
Exploring Education Trends and Opportunities

— Navigating the Landscape of College Data —
for Informed Decision-Making

Overview/Opening

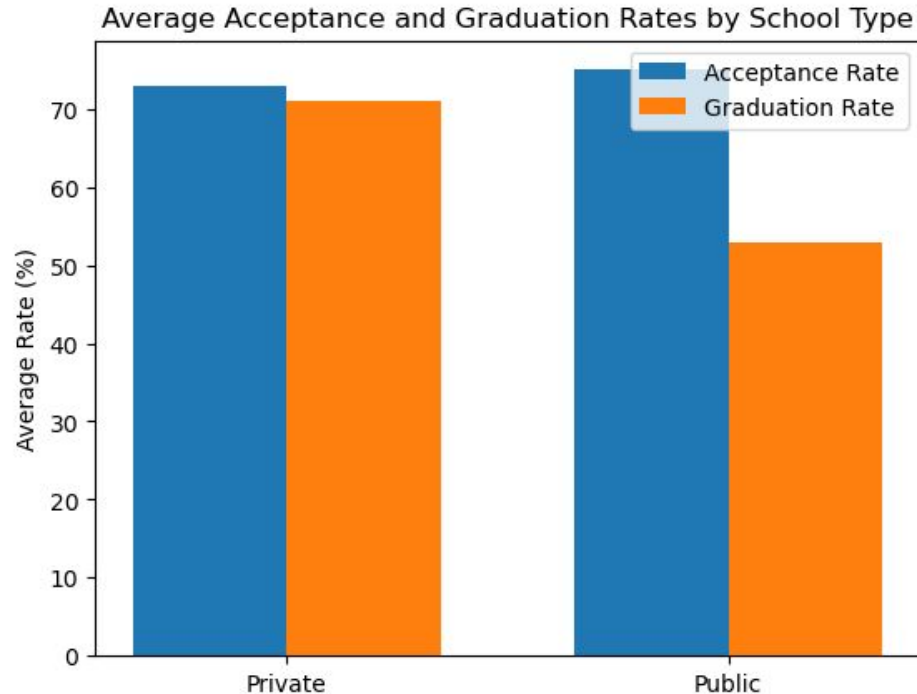
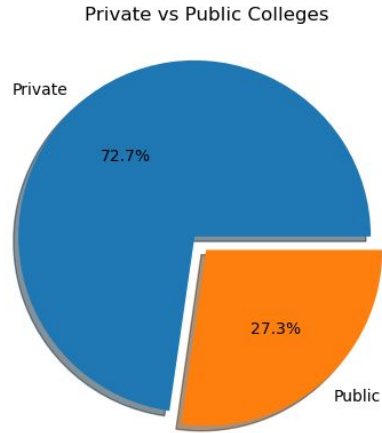
- *Our goal is to determine the best college in the U.S. to enroll in based on career salaries, acceptance/graduation rates, and affordable tuition costs.*
- *This will help us:*
 - *Identify what colleges provide the best return on investment of career earnings.*
 - *Inform new applicants that are deciding between different colleges.*
 - *Analyze what colleges offer the most bang for your buck.*
 - *Understand how promising degrees like STEM can lead to high-starting salaries*

Key Questions

- What are the key differences between private and public schools based on accessibility, acceptance/graduation rates, and explicit costs?
- What is the relationship between total school costs and average starting income?
- How well do STEM degrees factor in starting salaries?
- What schools have the best expected career pay with the best affordability?

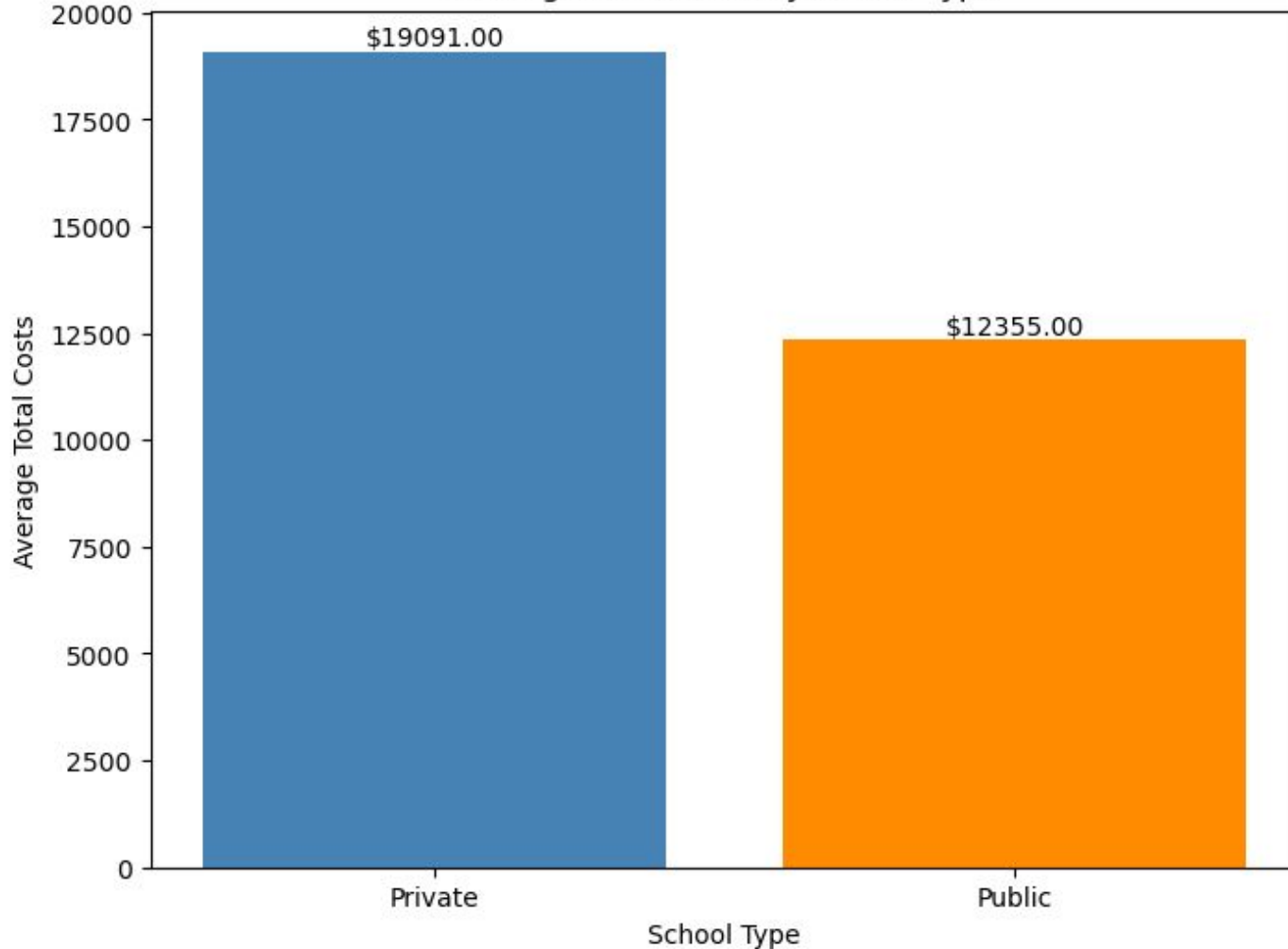
Findings and Insights

1. What are the key differences between private and public schools based on availabilities, acceptance/graduation rates, and costs?



- **453 U.S. colleges sampled**
- **Private** schools are more plentiful than public schools
- **Public** schools have a slightly higher **acceptance rate**
- **Private** schools have a higher **graduation rate**

Average Total Costs by School Type



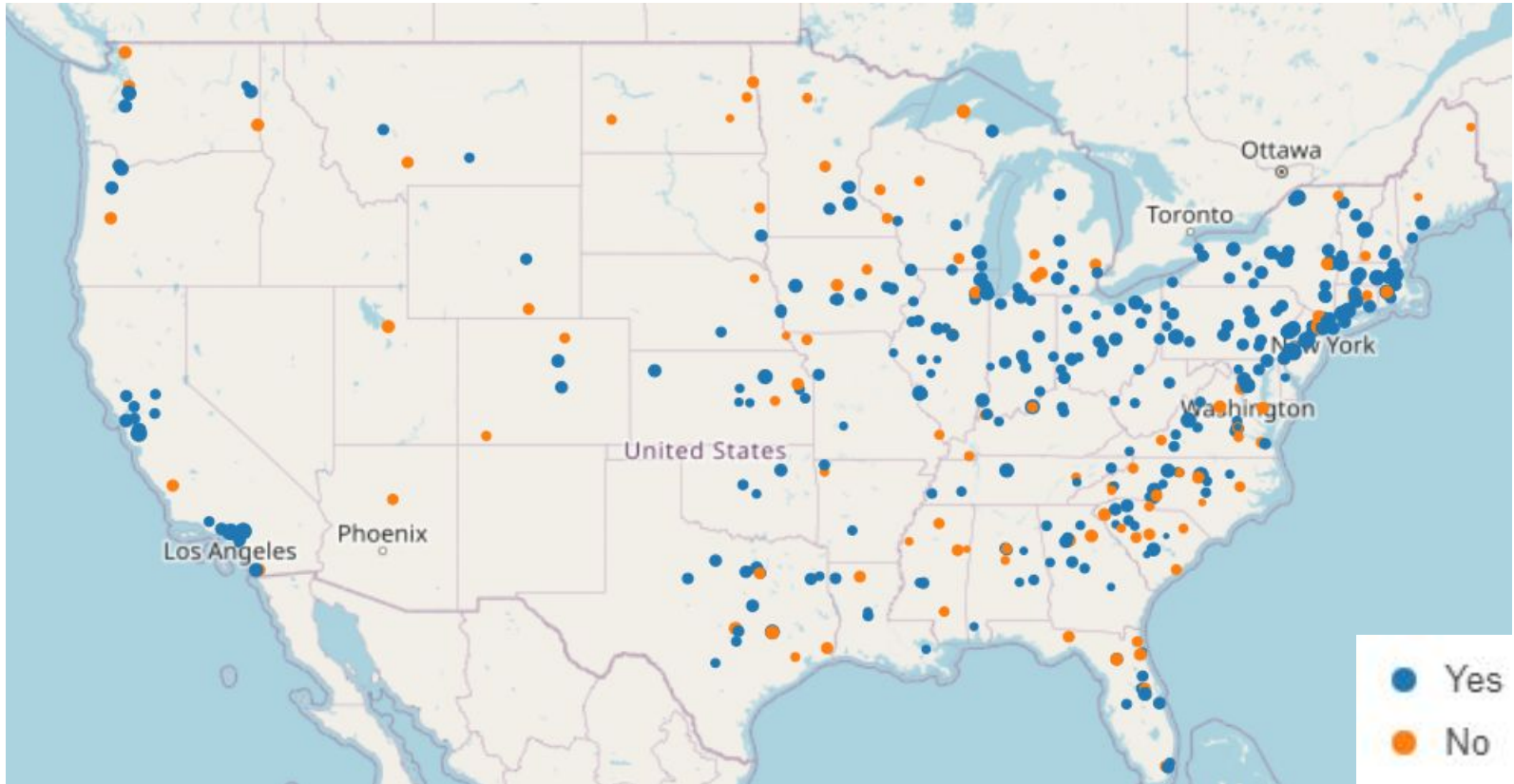
- **Public** colleges are cheaper
- **Total cost** accounts for tuition fees, personal spending, book costs, and room & board prices per semester

Summary Table of Means by School Type

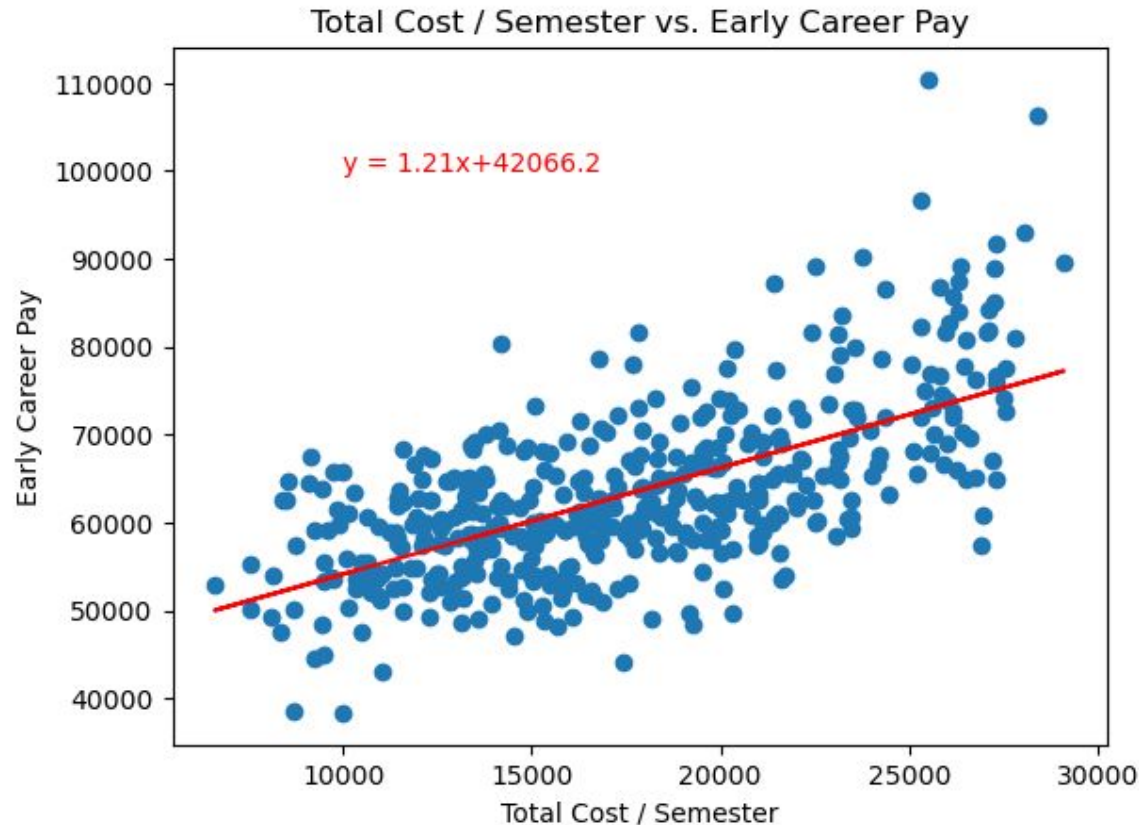
	Avg Total Cost	Avg Start Salary	Avg Instant ROI	Avg Mid Salary	Avg Long Term ROI	Avg Accept Rate	Avg % STEM Majors	Avg Grad Rate
Private								
No	12355.0	60842.0	0.54	105500.0	0.79	75.0	17.0	53.0
Yes	19091.0	64053.0	0.39	114808.0	0.64	73.0	19.0	71.0

- Grouped by 'Private' column in df, calculated means of significant variables
- Private schools while higher in cost, offer jobs that pay more instantly and in the long run.
- School type has greater impact on your salary later in your career compared to your early career

Public vs Private Schools Using Geo Coordinates

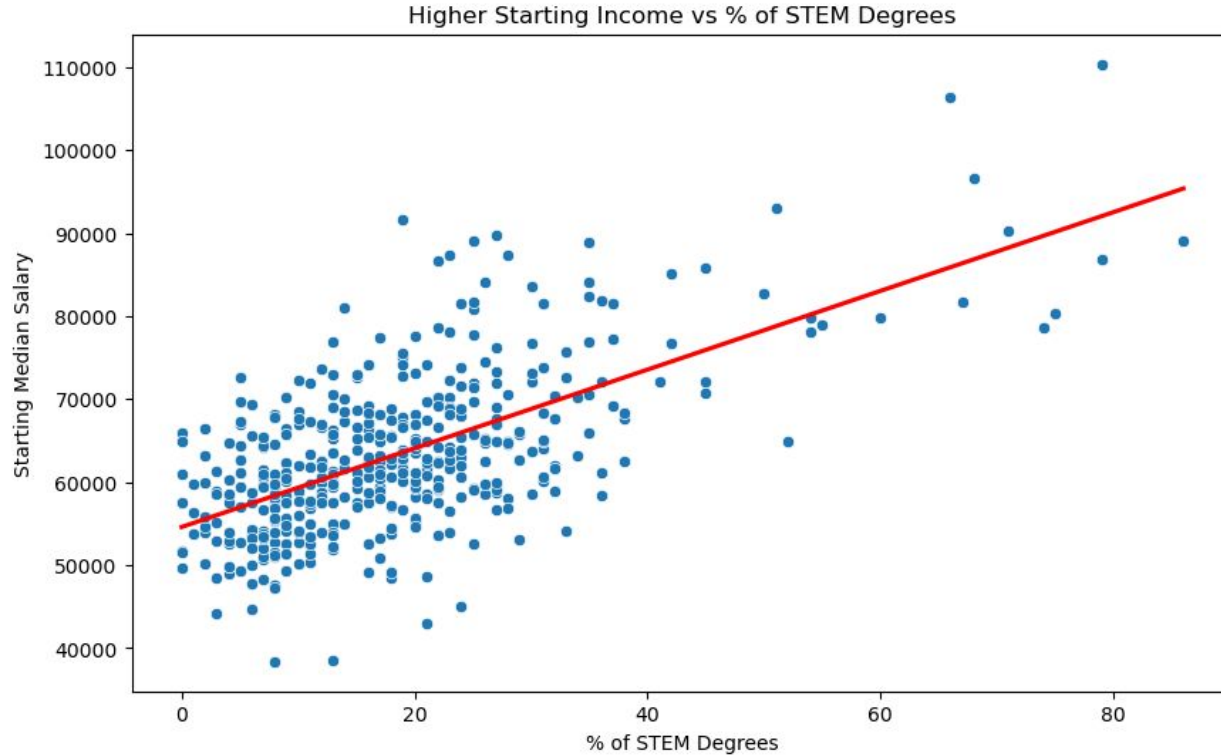


2. What is the relationship between total tuition costs and starting median income?



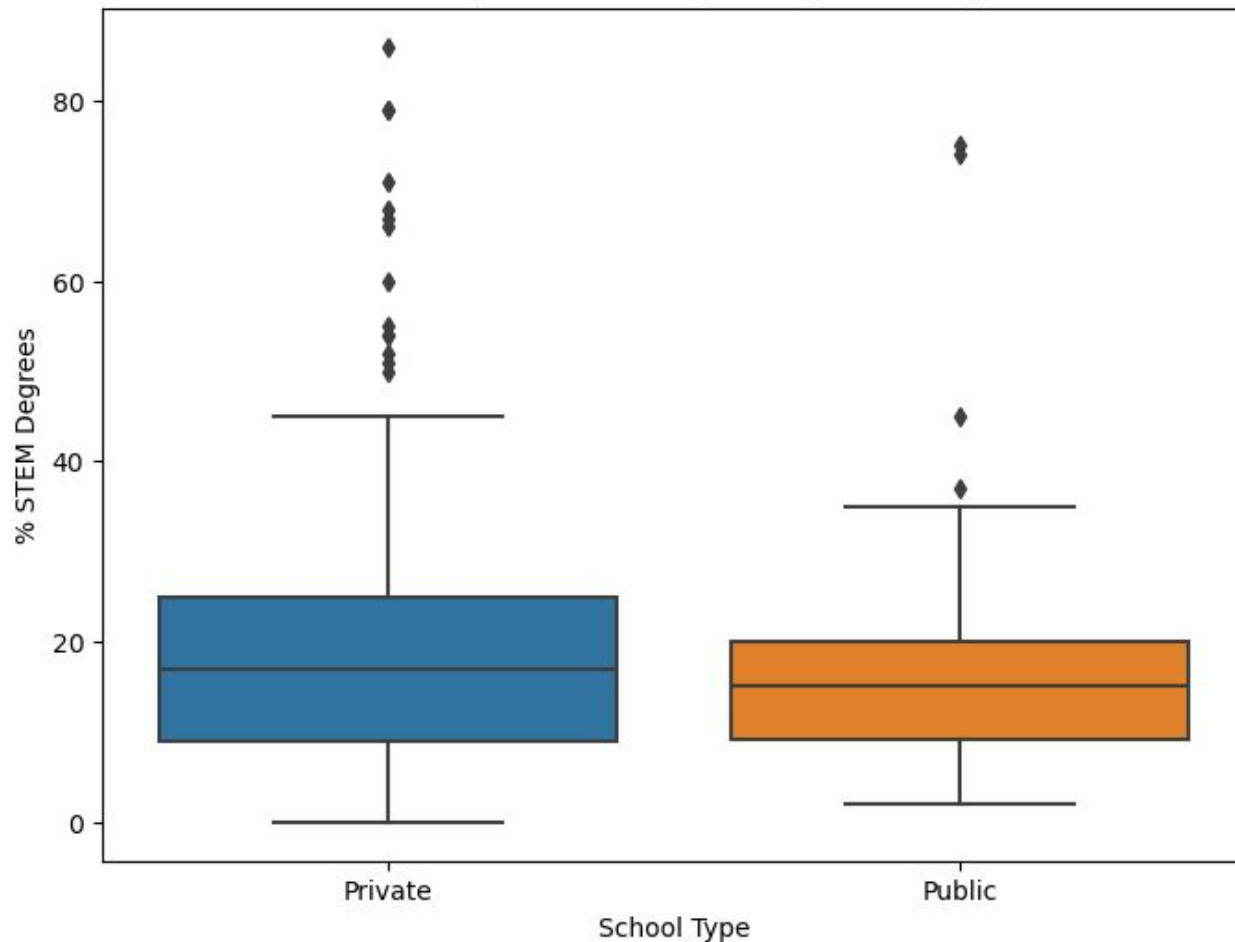
- R-Squared: 0.64
- Somewhat strong, positive correlation.
- Higher school costs is associated with a higher starting career salary.

3. How well do STEM degrees factor into better pay?



- R-Squared : 0.64
- Somewhat strong positive correlation, higher percentages of degrees awarded in STEM lead to higher starting median salaries
- Serves as an example of a career path to pursue with a high salary and what colleges specialize that field.

Percentage of STEM Degrees by School Type



- Both types relatively have the same median in STEM degrees awarded
- Private schools have a larger range of degrees awarded due to higher number of private schools
- Whether a school is public or private, the opportunity to pursue a STEM degree is available, but variability is more pronounced in private schools.

4. What schools have the best expected career pay with the best affordability?

	School Name	Private	Acceptance Rate	Total Cost	Instant ROI	Long Term ROI
142	Grove City College	Yes	0.445604	9147	0.923800	1.656281
452	York College of Pennsylvania	Yes	0.620609	10300	0.767779	1.243556
312	South Dakota State University	No	0.922337	8471	0.812699	1.222996
443	Winona State University	No	0.615639	8400	0.789435	1.126905
170	James Madison University	No	0.470908	13770	0.629993	1.125508
291	Saint Cloud State University	No	0.832536	9118	0.743968	1.097006
269	Peru State College	No	0.714693	6604	0.864552	1.091081
199	Louisiana Tech University	No	0.894451	8556	0.746771	1.062997
422	Wayne State College	No	1.000000	7560	0.748214	1.061177
232	Montclair State University	No	0.407663	10132	0.644468	1.054481

- These are the top 10 schools that had the best expected ROI (in terms of Mid-Career pay)
- There are a mix of private schools and public schools but public schools are dominating the list
- The calculation for ROI is derived from graduation rate, median career salary, median income of non bachelor degree holders (40,000), and the total cost of going to university for 4 years.

From this filtered data frame, Grove City College gives you the best returns, in terms of the money you put into your education.

Null hypothesis: Private Schools offer the same ROI compared to Public Schools
We reject the Null, therefore there are statistically significant difference between Private and Public schools. (Negative statistic proves Private has a lower ROI)

pvalue = $3.75E^{-14}$
Statistic = -8.406

Summary/Conclusion

Summary of Findings

- **Key differences between private and public colleges:**
 - Better affordability: *Public*
 - Better accessibility: *Private*
 - Better acceptance rates: *Public (marginally)*
 - Better graduation rates: *Private*
- **Total costs of college scales with better career pay**
 - Generally the more you pay for college the better your salary becomes (pay to win)
 - Colleges in the *Northeast region* generally have higher tuition costs but offer higher starting median income
 - The more you pay the better salary you get, but some public schools give you a better return due to how much more affordable they are.
- **% of Stem Degrees awarded has a moderate correlation to career salary**
 - One of the reasons on why some schools have a higher career salary could be that the STEM degree holders bring up the median.
 - Private schools have a larger percentage of students graduating with a STEM degree as well.
- **Top 5 schools with the best ROI:**
 - *Grove City College (Private), York College of Pennsylvania (Private), South Dakota State University (Public), Winona State University (Public), James Madison University (Public)*

Final Thoughts

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- Our findings are not an open-and-shut case as our data only touches the surface of what these types of schools provide.
 - A way to narrow down what college can best fit the individual's circumstances (e.g. budget management, distance from home, gauge on the success of certain degrees)
- Regardless of choosing between private and public schools and their costs, graduating with a STEM degree will provide a strong chance in finding a higher paying job.
 - However, this should not be the main factor to sway anyone's decision in pursuing college

Thank you!