

# ♥ Dating MAJJic: How College Major and Occupation Impact LOVE ♥



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## Intro & Hypotheses

Dating is an important part of one's adulthood. We were specifically interested in compatibility and what allows two individuals to find each other and make good partners, depending on their stage in adulthood. As such, we investigated the link between one's academic and professional background and their tendency to date or marry those of the same college major or career. Our main hypotheses are as follows:

- An individual's initial attraction to someone, while in school, is positively influenced by whether they have the same college major, but not whether they have the same intended career.
- Conversely, marriage is more strongly influenced by whether partners have the same current occupation than whether they had the same college major.
- This is because we believe dating, relationships, and marriage are products of proximity to other people and who someone is more likely to meet and interact with on a day-to-day basis.

## Data

### Dataset #1: Kaggle Speed Dating Data

- Collected by a research group led by Professors Ray Fisman and Sheena Iyengar from Columbia University Business School in 2002-2004.
- The research team performed a speed dating experiment to determine what factors influence an individual's degree of attraction for another individual during a date and the likelihood of the two individuals going on a second date.
- Publicly available on Kaggle.

### Dataset #2: US Census Dataset

- Retrieved from IPUMS, which contains data from the ACS (American community survey) PUMS (public use microdata sample) files.
- Data chosen to match the Kaggle dataset; i.e. filtered for individuals from the state of New York who have both obtained a degree beyond a bachelor's. The data comes from 2009 and 2010 (earliest years with degree info available).

## Methodology

We divided our study into two parts: analysis of the effects of college major and occupation on initial attraction (using the Kaggle dataset) and analysis on marriage (using the census dataset).

### Part 1: Analysis on initial attraction

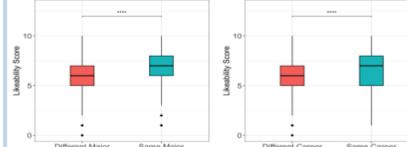
The level of "initial attraction" was measured with the likeability score, attractiveness score, and likelihood of going on a second date.

- T-tests: Comparing likeability and attractiveness scores
- Linear regression: Modeling attractiveness and likeability scores with other predictor variables (i.e. race, sex, and specific major/occupation)
- Z-test: Comparing likelihood of going on a second date
- Logistic regression: Modeling likelihood of going on a second date with same predictor variables as above.

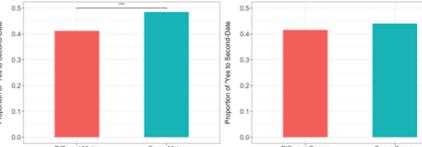
### Part 2: Analysis on marriage

- Z-test: Comparing proportion of married couples with same major vs. same occupation
- Chi-squared tests: Comparing the proportions above for specific occupations vs. similar college majors for those occupations

## Results



There is a significant difference in the average likeability score given between the population of individuals who have the same major and those who have different majors ( $pval = 3.0e-16$ ). This is also the case for same and different careers ( $pval = 2.1e-8$ ).

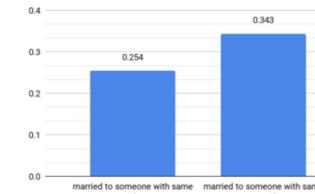


There is a significant difference in the proportion of individuals who have the same major and say yes to a second date and the proportion of individuals who have different majors and say yes to a second date ( $pval = 1.9e-5$ ). This is not the case for careers.

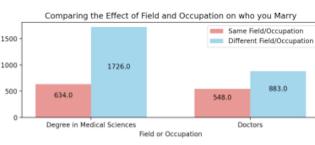
Variable	Coefficient	P-Value	Odds Ratio
Male	0.807	< 2e-16 ***	2.241
Same College Major	<b>0.285</b>	<b>0.000133 ***</b>	<b>1.329</b>
Same Race	0.222	0.000159 ***	1.249
Same Intended Career	0.042	0.526	1.043

According to logistic regression analysis, having the same college major is a significant and independent predictor of going out on a second date ( $OR = 1.329$ ,  $pval = 0.0001$ ). Having the same intended career is not.

### Marriage based on major and occupation in US census dataset

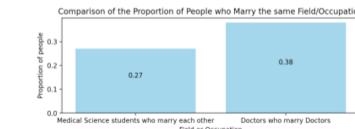
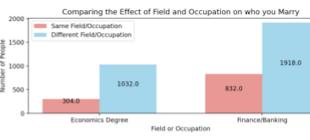


Proportion of married people with the same occupation is greater than the proportion with the same college major ( $pval < 1e-16$ )

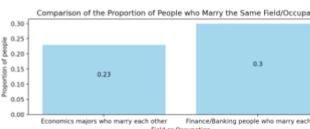


We also decided to compare specific occupations and majors in the Census Dataset.

We used Chi-squared tests for Independence to see if same occupation couples are disproportionately represented among married couples, relative to same major couples.



Doctors are more likely to marry another doctor than someone with the same degree in the medical sciences. ( $pval = 2.3e-13$ )



Business individuals are more likely to marry another person in business than someone with an economics degree. ( $pval = 6.3e-07$ )

## Conclusions

### Part 1: Analysis on Initial Attraction as a Student

- Individuals will give a higher likeability and attractiveness score to another individual if they are in the same major or intended career, on average.
- Individuals are more likely to say yes to a second date with another individual if they are in the same major. But there is no difference in likelihood if they are in the same intended career.
- Having the same college major is a significant and independent predictor of whether an individual will agree to a second date. Having the same intended career is not a predictor.

### Part 2: Analysis on Marriage

- The proportion of married couples with the same occupation is significantly greater than the proportion of married couples with the same college major
- Difference within specific fields:
  - more likely for lawyers, people working in business, and doctors to get married within their occupations compared to individuals who majored in fields related to law, business, or medical sciences.
  - no statistically significant difference for psychologists, creative writing/English, and engineering.

Dating is largely a function of proximity, meaning an individual that someone dates or marries is significantly dependent on who they interact with and encounter on a consistent basis. Students are more likely to gravitate towards individuals in their field of study, while workers gravitate towards individuals within their occupation

## Challenges & Limitations

Data collection and cleaning:

- Census dataset much more detailed than Kaggle data (Had to convert each Census field/occupation code to the corresponding Kaggle label)
- Kaggle data underrepresented certain ethnicities, only conducted heterosexual (male/female) pairings and grad students in NY
- Earliest years for degree data availability on census data was 2009-10 (doesn't match Kaggle study years)

Analysis:

- Difficult to make comparisons between datasets because they are measuring different things
- No negative examples in census data (pairs who said "no" to marrying another individual), meaning regression analysis could not be performed

## Significance & Implications

- Proximity (i.e. having the same occupation, being in the same field of study) is an important factor in dating and marriage. Knowing this may help individuals reevaluate their social circles and interactions at different stages in their relationship life, depending on who and what they are looking for.

- Intended career is less of an indicator of proximity amongst students
- College degree is less of an indicator of proximity in the workforce
- Hyper-specialized occupations (like lawyers, doctors, and business individuals) show higher inter-occupation marriages because employees from those fields usually do not have a lot of exposure to people in other occupations.
- Knowing this may encourage these groups to branch out in their social lives and interests in order to meet new types of individuals.