

Job Seeker Activity Varies Sharply by Day of the Week And Day of the Month Says New DHI Database

This edition of *DHI Hiring Indicators* introduces a new source of information about vacancy postings and application flows in the U.S. economy – the **DHI Vacancy and Application Flow Database**. Section I of this report highlights results derived from the new database and from the Job Openings and Labor Turnover Survey (JOLTS). Section II describes the new DHI Database and uses it to document several findings. Section III presents JOLTS-based statistics on mean vacancy duration and recruiting intensity per vacancy. Section IV provides additional information about the *DHI Hiring Indicators* and about DHI Group, Inc.

I. Highlights

1. The **DHI Vacancy and Application Flow Database** links 60 million applications to nearly 7 million job vacancies posted to online DHI platforms since January 2012.
2. Job seeker activity varies dramatically by day of the week. Applications per vacancy on Monday and Tuesday are 44 percent greater than on Friday and four times greater than on Saturday.
3. Job seekers are also less active near the end of the month. The volume of applications is 8 percent greater in the second week of the month than in the last seven days.
4. In contrast, the stock of active vacancy postings exhibits little systematic intra-month variation.
5. These findings carry an important message for recruiters and hiring managers: The daily flow of applications per vacancy is 4 to 7 percent higher in the first three weeks of the month than the last seven days.
6. The **DHI-DFH Mean Vacancy Duration Measure** rose to 28.7 working days in July, only 0.8 days lower than its historical high of 29.5 working days in April 2016.

“The DHI Database is a promising new source of information about U.S. labor markets and the employer-worker matching process,” said Dr. Steven Davis, William H. Abbott Professor of International Business and Economics at the University of Chicago Booth School of Business. “In the coming months, we will use the database to give recruiters, employers, researchers and policymakers new statistics for tracking and assessing labor market conditions.” Davis is a co-developer of the DHI Database and co-creator of the DHI-DFH Mean Vacancy Duration Measure and Recruiting Intensity Index.

“The unemployment rate in the U.S. is nearing full employment and that means employers everywhere are competing to hire hard-to-find candidates. This struggle is particularly acute in healthcare, technology and the financial services industries,” said Michael Durney, President and CEO of DHI Group, Inc. “While offering ideal compensation and benefits packages is an important element in the recruiting process, knowing what days of the week and times during the month professionals are more active in applying for roles is critical to attracting skilled talent to fill open positions. Companies who use this knowledge to their advantage and are accommodating to candidates can gain a competitive edge.”

II. Results Based on the DHI Vacancy and Application Flow Database

The new **DHI Vacancy and Application Flow Database** links daily application flows to millions of online vacancy postings. The raw data come from DHI Group, Inc., which owns and operates several specialized online platforms for posting job vacancies and attracting applications. Employer-side clients of these platforms comprise organizations that directly hire their own employees, recruitment firms that solicit applicants for third parties, and staffing firms that hire workers to lease to other firms. Vacancy postings are concentrated in technology sectors, software development, other computer-related occupations, engineering, financial services, business and management consulting, and a variety of other professional occupations.

The DHI Database currently contains 6.92 million unique vacancy postings by more than 50,000 employer-side clients from January 2012 through July 2016.¹ These vacancy postings attracted 59.3 million applications during the same period.² More than half of the applications were for positions posted by recruitment and staffing firms.

Figure II.1 below shows the average distribution of applications by day of the month for the period from January 2012 to July 2016.³ The volume of applications drifts downward in the latter part of the month. The volume of applications in the second week of the month is 6 percent greater, on average, than in the fourth week and 8 percent greater than in the last seven days of the month.

Figure II.2 displays the average distribution of active vacancy postings by day of the month for the same time period.⁴ In contrast to the temporal pattern for applications, the stock of vacancy postings shows no systematic intra-month variation. Taken together, Figures II.1 and II.2 imply that active vacancies attract fewer applications per day towards the end of the month.

Figure II.3 confirms this conclusion by plotting the average number of applications per vacancy by day of the month. Except for a dip on the first day of the month, average daily applications per vacancy lie in a narrow band around 0.42 during the first three weeks of the month. Daily applications per vacancy tend to decline over the rest of the month, reaching a low of 0.34.

¹ Currently, the DHI Database draws mainly from DHI's Dice.com platform. Other DHI platforms include [eFinancialCareers](#), [Biospace](#), [Rigzone](#), [ClearanceJobs](#), [Health eCareers.com](#), and [Hcareers](#). Analysis of the DHI Database in this report draws on "Application Flows" by Steven J. Davis and Brenda Samaniego de la Parra.

² When posting a vacancy, the DHI client decides whether job seekers must file an application via email through the DHI platform or through an external URL operated by the client or a third party. In the first case, the DHI database records the number of completed email applications. In the second case, the database records how often job seekers click through to the external URL. We pool these two classes of vacancies and applications in this report.

³ Figure 1 adjusts for differences across months in the number of days.

⁴ To be precise, Figure 2 shows the frequency distribution of vacancy posting-days by day of the calendar month. As in Figure 1, Figure 2 adjusts for differences across months in the number of days.

Figure II.1. The Distribution of Applications by Day of the Month, January 2012 to July 2016

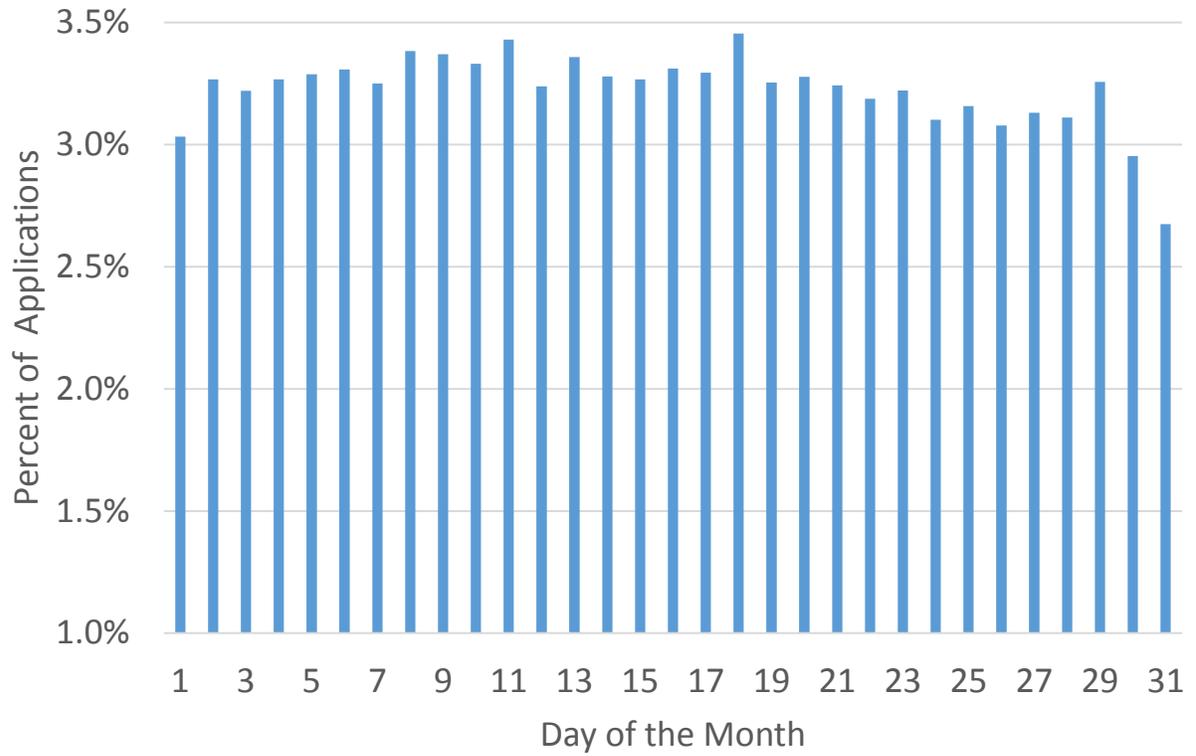


Figure II.2. The Distribution of Vacancies by Day of the Month, January 2012 to July 2016

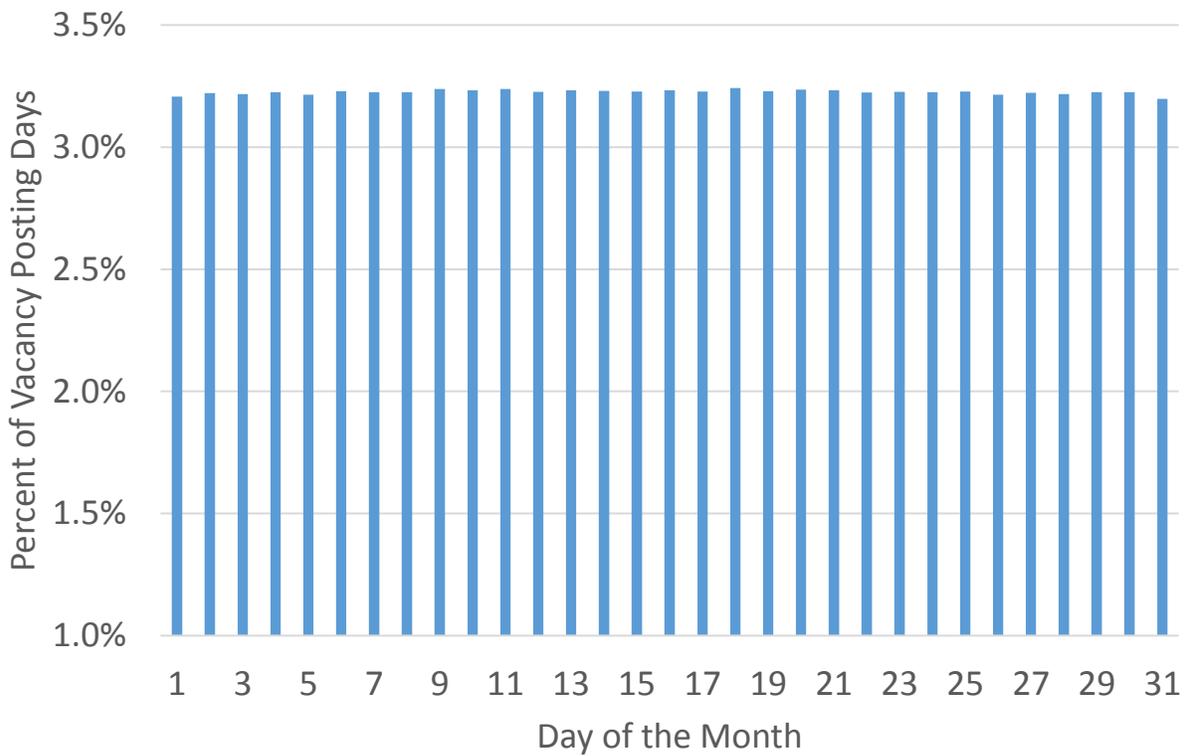


Figure II.3. Average Daily Applications Per Vacancy by Day of the Month, January 2012 to July 2016

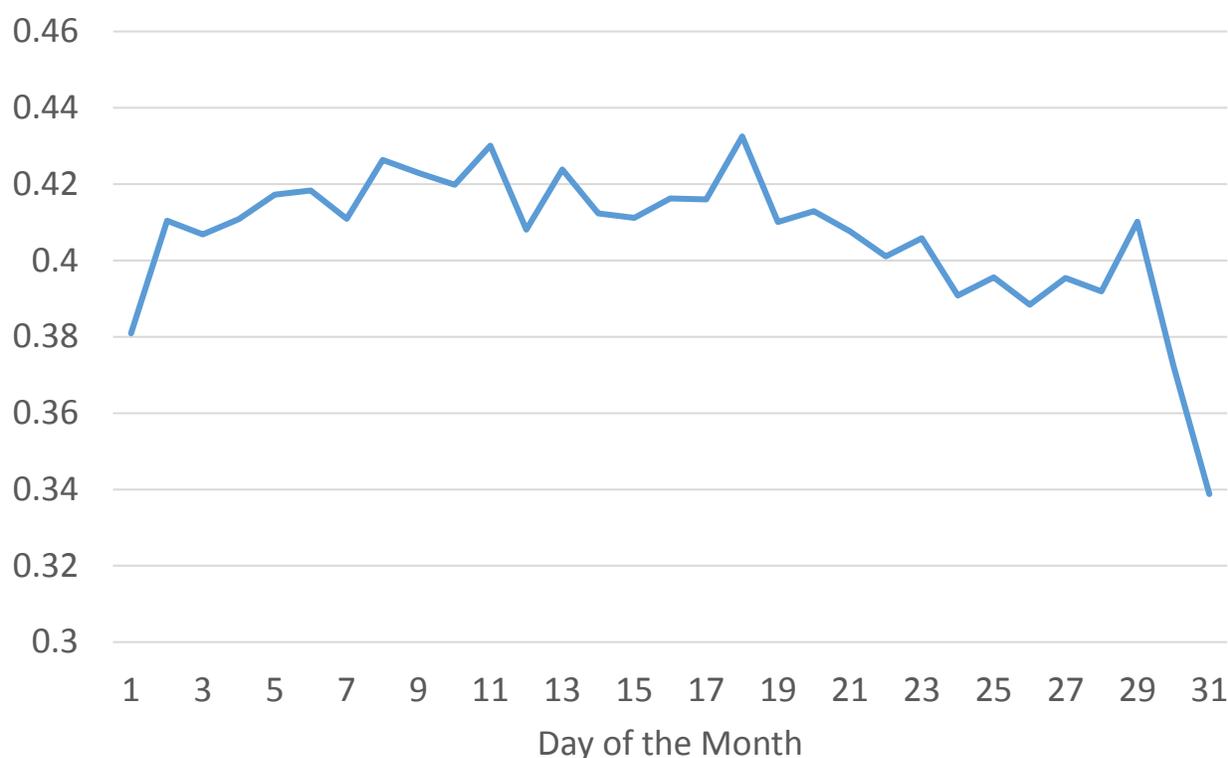


Table II.1 shows that daily applications per vacancy drop in the latter part of the month for both direct hire clients and for recruitment and staffing firms. The table also shows that a slowdown in job-seeking activity around Christmas and year end accounts for part of the drop in daily applications per vacancy towards the end of the month.

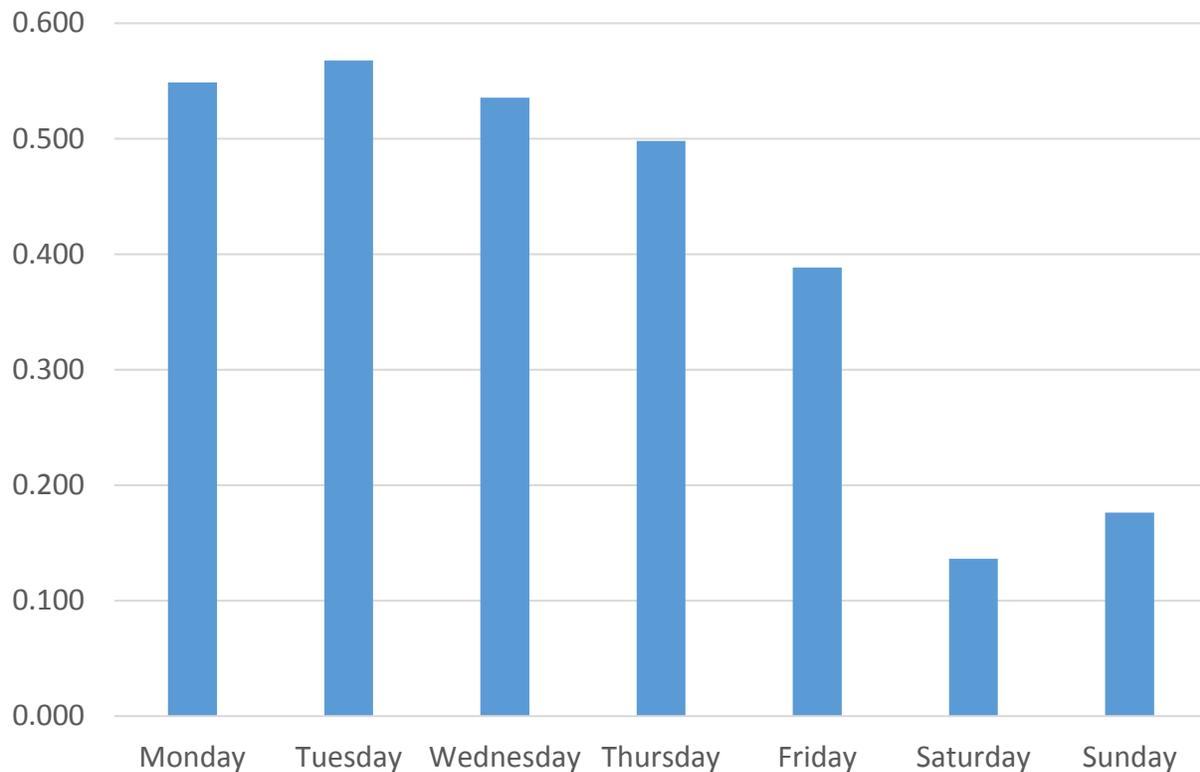
Table II.1. Daily Application Flow per Vacancy by Week of the Calendar Month, Direct Hire Clients and Recruitment & Staffing Firms Compared, January 2012 to July 2016

<i>All Months</i>	Week 1	Week 2	Week 3	Week 4	Last 7 Days
All Vacancies	0.408	0.420	0.415	0.396	0.391
Direct Hire Clients	0.439	0.452	0.446	0.426	0.422
R&S Firms	0.389	0.401	0.397	0.377	0.373
<i>Excluding December</i>					
All Vacancies	0.413	0.428	0.425	0.412	0.407
Direct Hire Clients	0.445	0.460	0.457	0.443	0.438
R&S Firms	0.394	0.409	0.405	0.392	0.388

The flow of applications per vacancy by day of the week exhibits an especially striking temporal pattern, as shown in Figure II.4. Vacancy postings attract an average of 0.55 applications on Mondays and 0.57 on Tuesday, but only 0.39 on Friday and 0.14 on Saturday. That is, the average daily flow per vacancy on Monday and Tuesday is 44 percent greater than on Friday and four times greater than on Saturday.

In summary, job seekers are more active in the first three weeks of the month, and they are much more active early in the work week. Recruiters and hiring managers may find it useful to consider these temporal patterns in job seeker activity when deciding when to post online job vacancies.

Figure II.4. Average Daily Applications Per Vacancy by Day of the Week, January 2012 to July 2016



III. Results Based on the Job Openings and Labor Turnover Survey

The **DHI-DFH Mean Vacancy Duration Measure** rose to 28.7 working days in July, 0.6 days above a revised value of 28.1 days in June and only 0.8 days lower than its historical high in April 2016. Mean vacancy duration in Manufacturing stood at 35.2 working days in July, 4.6 working days above its 2015 average.

Figure III.1 shows the evolution of the mean vacancy duration in the United States since 2001. The vacancy duration measure reflects the vacancy concept in the Job Openings and Labor Turnover Survey (JOLTS). Specifically, a job opening gets “filled” according to JOLTS when a job offer for the open position is accepted. So the vacancy duration statistics refer to the average length of time required to fill open positions. Typically, there is also a lag between the fill date and the new hire's start date on the new job.

Figure III.2 displays four other indicators of labor market slack alongside the mean vacancy duration. All five measures show a pronounced tightening of U.S. labor markets since 2009. Three of the measures – mean vacancy duration, the vacancy-unemployment ratio, and the ratio of vacancies to the number of persons unemployed for 26 weeks or less – now exceed their peak values prior to the recession of 2008-2009. The post-recession rise in the mean vacancy duration is especially pronounced.

Figure III.1. DHI-DFH Measure of National Mean Vacancy Duration, January 2012 to July 2016

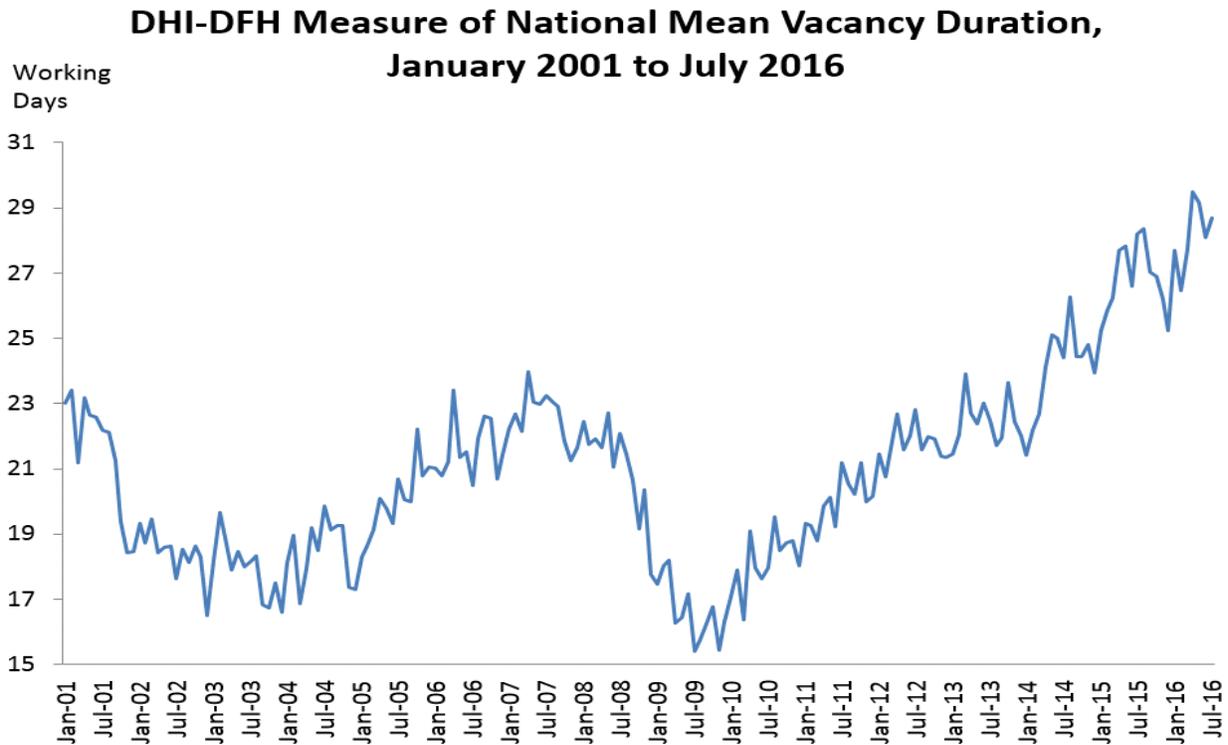
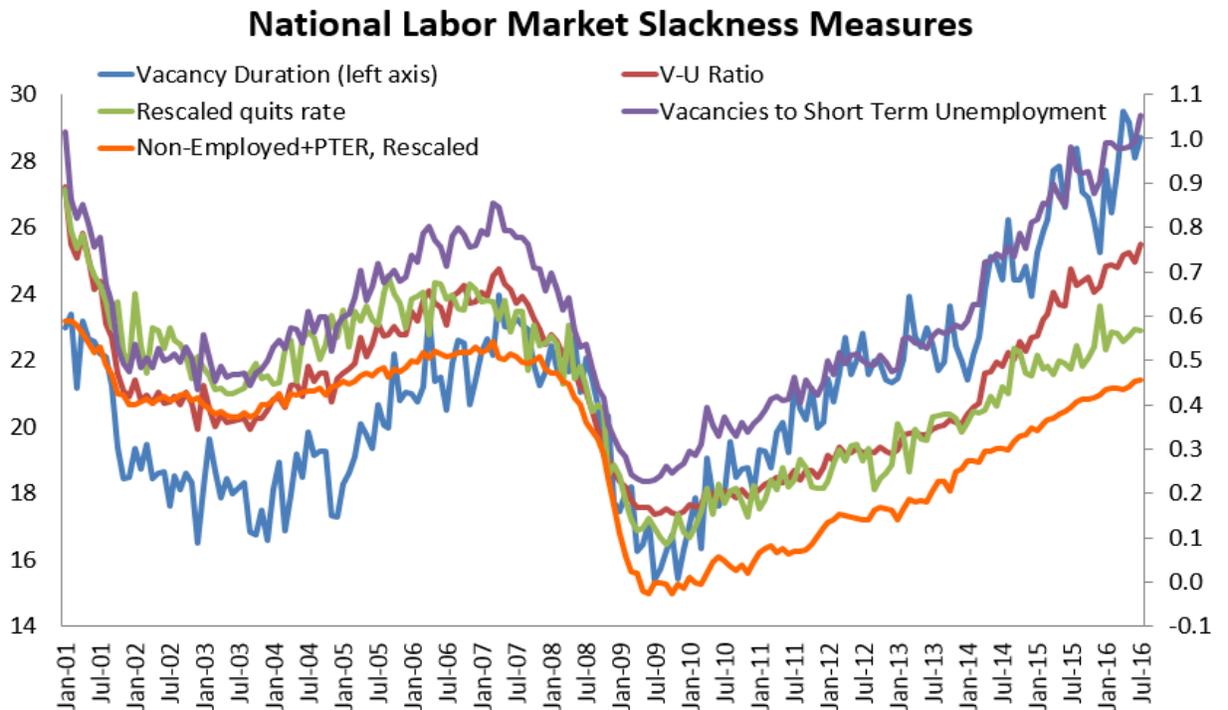


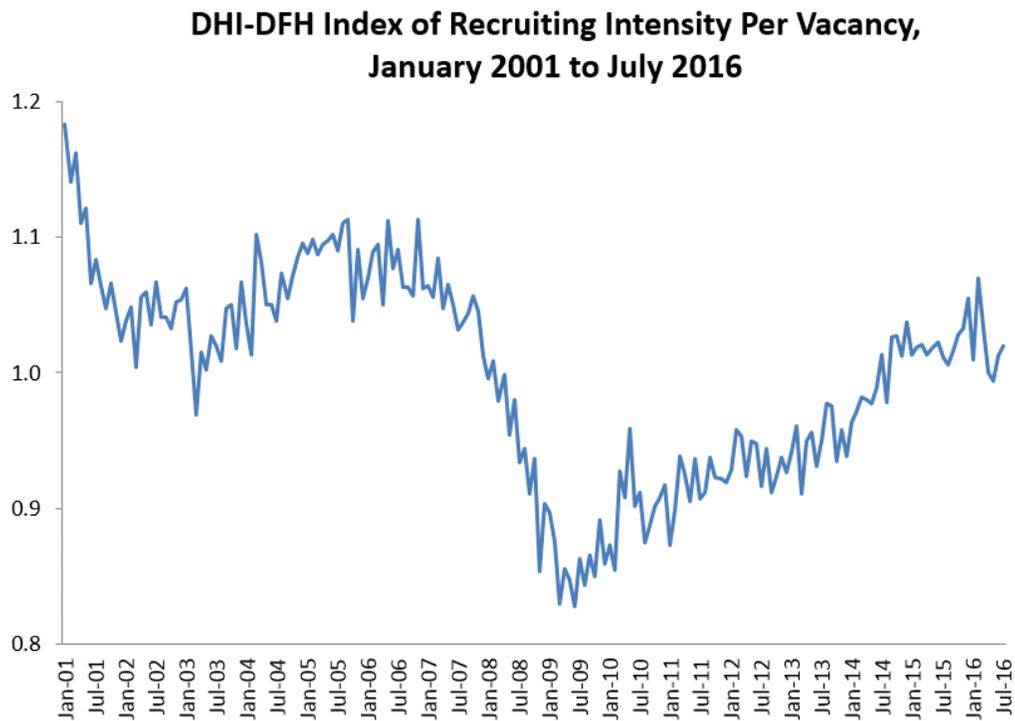
Figure III.2. National Labor Market Slackness Measures, January 2012 to July 2016



Short Term Unemployment is the number of persons unemployed for 26 weeks or less. The Quit Rate is rescaled to have the same mean and variance as the Vacancy-Unemployment Ratio from January 2001 to date. Non-Employment + PTER, an index developed by Hornstein, Kudlyak and Lange, reflects all persons who are not employed (weighted by labor force attachment) plus persons who are working part time for economic reasons and would prefer to work full time. Here, their index is multiplied by minus one and then rescaled to have the standard deviation as the Vacancy-Unemployment Ratio from January 2001 to date.

The **DHI-DFH Recruiting Intensity Index**, plotted in Figure III.3, rose to 1.02 in July, up from a revised 1.01 in June.

Figure III.3.DHI-DFH Index of Recruiting Intensity per Vacancy, January 2012 to July 2016



Tables III.1 and III.2 report industry-level statistics for vacancy duration and recruiting intensity per vacancy, respectively.

Table III.1. DHI-DFH Measure of Mean Vacancy Duration by Industry and Time Period, No. of Working Days, January 2012 to July 2016

Mean Vacancy Duration (Number of Working Days)									
By Industry and Time Period									
	2001 to 2003	2004 to 2006	2008	2009	2010 to 2012	2013	2014	2015	Jan.-Jul. 2016
Resources	12.0	14.0	18.1	13.5	18.7	17.4	22.5	16.5	14.1
Construction	7.9	8.8	7.3	4.3	6.1	9.5	10.9	11.5	15.2
Manufacturing	17.4	20.9	21.6	13.8	23.4	28.4	29.2	30.6	33.7
Wholesale and Retail Trade	14.2	15.8	15.5	13.1	15.9	19.8	18.6	20.6	23.1
Warehouse, Trans. & Utilities	18.6	17.0	20.6	11.3	18.2	22.5	23.9	28.0	29.6
Information	25.8	36.0	34.4	23.4	40.9	36.5	36.7	35.3	31.5
Financial Services	28.0	32.1	27.6	25.7	33.3	36.2	37.3	43.1	42.4
Professional and Business Services	18.3	19.9	21.3	16.6	18.8	19.6	21.9	26.5	26.6
Education	21.3	25.0	22.0	18.5	21.0	23.8	26.6	31.1	30.2
Health Services	39.1	35.8	36.4	29.8	33.5	34.6	38.4	45.0	47.9
Leisure and Hospitality	13.7	14.8	14.9	10.4	13.3	16.6	19.3	19.7	19.8
Other Services	22.5	18.6	25.2	16.9	18.9	20.0	20.8	21.9	29.7
Government	33.2	30.7	35.7	32.2	33.0	35.9	37.7	38.0	36.8
Non-Farm	19.3	20.0	21.1	16.6	20.0	22.5	24.1	26.8	28.2

Table III.2. DHI-DFH Recruiting Intensity Index by Industry and Time Period, January 2012 to July 2016

Recruiting Intensity Index By Industry and Time Period									
	2001 to 2003	2004 to 2006	2008	2009	2010 to 2012	2013	2014	2015	Jan.-Jul. 2016
Resources	0.99	1.06	1.05	0.70	1.00	0.98	1.04	0.92	0.92
Construction	1.07	1.04	0.89	0.90	1.01	0.94	0.89	0.88	0.86
Manufacturing	1.02	1.09	0.95	0.85	0.94	0.88	0.92	0.92	0.94
Wholesale and Retail Trade	1.05	1.10	0.96	0.84	0.89	0.94	1.04	1.04	1.03
Warehouse, Trans. & Utilities	0.96	1.13	0.94	0.92	0.96	1.01	1.11	1.10	0.99
Information	1.10	1.08	0.87	0.83	0.91	1.06	1.10	1.15	1.12
Financial Services	1.06	1.09	0.99	0.84	0.87	0.99	0.95	0.95	0.98
Professional and Business Services	1.08	1.07	0.90	0.83	0.94	0.96	1.00	1.01	1.00
Education	1.00	0.99	1.04	0.96	0.99	0.94	1.00	1.00	1.06
Health Services	1.08	1.04	1.01	0.93	0.89	0.92	0.96	1.01	0.99
Leisure and Hospitality	1.08	1.08	0.97	0.84	0.88	0.92	0.96	1.00	1.02
Other Services	1.02	1.07	0.94	0.96	0.95	0.98	0.96	1.04	0.98
Government	1.05	1.05	0.94	0.87	0.93	0.93	0.99	1.09	1.13
Non-Farm	1.05	1.08	0.95	0.86	0.92	0.95	1.00	1.02	1.02

IV. About the DHI Hiring Indicators

The creation of the **DHI Vacancy and Application Flow Database** is a cooperative effort between DHI Group, Inc. and two researchers at the University of Chicago, Professor Steven J. Davis and Brenda Samaniego de la Parra, a Ph.D. student. Their research paper on “Application Flows” contains additional information about the DHI Database and the analysis of the data in this report.

The **DHI-DFH Recruiting Intensity Index** quantifies the effective intensity of recruiting efforts per vacancy by employers with vacant job positions. The index is normalized to an average value of 1.0 for the period from January 2001 to December 2012. It complements the monthly [Job Openings Rate](#) produced by the U.S. Bureau of Labor Statistics (BLS) from the [Job Openings and Labor Turnover Survey](#).

The pace of new hires in the economy depends on the number and types of job seekers, the number and types of job vacancies, and employer actions that affect how quickly vacant jobs are filled. These actions include the choice of recruiting methods, expenditures on help-wanted ads, how rapidly employers screen job applicants, hiring standards, and the attractiveness of compensation packages offered to prospective new hires. The BLS Job Openings Rate captures the availability of job vacancies in the economy, while the **DHI-DFH Recruiting Intensity Index** captures the intensity of employer efforts to fill those vacancies. The index is available at the national, regional and industry levels and by establishment size class (number of employees).

The index construction follows the method developed by Steven J. Davis, R. Jason Faberman and John Haltiwanger (DFH) in “[The Establishment-Level Behavior of Vacancies and Hiring](#),” published in the May 2013 issue of the *Quarterly Journal of Economics*, and extended to industry and regional indices in “[Recruiting Intensity during and after the Great Recession: National and Industry Evidence](#),” published in the May 2012 issue of the *American Economic Review*.

The **DHI-DFH Vacancy Duration Measure** quantifies the average number of working days taken to fill vacant job positions. It supplements other measures often used to assess the tightness of labor market conditions such as the ratio of vacant jobs to unemployed workers.

Vacancy durations depend on the relative numbers of job seekers and job vacancies, the recruiting and search methods available to employers and job seekers, employer recruiting intensity per vacancy, the search intensity of job seekers, and the degree to which the requirements of jobs on offer match the skills, locations and preferences of job seekers. Other things equal, a larger ratio of job vacancies to job seekers yields longer vacancy durations.

The **DHI-DFH Vacancy Duration Measure** follows the method developed by Steven J. Davis, R. Jason Faberman and John Haltiwanger (DFH) in "[The Establishment-Level Behavior of Vacancies and Hiring](#)," published in the May 2013 issue of the *Quarterly Journal of Economics*. That method combines a simple model of hiring dynamics with data on hires and vacancies from the [Job Openings and Labor Turnover Survey \(JOLTS\)](#) conducted by the U.S. Bureau of Labor Statistics. Using their model and the JOLTS data, DFH estimate an average daily job-filling rate for vacant job positions in each month. Taking the reciprocal of the daily job-filling rate yields the **DHI-DFH Vacancy Duration Measure**, which is available at the national, regional and industry levels and by establishment size class.

The average daily job-filling rate is closely related to the "vacancy yield," the ratio of hires during the month to the stock of vacancies on the last business day of the previous month. Unlike the vacancy yield, however, the daily job-filling rate (and the **DHI-DFH Vacancy Duration Measure**) adjusts for job vacancies that are posted and filled within the month. Working days are defined as Mondays through Saturdays, excluding major national holidays.

About DHI Group, Inc.

DHI Group, Inc. (NYSE: DHX) is a leading provider of data, insights and connections through our specialized services for professional communities including technology and security clearance, financial services, energy, healthcare and hospitality. Our mission is to empower professionals and organizations to compete and win through expert insights and relevant employment connections. Employers and recruiters use our websites and services to source and hire the most qualified professionals in select and highly-skilled occupations, while professionals use our websites and services to find the best employment opportunities in and the most timely news and information about their respective areas of expertise. For over 25 years, we have built our company on providing employers and recruiters with efficient access to high-quality, unique professional communities, and offering the professionals in those communities access to highly-relevant career opportunities, news, tools and information. Today, we serve multiple markets located throughout North America, Europe, the Middle East and the Asia Pacific region.

For more information:

Dr. Steven J. Davis

773.702.7312

steven.davis@chicagobooth.edu

Michael Durney

President & CEO

DHI Group, Inc.

212-949-3348

durneyhiring@dhigroupinc.com