Initial Capstone Explorations

Areas of Interest

- Do women approach potential careers in Data Science differently?

- Which U.S. hospital regions are doing a better job of reducing in-patient service costs?

- How does the profile of a Liberal Arts degree holder differ from a person with a more technical, industry-focused degree?

Women in Data Science

Background

- Women make up 26% of Data Professionals

  - https://www.betterbuys.com/bi/women-in-data-science/

- No one is completely unbiased

  - The types of questions, analysis approaches and conclusions always have a personal element

- It's important to diversify the field to ensure that a variety of voices are being heard, given that more and more decisions – with potentially broad implications - are data-driven.

Hypothesis

- Women and men may be responding to the growth in Data Science differently.

- Specifically, as they consider careers in Data Science, they may be coming in with different:

    - Backgrounds
    - Attitudes
    - Reasons

- Understanding these differences may help "reframe" the field in such a way as to make it more attractive to a diverse population

Challenge

- Haven't found a suitable data set survey

- Identified these people from online articles and contact them:
  - margot.gerritsen@stanford.edu
  - https://www.widsconference.org/about2018.html
  - clem.herman@open.ac.uk
  - https://www.computerweekly.com/news/252437742/Why-does-India-have-a-higher-percentage-of-women-in-tech-than-the-UK
  - wh@ecs.soton.ac.uk
  - https://www.theguardian.com/lifeandstyle/2017/aug/08/why-are-there-so-few-women-in-tech-the-truth-behind-the-google-memo

- But so far, contacts have been unsuccessful

In-Patient Hospital Costs

Background

- It's no secret that U.S. healthcare is a mess

- Although many factors created the mess (for-profit insurance companies, siloed data, etc.), one issue is that costs are not readily visible and available

- The U.S. government has recently released in-patient hospital costs for a certain group of medical treatments. Not surprisingly, the variation in costs for the same service vary wildly from hospital to hospital.

- https://www.huffingtonpost.com/2013/05/08/hospital-prices-cost-differences_n_3232678.html

Hypothesis

- Certain providers/regions may be doing a better job of reducing costs than others

    - While it won't be clear if greater cost transparency is driving the cost reduction, understanding which providers/regions are doing well vs. those who aren't would merit further investigation in order to identify "Best Practices"

Approach

- Compare 2011 data to 2015 (no data available beyond 2015):

    - 2011_Medicare-Inpatient-Prospective-Payment-System-IPPS-Provider

    - 2015_Medicare-Inpatient-Prospective-Payment-System-IPPS-Provider

Liberal Arts

Background

- Liberal arts colleges are in a constant state of anxiety, worrying about their extinction or if (and how) they should change their curriculum (full disclosure: my husband teaches history at a liberal arts college☺)

    - https://www.aacu.org/publications-research/periodicals/where-are-they-now-revisiting-brenemans-study-liberal-arts

- Recent employment data, however, from the U.S. Census shows positive benefits to having a liberal arts degree

    - https://www.bls.gov/careeroutlook/2017/article/liberal-arts.htm?view_full

Hypothesis

- The employment-related profile of someone with a Bachelor's in a liberal arts field may differ from their counterparts with a degree in a more tech related industry field

    - A deeper dive into employment differences may help create a more accurate, compelling brochure for recruiting people to liberal arts schools

Approach

- Use 2015 U.S. Census from the ACS branch

- https://www.census.gov/programs-surveys/acs/technical-documentation/pums/documentation.2015.html

- Things to compare between Liberal Arts and Industry-Tech degrees:
  - U.S. Location
  - Occupations
  - Wages
  - Hours worked per week
  - Time to get to work
  - Mode of transportation to work