

## Vacancy Durations and Recruiting Intensity Rose in July

This edition of *DHI Hiring Indicators* reports updated statistics on mean vacancy durations and recruiting intensity per vacancy for the U.S. economy, including results by industry sector, region and employer size. It also reports new statistics on the role of recruitment and staffing firms in vacancy postings covered by the **DHI Vacancy and Application Flow Database**.

Section I contains highlights. Section II draws on the **DHI Vacancy and Application Flow Database** to present statistics on the role of recruitment and staffing firms. Section III draws on the **Job Openings and Labor Turnover Survey** to present statistics on vacancy durations and recruiting intensity per vacancy, as well as other indicators of labor market tightness. Section IV provides additional information about the *DHI Hiring Indicators* and DHI Group, Inc. A separate Excel file contains monthly time-series data for statistics discussed in this report and a large set of additional statistics.

### I. Highlights

1. The **DHI-DFH Mean Vacancy Duration Measure** for the U.S. economy rose to 29.0 working days in July 2017, 0.6 days above the revised value for June.
2. Recruiting intensity per vacancy, the ratio of vacancies to unemployed persons and the quit rate also rose in July, reinforcing the view that U.S. labor markets continued to tighten in recent months.
3. Turning to longer-term developments, recruitment and staffing firms account for 71 percent of raw vacancy postings in the DHI Database in 2017, up from 68 percent in the 2012-2014 period. Jobs covered by the DHI Database typically require hard skills, e.g., computer-programming skills. They are concentrated in technology sectors, software development, other computer-related occupations, engineering, financial services, and certain other professional occupations.

“All six measures of labor market tightness tracked in the DHI Hiring Indicators rose from June to July,” said Dr. Steven Davis, William H. Abbott Distinguished Service Professor of International Business and Economics at the University of Chicago Booth School of Business and Senior Fellow at the Hoover Institution. “That such a disparate set of measures all point in the same direction reinforces the view that U.S. labor markets have continued to tighten.” Davis is a co-developer of the DHI Database and co-creator of the DHI-DFH Mean Vacancy Duration Measure, the Recruiting Intensity Index and the new skill-level measures of labor market tightness constructed using the DHI Database.

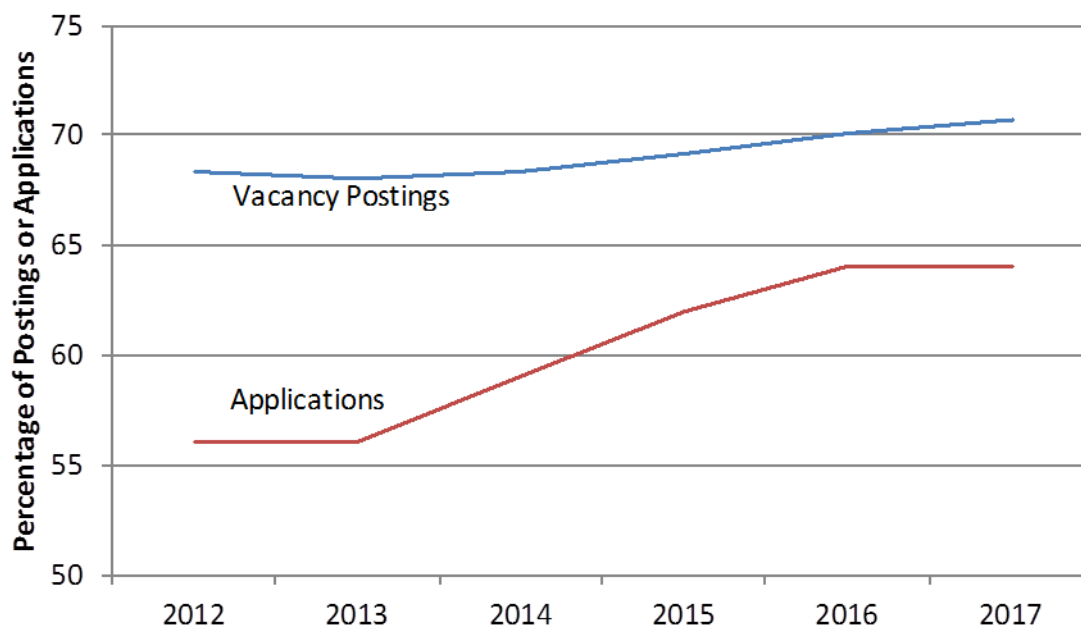
“Employers still say it’s hard to attract the candidates with ideal skillsets and are experiencing lengthy fill times as a result,” said Michael Durney, President and CEO of DHI Group, Inc. “What this tells me is companies aren’t really offering the full employment package to tech candidates. Tech professionals tell us competitive salary, challenging work and a positive culture are of the utmost importance in their careers. The companies who have dedicated time to employer branding and offer the ability to be innovative are more successful at hiring tech talent than their peers who promote the status quo.”

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

The **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 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, and certain other professional occupations. The DHI Database contains over 9.5 million unique vacancy postings from more than fifty thousand employer-side clients.<sup>1</sup> These postings have attracted more than 79 million applications since January 2012.<sup>2</sup>

Figure II.1 shows that recruitment and staffing firms account for 71 percent of vacancy postings in the DHI Database in 2017, up from 68 percent in the 2012-2014 period. Postings by recruitment and staffing firms attract 64 percent of the applications in 2017, up from 56 percent in 2012 and 2013. These results highlight the growing role of labor-market intermediaries for jobs covered by the DHI Database. In this regard, it's worth stressing that these jobs are in technology-oriented sectors, and they typically specify one or more "hard" skill requirements, e.g., ability to program in a particular computer language. Jobs with these characteristics may lend themselves to a larger role for labor-market intermediaries than most jobs.

Figure II.1. The Growing Role of Recruitment & Staffing Firms in Vacancy Postings Covered by the DHI Database, Excluding Postings with No Applications



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

<sup>2</sup> 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.

About 20 percent of the raw vacancy postings in the DHI Database remain online for many weeks or months. The vast majority of these “long-duration” postings reflect employers with recurring hiring needs for certain positions and recruiting firms that more or less continuously seek applicants for certain types of jobs.<sup>3</sup> In other words, each long-duration posting typically involves multiple job openings rather than a single position. We can “slice” each long-duration posting into multiple postings, one for each calendar month with an active posting for the corresponding Job ID. When we do so, the role of labor-market intermediaries looks somewhat smaller. Put differently, traditional direct hire employers account for a disproportionate share of the long-duration postings. The slicing adjustment yields a more accurate count of these vacancy postings.

Table II.1 reports the percentage of vacancies and applications in the DHI Database accounted for by recruitment and staffing firms. The second and fourth columns show the same statistics as Figure II.1. The third column reports the share of postings accounted for by recruitment and staffing firms after we apply the slicing adjustment. Comparing the second and third columns confirms that the slicing adjustment yields a smaller role for recruitment and staffing firms.

**Table II.1. Percentage of Vacancies and Applications in the DHI Database Accounted For by Recruitment & Staffing Firms, Excluding Postings with No Applications**

Year	Vacancy Postings		Applications
	Unadjusted	After Slicing Adjustment	
2012	68	62	56
2013	68	62	56
2014	68	63	59
2015	69	64	62
2016	70	65	64
2017	71	66	64
Sample Average	69	64	61

Source: “Application Flows” by Steven J. Davis and Brenda Samaniego de la Parra, 2017, University of Chicago, using the DHI Database. Vacancy postings are concentrated in technology sectors, software development, other computer-related occupations, engineering, financial services, and certain other professional occupations.

When job openings are plentiful and few people seek new jobs, each vacancy posting tends to attract few applicants. In this situation, we say labor markets are “tight.” Conversely, when job openings are scarce relative to job seekers, each posting tends to attract many applicants, and labor markets are “slack.” We use DHI data on the daily flow of applications per vacancy posting to operationalize this concept of labor market

<sup>3</sup> A small number of long-duration postings arise from single-position job vacancies that take many weeks or months to fill. This situation is rare in the DHI Database. See “Application Flows” by Davis and Samaniego de la Parra for more information about the distinction between standard and long-duration postings.

tightness. Of course, applicant numbers also depend on job characteristics. Partly for this reason, we focus on tightness measures for particular skills.

To identify skill requirements, we read the extended job descriptions supplied by the prospective employer (or recruiter) for each vacancy posting.<sup>4</sup> We identify 38 skills that appear often in each month covered by the DHI Database. The Excel file that accompanies this report includes monthly tightness measures for the 38 skill categories. To construct these measures, we proceed in four steps:

1. Sort vacancies into categories based on the first skill referenced in the extended job description.
2. Compute the average daily flow of applications per posting by skill category and month.
3. Deflate the skill-specific measures from Step 2 by the overall average daily flow of applications per posting. We compute this average by month using all standard and full-month long duration postings that mention at least one of the 38 skills listed in Table II.1 in the [August 2017](#) edition of the DHI Hiring Indicators.<sup>5</sup>
4. Multiply each deflated series by the overall 2015 average value of daily applications per posting (to recover the units of daily applications per vacancy posting).

The units of the resulting measures are average daily applications per active vacancy posting.

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<sup>4</sup> For this purpose, we use the sample of all “standard postings” and full-month “long-duration postings” that mention at least one of the 38 skills. See the [October 2016 edition](#) of the DHI Hiring Indicators for a discussion of standard and long-duration postings. The term “full-month” refers to long-duration postings that are active on the first and last day of the month.

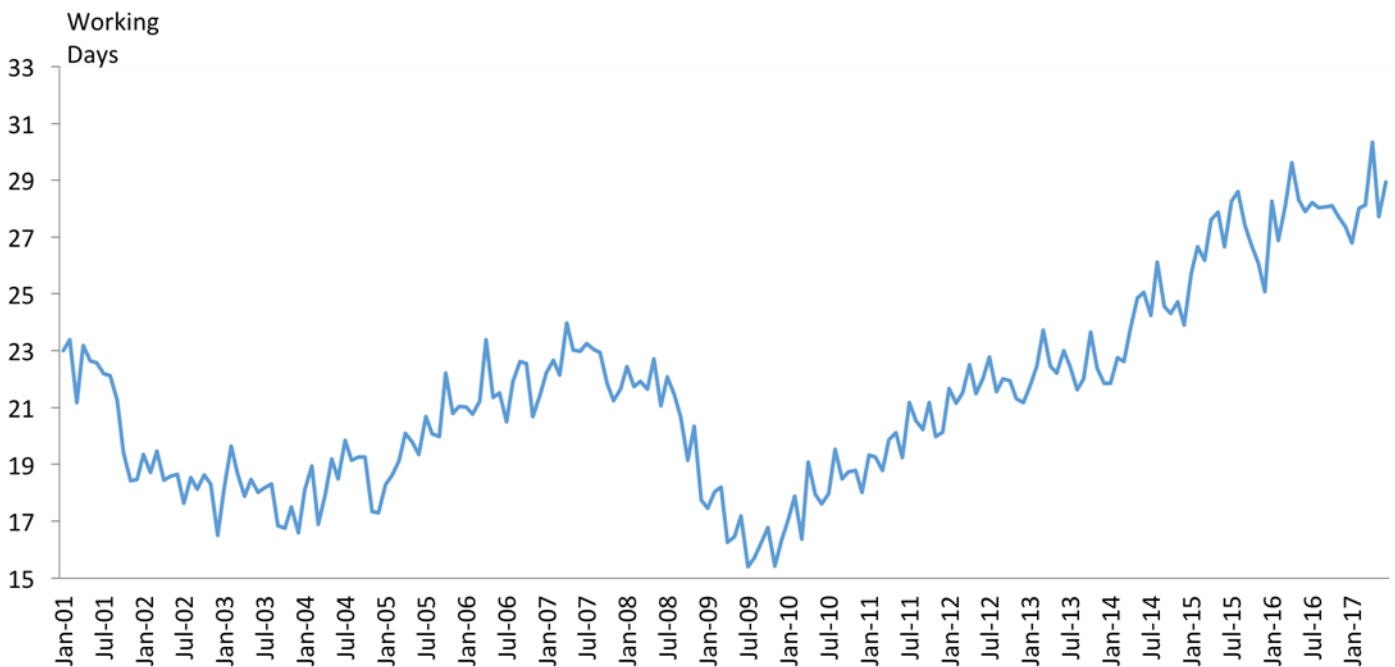
<sup>5</sup> DHI modified the functionality of its Dice.com platform during our sample period in ways that affect application flows. Overall market tightness developments and changes to Dice.com market shares also affect our skill-specific tightness measures. Deflating our skill measures using aggregate daily application flows removes the effects of these changes, assuming they affect all job postings in the sample in a similar manner. The resulting indicators provide us with relative measures of labor market tightness.

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

The **DHI-DFH Mean Vacancy Duration Measure** rose to 29.0 working days in July, 0.6 days above its revised value for June and 1.3 days below the historical peak in April 2017. Figure III.1 shows the evolution of the mean vacancy duration in the United States since 2001. This 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. Thus, the duration statistic refers 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.

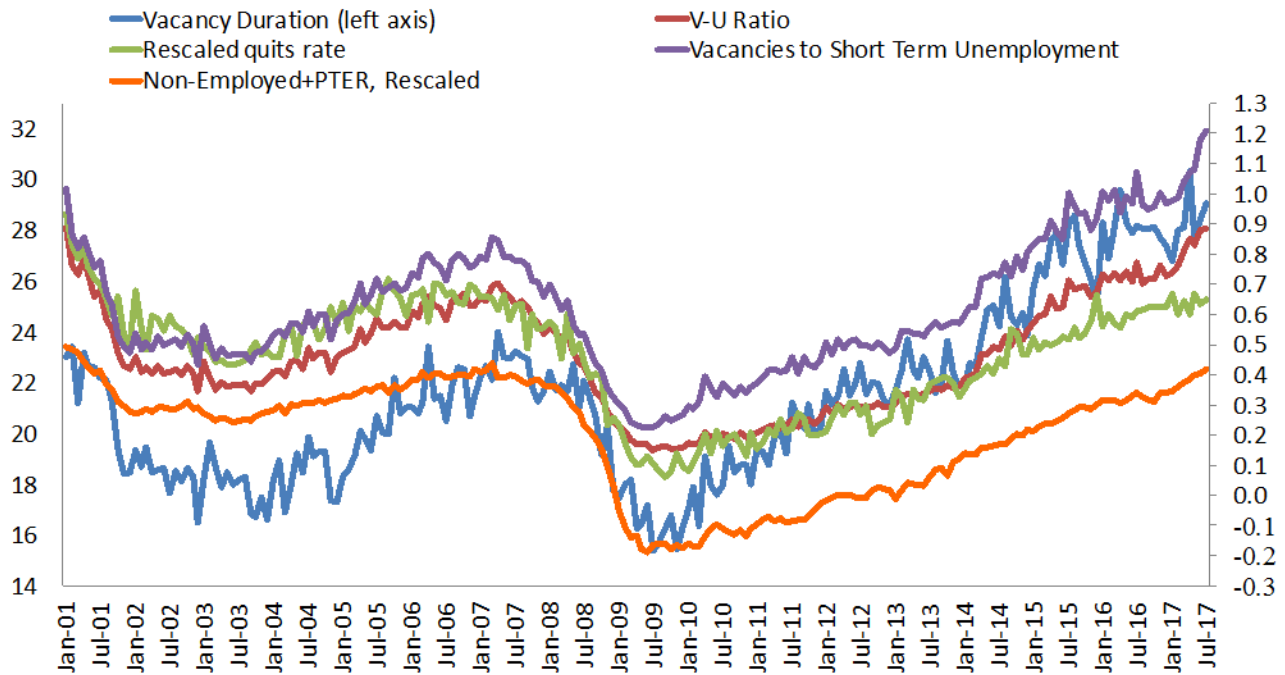
Figure III.2 displays four other indicators of labor market slack alongside the mean vacancy duration. All five measures show a pronounced tightening of U.S. labor markets since 2009 and a modest rise from June to July 2017. Three of the measures – mean vacancy duration, the vacancy-unemployment ratio, and the ratio of vacancies to the number of persons unemployed for 26 weeks or less – 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 2001 to July 2017



The **DHI-DFH Recruiting Intensity Index**, plotted in Figure III.3, was 1.05 in July, up from 1.04 in June. Tables III.1 and III.2 below report industry-level statistics for mean vacancy duration and recruiting intensity per vacancy

Figure III.2. National Labor Market Slackness Measures, January 2001 to July 2017



Notes: Short Term Unemployment is the number of persons unemployed 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 working part time for economic reasons who would prefer full-time work full. 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.

Figure III.3. DHI-DFH Index of Recruiting Intensity per Vacancy, January 2001 to July 2017

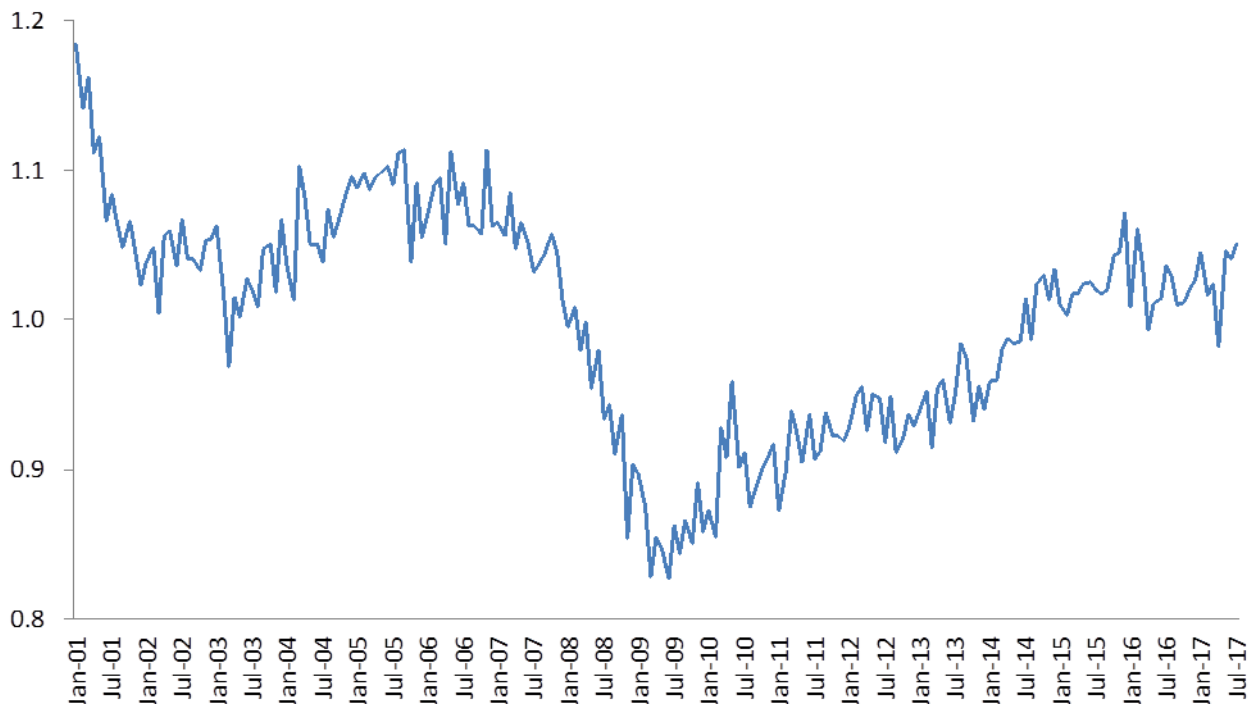


Table III.1. DHI-DFH Measure of Mean Vacancy Duration by Industry and Time Period, No. of Working Days,

January 2001 to July 2017

	2001 to 2003	2004 to 2006	2008	2009	2010 to 2012	2013	2014	2015	2016	Jan.-Jul. 2017
Resources	12.0	14.0	18.1	13.5	18.7	17.5	22.5	17.5	13.0	17.9
Construction	7.9	8.8	7.3	4.3	6.1	9.5	10.9	11.4	14.9	12.7
Manufacturing	17.4	20.9	21.6	13.8	23.4	28.4	29.2	30.4	32.1	30.7
Wholesale and Retail Trade	14.2	15.8	15.5	13.1	15.9	19.8	18.6	21.0	24.1	24.6
Warehouse, Trans. & Utilities	18.6	17.0	20.6	11.3	18.2	22.5	23.9	29.1	27.3	24.9
Information	25.8	36.0	34.5	23.4	40.9	36.4	36.8	35.6	29.1	33.0
Financial Services	28.0	32.1	27.6	25.7	33.4	36.1	37.1	43.2	44.7	44.7
Professional and Business Services	18.3	19.9	21.3	16.6	18.8	19.6	22.0	27.0	26.3	25.2
Education	21.3	25.0	22.0	18.5	21.1	23.7	26.6	29.9	28.9	29.3
Health Services	39.1	35.8	36.4	29.8	33.5	34.6	38.4	44.6	47.7	49.0
Leisure and Hospitality	13.7	14.8	14.9	10.4	13.3	16.6	19.3	19.6	19.7	20.7
Other Services	22.5	18.6	25.2	16.9	18.9	20.1	21.0	22.2	30.1	31.2
Government	33.2	30.7	35.7	32.2	33.0	35.9	37.7	37.8	37.8	40.9
Non-Farm	19.3	20.0	21.1	16.6	20.0	22.5	24.1	26.9	28.0	28.3

Table III.2. DHI-DFH Recruiting Intensity Index by Industry and Time Period,

January 2001 to July 2017

	2001 to 2003	2004 to 2006	2008	2009	2010 to 2012	2013	2014	2015	2016	Jan.-Jul. 2017
Resources	0.99	1.06	1.05	0.70	1.00	0.98	1.04	0.89	1.03	1.28
Construction	1.07	1.04	0.89	0.90	1.01	0.94	0.89	0.88	0.87	0.92
Manufacturing	1.02	1.09	0.95	0.85	0.94	0.88	0.92	0.93	0.96	1.07
Wholesale and Retail Trade	1.05	1.10	0.96	0.84	0.89	0.94	1.04	1.04	1.00	0.98
Warehouse, Trans. & Utilities	0.96	1.13	0.94	0.92	0.96	1.01	1.11	1.12	1.09	1.06
Information	1.10	1.08	0.87	0.83	0.91	1.06	1.11	1.16	1.12	1.08
Financial Services	1.06	1.09	0.99	0.84	0.87	0.99	0.95	0.95	0.92	0.96
Professional and Business Services	1.08	1.07	0.90	0.83	0.94	0.96	1.00	1.01	1.03	1.02
Education	1.00	0.99	1.04	0.96	0.99	0.95	1.00	1.07	1.07	1.04
Health Services	1.08	1.04	1.01	0.93	0.89	0.92	0.97	1.01	1.00	1.02
Leisure and Hospitality	1.08	1.08	0.97	0.84	0.88	0.92	0.96	1.01	1.01	0.99
Other Services	1.02	1.07	0.94	0.96	0.95	0.98	0.96	1.04	0.93	1.07
Government	1.05	1.05	0.94	0.87	0.93	0.93	0.99	1.10	1.13	1.06
Non-Farm	1.05	1.08	0.95	0.86	0.92	0.95	1.00	1.03	1.02	1.03



#### **IV. About the DHI Hiring Indicators**

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.



The **Skill-Level Slackness Measures** use the daily flow of applications per posting to analyze relative labor market tightness. These measures recognize that job characteristics, such as skill requirements, affect the applications received by each posting, and control for this by grouping vacancies based on the first skill mentioned in the job description. Rising (falling) values for this measure for a particular skill indicate that average daily application flows have increased (decreased), and hence, that labor market tightness fell (rose) for postings that require the skill. For more information about the DHI Vacancy and Application Flow Database and the skill-level tightness measures, see “Application Flows” by Steven J. Davis and Brenda Samaniego de la Parra.

### **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.

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