STRATCOM J1 - LABOR MARKET ANALYSIS

Labor market analysis for highly sought after occupations

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Motivation

STRATCOM, the U.S. Strategic Command, is interested in developing solutions to address the potential staffing problem of specific occupations. Due to the competitiveness in compensation and shortage of labor across the U.S., certain positions in STEM are harder to fill as the current generation of employees retire. The solutions proposed below will focus on identifying which occupations are at higher risk and where STRATCOM can focus their efforts and resources on attracting new talents.

Data Collection

The goal of the data collecting process was to compare the GS 11-15 pay scale in the Omaha area with the local salary percentiles of other Metropolitan Statistical Areas (MSA).

- We matched the 19 key Occupational Series codes given to us from J1 to a SOC code from the Bureau of Labor Statistics database
- For each SOC code, we extracted all available MSA data, including salary quantiles ranging from 10%, through the median, up to 90%
- For each MSA and Occupational Series code combination, we found if the GS-13 salary was competitive with the median MSA salary

We determined:

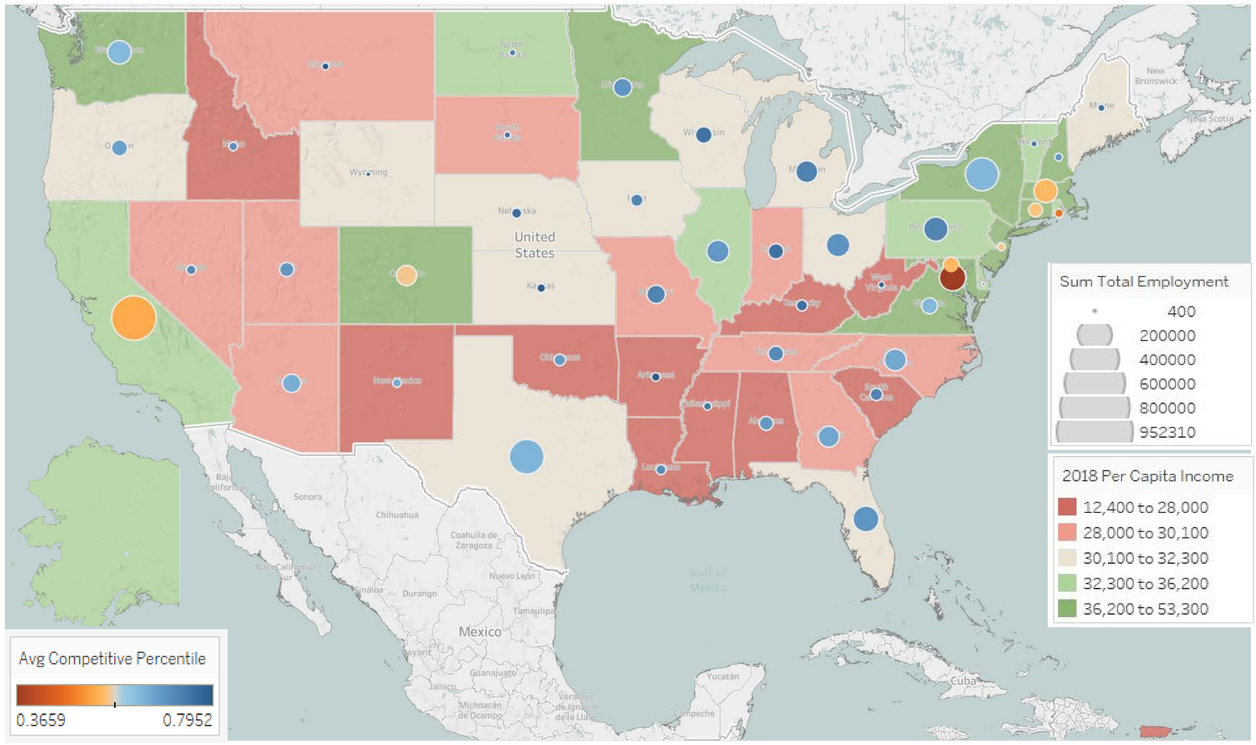
- The top MSA's for recruiting efforts
- Occupational series codes with and without competitive advantage

Number of OCCs by MSA

Location (MSA)	Number of Competitive Occupations
Madison, WI	26
Lansing-East Lansing, MI	26
Little Rock-North Little Rock-Conway, AR	26
Grand Rapids-Wyoming, MI	25
Lexington-Fayette, KY	25

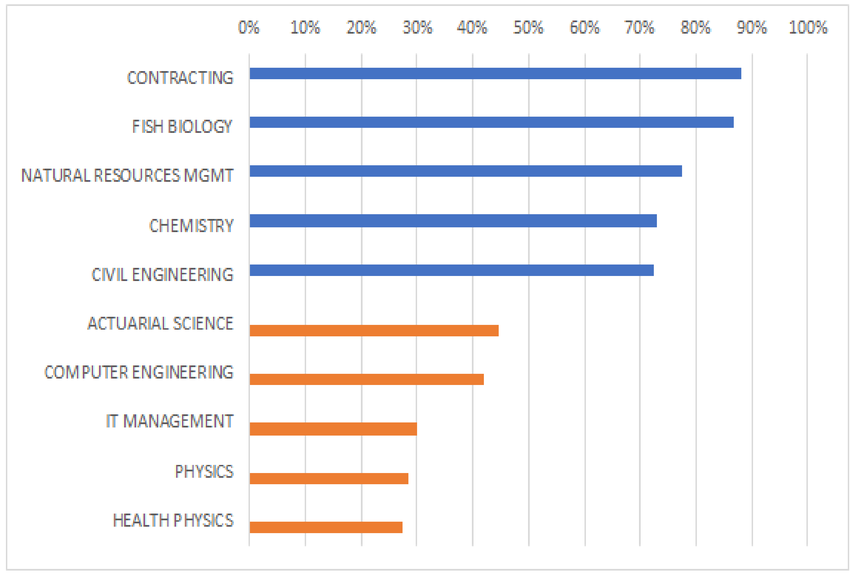
Table aggregates the number of times GS-13 salary is competitive by MSA across all the Occupational series codes. These are MSA's in which Stratcom's recruitment efforts would reach the widest variety of Occupational series.

Key Occupation Counts & Government Salary Competitiveness by State



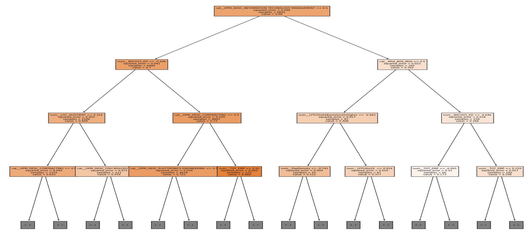
The best places to look for the candidates are the green states with big blue circles because there are many candidates for key occupations and the government has competitive salaries. People in green (high cost of living) states will receive a purchasing power boost when moving to Nebraska.

Government Salary Competitiveness by Occupation Group



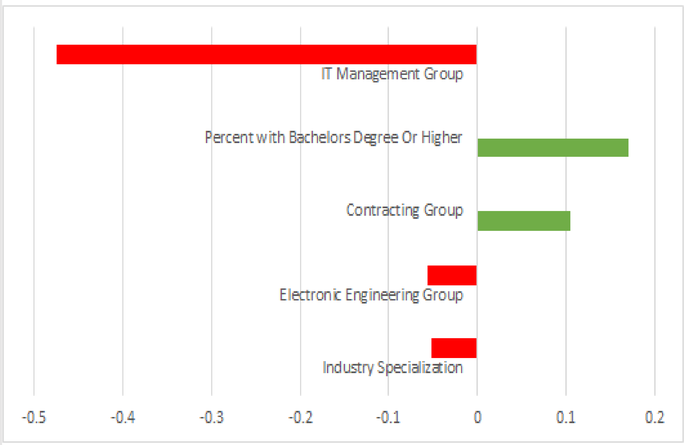
In order to find where the government's median salary would be competitive, we compared it to the regional quantiles from the BLS dataset. By grouping on occupation group and taking the average percentile that the government's salary was higher than, we were able to summarize where the government salaries are the most and least competitive. In blue we have the occupations where the government's offering is highly competitive. These are comprised of more "life sciences". Alternatively, in orange we have the occupations where the government pays less than others, including math and computer heavy occupations.

Decision Tree & Most Impactful Variables



This diagram is only meant to show the structure of the model

A decision tree was fit to model the target variable, "competitive percentile" which is the average percentile salary for an occupation-MSA combination that the government's median salary was higher than. This was done using the explanatory variables: occupation group, state, local specialization, education achievement by degree type, labor force participation by age and gender, total population, and population density.



The decision tree's goal is to increase information about how competitive the government's salary is with the existing labor market. Above are the variables that increased information the most. The red variables are negatively associated with competitiveness while green means the opposite.

Results and Conclusion

Our goal was to examine key occupations and find where potential new candidates could be found as well as how much to offer as a salary and still be competitive. We found a short list of MSA's where government's salary is competitive in many key occupations that can be targeted with recruiting efforts for extra efficiency. In addition, the impact of influential variables on the government's competitiveness were analyzed such as occupation, location, and education.