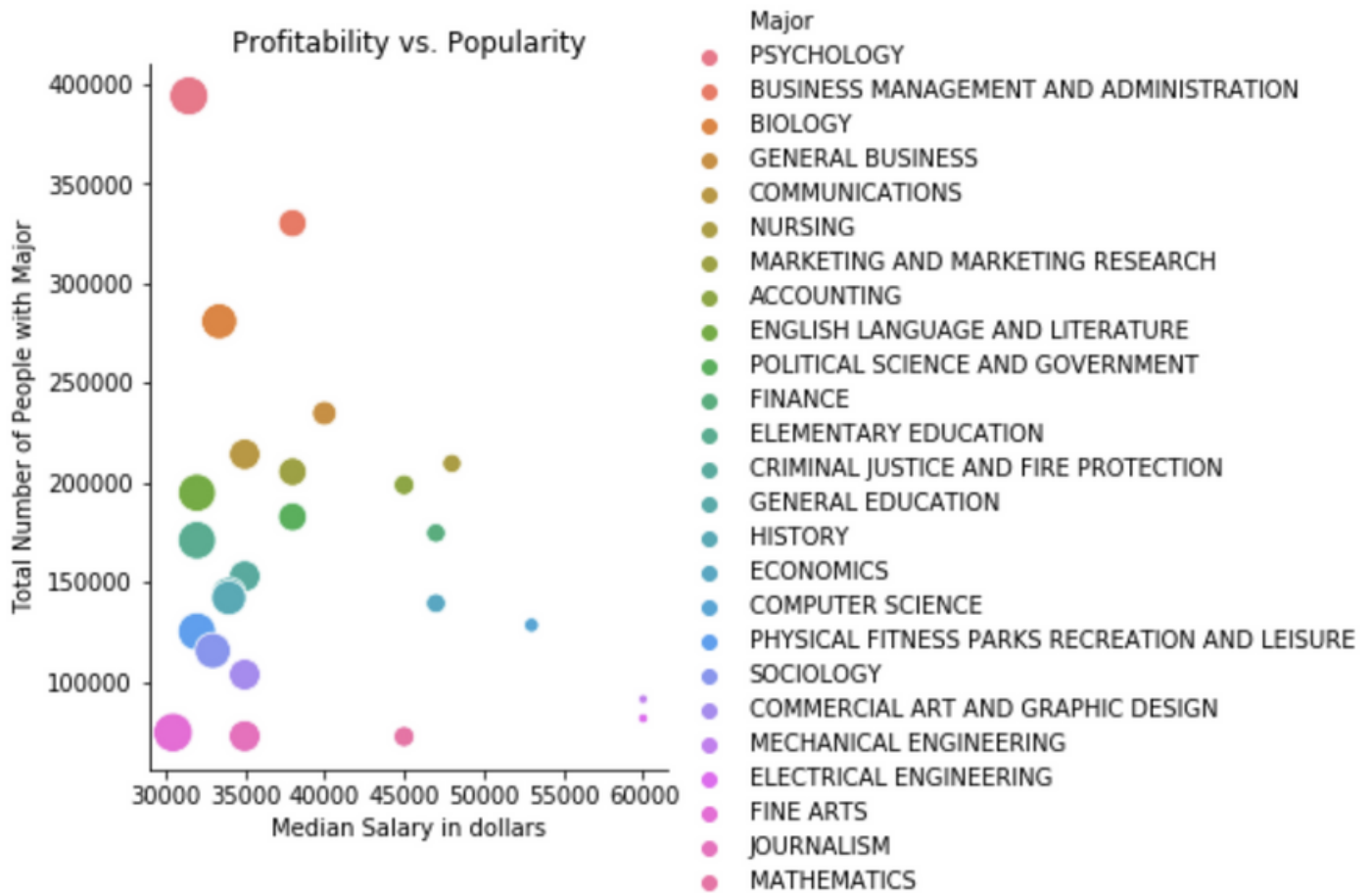
It can be observed that almost half of those majors are some type of engineering, but if engineering isn't your thing, below is a bar graph with different majors grouped into categories, allowing you to easily see the salary distribution of the 25th, 50th, and 75th percentiles. The y-axis represents salary in dollars and the x-axis represents each category of majors. The stacked salary percentiles are not cumulative.



Still, engineering comes in first place by a long stretch. Business, Computers & Mathematics, Law & Public Policy, and Physical Sciences follow, each not too different in salary.

Although there is a substantial difference between engineering and the rest of the majors, it does not mean that most students end up majoring in engineering. Below is a graph of 25 of the most popular college majors. It compares the number of people

with a certain major, the median salary, and the ranking of it. Ranking can be seen by the size of the point. Ranking was determined with 1 being the highest salary. The smaller the bubble, the higher the ranking is (closer to 1) and the higher the salary, whereas the larger the bubble, the lower the ranking is (away from 1) and the lower the salary.

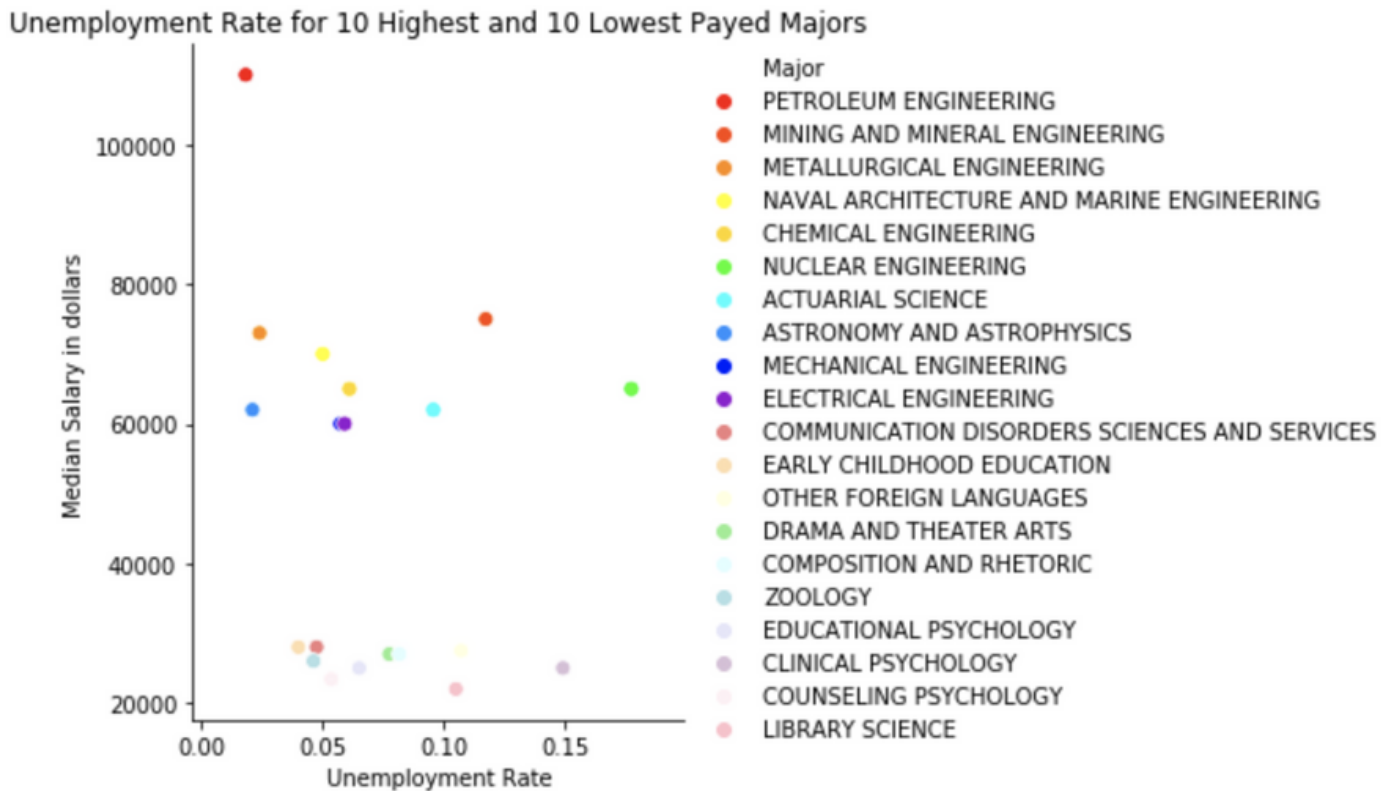


Observing the graph, there is no clear correlation between the popularity and the profitability of a major. Psychology is by far the most popular major despite being ranked at 146 for its below-average median salary. High-paying engineering fields, though, are some of the least popular fields of study.

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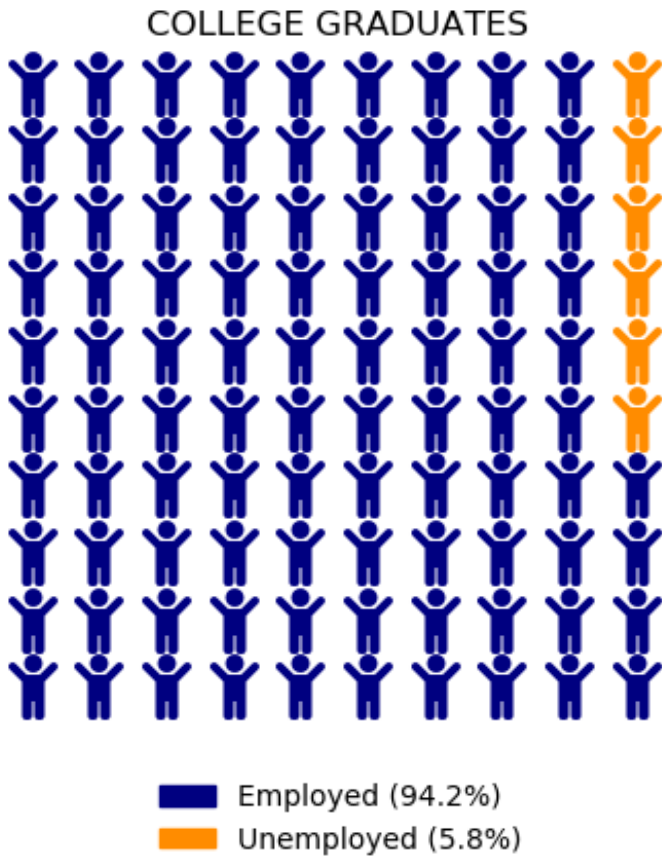
Now we are going to take a look at unemployment rates because once you earn the degree, you need to take the next step and find a job. It is important to know whether your job sector is in need of jobs which will determine how easy or difficult it is to find one.

Overall, there is a weak correlation between earnings and unemployment, which can seem surprising. Below is a graph of the unemployment rates and salaries of the highest 10 and lowest 10 payed majors.



Again, the 10 highest payed majors are engineering with the brighter colors in the legend and the 10 lowest payed majors are more of the humanities with the paler colors. A higher paying job does not mean a better chance at finding a job as both groups are pretty scattered. The weak correlation is most likely due to the fact that college graduates have a significant advantage in the job market, regardless of major. Nowadays, most employers prefer applicants with bachelor's degrees, even if not previously required, allowing young college graduates to gain an edge on those with only a high school diploma, supported by the figures below.

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The key point from all of this is that it is important to do your research before settling down on a major. If you're going to spend at least four years in college paying thousands of dollars, you want to get the most out of it. You want to make informed choices about what to study, and hopefully in doing so, you take into account the economic factors.

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