Iowa Skillshed Analysis

A study of occupational clusters, skills, & gap analysis

Introduction & Methodology

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Limitations of Study

The Skillshed study seeks to identify occupational groups in which the state has a comparative advantage and then map the transition from the current workforce set of skills to that needed by the group of occupations. It does this by aggregating the current jobs and educational profile of the workforce and then estimating the education and skills needed. While it can be a powerful tool when used in the aggregate, the Skillshed study cannot be used to identify the skills needed by the individual worker. To do this, the study must be combined with traditional workforce development interviews and counseling.

A Skillshed study seeks to identify the top occupational groups which will contribute significantly to a state's economy and into which the state can transition most easily. While the study suggests a focused targeting of these groups, it does not suggest that a state place all resources into these groups alone. Providing broad opportunities in education and workforce counseling will allow the workforce to succeed in whichever occupational group that is ultimately chosen.

Methodology

The Skillshed primarily relied on three data sources to provide the main data points for the analysis. These were the Iowa Workforce Development Laborshed survey, the IWD Workforce Needs Assessment survey, and the Occupational Information Network (O*NET).

The Laborshed survey was designed by the Institute for Decision Making (IDM) at the University of Northern Iowa and conducted by Adtrack. Surveys were conducted in each zip code based on a random sample of the population between 18 and 64 years of age and weighted by the total number of people in each zip code. Respondents were asked a wide range of demographic and employment related questions. Clustering is then used to aggregate the population into groups of similar skills and education. The Skillshed used Laborshed data as a proxy for the skills and geographical distribution of the current workforce.

The IWD Workforce Needs survey was developed and conducted by the Iowa Workforce Development Regional Research & Analysis Bureau. It consists of questions about current and projected vacancies, employee retirement, benefits offered, and wage data. The goal of the survey is to assess the current and near-term hiring demand by industry and occupation throughout Iowa, and help to assess employers' perceptions of workforce skills and the effectiveness of advertising media.

The third data source used was the Occupational Information Network (O*NET). O*NET is an interactive application for exploring and searching occupational information. It was developed by the North Carolina Employment Security Commission in partnership with the US Department of Labor and the Employment and Training Administration. Through a continuing worker survey, O*NET develops and updates its database of the knowledge, work activities, abilities, and distinguishing characteristics of each occupation.

Though O*NET scales occupations across nine variables such as: abilities, skills, values, etc. two variables were used for the Skillshed study, knowledge areas and work activities required for each occupation. The knowledge variable encompassed 33 areas of knowledge such as: Administration and Management, Chemistry, Biology, Medical, Transportation, and Mathematics. These variables are closely related to the educational field in which one has studied. The work activity variable encompassed 41 activities such as: thinking creatively, working with others, interacting with computers, and repairing electronic equipment.

The Purdue Center for Regional Development developed the framework for the Occupational Clusters that was used in the study. The Purdue team used the five job zone categories developed by O*NET to distinguish occupations that require a higher level of education and experience. Zones one and two, the occupations requiring the least amount of preparation, were placed into two separate clusters. All other occupations were aggregated using Ward's hierarchical method to cluster like variables into 15 clusters by similar job tasks and responsibilities. The purpose of targeting these jobs is to show those occupations that rely more heavily on intellectual activity and skill, and presumably contribute to a faster pace of technical and economic advancement. Bureau of Labor Statistics growth projections and median wage estimates were added to each occupation to help target those occupations and clusters with the greatest growth and income potential.

The 15 knowledge clusters along with the BLS projected employment and median wages is shown in Appendix C. The percentage of vacancies within each occupation relative to total vacancies, from the Workforce Needs Survey, was also added to the data to measure current hiring demand. The clusters were then analyzed to find those with high overall projected growth, current demand, and an above average median wage. These findings could then be used with regional occupational trend analysis and competitive structure to select the occupational clusters which would be used in gap analysis with the current skill set of the population.

Introduction

A Skillshed is the geographic area from which a region pulls its workforce and the skills, education, and experience that the workforce possesses. Traditionally, labor markets have been studied in terms of the products produced by a region to understand what industries are relatively strong. A Skillshed helps to understand not only where the region's competitive strengths currently lie by detailing the current workforce mix, but also in which occupations or industries the region could grow into by understanding the difference between the current skill set and that skill set needed by emerging markets. The outcome of the Skillshed helps to analyze four key findings:

- Identification of the current skills possessed by the supply of workers.
- Projected employment growth and median wages, skills, and knowledge needed by employers.
- The demand for workers considering the factors affecting supply and demand.
- Gap analysis between the current set of skills and education and that set needed by current and prospective employers.

The Skillshed analysis integrated and analyzed information from three different sources; the Iowa Laborshed Study, the Statewide Workforce Needs Assessment (Job Vacancy) Survey, and information from the Occupational Information Network (O*NET). These three sources were used to present the supply and demand for labor within the state and the examples of gap analysis from current to emerging or high growth occupations.

The Laborshed survey was conducted and analyzed using telephone survey responses from a random sample of 18-64 year olds within the state. Respondents were asked a wide range of demographic and employment-related questions. Areas of interest from the Laborshed survey:

- Work experience within the region
- Population by occupational category
- Unemployment and commuting patterns

The second annual Workforce Needs Assessment was conducted from September 2008 through January 2009. There were 8,179 employer responses from within Iowa and a 24.5 percent response rate. In addition to vacancy and retirement data, this year's survey included questions pertaining to average hourly starting wage. Analysis of the survey illustrates the demand for workers and skills required in the vacant positions. Areas analyzed using the Iowa Workforce Needs Assessment were:

- Vacancies by occupation
- Vacancies across industries
- Work activities, skills, and knowledge areas most needed by employers
- Starting wages offered and experience required

The Occupational Information Network (O*NET) is a joint effort between the US Department of Labor and the North Carolina Employment Security Commission. It provides a database of standardized and occupation-specific descriptions that help determine which factors are critical in the performance of an occupation. Data used for these analyses were:

- Work activities
- Knowledge
- Skills
- Job Description