Competitiveness: A New Job Search Filter

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As a job seeker or an employer looking to hire, it is of vital importance to understand the interaction between supply and demand in the job market. We set out to better understand how competitiveness depends on industry or region. We sought to answer the following question: in which regions or industries is the demand for jobs unusually high or low?

This is a primary issue for both job seekers and employers. Job seekers are concerned with where the job market is less competitive due to a lower demand for employment. The answers can allow one to best determine where to go or what industry-specific skills to develop in order to have the best chance at getting a job. Employers are more interested in areas in which the job market is more competitive, particularly when a company is starting out, opening a new branch, or moving to a new location. These areas are those in which there are more applicants in an industry, and thus more options for new employees.

In order to quantify the competitiveness of an industry or region, we developed a metric that proxied competitiveness. This metric was calculated by dividing average applications per job by the average length that jobs from that industry or region remain posted on Indeed. Higher values in the index correspond to increased competition for jobs. Since these factors might not equally contribute to an industry's true competitiveness, this index can be weighted as needed by industry professionals to better reflect the needs of the job market.

To explore our data and solve for the competitiveness index, we wrote custom functions that allow prospective employees and employers to find the least (or most) competitive region in a specific industry, and the least (or most) competitive industry in a specific region. The functions also allow individuals to specify based on their educational attainment, as companies often have requirements listed. For these functions, we used R packages such as ggplot2 and dplyr to visualize and wrangle the data. In order to compare the competitiveness measure among states, we created an interactive map of the United States using the Shiny package, in which the color scale corresponds to the competitiveness level in the state. Thus, a darker colored state for the technology industry indicates the state is one job seekers should avoid due to smaller chances of employment, and one that employers should consider moving to for more abundant employment opportunities.

We believe that it would be beneficial for Indeed to allow users to sort by the competitiveness of the job market, as this would allow job seekers to put more effort towards jobs that they are more likely to get. For example, a recent high school graduate in New England might be interested to find that the region's least competitive industries are Veterinary, Agriculture, and Analyst. If the grad is curious about the best place to go in, for example, Information Technology, they would be interested in finding that the least competitive region for that industry is the East South Central US (Alabama, Kentucky, Mississippi, and Tennessee).

These insights are extremely beneficial for a job seeker or a company deciding where to go next. Additionally, the inclusion of a competitiveness index would likely bring traffic to Indeed's website, due to the fact that no other major job search sites include one.