

채용시장의 계량화 : 인터넷 채용의 동향과 경제성 분석

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Digitalization of the Labor Market : A Survey of Trends and Economics of
Internet Recruiting

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Abstract

The purpose of this paper is to survey firm behaviors in the rising field of internet recruiting. Our research identifies the theoretical and empirical underpinning behind the discrepancy in the intensity of internet recruiting use across different firms. We find that manufacturing firms are less likely to use internet as a recruiting tool than any other firms in the industry. This stays consistent with previous literatures' findings that the internet is used primarily for the skilled labor market. In addition, we find that size and the purpose of company websites to have no significant role in explaining recruiting patterns. Rather, we believe that individual firms' corporate strategy to have a larger role in explicating the differences in recruiting behavior across firms.

I. Introduction

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With the explosive growth in recent years, internet recruiting has been a topic of growing scholarly interest. Majority of the work focuses on the welfare effects of internet recruiting: namely, the economic effects of internet providing a new venue to fill the unmet needs of recruiters and potential employees. Mortensen and Khun, for example, have argued that lower cost and greater information diffusion involved with internet recruiting could lead to lower frictional employment, higher average match quality, and a reduction of non-competitive wage differentials[4, 6]. Despite these efforts, there is a shortage of literature focusing on the different recruiting patterns across companies in different sectors of business.

The purpose of this paper is to fill that gap by focusing on large companies. An interesting phenomenon that developed from the prevalence of internet recruiting is companies using both their corporate websites and internet job search sites, such as Monster, to recruit potential employees. Many jobs posted on company websites and internet job search sites are similar, if not exactly the same jobs, and the quantity of jobs that each company posts on search sites and company websites vary tremendously. We conduct a bundle of research aimed at identifying factors that influence corporations' tendency to allocate more recruiting resources to the internet.

II. Methodology

The firms in the U.S. were examined in this study, and careful attention was given to measure only the domestic values for each of the figures. Monster, Careerbuilder, and Yahoo Hotjobs (three top job search sites) were used to find out how many jobs a given company advertises using these job search sites. This number was then added to the total number of jobs posted on respective company websites. To avoid variations in the quantity of job posts that might occur due to seasonal factors, each firm were measured twice on two different months, and the average value of the two were recorded.

Specifically, after counting the total number of jobs for all three job search sites, we adjusted that number using the "date of comparison." Date of comparison is simply the most recent date of the earliest date of job posting on a job search site. For example, if earliest date of job posting on Monster, Careerbuilder, and HotJobs is October 5th, November 2nd, and September 28th, respectively, November 2nd is the "date of comparison." Total number of jobs is then recomputed using November 2nd as the earliest date of job posting. Total number of job postings on company website was also adjusted using the same "date of comparison."

In addition, we gathered data for the total number of domestic employees in a given company. This number was compared to sum of the total number of jobs posted on company websites and job search sites. We also recorded the primary business orientation for all of the companies we gather data from. This information will be useful when analyzing the variation within our data (e.g. why certain companies are more likely to use internet as a method of recruiting). Finally, we noted if a company was an internet-based company, meaning that its main business is run through the internet.

III. Data and Analysis

1. Company Size and Internet Recruiting

First issue addressed is a study of rather company size makes an impact on the intensity of a given firm's internet recruiting. A study by Hausdorf and Duncan, who conducted research for Canadian companies, found that larger firms are more likely to use the internet for recruiting those small firms due to their endowed resources[3]. Small and local firms are more likely to rely on local resources for recruiting because they do not necessary need to reach a broader audience for recruiting. Specifically, their research classifies companies by the size of employees: Small (49 or less), Medium, (50-499), and Large (500 or

more). From that, they conclude that larger companies are more likely to resort to internet for recruiting.

Hausdorf and Duncan's work should be of no surprise. The size of enterprise organizations matters because it correlates to how much budget and resources a company has for recruiting, which allows them to take advantage of economies of scale. Obviously, it would be very difficult for a local grocery store to spend \$500 on Monster to browse over 2.3 million irrelevant applicants, when they can simply post a "Now Hiring" sign on their window. For example, it costs \$500 to search through applicants at Careerbuilders. If a company is looking for two employees, that is \$250 spent per employee, but if a company is willing to hire a hundred, the cost is merely \$5 per employee. In addition, larger companies are more likely to have the necessary resources (e.g. skilled web developer) to engage in internet recruiting in the first place.

In that sense, Hausdorf and Duncan's classification is limited, because it hinders our ability to understand the recruiting behavior of large companies, who are the primary consumers of internet recruiting. In this research, we focused on just the large companies, who are already endowed with financial and human resources to engage in internet recruiting. All of the companies that we studied had employees of 455 or more, ensuring that we target companies who make up the significant portion of the internet recruiting market. When compared across different companies, this data illustrates the degree to which a given companies relies on the internet for recruiting relative to other companies.

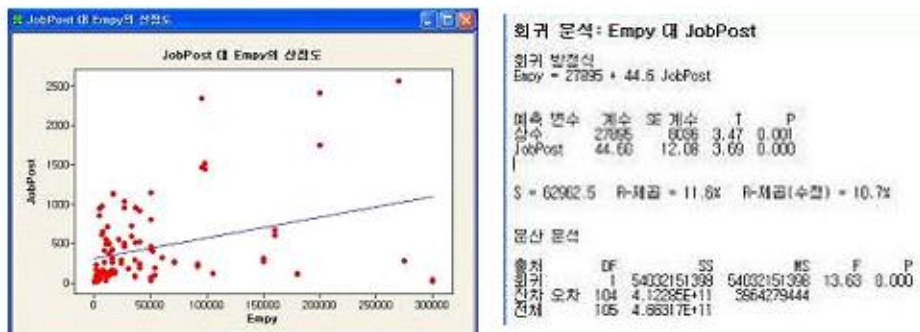


Figure 1. Internet job post vs total number of employee

According to our statistical analysis, there appears to be a weak positive correlation between the size of the company and internet job postings. The R-square value is only 10.7%, meaning that 89.3% of the internet use is related to some other facts other than the total number of employees at a given firm. In other words, size of a given firm does not have a significant impact on the intensity of internet use for recruiting purposes.

2. The Potential Impact of Internet Companies on Internet Recruiting

We inquired if companies who use their website for commercial purposes show a different recruiting patterns as other firms. We realize that all corporate websites are used for commercial purposes in some way or another, but our definition of "commercial" relies on a notion that companies use their website to conduct their primary business. This data will give insight as to rather there is a certain trend that splits across sectors of industries. For example, companies that use their company websites for operational activities (e.g. Amazon, who sells product via company website) will get lots of visitors on their website, thus might be induced to using the website for recruiting. On a counter-intuitive note, they might also be less willing to use company websites for recruiting, because they may not want to divert its prime real-estate for purposes other than doing its business.

Refer to our data in Figure II. Group 1 are companies with primary business ran through the internet, such as Ebay. Group 2 are companies that do not. Independent T-Test analysis was conducted, and we found p-value to be .087, which is statistically insignificant, if we use an alpha value of .05. Thus, while there appears to be a difference between companies that use their website, it is not a statistically significant difference.

The indifference between the two types of companies can be attributed to a bundle of factors, including cost efficiency, lack of technology, and managerial embracement of new technology. As theorized, companies who use its website for

commercial purposes may be inclined to post jobs on its website to exploit its ability to attract a high number of visitors. Moreover, these companies are firms who are naturally more endowed with internet-based resources to post jobs online. These firms are also likely to have corporate cultures that embrace the implementation of new technology [1].



Figure 2. Internet job post vs usage of their website primarily

On the other hand, companies who use their website primarily for commercial purpose may be inclined to post fewer jobs on their websites since they do not want to "divert" their website for other purposes. After all, their visitors are going to be people who want to buy products, and not people who are necessarily interested in getting a job there. On a similar note, companies who use their website to promote their products (but not directly sell their products), like Starbucks, may be inclined to post more on their site than Monster. These companies are more likely to use their own site, because people who visit their sites are not "direct" customers, but people who have an interest in their company.

Although no conclusive data can be found, the relatively higher figures of internet recruiting for internet-based companies indicates that the first rationale's effect (i.e. internet-based companies are more endowed with necessary resources) to have more weight than the second rationale (i.e. internet-based companies do not want to divert their website for purposes other than recruiting). In the end, individual firms' business strategy seems to have a larger factor in determining their embracement of internet recruiting technologies.

3. Recruiting Difference by Business Sector

Our last study focused on inquiring rather firms in different sectors are more or less likely to engage in internet recruiting. Firms were categorized into five different business sectors to test our theory:

- Group 1 : Retail including basic materials, home improvement, apparel, Restaurant
- Group 2 : Financial such as banking, insurance, mortgage
- Group 3 : Technology, Software, pharmaceutical
- Group 4 : Manufacturing
- Group 5 : Non-Classified

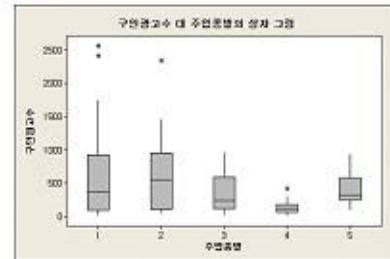


Figure 3. Job post vs Business Sector

Group 5 is composed of companies that we could not classify under the first four groups. Since Group 5 is composed of amalgam of different companies, there will be no significance to the result.

A two-variable test between each of the variables were conducted to see if there were indeed a statistically significant difference between manufacturing firms to all other firms. Statistical plot indicates that there is indeed a statistically significant difference between figures for manufacturing firms relative to all other firms. One may explicate these results by assuming that manufacturing firms have fewer employees to begin with, decreasing the need for them to hire new employees. While there are some truth to that, we already established in this paper that the size of the firm has little to do with the intensity of internet recruiting efforts.

The data set is consistent with the previous work by William J. Moon that internet recruiting is primarily a marketplace for skilled labor [5]. Rationale is a simple one: although the internet can reach a large pool of applicants, it tends to reach a specific pool of applicants. In particular, a potential applicant must have access to a computer, the internet, and must some sort of computing background.

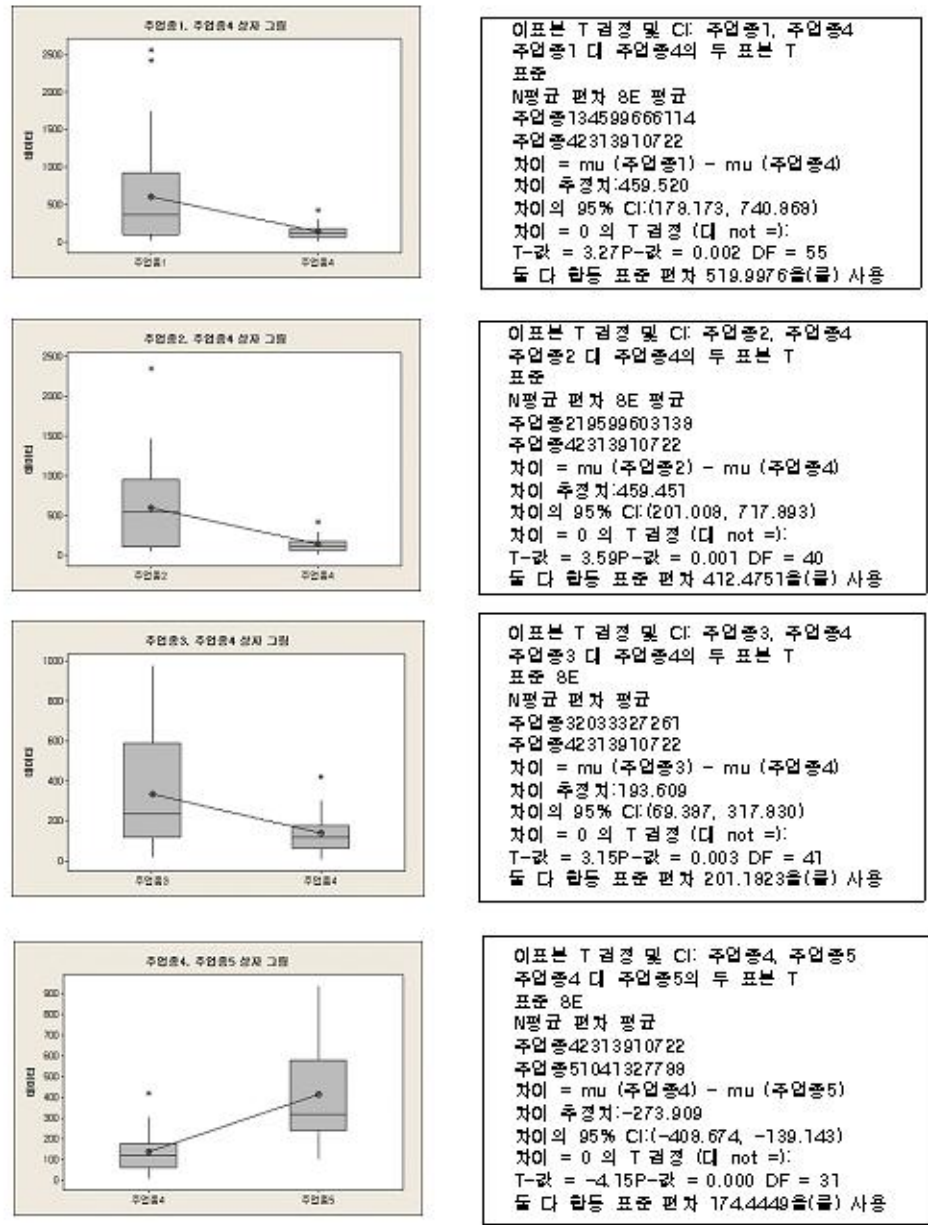


Figure 4. T-test results of evert two different groups

These people will tend to be the young, more affluent, and will tend to have higher education level. Such supply side demographical characteristics assure that a substantial portion of the pool is composed of applicants who are part of the skilled labor market. This tendency is fueled by the demand side economics, where substantial costs involved with internet recruiting discourage firms from seeking easily replaceable (i.e. unskilled) labor. Firms must pay for each job that they post using commercial job sites like Monster.com, where price per post will range anywhere from \$150 to \$400 for a 30-day post period. Although this is certainly less than what it would cost to advertise on, say, The New York Times, it is undeniably more than the cost involved with putting a "Now Hiring" sign up on a local grocery store. In fact, almost all of the jobs posted online were for skilled laborers, such as Accountants, Managers, and Financial Analysts.

This means that firms with high demand for skilled labor should be spending higher proportion of their recruiting budget online relative to other firms. JP Morgan, for example, whose primary business is composed of providing financial services, needs a large pool of highly-skilled financial advisors, as well as Accounting Managers and Attorneys. On the other hand manufacturing firms like the Campbell Soup Company only require a handful of skilled labor - Majority of the factory workers require relatively few professional training. While mechanization among manufacturing firms decreased the need for unskilled labor force, the relative uses for skilled labor in these companies are still low compared to other firms.

IV. Conclusion

Given the exponential growth in internet recruiting, one might be tempted to conclude that the entire industry is digitalizing its recruiting mechanisms. Such conclusion is dangerous, given that traditional recruiting sources still provide a viable alternative to internet recruiting. Moreover, companies seem to be using internet recruiting to "diversify" their exposure to potential applicants, rather than to replace

the traditional way of recruiting. This study offers a bundle of characteristics that may be used to explicate the characteristics of internet recruiting. First, the size of the firm does not have a significant impact on the intensity of internet recruiting, as long as the firms are large enough have significant financial and human resources. Second, there appears to be no statistically significant difference between internet-based firms and non-internet based firms in their relative intensity of engaging in internet recruiting. Third, manufacturing firms are less likely than other firms to embrace the use of internet recruiting, given the relatively low need for skilled labor in their business.

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