

**LABOR SHORTAGES, NEEDS AND RELATED  
ISSUES IN SMALL AND LARGE BUSINESSES**

**Part A: Labor Shortages in Small Firms**

**Final Report**

Presented to the  
Office of Advocacy,  
U.S. Small Business Administration

By

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November 2, 1999

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## Executive Summary

The expansion of the U.S. economy through most of the present decade has given rise to interest in the issue of labor shortages faced by firms and their response to those shortages. Firms could respond by raising wages or resort to other incentive schemes to retain existing employees and reduce worker turnover. That would be an early sign of inflationary pressures. Alternatively, firms could increase their investment in worker training and/or new capital and technology. They could also increase their use of contingent workers or outsource more production to foreign locations. These reactions would bode well for keeping the lid on inflationary pressures. But if firms' profits are being squeezed, they might plan to cut back on their current level of output or curtail their expansion plans. That would be an early indicator of an economic slowdown. Thus, the nature of the response of firms to labor shortages constitutes important input to policy makers.

This paper analyzes the issue of labor shortages from the perspective of small firms with less than 100 employees. These firms represent 98 percent of all firms in the economy. Focusing on small firms is of interest also because they might have less room to maneuver in response to labor shortages than large firms. For example, outsourcing production abroad or investing in worker training may not be as feasible for small firms as it is for large firms. Small firms may also not be as flexible as large firms in their ability to adjust their work force by dipping into the pool of contingent workers. Finally, it could be that small firms are the first to feel the pressures from higher wages and lower profits caused by labor shortages. The analysis is based on a newly available data set derived from an NFIB survey of firms with less than 100 employees. A companion report presents new evidence on the employment of contingent workers in firms of different sizes.

The sample of firms with less than 100 employees is divided into six size groups based on the number of employees as follows: 1-4, 5-9, 10-14, 15-24, 25-49, and 50-99 employees. Within this range, larger small firms are found to be more likely to be seeking new hires but the degree of hiring difficulty is pervasive and shows no pattern by firm size. Regardless of the firm-size category examined, over 60 percent of firms that were looking to hire workers are found to have encountered some form of hiring difficulty. A review of historical trends shows that the extent of hiring difficulties faced by firms during the past year is at an historical high. Since the current economic expansion shows no signs of abating, it is possible that the proportion of small firms reporting hiring difficulties may reach new heights.

A review of the evidence on skills sought by firms shows that most firms, whether or not they had hiring difficulties, were attempting to fill entry-level jobs. Demand for workers with relatively little experience and education exceeds the demand for those with experience or a college education. This contrasts with the trend in the previous decade when the demand for workers with higher education led to noticeable increases in income inequality. Still, job-specific technical skills and computer skills remain in demand and both are named as being among the leading causes of hiring difficulties. Other factors that receive frequent mentions as the cause of hiring difficulties are the desire of firms to hire workers without substance abuse problems and

without a history of poor work habits. Firms also appear to be struggling to find workers with adequate abilities in English and/or mathematics.

Most firms that faced hiring difficulties felt some impact on their business. The majority of these firms also report negative consequences with respect to several performance criteria. The most frequently cited effects of hiring difficulties are employee morale and employee productivity. Of the universe of firms with less than 100 employees, it is estimated that over one-quarter were affected to some extent by labor shortages in the past year. Since firms with less than 100 employees make up 98 percent of all firms in the economy, these estimates of the impact of hiring difficulties are approximately true of the entire population of firms.

The most common recruitment practice among the firms in the NFIB survey sample is the use of word-of-mouth contacts. Most firms that had trouble hiring responded to their difficulties by increasing their use of this practice. The use of the Internet as a recruiting tool is not yet commonplace among firms with less than 100 employee although it does increase with firm size and one-half of firms with 50-99 employees are found to make use of it. Many firms also report increasing their use of the Internet in response to hiring difficulties. On the whole, the smaller firms are found to have been more aggressive with respect to intensifying the use of recruitment techniques in response to hiring difficulties.

A majority of firms that had trouble hiring – 53 percent– raised the wage they originally offered to new hires. Allowing for the fact that not all firms were in the market for new hires and that not all firms looking to hire faced difficulties, this means that 16 percent of the universe of firms with less than 100 employees raised their wages in response to labor shortages. The proportion of firms planning to raise benefits is about one-half this proportion. Many firms also report that they planned to increase the time allotted for the training of workers. Unfortunately, it is not possible to lend historical perspective to these statistics because of the seminal nature of the NFIB survey. The size of the wage or benefit increases firms offered in response to hiring difficulties is also not known from the NFIB survey.

An examination of the characteristics of firms reveals only minor differences across firms that had trouble hiring and those that had no trouble hiring. While firms that had no trouble hiring are found to be somewhat more likely to offer higher wages and benefits, hiring difficulties are clearly not the province of low-wage firms. However, it is found to be the case that low-wage firms are more likely to have hired someone less qualified than desired and are also less satisfied with their workforce. Finally, firms that had hiring difficulties report experiencing an increase in competition in a higher proportion than other firms. These firms are also more likely to have upgraded their technology in the recent past.

# **Labor Shortages, Needs and Related Issues in Small and Large Businesses**

## **Part A: Labor Shortages in Small Firms**

### **Final Report**

#### **1. Introduction**

The current economic expansion in the U.S. is distinguished not only by its length but also by its remarkable combination of high employment and low inflation. The rate of unemployment, which peaked this decade at 7.5 percent in 1992, has been less than six percent for many years and currently stands at under five percent. Most economists believed that this rate of unemployment could not be sustained without acceleration in the rate of inflation. However, inflation as measured by the Consumer Price Index has actually held steady at the low rate of three percent or less for the past several years. While the Federal Reserve Board took action to raise short-term interest rates by modest amounts in June 1999 and August 1999 those are primarily regarded as preemptive measures designed to keep the economy on its present course.

These economic developments have shifted the focus of interest from the worker to the firm. Instead of wondering whether workers are having a hard time finding jobs, analysts are more interested in the question whether firms are having trouble in finding workers and, if so, how they plan to respond to labor shortages.<sup>1</sup> Firms could invest more in worker training and

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<sup>1</sup> This issue has also been the subject of attention in the mainstream press in recent years. For example, see "For Many Small Businesses, the Labor Pool is Shallow," The New York Times, August 24, 1997; "Workers Move Into

new capital and technology. They could also make greater use of “contingent” workers or outsource production to foreign locations. All of these reactions would bode well for maintaining a low rate of inflation. However, plans by firms to offer higher wages or use other incentive schemes to retain existing employees and reduce worker turnover would be an early sign of inflationary pressures. Finally, if firms’ profits are being squeezed and they plan to cut back on their current level of output or curtail their expansion plans, that could be an early indicator of an economic slowdown. All of these indicators would constitute important input to policy makers.

Labor shortages also have potential implications for economic inequality. The growth of income inequality and the increasing returns to schooling in the U.S. over the past 15 years are well-documented phenomena. Knowing which skills or levels of education remain in demand during the present expansion can help policy makers understand the future course of inequality. Inequality, and inflationary pressures, could also be exacerbated if, in response to high worker turnover, firms actually reduce worker training during a time of labor shortages.

This report analyzes the issue of labor shortages and the response to such shortages by small firms in the U.S. economy. In particular, the focus is on firms with fewer than 100 employees. These firms represent 98 percent of all firms with employees and account for 38 percent of employment.<sup>2</sup> The focus on small firms is of interest because one would expect that

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the Driver’s Seat,” The Washington Post, July 16, 1998; and “Growth of Wages in U.S. Speeds Up,” The Washington Post, July 31, 1998.

<sup>2</sup> These statistics are for 1996 and were derived from data available at the Web site of the Office of Advocacy, U.S. Small Business Administration (<http://www.sba.gov/advo/stats>).

small firms have less room to maneuver in response to labor shortages than large firms. In part, small firms might be less able to adjust their work force by dipping into the pool of contingent workers. Options such as outsourcing production abroad or investing in worker training may not be realistic for small firms. It is also possible that small firms are the first to feel the pressures from higher wages and lower profits resulting from labor shortages. This report addresses these and related questions.<sup>3</sup>

The main source of data for this report is the Skills Deficit Survey conducted by the National Federation of Independent Business (NFIB) in September 1998. The data from this survey, and supplementary data from other sources, are described in more detail in Section 2 below. Section 3 presents the principal findings from these data regarding labor shortages faced by small firms and their response to those shortages. The effects of the shortages on the firms' profitability, productivity, etc. are also documented in this section. Section 4 concludes the paper. Appendix A contains tables that supplement the discussion in Section 3. Appendix B presents evidence on labor shortages by industry.

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<sup>3</sup> A companion report, titled "Contingent Workers in Small and Large Firms," details the use of contingent workers in small and large firms. The employment of contingent workers in the U.S. economy was the subject of surveys conducted by the U.S. Bureau of the Census in 1995 and 1997. However, little is known about their employment in small firms relative to large firms. The companion report fills that gap in the literature.



## 2. Data Sources and Sample Characteristics

The key data source for this research is the Skills Deficit Survey conducted by National Federation of Independent Business (NFIB) in September 1998. The purpose of the survey was to investigate the extent to which small firms are having hiring difficulties, the effect of those problems on the performance of firms, and their response to the hiring difficulties. The sample for this survey was picked from the Dun and Bradstreet files and consisted of firms with less than 100 employees. The sample is not restricted to NFIB members and is national in scope. NFIB obtained 752 responses to this survey.<sup>4</sup> The sample is stratified, with one-half of the respondents being firms with 1-9 employees and the remaining one-half being firms with 10-99 employees.

Table 1 below shows the distribution of firms in the sample by their employment size. The unweighted count of firms by employment size shows the actual number of firms in the NFIB sample. As shown in the corresponding percentage distribution, 50 percent of the firms are of size 1-9 employees and the remaining 50 percent are firms with 10 to 99 employees. Because the sample is stratified, the firm-size distribution of the sample does not match the population distribution.<sup>5</sup> Therefore, it is necessary to assign weights to firms in the NFIB sample before deriving estimates that purport to speak for the population of firms with less than 100 employees.

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<sup>4</sup> The survey was conducted by telephone. Calls were made until 752 responses had been obtained. The response rate is not known.

<sup>5</sup> A comparison between the sample and population distributions is presented in Appendix A, Table A1. It can be seen that in the actual population of firms with less than 100 employees, 77 percent of firms have nine or fewer employees while only 23 percent have 10 or more employees.

**Table 1**  
**Sample Distribution by Firm Size**

<b>Firm Size (No. of Employees)</b>	<b><u>Number of Firms</u></b>		<b><u>Percentage Distribution</u></b>	
	<b>Unweighted</b>	<b>Weighted</b>	<b>Unweighted</b>	<b>Weighted</b>
1-4	266	420	35%	56%
5-9	109	161	15%	21%
10-14	103	61	14%	8%
15-24	100	49	13%	7%
25-49	111	39	15%	5%
50-99	63	22	8%	3%
Total	752	752	100%	100%

Source: Joel Popkin and Company tabulations from the NFIB Skills Deficit Survey.

The weights used were derived from the percentage distributions of firms in the sample and the population as shown in Table A1 of Appendix A. Each firm in a given size class was assigned a weight equal to the ratio of the proportion of firms in that size class in the population to the proportion of firms in that size class in the NFIB sample.<sup>6</sup> Table 1 shows the weighted number of firms by employment size in the NFIB sample. The weighted distribution of firms by employment size now resembles that of the population. Unless otherwise noted, all statistics derived from the NFIB survey for this analysis are based on weighted tabulations.

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<sup>6</sup> For example, using the data in Table A1 of Appendix A, each firm with four or less employees was assigned a weight of 1.58 (= 0.559/0.354). Similarly, each firm in the size category 10-19 employees was assigned a weight of 0.59 (= 0.126/0.213). This weighting procedure scaled the number of observations within a firm-size category up or down as appropriate without changing the overall count of the sample. Note that the weighting procedure does not have any effect on the statistics that might be tabulated for any individual firm-size category. However, any statistics reported for all firms combined will depend on whether or not weights are used.

The analysis of the NFIB Skills Deficit Survey is supplemented with the analysis of Current Population Survey (CPS) data from several different points in time.<sup>7</sup> The March CPS contains a question regarding the size of the firm for which the respondent worked during the previous year.<sup>8</sup> Data from the March 1998 CPS were used to tabulate selected characteristics of workers in small and large firms in 1997 and contrasted with the types of skills that small firms are seeking in new hires as revealed by the Skills Deficit Survey. The March 1998 CPS yielded 54,872 observations,<sup>9</sup> of which 18,854 workers, or 34 percent of workers in the CPS sample, were employed in firms with fewer than 100 employees.<sup>10</sup>

Other comparisons with the NFIB sample were based on tabulations from a database on computer use by employees in small and large firms. This database was formed by the merger of CPS data for January, March and April 1991 and contains 20,096 observations of which 6,562, or 33 percent, are employed in firms with fewer than 100 employees.<sup>11</sup> For the purposes of the present project, the results from the Skills Deficit Survey are contrasted with tabulations from the CPS-derived data base on the employment of computer use and mathematical and English-language skills in small firms.

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<sup>7</sup> The CPS is a survey of approximately 60,000 households conducted on a monthly basis by the U.S. Bureau of the Census.

<sup>8</sup> For persons who held more than one job in the preceding year, the question pertains to the firm with which their job duration was the longest.

<sup>9</sup> Individuals of less than 16 years of age, those who were not employed at the time of the CPS interview, and those who were members of the armed forces or worked as private household workers were excluded from the sample.

<sup>10</sup> SBA data for 1996 indicate that 38 percent of workers are employed in firms with less than 100 employees.

<sup>11</sup> For details on these data see Joel Popkin and Company, "The Effect of Computer Use on the Earnings of Workers by Firm Size," NTIS Publication No. PB95-239984. The research underlying the paper was sponsored by SBA under Contract No. SBA-8033-OA-93.

A final note regarding the data is that, unlike the tabulations from the NFIB survey, no weights are used in the preparation of tabulations from the CPS data. That is because the stratification in the CPS data is unrelated to firm size. Joel Popkin and Company's past experiences with CPS data indicate that using sample weights in the CPS data makes no difference to results regarding firms of different size.

### **3. Labor Shortages in Small Firms**

This section discusses the issue of labor shortages faced by small firms based on tabulations from the NFIB survey data. All tabulations use the following firm size categories: 1-4 employees, 5-9 employees, 10-14 employees, 15-24 employees, 25-49 employees, and 50-99 employees. Tabulations were also prepared using the following major industry groups: goods, trade, and services. However, those tabulations are presented in Appendix B. It is sufficient to mention here that no pattern of note emerged with respect to labor shortages by industry.<sup>12</sup>

#### *3.1. The Extent of Hiring Difficulties*

The NFIB survey asked two questions to determine whether or not firms were facing problems in hiring workers. Both questions were asked of firms who had one or more job vacancies in the 12 months preceding the survey. The first question was phrased as follows: "Did

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<sup>12</sup> An analysis of this issue by region was not possible because a firm's location was not recorded in the NFIB survey.

you have to fill one or more of those vacancies with applicants who had less experience, education or job skills than originally desired?” The second question was: “Was one or more of your job vacancies open for one month or longer?” In this report, a firm is defined to be facing labor shortages if it answered yes to either of these two questions.<sup>13</sup>

Table 2 below shows the number of firms who were looking to hire workers during the 12 months ending September 1998 and the number that reported some form of hiring difficulty. The second column in the table shows the number of firms by employment size in the NFIB survey. These are weighted totals computed as described in Section 2 above.<sup>14</sup> The proportion of firms looking to hire workers clearly increases with firm size. The fourth column in Table 2 shows that while 91 percent of firms with 50-99 employees were looking to hire, the same was true of only 29 percent of firms with 1-4 employees. There also appears to be a discontinuity between the smallest two firm size categories. The percentage of firms looking to hire jumps from 29 percent in the size group 1-4 employees to 63 percent in the size group 5-9 employees. The increase in the proportion of firms seeking new hires is more gradual thereafter.<sup>15</sup>

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<sup>13</sup> Note that the survey did not inquire either about the characteristics of individual vacancies or the number of vacancies a firm was seeking to fill. Thus it is not possible to determine, for example, the number of job openings firms were trying to fill or the proportion of job openings requiring a college degree.

<sup>14</sup> Table A2 in Appendix A presents the same statistics as Table 2 but without the use of weights. The advantage of the unweighted tabulations is that they show the actual number of observations on firms that had trouble hiring by firm size. These are the numbers of observation that underlie the computations in most of the tables discussed in this section.

<sup>15</sup> These data do not necessarily indicate that the ongoing increase in employment in the U.S. economy is fueled by larger firms. Hiring plans as captured in the NFIB survey are only indicative of gross hiring plans. Also, as previously noted, the survey does not indicate the number of workers firms were planning to hire. It could be that larger firms have been faced with higher rates of labor turnover during the current expansion.

**Table 2**  
**Firms Reporting Hiring Difficulties in NFIB Survey**  
**Weighted Totals**

<b>Firm Size (# of Emp.)</b>	<b># of Firms</b>	<b>Firms Hiring #</b>	<b>Firms Hiring Percent**</b>	<b>Firms Hiring Someone Less Qualified Percent*</b>	<b>Vacancy Open One Month or More Percent*</b>	<b>Firms That Had Some Trouble Hiring Percent*</b>	<b>Firms That Had Some Trouble Hiring Percent**</b>
1-4	420	120	29%	48%	43%	62%	18%
5-9	161	102	63%	49%	39%	61%	39%
10-14	61	48	79%	54%	29%	63%	49%
15-24	49	40	82%	58%	43%	68%	55%
25-49	39	35	90%	46%	40%	63%	56%
50-99	22	20	91%	50%	45%	65%	59%
Total	752	365	49%	50%	40%	63%	30%

\*Computed as percent of firms looking to hire.

\*\*Computed as percent of all firms.

While the proportion of firms seeking new hires increases with firm size, the degree of difficulty encountered by these firms shows no pattern by firm size. On average, 50 percent of all firms looking to hire report that they had to hire someone less qualified than originally desired. There is little variation around this average across firm size groups. The same is true with respect to the proportion of firms who had at least one vacancy open one month or more. The overall average is 40 percent of all firms that were looking to hire and this does not vary much by firm size.<sup>16</sup> The proportion of firms that encountered at least one of these two difficulties is virtually constant across firms of different size. As the second to last column in Table 2 shows, the percentage of firms that had some trouble hiring is close to the overall average of 63 percent in all firm size categories.<sup>17</sup> This indicates that hiring difficulties are pervasive within the universe of firms.

<sup>16</sup> The majority of firms (55 percent) with vacancies open one month or more had only one such vacancy. Of the remaining, 28 percent had two vacancies open one month or more and 17 percent had three or more such vacancies. Not surprisingly, larger firms were more likely than average to have two or more vacancies open one month or more, while smaller firms were more likely than average to have only one vacancy open for over a month.

<sup>17</sup> A similar constancy is observed when firms are split into major industry groups (see Appendix B.)

The last column in Table 2 shows the percentage of all firms (whether or not they were looking to hire) who reported having some trouble hiring. This proportion increases with firm size simply because the proportion of firms seeking new hires increases with firm size. On average, the NFIB survey indicates that 30 percent of all firms with less than 100 employees confronted some form of hiring difficulty in the 1997-1998 time period. The data in Table 3 below, derived from NFIB's monthly Small Business Economic Survey, lend some historical perspective to this statistic. Table 3 shows the percentage of NFIB members who report having job openings they are unable to fill right now.<sup>18</sup> This notion of hiring difficulty is different from that used in this report but the trends revealed by the monthly NFIB data in Table 3 are of interest. The historic low was reached in the recession of 1982 when only 9 percent of NFIB members had difficulty filling job openings right away. The current time period represents a historic high as 29 percent of NFIB members reported having trouble filling job openings right away in 1997 and 1998. Over the entire period 1975-1998, an average of 19 percent of NFIB members is estimated to face hiring difficulties. Thus, the fact that 30 percent of firms in the Skills Deficit Survey report having hiring difficulties at the present time is quite significant by historical standards.

The data in Table 3 are reproduced in graphical form in Figure 1. The trend in the NFIB data on job openings is contrasted with the annual percentage change in real GDP. It is clear from the figure that periods of recession cause hiring difficulties to melt away, but periods of

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<sup>18</sup> These data are collected on a monthly basis by NFIB via a survey of its members. The specific question that is asked is as follows: "Do you have any job openings that you are not able to fill right now?"

**Table 3**  
**NFIB Members With Unfilled Job Openings**

<b>Year</b>	<b>Percentage of Firms With Job Openings Unable to Fill Right Now</b>
1975	16
1976	21
1977	21
1978	25
1979	23
1980	14
1981	15
1982	9
1983	12
1984	15
1985	16
1986	16
1987	20
1988	20
1989	23
1990	19
1991	15
1992	16
1993	16
1994	22
1995	25
1996	25
1997	29
1998	29

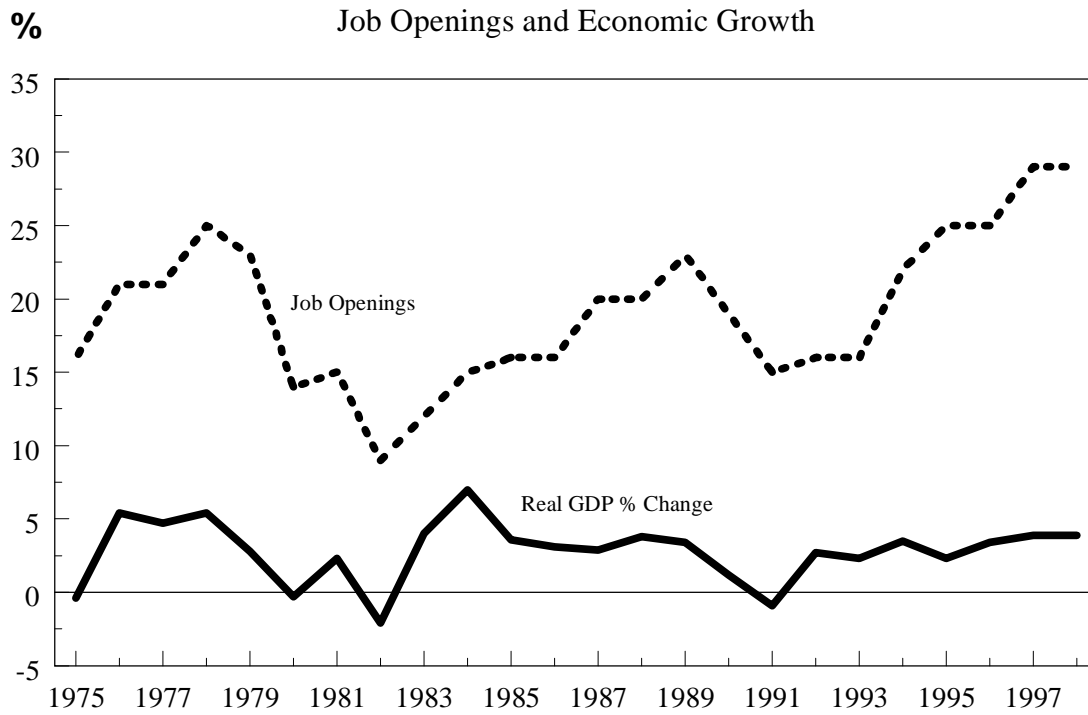
Note: The data are for the month of July in each year and are derived from a monthly survey of NFIB members.

Source: NFIB.



Figure 1

Job Openings and Economic Growth



Note: Job Openings is defined as the percentage of firms with job openings they were unable to fill right now.

Source: NFIB and Bureau of Economic Analysis.

steady growth in GDP are associated with ever increasing difficulties in hiring. This is evident during the 1983 to 1989 and 1992 to 1998 time periods. Since the current expansion appears to have no end in sight, the proportion of small firms reporting hiring difficulties may well scale new heights.

### *3.2. Skills Sought by Firms That Had Hiring Difficulties*

Tables 4 and 5 present a breakdown of the skills being sought by firms having trouble hiring. The entry in each cell in the table is computed as a percent of all firms of a given size that had trouble hiring. For example, it was reported above that 74 firms with 1-4 employees had trouble hiring. Of these firms, 52 firms, or 70 percent, reported that they were seeking persons with 1-2 years of job relevant experience (see Table 4). Most firms that had trouble hiring appear to be trying to fill entry-level jobs. At least 70 percent of firms within any size category report looking for persons with only 1-2 years of job experience. Similarly, except for firms with 1-4 employees, over 70 percent of firms in all other size categories are looking for persons with only a high school diploma. Other skills in relatively high demand are job-specific technical skills, a good driving record, and the ability to interact over the phone.

Somewhat surprisingly, computer skills seem to be near the bottom of the set of special skills being sought by firms that had trouble hiring. However, it should be noted that firms with fewer than 100 employees do not use computer skills at the same rate as large firms. Only 41

**Table 4**  
**Qualifications Sought by Firms That Had Trouble Hiring**

Qualification	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b>Relevant Experience</b>							
1-2 years	70%	71%	87%	79%	82%	92%	76%
3 or more years	32%	34%	39%	56%	52%	62%	40%
<b>Educational Attainment</b>							
High School Diploma	62%	74%	80%	70%	77%	77%	71%
Vocational/Technical School Degree	23%	24%	40%	30%	38%	42%	29%
Bachelor's Degree	15%	15%	17%	26%	38%	46%	20%
Graduate/Professional Degree	11%	5%	3%	15%	14%	23%	10%
<b>Special Skills</b>							
Computer Proficiency	43%	34%	37%	37%	52%	67%	41%
Driver's License/Good Driving	51%	74%	80%	56%	73%	69%	65%
<b>Record</b>							
Ability to Supervise Other Employees	41%	45%	60%	52%	55%	62%	48%
Ability to Interact Over the Phone	70%	65%	73%	68%	67%	69%	68%
Above Average Physical Strength	38%	34%	17%	22%	23%	23%	30%
Job-specific Technical Skills	62%	52%	70%	60%	67%	75%	61%

Notes: The entry in each cell is the percent of all firms of a given size that had trouble hiring seeking a particular qualification. For example, 74 firms with 1-4 employees reported having trouble hiring (see Table 2). Of this group, 52 firms, or 70%, reported they were seeking persons with 1-2 years of relevant experience.

Computer proficiency is defined as "use of personal computer beyond basic word processing and e-mail."

Firms could choose more than one qualification in response to this survey question.

percent of employees in firms with fewer than 100 employees are estimated to use computer skills on the job.<sup>19</sup> Thus, given the rate at which computer skills are actually in use, it is notable that 41 percent of firms that had trouble hiring are in search of employees with computer skills.

The data in Table 4 also indicate that the demand for more-skilled workers increases with firm size. Larger firms were more likely to be seeking persons with college education and those with 3 or more years of job-relevant experience. Larger firms are also more likely to be seeking

<sup>19</sup> For the derivation of these estimates see Joel Popkin and Company, "The Effect of Computer Use on the Earnings of Workers by Firm Size," NTIS Publication No. PB95-239984. This point is taken up further in Table 7.

workers with computer skills. How this relates to the overall make-up of the workforce in these firms is discussed at a later point in this section.

Table 5 reports on the skills possessed by workers hired by firms in the past years.<sup>20</sup> In some respects, the larger firms appear to have had greater success than the smaller firms in finding the skills they needed. Among the firms that had trouble hiring, Table 5 shows that 77 percent of firms with 50-99 employees hired persons with 1-2 years of relevant experience. This is lower than the 92 percent of firms with 50-99 employees that reported looking for workers with these qualifications (see Table 4). However, the “excess demand” for this qualification is even greater among the smaller firms. For instance, while 70 percent of firms with 1-4 employees wished to hire workers with 1-2 years experience (Table 4), only 45 percent of firms with 1-4 employees were actually able to hire someone with this level of experience. This trend is also evident with respect to the hiring of workers with 3 or more years of experience or workers with a college degree. Notably, such a trend is not present with respect to the hiring of computer-proficient workers.

Panel B of Table 5 shows the types of skills possessed by workers hired by firms that had no trouble hiring. Not surprisingly, these firms were generally more successful in acquiring workers with needed skills than firms that had trouble hiring. Especially with respect to education, firms that had no trouble hiring were able to get workers with college education at rates well above the rates at which firms that had trouble hiring were able to do so. Similarly,

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<sup>20</sup> A more detailed version of Table 5 titled Table A5 is contained in Appendix A.

**Table 5**  
**Percent of Firms Reporting Hiring Workers With Specific Qualifications**

**Panel A: Firms That Had Trouble Hiring**

Qualification	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b>Relevant Experience</b>							
1-2 years	45%	50%	70%	63%	64%	77%	55%
3 or more years	18%	16%	30%	37%	32%	54%	25%
<b>Educational Attainment</b>							
High School Diploma	45%	45%	63%	48%	64%	62%	50%
Vocational/Technical School Degree	18%	7%	17%	19%	23%	31%	16%
Bachelor's Degree	8%	10%	17%	19%	32%	39%	15%
Graduate/Professional Degree	4%	2%	3%	7%	9%	23%	5%
<b>Special Skills</b>							
Computer Proficiency	34%	24%	30%	26%	46%	54%	32%
Job-specific Technical Skills	51%	39%	57%	52%	55%	69%	50%

**Panel B: Firms That Had No Trouble Hiring**

Qualification	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b>Relevant Experience</b>							
1-2 years	54%	63%	50%	62%	54%	86%	58%
3 or more years	17%	25%	33%	39%	31%	57%	27%
<b>Educational Attainment</b>							
High School Diploma	61%	63%	72%	69%	46%	71%	63%
Vocational/Technical School Degree	28%	15%	22%	39%	15%	57%	25%
Bachelor's Degree	13%	15%	28%	39%	15%	71%	21%
Graduate/Professional Degree	4%	3%	11%	23%	15%	57%	10%
<b>Special Skills</b>							
Computer Proficiency	35%	40%	39%	54%	23%	71%	39%
Job-specific Technical Skills	65%	70%	44%	77%	54%	86%	65%

Note: The entry in each cell is the percent of all firms of a given size and category that hired a worker with a specific qualification.

Firms could report hiring workers with several different qualifications.

firms not reporting any trouble hiring were also more successful in the hiring of workers with computer skills, job-relevant experience, and job-specific technical skills.

The success firms had in hiring workers with particular skills was not necessarily achieved without difficulty. The data in Table 6(a) show the skills firms reported as being the cause of their hiring difficulties. Table 6(a) shows the percentage of firms of a given size that named a specific skill as the cause of their hiring difficulties. As reported in Table 4 above, larger firms were more likely to be seeking workers with greater job experience, college education and job-specific technical skills. It is not surprising to find, therefore, that larger firms were more likely to report these skills as the cause of their hiring difficulties. For example, of the 74 firms with 1-4 employees that had trouble hiring, 19 percent report that seeking workers with 3 or more years job experience was the reason they faced hiring difficulties. By contrast, 31 percent of firms with 50-99 employees that had trouble hiring pointed towards this qualification as the cause of their hiring difficulty. But as shown in Table 4, only 32 percent of firms with 1-4 employees were actually seeking this skill in comparison to 62 percent of firms with 50-99 employees who were also looking for this skill.

Most special skills listed in Table 6(a) appear to have been significant sources of hiring difficulties for firms of any size. The three special skills that stand out as leading causes are job-specific technical skills, lack of substance abuse, and absence of poor work habits. While the larger firms were more likely to name job-specific technical skills as a cause of hiring

**Table 6(a)**  
**Hiring Difficulties Associated with Specific Qualifications**

Qualification	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b>Relevant Experience</b>							
1-2 years	34%	45%	60%	52%	50%	46%	45%
3 or more years	19%	15%	17%	26%	27%	31%	20%
<b>Educational Attainment</b>							
High School Diploma	22%	24%	17%	11%	18%	23%	20%
Vocational/Technical School Degree	11%	10%	13%	11%	9%	23%	11%
Bachelor's Degree	3%	7%	7%	7%	23%	8%	7%
Graduate/Professional Degree	4%	2%	0%	4%	9%	15%	4%
<b>Special Skills</b>							
Ability to Read and Write English	37%	34%	30%	30%	32%	39%	34%
Ability to Speak English	41%	40%	27%	37%	27%	39%	37%
Computer Proficiency	28%	16%	13%	15%	18%	31%	21%
Job-specific Technical Skills	41%	47%	43%	56%	55%	54%	47%
Ability to Conduct Basic Mathematical Operations	45%	39%	33%	41%	32%	46%	40%
Ability to Work Well With Other Employees	43%	47%	37%	37%	41%	31%	42%
Without Substance Abuse Problems	58%	55%	60%	56%	64%	54%	58%
Without a History of Poor Work Habits	69%	60%	53%	59%	50%	46%	60%

Note: The entry in each cell is the percent of all firms of a given size that had trouble hiring that named a certain qualification as the cause of the hiring difficulty. For example, 74 firms of size 1-4 had some trouble hiring (see Table 2). Of this number, 25 firms, or 33.8%, named the need for workers with 1-2 years relevant experience as the cause of the hiring difficulty.

difficulties, this skill was also named by over 40 percent of firms with fewer than 15 employees.

With respect to work habits, an average of 60 percent of firms that had trouble hiring pointed towards it as an underlying cause of hiring difficulties.

Notably, the smallest firms were much more likely to report this as a problem than firms with 25 or more employees. The difficulties caused by poor work habits are nearly matched by the problems confronted by firms searching for workers without a history of substance abuse. Over 50 percent of firms in any size category reported having difficulties finding workers without substance abuse problems.

**Table 6(b)**  
**Hiring Difficulties Faced by Firms Seeking Specific Qualifications**

Qualification	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<i>Relevant Experience</i>							
1-2 years	48%	64%	69%	64%	61%	50%	59%
3 or more years	58%	43%	42%	47%	55%	50%	49%
<i>Educational Attainment</i>							
High School Diploma	35%	33%	21%	16%	24%	30%	28%
Vocational/Technical School Degree	47%	40%	33%	38%	25%	60%	40%
Bachelor's Degree	18%	44%	40%	29%	63%	17%	35%
Graduate/Professional Degree	38%	33%	0%	25%	67%	67%	41%
<i>Special Skills</i>							
Computer Proficiency	66%	48%	36%	40%	36%	50%	51%
Job-specific Technical Skills	65%	91%	62%	94%	86%	78%	77%

Note: The entry in each cell is the percentage of firms of a given size seeking a particular skill that named that skill as the cause of their hiring difficulty.

Table 6(b) presents an alternative perspective on this issue. The cell entries in this panel are the percentage of firms seeking a particular skill that named that skill as the cause of their hiring difficulty.<sup>21</sup> Expressed in this fashion, no clear-cut pattern by firm size emerges from the data. The smallest firms (those with 1-4 employees) faced the most trouble in hiring workers with computer skills or 3 or more years of job experience. Similarly, the largest firms (those with 50-99 employees) had the most trouble in hiring workers with vocational degrees or post-graduate education. Job-specific technical skills stand out as the leading cause of hiring difficulties. Among all the firms seeking this particular qualification, 77 percent named it as the cause of their hiring difficulty. Other leading causes were computer skills and job-relevant experience.

<sup>21</sup> Each cell entry in Table 6(b) is a ratio of the corresponding cell entry in Table 6(a) to the entry in Table 4. Note that this exercise could not be conducted for skills reported on in Table 6(a) but not in Table 4.



Because of the design of the NFIB survey, not all skills that were identified as the cause of hiring difficulties could be related to firms seeking those skills. In particular, firms were not asked whether or not they were seeking the following skills (even though they could name them as the cause of their hiring difficulty): ability to read and write English; ability to speak English; ability to conduct basic mathematical operations; ability to work well with others; without substance abuse problems; and without a history of poor work habits. While we do not know what proportions of firms were actually looking for these skills, the data do suggest that these qualifications were an important source of hiring difficulties. As noted above, two standouts in this respect are the desire by firms to hire workers without substance abuse problems and without a history of poor work habits. The difficulty associated with these two qualifications and English and math skills also does not appear to vary by firm size.

Table 7 shows selected characteristics of *workers* in firms of different size. Derived from CPS data, the table shows that the vast majority of workers in firms with less than 100 employees have 3 years or more of general labor market experience. While overall labor market experience need not be the same as experience directly related to the job a worker currently holds, it is of interest to contrast it with the job-relevant experience sought by firms over the past year. As shown in Table 4, 76 percent of firms that had trouble hiring were seeking workers with 1-2 years of job-relevant experience. In Table 5, it was reported that 58 percent of firms that had no trouble hiring hired workers with 1-2 years of job-relevant experience in the previous

**Table 7**  
**Percent of Workers With Specific Qualifications in Firms With Less Than 100 Employees**

Qualifications	Firm Size (No. of Employees)			Total
	1-9	10-24	25-99	
<i>Labor Market Experience</i>				
0-2 years	12%	13%	9%	11%
3 years or more	88%	87%	91%	89%
<i>Educational Attainment</i>				
Less than High School	20%	21%	16%	19%
High School Diploma	35%	34%	35%	35%
Some College/Vocational Degree	28%	29%	28%	28%
Bachelor's Degree	13%	13%	15%	14%
Graduate/Professional Degree	5%	4%	6%	5%
<i>Special Skills*</i>				
Computer Use		38%	46%	41%
Mathematics		80%	79%	79%
Write Memos, Reports, etc.		59%	65%	62%
Read News and Articles		44%	47%	45%
Read Forms		67%	73%	70%
Read Letters		53%	57%	54%
Read Diagrams, Blueprints, etc.		37%	42%	39%
Read Instruction Manuals		60%	65%	62%

\*Firm size categories are <25 and 25-99 employees.

Note: Labor market experience is computed as Age-Years of Schooling-6

Source: Tabulations prepared from March 1998 CPS data and a CPS-derived database on computer use by firm size (see Section 2 of the text for details).

year. This contrasts with the fact that only 11 percent of workers in firms with fewer than 100 employees had 2 years or less of overall labor market experience. This bolsters the opinion expressed earlier that most firms – whether or not they had trouble hiring – were interested in filling entry-level jobs.

Evidence on the education level of workers shows that the demand for workers with high school diplomas might also be in excess of the rate at which they are currently hired by firms

with fewer than 100 employees. These workers currently make up 35 percent of the workforce in firms with less than 100 employees (Table 7). However, 71 percent of firms that had trouble hiring were seeking workers with high school diplomas and 63 percent of firms that had no trouble hiring hired such workers (see Tables 4 and 5). The rate at which firms are hiring or seeking to hire workers with a bachelor's degree or a post-graduate degree seems consistent with the proportions at which these workers are currently hired in firms with less than 100 employees. With respect to special skills, it was previously noted that the demand for computer skills is consistent with the employment of workers with computer skills. Overall, the relatively greater demand for workers to fill entry-level jobs is a reversal of the trend in the previous decade when the demand for workers with higher education led to noticeable increases in income inequality.

### *3.3. The Impact of Hiring Difficulties on Firm Performance and Recruitment Policy*

The NFIB survey asked firms which had trouble hiring to give an assessment of the impact it had on their performance. The data collected in response to this question reflects the subjective assessment of the respondent firms. Firms could respond that the hiring difficulty had no impact, small impact, moderate impact or serious impact on their business with respect to any of several indicators. The performance indicators are as follows: sales revenue, profitability, product or service quality, introduction of new products and services, hours of operation and growth, employee morale, employee productivity, and employee turnover.

Table 8(a) shows the impact of hiring difficulties on the performance of firms that had trouble hiring. The biggest impact of hiring difficulties was on employee morale and productivity. Slightly over 40 percent of firms that had hiring difficulties reported a moderate to serious impact on employee morale and 42 percent reported a similar impact on employee productivity. Employee productivity also appears to have suffered more at firms with 50 or more employees than at firms with fewer than 10 employees. The relatively large firms also suffered more with respect to employee turnover, but the smallest firms felt more of an impact with respect to the introduction of new products and services and hours of operation and growth. Over one-third of firms that had hiring difficulties reported moderate to serious impact on their profitability and product/service quality. Overall, anywhere from 22 percent to 42 percent of firms with hiring difficulties reported a moderate to serious impact on their business with respect to any single performance indicator.

Table 8(b) presents an alternative perspective on the impact of hiring difficulties. The table shows the distribution of firms by the number of performance indicators that were impacted by hiring difficulties. Firms that reported at least some impact on only one indicator were given a “score” of one, firms that reported at least some impact on two indicators were given a score of two, and so on. Table 8(b) shows that among the firms that had trouble hiring, only 8 percent reported no impact on any of the listed performance indicators. In other words, 92 percent of firms that had trouble hiring felt at least some impact on their business. Since 30 percent of all firms with less than 100 employees had some trouble hiring (see Table 2), this means that 28

**Table 8(a)**  
**Impact of Hiring Difficulties On Firm Performance**

<b>Performance Indicator</b>	<b>Firm Size (No. of Employees)</b>						<b>Total</b>
	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-24</b>	<b>25-49</b>	<b>50-99</b>	
<b><i>Employee Morale</i></b>							
None to Small Impact	60%	67%	48%	57%	62%	50%	59%
Moderate to Serious Impact	41%	33%	48%	43%	38%	50%	40%
<b><i>Employee Productivity</i></b>							
None to Small Impact	62%	61%	53%	50%	55%	46%	58%
Moderate to Serious Impact	38%	39%	47%	46%	46%	54%	42%
<b><i>Employee Turnover</i></b>							
None to Small Impact	76%	80%	71%	54%	64%	58%	72%
Moderate to Serious Impact	21%	18%	29%	47%	36%	42%	27%
<b><i>Product or Service Quality</i></b>							
None to Small Impact	68%	64%	66%	54%	62%	62%	64%
Moderate to Serious Impact	32%	36%	35%	46%	38%	39%	36%
<b><i>Sales Revenue</i></b>							
None to Small Impact	73%	80%	65%	56%	71%	67%	71%
Moderate to Serious Impact	27%	16%	32%	44%	29%	33%	28%
<b><i>Profitability</i></b>							
None to Small Impact	68%	69%	60%	56%	68%	67%	66%
Moderate to Serious Impact	32%	31%	40%	44%	32%	33%	34%
<b><i>Hours of Operation and Growth</i></b>							
None to Small Impact	55%	72%	67%	68%	71%	69%	65%
Moderate to Serious Impact	45%	28%	33%	32%	29%	31%	35%
<b><i>Introduction of New Products and Services</i></b>							
None to Small Impact	78%	77%	77%	70%	82%	83%	78%
Moderate to Serious Impact	22%	21%	23%	26%	18%	17%	22%

Note: The entry in each cell is the percent of firms of a given size that had trouble hiring and reported a certain level of impact on their firm. For example, 74 firms of size 1-4 had trouble hiring. Of this number, 54 firms, or 73%, reported none to small impact on sales revenue and the remainder reported moderate to serious impact.

Columns need not add to 100% due to non-responses.

**Table 8(b)**  
**Distribution of Firms by Number of Performance Indicators That Were Impacted by Hiring Difficulties**

Number of Performance Indicators	Number of Firms	Percentage of Firms
0	18	8%
1	13	6%
2	29	13%
3	22	10%
4	30	13%
5	39	17%
6	26	11%
7	24	11%
8	26	12%
Total	228	100%

Note: See Table 8(a) for a listing of the performance indicators. Firms that had no trouble hiring or were not looking to hire are excluded from this tabulation.

percent of all firms with less than 100 employees have been affected to some extent by labor shortages. Table 8(b) also shows that a little over one-half of firms that had hiring difficulties reported at least some impact on five or more performance indicators. This means that 15 percent of all firms with less than 100 employees have suffered a range of negative consequences as a result of labor shortages. Since 98 percent of the universe of firms in the U.S. economy have fewer than 100 employees, these estimates of the impact of hiring difficulties are approximately true for the universe of firms as well.

Given the prevalence of labor shortages and their impact on the performance of firms, the next question that arises is the reaction of firms to the hiring difficulties confronting them. Firms can either seek new recruits more actively or offer greater incentives to lure new employees. Table 9 shows some common recruitment practices and how firms changed their recruitment

policies in response to hiring difficulties.<sup>22</sup> The first row under each sub-heading in the table shows the percentage of all firms that had trouble hiring who indicated they used a particular recruitment technique. The second row shows the percentage of all firms that had trouble recruiting reporting an increase in the use of that practice. The third row shows the ratio of firms increasing their use of a recruitment practice to the firms that make use of that practice.

The most popular recruitment practice among firms is the use of word-of-mouth contacts. As shown in Table 9, 95 percent of firms use word-of-mouth contacts to find new employees. Nearly three-quarters of all firms, 74 percent to be precise, reported increasing the use of this practice in response to hiring difficulties. When expressed as a percentage only of firms who use this practice, 78 percent of firms are estimated to have increased their use of word-of-mouth contacts. Interestingly enough, the smallest firms were more likely to intensify their use of this practice than the relatively larger firms.

A notable feature of all other recruitment practices is that larger firms are more likely to use them. For example, the second-most popular recruitment practice is the use of advertisements in local newspapers. While only 51 percent of firms with 1-4 employees use advertisements in local newspapers, this technique is used by 92 percent of firms with 50-99 employees. On average, two-thirds of firms (67 percent) make use of this practice and 43 percent report increasing their use of advertisements. The use of the Internet is not yet commonplace but it does rank as high as the use of employment agencies or help-wanted signs. Fifty percent of

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<sup>22</sup> A more detailed version of Table 9, titled Table A9, is contained in Appendix A.

**Table 9**  
**Change in Recruitment Practices Among Firms That Had Trouble Hiring**

Recruitment Practice	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<i>Personal, Word-of-mouth Contacts</i>							
Firm does use it	96%	90%	93%	100%	96%	100%	95%
Firm did increase usage	75%	79%	67%	82%	68%	58%	74%
Ratio: Increase usage/Rate of use	78%	87%	71%	82%	71%	58%	78%
<i>Ads in Local Newspapers</i>							
Firm does use it	51%	59%	83%	81%	91%	92%	67%
Firm did increase usage	38%	28%	60%	65%	52%	46%	43%
Ratio: Increase usage/Rate of use	76%	47%	72%	81%	58%	50%	65%
<i>Ads at Local High Schools, Vocational Schools, or Colleges</i>							
Firm does use it	41%	53%	55%	44%	67%	67%	50%
Firm did increase usage	28%	33%	39%	33%	38%	42%	33%
Ratio: Increase usage/Rate of use	70%	62%	71%	75%	57%	63%	66%
<i>The Internet</i>							
Firm does use it	19%	23%	23%	25%	38%	50%	25%
Firm did increase usage	11%	18%	13%	14%	24%	33%	16%
Ratio: Increase usage/Rate of use	57%	78%	57%	57%	62%	67%	64%

Note: The entry in each cell is the percent of firms of a given size that had trouble hiring and reported the use of a specific recruitment practice. For example, 73 firms of size 1-4 that had trouble hiring responded to the query on ads in local newspapers. Of this group, 37 firms, or 51%, reported they use ads in local newspapers and 28 firms, or 38%, reported an increase in the use of ads.

firms with 50-99 employees make use of the Internet to find employees while the same is true of 19 percent of firms with 1-4 employees.

On the whole, Table 9 and Table A9 in Appendix A show that larger firms make use of a greater variety of recruitment techniques. However, in many instances, the smaller firms are found to be more likely to intensify their use of recruitment techniques. For example, 87 percent of firms with 1-4 employees that use help-wanted signs also increased their use of this practice. By comparison, only 20 percent of firms with 50-99 employees that use help-wanted signs intensified the use of this technique. Similar patterns are observed with respect to the use of newspaper advertisements, public employment offices and word-of-mouth contacts. Larger firms



were somewhat more likely to intensify their use of the Internet. On balance, the smallest firms appear to have been more aggressive in their response to labor shortages with respect to increasing their use of recruitment techniques.

In addition to or as an alternative to intensifying the search for new recruits, firms can increase the wages and benefits they originally offered to potential recruits. Table 10 shows that the majority of firms – 53 percent – that had trouble hiring raised the wage they originally offered to new hires. There is no discernible pattern by firm size. Recalling that the number of firms that had trouble hiring represent 30 percent of the universe of firms with less than 100 employees (see Table 2), the data in Table 10 indicate that 16 percent of this universe raised wages in response to labor shortages.<sup>23</sup> Unfortunately, we do not know the size of the wage increase offered by these firms from the NFIB survey.

With respect to benefits, 22 percent of firms that had trouble hiring plan to raise them. A slightly higher proportion – 27 percent – plans to change working conditions or locations. The smallest firms appear more flexible and willing to do so than the larger firms. On the other hand, larger small firms were much more likely to have increased the time allotted for the training of workers. Fifty percent of firms with 50-99 employees planned to increase the time allotted for training compared to only 23 percent of firms with 1-4 employees. Only a small fraction of firms – 13 percent – planned to offer a change in working hours.

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<sup>23</sup> This estimate is derived as  $30 \times 0.53$ .

**Table 10**  
**Change in Wages and Benefits in Firms Having Trouble Hiring**

	<b>Firm Size (No. of Employees)</b>						<b>Total</b>
	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-24</b>	<b>25-49</b>	<b>50-99</b>	
<b><i>Raised the Wages Originally Offered</i></b>							
Yes	41%	67%	61%	52%	52%	42%	53%
No	60%	31%	36%	44%	48%	58%	46%
<b><i>Raised the Benefits Originally Offered</i></b>							
Yes	15%	24%	30%	26%	27%	23%	22%
No	85%	74%	70%	74%	73%	77%	77%
<b><i>Changed Working Hours</i></b>							
Yes	12%	16%	13%	11%	10%	15%	13%
No	88%	82%	87%	89%	91%	85%	86%
<b><i>Changed Working Conditions or Location</i></b>							
Yes	28%	31%	23%	30%	18%	17%	27%
No	72%	67%	77%	70%	82%	83%	73%
<b><i>Increased Time Allotted for Training</i></b>							
Yes	23%	46%	40%	52%	32%	50%	37%
No	77%	53%	60%	48%	68%	50%	62%

Note: The entry in each cell is the percent of firms of a given size that had trouble hiring reporting whether or not they changed their wage and benefit policy.

Columns need not add to 100 due to non-responses.

### *3.4. General Characteristics of Firms*

This section discusses some general characteristics of firms with less than 100 employees as captured in the NFIB survey. A question of particular interest is whether the wage and benefit policies at firms had any effect on their hiring difficulties. A related question of interest is whether technological changes or changes in the competitive climate had any effect on the degree of hiring difficulties faced by firms. The latter question is taken up in Appendix A (see tables A13 and A14 in the appendix.)

Table 11 shows how firms that had trouble hiring and firms that had no trouble hiring rated their wage and benefits policies. All but 8 percent of firms that had trouble hiring believed that they offered market level or above market wages and salaries. Among firms that had no trouble hiring, the same was true of all but 4 percent of firms. A similar pattern holds with respect to benefits. Firms that had no trouble hiring were somewhat more likely to offer market level or above market level benefits. Thus, while firms that had no trouble hiring are shown to be more likely to offer higher wages and benefits, the contrast between their policies and that of firms that had trouble hiring is not dramatic.<sup>24</sup> Similarly small differences are observed between these two types of firms with respect to worker flexibility and independence, work environment, and advancement potential.

The data in Table 11 also reveal some well-known patterns. Larger small firms offer a higher level of benefits than the smallest firms and advancement potential is also greater in the larger small firms. On the other hand, a much greater proportion of smaller firms offer above market levels of flexibility and independence. However, no noticeable pattern emerges with respect to wages and firm size in this sample of firms with less than 100 employees.

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<sup>24</sup> The difference in the distribution of firms that had trouble hiring by their wage and benefit policies and the corresponding distribution of firms that had no trouble hiring did not prove to be statistically significant.

**Table 11**  
**Firms' Perception of Their Wage and Benefit Policies**

**Panel A: Firms That Had Trouble Hiring**

<b>Firms' Perception Regarding:</b>	<b>Firm Size (No. of Employees)</b>						<b>Total</b>
	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-24</b>	<b>25-49</b>	<b>50-99</b>	
<b><i>Wages and Salaries</i></b>							
Below Market	12%	2%	3%	11%	10%	8%	8%
Market	58%	51%	67%	68%	67%	67%	60%
Above Market	30%	46%	30%	21%	24%	25%	32%
<b><i>Benefits</i></b>							
Below Market	49%	31%	20%	19%	10%	15%	31%
Market	32%	36%	60%	48%	52%	46%	41%
Above Market	19%	29%	20%	33%	38%	39%	26%
<b><i>Flexibility and Independence</i></b>							
Below Market	4%	2%	0%	8%	5%	8%	4%
Market	32%	41%	33%	35%	38%	58%	37%
Above Market	64%	57%	67%	58%	57%	25%	59%
<b><i>Work Environment</i></b>							
Below Market	8%	2%	3%	4%	5%	0%	4%
Market	37%	46%	42%	46%	33%	50%	41%
Above Market	55%	53%	55%	50%	62%	50%	54%
<b><i>Advancement Potential</i></b>							
Below Market	34%	24%	17%	19%	14%	17%	24%
Market	49%	40%	57%	48%	55%	67%	49%
Above Market	18%	29%	27%	33%	32%	17%	25%

**Panel B: Firms That Had No Trouble Hiring**

<b>Firms' Perception Regarding:</b>	<b>Firm Size (No. of Employees)</b>						<b>Total</b>
	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-24</b>	<b>25-49</b>	<b>50-99</b>	
<b><i>Wages and Salaries</i></b>							
Below Market	4%	0%	11%	8%	7%	0%	4%
Market	68%	78%	44%	62%	64%	71%	67%
Above Market	28%	23%	39%	31%	29%	29%	28%
<b><i>Benefits</i></b>							
Below Market	40%	26%	28%	23%	8%	0%	28%
Market	45%	41%	39%	39%	42%	50%	42%
Above Market	6%	23%	28%	31%	50%	50%	23%
<b><i>Flexibility and Independence</i></b>							
Below Market	0%	3%	6%	8%	0%	13%	3%
Market	17%	33%	28%	23%	58%	38%	29%
Above Market	83%	62%	61%	69%	42%	50%	67%
<b><i>Work Environment</i></b>							
Below Market	0%	3%	0%	0%	8%	0%	2%
Market	41%	56%	33%	43%	46%	29%	45%
Above Market	59%	39%	67%	50%	46%	71%	53%
<b><i>Advancement Potential</i></b>							
Below Market	20%	23%	32%	21%	23%	14%	22%
Market	52%	68%	42%	50%	54%	43%	55%
Above Market	24%	10%	21%	21%	15%	43%	19%

Note: The entry in each cell is computed as a percent of firms within a given firm size category. Columns need not add to 100 due to non-response to some questions.

Table 12 presents an alternative perspective on the issue of wage and benefits policies and hiring difficulties. The first panel in the table presents unweighted counts of firms that were looking to hire grouped by their wage policy and type of hiring difficulty. The second panel shows the corresponding percentage distribution. The vast majority of firms that were seeking new hires believed they offered market or above market level wages. For example, of the 184 firms that had a job vacancy open one month or more, all but 14 offered market or above market wages. Similarly, of the 70 firms that hired five or more employees who were less qualified than desired, only five firms offered below market wages. Thus, hiring difficulties were clearly not the province of the low wage firms alone.

The second panel of Table 12 shows the percentage distribution of firms within a wage level and hiring difficulty category. Among the firms seeking new hires, 40 percent had job vacancies open one month or more. This proportion does not vary much across firms grouped by their wage level, although firms offering below market wages appear slightly more likely to have faced this problem than firms offering market wages. Contrary to expectation, firms offering above market wages appear to have had vacancies open for longer periods of time than the other firms. On average, 24 percent of firms had vacancies open for five or more months. However, as many as 38 percent of firms offering above market wages had vacancies open this long. Firms offering below market wages were more likely to have hired someone less qualified than desired. While 61 percent of firms offering below market wages hired persons less qualified than desired the corresponding proportion among all firms was 51 percent.

**Table 12**  
**Hiring Difficulties for Firms Grouped by Their Wage Policy**

**Panel A: Number of Firms**

	Wages Offered by Firm			Total
	Below Market	Market	Above Market	
<i>Job vacancies open one month or more?</i>				
Yes	14	112	55	184
No	19	181	77	278
<i>Number of months a vacancy was open</i>				
1-2	4	56	23	84
3-4	7	34	11	53
5 or more	2	20	21	44
<i>Hired someone less qualified than desired?</i>				
Yes	20	146	69	236
No	12	148	63	225
<i>Number of hires less qualified than desired</i>				
0-2	10	57	29	97
3-4	5	42	18	65
5 or more	5	44	21	70
<i>Satisfaction with current workforce</i>				
Not satisfied or Not too satisfied	3	16	10	29
Somewhat satisfied	18	135	59	213
Very satisfied	11	145	64	223

**Panel B: Percentage of Firms Within Wage Category**

	Wages Offered by Firm			Total
	Below Market	Market	Above Market	
<i>Job vacancies open one month or more?</i>				
Yes	42%	38%	41%	40%
No	58%	61%	58%	60%
<i>Number of months a vacancy was open</i>				
1-2	29%	50%	42%	46%
3-4	50%	30%	20%	29%
5 or more	14%	18%	38%	24%
<i>Hired someone less qualified than desired?</i>				
Yes	61%	49%	52%	51%
No	36%	50%	47%	48%
<i>Number of hires less qualified than desired</i>				
0-2	50%	39%	42%	41%
3-4	25%	29%	26%	28%
5 or more	25%	30%	30%	30%
<i>Satisfaction with current workforce</i>				
Not satisfied or Not too satisfied	9%	5%	8%	6%
Somewhat satisfied	55%	46%	44%	46%
Very satisfied	33%	49%	48%	48%

Note: The data in this table represent unweighted counts of firms looking to hire. Columns need not add to 100 due to non-response.

Low wage firms were also less satisfied with their workforce. Only 33 percent of these firms pronounced themselves to be “very satisfied,” whereas nearly 50 percent of other firms were very satisfied with their workforce.

#### **4. Conclusions**

This paper has analyzed evidence on labor shortages faced by small firms during the recent wave of expansion in the U.S. economy and their response to those shortages. The analysis was based on a new data set derived from an NFIB survey of firms with less than 100 employees. The sample of firms with less than 100 employees was divided into six size groups based on the number of employees as follows: 1-4, 5-9, 10-14, 15-24, 25-49, and 50-99 employees. Within this range, larger small firms were found to be more likely to be seeking new hires but the degree of hiring difficulty was pervasive and showed no pattern by firm size. Regardless of the firm-size category, hiring difficulties were encountered by over 60 percent of firms that were looking to hire workers. A review of historical trends showed that the extent of hiring difficulties faced by firms during the past year is at an historical high. Since the current economic expansion shows no signs of abating, it is possible that the proportion of small firms reporting hiring difficulties may reach new heights.

A review of the evidence on skills sought by firms showed that most firms, whether or not they had hiring difficulties, were attempting to fill entry-level jobs. Demand for workers with

relatively little experience and education exceeded the demand for those with experience or a college education. This contrasts with the trend in the previous decade when the demand for workers with higher education led to noticeable increases in income inequality. Still, job-specific technical skills and computer skills remain in demand and both were named as being among the leading causes of hiring difficulties. Other factors that received frequent mentions as the cause of hiring difficulties are the desire of firms to hire workers without substance abuse problems and without a history of poor work habits. Firms also appeared to be struggling to find workers with adequate abilities in English and/or mathematics.

Most firms that faced hiring difficulties felt some impact on their business. The majority of these firms also reported negative consequences with respect to several performance criteria. The most frequently cited effects of hiring difficulties were employee morale and employee productivity. Of the *universe* of firms with less than 100 employees, it was estimated that over one-quarter have been affected to some extent by labor shortages in the past year. Since firms with less than 100 employees make up 98 percent of all firms in the economy, these estimates of the impact of hiring difficulties are approximately true of the entire population of firms.

The most common recruitment practice among the firms in the NFIB survey sample is the use of word-of-mouth contacts. Most firms that had trouble hiring responded to their difficulties by increasing their use of this practice. The use of the Internet as a recruiting tool is not yet commonplace among firms with less than 100 employee although it does increase with firm size



and one-half of firms with 50-99 employees were found to make use of it. Many firms also reported increasing their use of the Internet in response to hiring difficulties. On the whole, the smaller firms were found to be more aggressive with respect to intensifying the use of recruitment techniques in response to hiring difficulties.

A majority of firms that had trouble hiring – 53 percent – raised the wage they originally offered to new hires. Allowing for the fact that not all firms were in the market for new hires and that not all firms looking to hire faced difficulties, this meant that 16 percent of the universe of firms with less than 100 employees raised their wages in response to labor shortages. The proportion of firms planning to raise benefits was about one-half this proportion. Many firms also reported that they planned to increase the time allotted for the training of workers. Unfortunately, it is not possible to lend historical perspective to these statistics because of the seminal nature of the NFIB survey. The size of the wage or benefit increases firms offered in response to hiring difficulties is also not known from the NFIB survey.

An examination of the characteristics of firms revealed only minor differences across firms that had trouble hiring and those that had no trouble hiring. While firms that had no trouble hiring were found to be somewhat more likely to offer higher wages and benefits, hiring difficulties were clearly not the province of low-wage firms. However, it was found to be the case that low-wage firms were more likely to have hired someone less qualified than desired and were also less satisfied with their workforce. Finally, firms that had hiring difficulties reported

experiencing an increase in competition in a higher proportion than other firms. These firms were also more likely to have upgraded their technology in the recent past.

## Appendix A

### Supplementary Tables

This appendix contains tables that supplement the analysis presented in Section 3 of the paper. Note that the tables in the appendix are not numbered in chronological order. Their numbering instead is designed to ease comparisons with the data in Section 3. For instance, Table A2 supplements the data presented in Table 2 in the main body of the paper, Table A9 supplements Table 9, and so on. Tables A13 and A14 present evidence not discussed in Section 3. In terms of the chronology of Section 3, these tables would follow the discussion of Table 11 and 12 in the main text.

Table A13 presents data on the competitive climate confronting small firms at the time of the NFIB survey. The majority – 60 percent – of firms that had trouble hiring reported an increase in the degree of competition facing them. This was somewhat higher than the proportion – 54 percent – among firms that had no trouble hiring.<sup>25</sup> There is no discernible pattern by firm size. Another notable feature is that 53 percent of firms that had trouble hiring reported upgrading their technology a lot. The comparable rate among firms that had no trouble hiring was 45 percent. Larger firms were more likely to have upgraded their technology whether or not they had trouble hiring. Despite their hiring difficulties, 33 percent of these firms reported a lot of growth in their revenues. This is comparable to the 37 percent rate among firms that had no

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<sup>25</sup> This difference across firms that had trouble hiring and firms that had no trouble hiring was not statistically significant.

trouble hiring. On average, firms that had trouble hiring were also just as likely to have changed their products and/or services as firms that had no trouble hiring.

Table A14 presents some miscellaneous characteristics of firms in the NFIB sample that were seeking new hires. Over one-quarter of these firms were proprietorships. Not surprisingly, the smallest firms were much more likely to be proprietorships than the relatively larger firms. The larger firms were more likely to be C-corporations. Most of the hiring was done by firms that had been in business for 10 years or more. This pattern is more pronounced among the larger firms, perhaps because larger firms are older than smaller firms on average. Most firms operated in only one location. The vast majority of firms with more than 50 employees operated in no more than one or two locations.

**Table A1**  
**Panel A**  
**Sample Distribution by Firm Size**

<b>Firm Size</b> <b>(No. of Employees)</b>	<b><u>Number of Firms</u></b>		<b><u>Percentage Distribution</u></b>	
	<b>Unweighted</b>	<b>Weighted</b>	<b>Unweighted</b>	<b>Weighted</b>
1-4	266	420	35%	56%
5-9	109	161	15%	21%
10-14	103	61	14%	8%
15-24	100	49	13%	7%
25-49	111	39	15%	5%
50-99	63	22	8%	3%
Total	752	752	100%	100%

**Panel B**  
**Sample and Population Distribution by Firm Size**

<b>Firm Size</b> <b>(No. of Employees)</b>	<b><u>Number of Firms</u></b>		<b><u>Percentage Distribution</u></b>	
	<b>Sample</b>	<b>Population</b>	<b>Sample</b>	<b>Population</b>
1-4	266	2,609,792	35%	56%
5-9	109	996,356	15%	21%
10-19	160	585,844	21%	13%
20-99	217	476,312	29%	10%
Total	752	4,668,304	100%	100%

Source: All population data are from the Office of Advocacy, Small Business Administration  
Web site (<http://www.sba.gov/advo/stats>).

**Table A2**  
**Firms Reporting Hiring Difficulties in NFIB Survey**  
**Panel A: Weighted Totals**

Firm Size (No. of Employees)	Number of Firms	<u>Firms Looking to Hire</u>		<u>Firms Hiring Someone Less Qualified</u>		<u>Vacancy Open One Month or More</u>		<u>Firms That Had Some Trouble Hiring</u>		
		Number	Percent**	Number	Percent*	Number	Percent*	Number	Percent*	Percent**
1-4	420	120	29%	58	48%	52	43%	74	62%	18%
5-9	161	102	63%	50	49%	40	39%	62	61%	39%
10-14	61	48	79%	26	54%	14	29%	30	63%	49%
15-24	49	40	82%	23	58%	17	43%	27	68%	55%
25-49	39	35	90%	16	46%	14	40%	22	63%	56%
50-99	22	20	91%	10	50%	9	45%	13	65%	59%
Total	752	365	49%	183	50%	146	40%	228	63%	30%

**Panel B: Unweighted Totals**

Firm Size (No. of Employees)	Number of Firms	<u>Firms Looking to Hire</u>		<u>Firms Hiring Someone Less Qualified</u>		<u>Vacancy Open One Month or More</u>		<u>Firms That Had Some Trouble Hiring</u>		
		Number	Percent**	Number	Percent*	Number	Percent*	Number	Percent*	Percent**
1-4	266	76	29%	37	49%	33	43%	47	62%	18%
5-9	109	69	63%	34	49%	27	39%	42	61%	39%
10-14	103	82	80%	44	54%	24	29%	51	62%	50%
15-24	100	84	84%	48	57%	36	43%	57	68%	57%
25-49	111	98	88%	45	46%	39	40%	61	62%	55%
50-99	63	57	91%	28	49%	25	44%	36	63%	57%
Total	752	466	62%	236	51%	184	40%	294	63%	39%

\*Computed as percent of firms looking to hire.

\*\*Computed as percent of all firms.

**Table A5**  
**Percent of Firms Reporting Hiring Workers With Specific Qualifications**

**Panel A: Firms That Had Trouble Hiring**

Qualification	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b>Relevant Experience</b>							
1-2 years	45%	50%	70%	63%	64%	77%	55%
3 or more years	18%	16%	30%	37%	32%	54%	25%
<b>Educational Attainment</b>							
High School Diploma	45%	45%	63%	48%	64%	62%	50%
Vocational/Technical School Degree	18%	7%	17%	19%	23%	31%	16%
Bachelor's Degree	8%	10%	17%	19%	32%	39%	15%
Graduate/Professional Degree	4%	2%	3%	7%	9%	23%	5%
<b>Special Skills</b>							
Computer Proficiency	34%	24%	30%	26%	46%	54%	32%
Driver's License/Good Driving Record	49%	66%	70%	52%	68%	69%	60%
Ability to Supervise Other Employees	32%	36%	47%	37%	50%	62%	39%
Ability to Interact Over the Phone	66%	60%	70%	63%	64%	62%	64%
Above Average Physical Strength	30%	24%	10%	22%	18%	15%	23%
Job-specific Technical Skills	51%	39%	57%	52%	55%	69%	50%

**Panel B: Firms That Had No Trouble Hiring**

Qualification	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b>Relevant Experience</b>							
1-2 years	54%	63%	50%	62%	54%	86%	58%
3 or more years	17%	25%	33%	39%	31%	57%	27%
<b>Educational Attainment</b>							
High School Diploma	61%	63%	72%	69%	46%	71%	63%
Vocational/Technical School Degree	28%	15%	22%	39%	15%	57%	25%
Bachelor's Degree	13%	15%	28%	39%	15%	71%	21%
Graduate/Professional Degree	4%	3%	11%	23%	15%	57%	10%
<b>Special Skills</b>							
Computer Proficiency	35%	40%	39%	54%	23%	71%	39%
Driver's License/Good Driving Record	61%	45%	61%	69%	62%	71%	58%
Ability to Supervise Other Employees	37%	30%	33%	54%	46%	57%	38%
Ability to Interact Over the Phone	61%	68%	72%	85%	46%	71%	66%
Above Average Physical Strength	35%	25%	11%	15%	23%	29%	26%
Job-specific Technical Skills	65%	70%	44%	77%	54%	86%	65%

Note: The entry in each cell is the percent of all firms of a given size and category that hired a worker with a specific qualification.

Firms could report hiring workers with several different qualifications.

**Table A9**  
**Change in Recruitment Practices Among Firms That Had Trouble Hiring**

Recruitment Practice	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b><i>Personal, Word-of-mouth Contacts</i></b>							
Firm does use it	96%	90%	93%	100%	96%	100%	95%
Firm did increase usage	75%	79%	67%	82%	68%	58%	74%
Ratio: Increase usage/Rate of use	78%	87%	71%	82%	71%	58%	78%
<b><i>Ads in Local Newspapers</i></b>							
Firm does use it	51%	59%	83%	81%	91%	92%	67%
Firm did increase usage	38%	28%	60%	65%	52%	46%	43%
Ratio: Increase usage/Rate of use	76%	47%	72%	81%	58%	50%	65%
<b><i>Ads in Regional or State Newspapers</i></b>							
Firm does use it	26%	39%	58%	39%	67%	69%	42%
Firm did increase usage	22%	21%	32%	25%	33%	39%	25%
Ratio: Increase usage/Rate of use	84%	54%	55%	64%	50%	56%	61%
<b><i>Ads at Local High Schools, Vocational Schools, or Colleges</i></b>							
Firm does use it	41%	53%	55%	44%	67%	67%	50%
Firm did increase usage	28%	33%	39%	33%	38%	42%	33%
Ratio: Increase usage/Rate of use	70%	62%	71%	75%	57%	63%	66%
<b><i>Help-wanted Signs on the Premises</i></b>							
Firm does use it	20%	43%	20%	29%	33%	42%	30%
Firm did increase usage	17%	21%	10%	18%	14%	8%	17%
Ratio: Increase usage/Rate of use	87%	50%	50%	62%	43%	20%	57%
<b><i>Vacancy Notices at a Local Public Employment Office</i></b>							
Firm does use it	19%	34%	33%	28%	48%	62%	31%
Firm did increase usage	12%	5%	17%	14%	19%	31%	13%
Ratio: Increase usage/Rate of use	65%	14%	50%	50%	40%	50%	41%
<b><i>Private Temporary or Employment Agencies</i></b>							
Firm does use it	17%	16%	40%	37%	48%	54%	27%
Firm did increase usage	9%	11%	23%	22%	19%	31%	15%
Ratio: Increase usage/Rate of use	54%	70%	59%	60%	40%	57%	57%
<b><i>Notices at Local Union Halls</i></b>							
Firm does use it	3%	5%	10%	4%	19%	8%	6%
Firm did increase usage	0%	0%	3%	0%	0%	0%	0%
Ratio: Increase usage/Rate of use	0%	0%	33%	0%	0%	0%	7%
<b><i>Employee Incentives to Recruit Others</i></b>							
Firm does use it	27%	34%	47%	33%	38%	54%	35%
Firm did increase usage	12%	19%	37%	22%	14%	23%	19%
Ratio: Increase usage/Rate of use	45%	57%	79%	67%	38%	43%	56%
<b><i>The Internet</i></b>							
Firm does use it	19%	23%	23%	25%	38%	50%	25%
Firm did increase usage	11%	18%	13%	14%	24%	33%	16%
Ratio: Increase usage/Rate of use	57%	78%	57%	57%	62%	67%	64%

Note: The entry in each cell is the percent of firms of a given size that had trouble hiring and reported the use of a specific recruitment practice. For example, 73 firms of size 1-4 that had trouble hiring responded to the query on ads in local newspapers. Of this group, 37 firms, or 51%, reported they use ads in local newspapers and 28 firms, or 38%, reported an increase in the use of ads.



**Table A13**  
**The Competitive Climate for Small Firms**

**Panel A: Firms That Had Trouble Hiring**

	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b><i>Change in Degree of Competition</i></b>							
Decreased	7%	0%	7%	11%	5%	8%	5%
Stayed the Same	34%	34%	32%	30%	33%	31%	33%
Increased	60%	65%	58%	56%	62%	54%	60%
<b><i>Change in Products and/or Services</i></b>							
No Change	23%	43%	23%	33%	33%	31%	31%
Little Change	43%	43%	63%	44%	52%	54%	47%
Lot of Change	34%	14%	13%	22%	14%	15%	22%
<b><i>Growth in Revenues</i></b>							
No Growth	8%	26%	20%	7%	23%	8%	16%
Little Growth	49%	50%	47%	54%	50%	54%	50%
Lot of Growth	41%	24%	30%	39%	27%	31%	33%
<b><i>Upgrade in Technology</i></b>							
No Upgrade	11%	19%	7%	8%	5%	0%	11%
Little Upgrade	43%	29%	33%	35%	38%	39%	36%
Lot of Upgrade	47%	52%	60%	58%	57%	62%	53%

**Panel B: Firms That Had No Trouble Hiring**

	Firm Size (No. of Employees)						Total
	1-4	5-9	10-14	15-24	25-49	50-99	
<b><i>Change in Degree of Competition</i></b>							
Decreased	7%	8%	11%	0%	8%	0%	7%
Stayed the Same	37%	41%	32%	31%	42%	43%	38%
Increased	52%	49%	58%	69%	50%	57%	54%
<b><i>Change in Products and/or Services</i></b>							
No Change	41%	30%	17%	15%	31%	38%	31%
Little Change	41%	48%	61%	62%	46%	38%	48%
Lot of Change	17%	23%	22%	23%	23%	25%	21%
<b><i>Growth in Revenues</i></b>							
No Growth	11%	8%	12%	7%	8%	13%	10%
Little Growth	54%	49%	47%	57%	62%	38%	52%
Lot of Growth	35%	41%	35%	29%	31%	50%	37%
<b><i>Upgrade in Technology</i></b>							
No Upgrade	20%	15%	6%	8%	8%	0%	13%
Little Upgrade	42%	33%	50%	46%	54%	50%	42%
Lot of Upgrade	38%	53%	44%	46%	39%	50%	45%

Note: Columns need not add to 100 because of non-response to some questions.

**Table A14**  
**General Characteristics of Firms in the Skills Deficit Survey**

**Panel A: Firms That Had Trouble Hiring**

	<b>Firm Size (No. of Employees)</b>						<b>Total</b>
	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-24</b>	<b>25-49</b>	<b>50-99</b>	
<b><i>Legal Form of Business</i></b>							
Proprietorship	49%	15%	17%	18%	10%	8%	26%
Partnership	4%	7%	3%	7%	5%	0%	5%
C-Corporation	12%	19%	30%	32%	38%	31%	23%
Sub-S Corporation	23%	34%	30%	29%	19%	23%	27%
Limited Liability Company	3%	5%	3%	4%	0%	0%	3%
Some Other	4%	16%	13%	11%	19%	23%	12%
<b><i>Years in Business</i></b>							
4 years or less	21%	24%	13%	19%	10%	8%	19%
5-9 years	15%	24%	26%	19%	10%	8%	18%
10-19 years	32%	21%	26%	30%	19%	23%	26%
20-39 years	21%	15%	23%	19%	33%	31%	21%
40 years or more	11%	16%	10%	15%	29%	31%	15%
<b><i>Number of Locations</i></b>							
One	74%	84%	71%	57%	52%	62%	72%
Two	19%	7%	13%	21%	19%	15%	15%
Three or More	7%	10%	13%	18%	29%	23%	13%

**Panel B: Firms That Had No Trouble Hiring**

	<b>Firm Size (No. of Employees)</b>						<b>Total</b>
	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-24</b>	<b>25-49</b>	<b>50-99</b>	
<b><i>Legal Form of Business</i></b>							
Proprietorship	54%	41%	16%	15%	0%	0%	34%
Partnership	11%	0%	5%	0%	0%	14%	5%
C-Corporation	11%	26%	21%	23%	33%	29%	21%
Sub-S Corporation	13%	23%	37%	31%	33%	14%	23%
Limited Liability Company	4%	3%	5%	0%	0%	0%	3%
Some Other	7%	8%	11%	15%	17%	14%	10%
<b><i>Years in Business</i></b>							
4 years or less	35%	18%	11%	8%	17%	17%	22%
5-9 years	13%	23%	17%	15%	8%	0%	16%
10-19 years	35%	18%	33%	31%	33%	33%	29%
20-39 years	17%	23%	28%	31%	33%	17%	23%
40 years or more	0%	15%	11%	15%	8%	33%	10%
<b><i>Number of Locations</i></b>							
One	89%	72%	67%	62%	62%	38%	73%
Two	7%	10%	22%	23%	15%	25%	13%
Three or More	4%	18%	11%	15%	23%	38%	14%

## **Appendix B**

### **Labor Shortages by Industry**

The appendix contains tabulations on labor shortages organized by industry. Because of the limited number of observations in the NFIB data, the tables use only three broad industry groups: goods, trade, and services. A detailed discussion of these tables is not offered since there are no discernible patterns by industry with respect to labor shortages. One notable feature is that firms in the services industry were much more likely to be seeking workers with college degrees. A common-sense result that emerges is that firms in the goods industry were more likely to be seeking workers with above average physical strength while firms in the services industry were more likely to be seeking workers with computer skills and the ability to interact over the phone (see Tables B1 and B2.) Firms in the goods industry appeared to have had the most trouble in finding workers with three or more years experience, post-graduate degrees or job-specific technical skills (see Table B3.)

There are few differences by industry with respect to the impact of hiring difficulties on firm performance (see Table B4.) Overall, firms in the service industry were more likely to report a moderate to serious impact with respect to more performance criteria than firms in other industries. Also, only minor differences across industries are observed with respect the response of firms to hiring difficulties (see Tables B5 and B6.) Tables B7 to B9 round off the appendix

with presentations on the firms' perception of their wage and benefit policies, changes in the competitive climate, and the general characteristics of firms by industry.

**Table B1**  
**Qualifications Sought by Firms That Had Trouble Hiring**

Qualification	Industry			Total
	Goods	Trade	Services	
<i>Relevant Experience</i>				
1-2 years	72%	68%	84%	77%
3 or more years	61%	32%	40%	41%
<i>Educational Attainment</i>				
High School Diploma	71%	71%	74%	73%
Vocational/Technical School Degree	26%	20%	36%	29%
Bachelor's Degree	13%	19%	25%	21%
Graduate/Professional Degree	8%	6%	13%	10%
<i>Special Skills</i>				
Computer Proficiency	34%	29%	49%	40%
Driver's License/Good Driving Record	79%	73%	57%	66%
Ability to Supervise Other Employees	40%	59%	46%	49%
Ability to Interact Over the Phone	53%	69%	74%	69%
Above Average Physical Strength	47%	28%	26%	31%
Job-specific Technical Skills	72%	42%	72%	62%

Note: The entry in each cell is the percent of all firms in a given industry that had trouble hiring seeking a particular qualification.

Computer proficiency is defined as "use of personal computer beyond basic word processing and e-mail."

Firms could choose more than one qualification in response to this survey question.

**Table B2**  
**Percent of Firms Reporting Hiring Workers With Specific Qualifications**

**Panel A: Firms That Had Trouble Hiring**

Qualification	Industry			Total
	Goods	Trade	Services	
<i>Relevant Experience</i>				
1-2 years	58%	54%	56%	56%
3 or more years	37%	20%	26%	26%
<i>Educational Attainment</i>				
High School Diploma	47%	48%	56%	52%
Vocational/Technical School Degree	11%	10%	23%	16%
Bachelor's Degree	13%	9%	20%	15%
Graduate/Professional Degree	5%	0%	10%	6%
<i>Special Skills</i>				
Computer Proficiency	24%	22%	41%	31%
Driver's License/Good Driving Record	76%	70%	53%	62%
Ability to Supervise Other Employees	40%	46%	35%	40%
Ability to Interact Over the Phone	53%	67%	68%	66%
Above Average Physical Strength	42%	20%	18%	24%
Job-specific Technical Skills	68%	28%	58%	51%

**Panel B: Firms That Had No Trouble Hiring**

Qualification	Industry			Total
	Goods	Trade	Services	
<i>Relevant Experience</i>				
1-2 years	68%	41%	67%	59%
3 or more years	50%	17%	25%	27%
<i>Educational Attainment</i>				
High School Diploma	55%	57%	73%	64%
Vocational/Technical School Degree	41%	9%	31%	25%
Bachelor's Degree	23%	11%	27%	21%
Graduate/Professional Degree	9%	2%	16%	11%
<i>Special Skills</i>				
Computer Proficiency	46%	17%	50%	38%
Driver's License/Good Driving Record	77%	50%	55%	56%
Ability to Supervise Other Employees	27%	33%	44%	38%
Ability to Interact Over the Phone	50%	59%	75%	65%
Above Average Physical Strength	36%	28%	19%	25%
Job-specific Technical Skills	68%	41%	78%	64%

Note: The entry in each cell is the percent of all firms in a given industry and category that hired a worker with a specific qualification.

Firms could report hiring workers with several different qualifications.

**Table B3(a)**  
**Hiring Difficulties Associated with Specific Qualifications**

Qualification	Industry			Total
	Goods	Trade	Services	
<i>Relevant Experience</i>				
1-2 years	45%	41%	48%	45%
3 or more years	37%	14%	18%	20%
<i>Educational Attainment</i>				
High School Diploma	21%	28%	16%	21%
Vocational/Technical School Degree	11%	9%	14%	11%
Bachelor's Degree	3%	7%	8%	7%
Graduate/Professional Degree	5%	1%	6%	5%
<i>Special Skills</i>				
Ability to Read and Write English	26%	41%	31%	34%
Ability to Speak English	39%	41%	35%	38%
Computer Proficiency	16%	16%	23%	20%
Job-specific Technical Skills	66%	33%	51%	47%
Ability to Conduct Basic Mathematical Operations	53%	46%	33%	41%
Ability to Work Well With Other Employees	50%	49%	35%	43%
Without Substance Abuse Problems	53%	65%	57%	59%
Without a History of Poor Work Habits	63%	71%	55%	61%

**Table B3(b)**  
**Hiring Difficulties Faced by Firms Seeking Specific Qualifications**

Qualification	Industry			Total
	Goods	Trade	Services	
<i>Relevant Experience</i>				
1-2 years	61%	61%	58%	59%
3 or more years	61%	45%	45%	49%
<i>Educational Attainment</i>				
High School Diploma	30%	40%	22%	30%
Vocational/Technical School Degree	40%	43%	38%	39%
Bachelor's Degree	20%	38%	33%	33%
Graduate/Professional Degree	67%	25%	50%	48%
<i>Special Skills</i>				
Computer Proficiency	46%	55%	46%	49%
Job-specific Technical Skills	89%	79%	72%	76%

Note: The entry in each cell is the percent of all firms in a given industry that had trouble hiring that named a certain qualification as the cause of the hiring difficulty.

Firms could name more than one qualification as the cause of hiring difficulty.

**Table B4**  
**Impact of Hiring Difficulties On Firm Performance**

<b>Performance Indicator</b>	<b>Industry</b>			<b>Total</b>
	<b>Goods</b>	<b>Trade</b>	<b>Services</b>	
<b><i>Sales Revenue</i></b>				
None to Small Impact	74%	72%	67%	71%
Moderate to Serious Impact	26%	27%	31%	28%
<b><i>Product or Service Quality</i></b>				
None to Small Impact	74%	59%	62%	64%
Moderate to Serious Impact	26%	41%	39%	36%
<b><i>Employee Morale</i></b>				
None to Small Impact	59%	59%	57%	58%
Moderate to Serious Impact	41%	41%	42%	42%
<b><i>Profitability</i></b>				
None to Small Impact	62%	71%	61%	65%
Moderate to Serious Impact	39%	29%	38%	35%
<b><i>Hours of Operation and Growth</i></b>				
None to Small Impact	63%	81%	57%	65%
Moderate to Serious Impact	37%	19%	43%	35%
<b><i>Employee Productivity</i></b>				
None to Small Impact	62%	59%	56%	57%
Moderate to Serious Impact	39%	39%	45%	43%
<b><i>Employee Turnover</i></b>				
None to Small Impact	74%	69%	73%	72%
Moderate to Serious Impact	26%	30%	27%	27%
<b><i>Introduction of New Products and Services</i></b>				
None to Small Impact	82%	81%	73%	76%
Moderate to Serious Impact	16%	18%	27%	23%

Note: The entry in each cell is the percent of firms in a given industry that had trouble hiring and reported a certain level of impact on their firm.

Columns need not add to 100% due to non-responses.



**Table B5**  
**Change in Recruitment Practices Among Firms That Had Trouble Hiring**

Recruitment Practice	Industry			Total
	Goods	Trade	Services	
<b><i>Ads in Local Newspapers</i></b>				
Firm does use it	74%	57%	74%	68%
Firm did increase usage	46%	44%	46%	45%
Ratio: Increase usage/Rate of use	62%	77%	62%	66%
<b><i>Ads in Regional or State Newspapers</i></b>				
Firm does use it	51%	31%	46%	42%
Firm did increase usage	38%	18%	28%	26%
Ratio: Increase usage/Rate of use	74%	57%	61%	63%
<b><i>Help-wanted Signs on the Premises</i></b>				
Firm does use it	27%	44%	24%	30%
Firm did increase usage	11%	30%	11%	17%
Ratio: Increase usage/Rate of use	40%	70%	46%	56%
<b><i>Vacancy Notices at a Local Public Employment Office</i></b>				
Firm does use it	33%	38%	27%	31%
Firm did increase usage	8%	18%	12%	13%
Ratio: Increase usage/Rate of use	23%	46%	43%	41%
<b><i>Ads at Local High Schools, Vocational Schools, or Colleges</i></b>				
Firm does use it	46%	47%	53%	51%
Firm did increase usage	26%	29%	39%	34%
Ratio: Increase usage/Rate of use	55%	62%	73%	66%
<b><i>Private Temporary or Employment Agencies</i></b>				
Firm does use it	28%	28%	28%	28%
Firm did increase usage	15%	19%	14%	16%
Ratio: Increase usage/Rate of use	55%	68%	48%	57%
<b><i>Notices at Local Union Halls</i></b>				
Firm does use it	8%	7%	6%	7%
Firm did increase usage	3%	0%	1%	1%
Ratio: Increase usage/Rate of use	34%	0%	14%	13%
<b><i>Employee Incentives to Recruit Others</i></b>				
Firm does use it	37%	33%	37%	36%
Firm did increase usage	24%	16%	23%	21%
Ratio: Increase usage/Rate of use	64%	48%	61%	58%
<b><i>Personal, Word-of-mouth Contacts</i></b>				
Firm does use it	100%	94%	95%	96%
Firm did increase usage	85%	75%	70%	75%
Ratio: Increase usage/Rate of use	85%	80%	74%	78%
<b><i>The Internet</i></b>				
Firm does use it	29%	19%	30%	27%
Firm did increase usage	21%	9%	21%	17%
Ratio: Increase usage/Rate of use	73%	46%	70%	63%

Note: The entry in each cell is the percent of firms in a given industry that had trouble hiring and reported the use of a specific recruitment practice.

**Table B6**  
**Change in Wages and Benefits in Firms Having Trouble Hiring**

	Industry			Total
	Goods	Trade	Services	
<i><b>Raised the Wages Originally Offered</b></i>				
Yes	53%	57%	52%	54%
No	47%	40%	47%	45%
<i><b>Raised the Benefits Originally Offered</b></i>				
Yes	26%	22%	22%	22%
No	74%	77%	78%	77%
<i><b>Changed Working Hours</b></i>				
Yes	13%	10%	16%	14%
No	87%	88%	84%	86%
<i><b>Changed Working Conditions or Location</b></i>				
Yes	18%	32%	27%	27%
No	82%	66%	73%	73%
<i><b>Increased Time Allotted for Training</b></i>				
Yes	31%	46%	34%	37%
No	69%	53%	66%	62%

Note: The entry in each cell is the percent of firms in a given industry that had trouble hiring reporting whether or not they changed their wage and benefit policy.

Columns need not add to 100 due to non-responses.

**Table B7**  
**Firms' Perception of Their Wage and Benefit Policies**

**Panel A: Firms That Had Trouble Hiring**

<b>Firms' Perception Regarding:</b>	<b>Industry</b>			<b>Total</b>
	<b>Goods</b>	<b>Trade</b>	<b>Services</b>	
<b><i>Wages and Salaries</i></b>				
Below Market	11%	7%	5%	7%
Market	61%	51%	68%	61%
Above Market	29%	41%	28%	31%
<b><i>Benefits</i></b>				
Below Market	32%	28%	32%	32%
Market	38%	40%	46%	42%
Above Market	27%	31%	22%	25%
<b><i>Flexibility and Independence</i></b>				
Below Market	3%	4%	5%	4%
Market	44%	41%	30%	37%
Above Market	51%	55%	64%	58%
<b><i>Work Environment</i></b>				
Below Market	5%	3%	3%	3%
Market	59%	36%	39%	42%
Above Market	36%	61%	58%	55%
<b><i>Advancement Potential</i></b>				
Below Market	31%	18%	23%	23%
Market	49%	45%	54%	50%
Above Market	21%	36%	20%	25%

**Panel B: Firms That Had No Trouble Hiring**

<b>Firms' Perception Regarding:</b>	<b>Industry</b>			<b>Total</b>
	<b>Goods</b>	<b>Trade</b>	<b>Services</b>	
<b><i>Wages and Salaries</i></b>				
Below Market	5%	2%	6%	5%
Market	68%	70%	65%	67%
Above Market	27%	28%	28%	28%
<b><i>Benefits</i></b>				
Below Market	27%	24%	36%	30%
Market	50%	41%	38%	41%
Above Market	18%	20%	25%	22%
<b><i>Flexibility and Independence</i></b>				
Below Market	9%	2%	3%	4%
Market	23%	43%	19%	28%
Above Market	68%	53%	75%	66%
<b><i>Work Environment</i></b>				
Below Market	9%	0%	0%	2%
Market	36%	54%	41%	45%
Above Market	50%	46%	58%	52%
<b><i>Advancement Potential</i></b>				
Below Market	18%	17%	28%	23%
Market	50%	70%	47%	55%
Above Market	23%	11%	23%	20%

Note: The entry in each cell is computed as a percent of firms within a given industry category. Columns need not add to 100 due to non-response to some questions.

**Table B8**  
**The Competitive Climate for Small Firms**

**Panel A: Firms That Had Trouble Hiring**

	<b>Industry</b>			
	<b>Goods</b>	<b>Trade</b>	<b>Services</b>	<b>Total</b>
<i><b>Change in Degree of Competition</b></i>				
Decreased	3%	6%	6%	5%
Stayed the Same	29%	27%	37%	33%
Increased	66%	65%	57%	60%
<i><b>Change in Products and/or Services</b></i>				
No Change	33%	19%	39%	31%
Little Change	41%	61%	40%	47%
Lot of Change	26%	20%	21%	22%
<i><b>Growth in Revenues</b></i>				
No Growth	18%	17%	15%	16%
Little Growth	55%	52%	47%	50%
Lot of Growth	26%	30%	36%	33%
<i><b>Upgrade in Technology</b></i>				
No Upgrade	5%	27%	5%	11%
Little Upgrade	49%	27%	38%	37%
Lot of Upgrade	46%	47%	57%	52%

**Panel B: Firms That Had No Trouble Hiring**

	<b>Industry</b>			
	<b>Goods</b>	<b>Trade</b>	<b>Services</b>	<b>Total</b>
<i><b>Change in Degree of Competition</b></i>				
Decreased	0%	17%	3%	8%
Stayed the Same	46%	26%	42%	38%
Increased	55%	50%	55%	53%
<i><b>Change in Products and/or Services</b></i>				
No Change	32%	26%	33%	30%
Little Change	50%	57%	42%	49%
Lot of Change	18%	17%	25%	22%
<i><b>Growth in Revenues</b></i>				
No Growth	5%	13%	5%	8%
Little Growth	50%	60%	52%	54%
Lot of Growth	46%	24%	40%	36%
<i><b>Upgrade in Technology</b></i>				
No Upgrade	23%	23%	5%	14%
Little Upgrade	23%	49%	41%	40%
Lot of Upgrade	55%	28%	55%	46%

Note: Columns need not add to 100 because of non-response to some questions.

**Table B9**  
**General Characteristics of Firms in the Skills Deficit Survey**

**Panel A: Firms That Had Trouble Hiring**

	Industry			Total
	Goods	Trade	Services	
<b><i>Legal Form of Business</i></b>				
Proprietorship	15%	21%	31%	26%
Partnership	5%	6%	5%	5%
C-Corporation	23%	29%	20%	23%
Sub-S Corporation	36%	35%	19%	28%
Limited Liability Company	0%	0%	6%	3%
Some Other	18%	6%	11%	11%
<b><i>Years in Business</i></b>				
4 years or less	13%	12%	23%	19%
5-9 years	24%	26%	12%	18%
10-19 years	18%	25%	30%	26%
20-39 years	21%	16%	24%	21%
40 years or more	24%	20%	11%	16%
<b><i>Number of Locations</i></b>				
One	56%	71%	76%	71%
Two	26%	13%	13%	15%
Three or More	18%	16%	10%	13%

**Panel B: Firms That Had No Trouble Hiring**

	Industry			Total
	Goods	Trade	Services	
<b><i>Legal Form of Business</i></b>				
Proprietorship	17%	37%	38%	33%
Partnership	4%	2%	9%	6%
C-Corporation	30%	26%	11%	19%
Sub-S Corporation	39%	26%	17%	24%
Limited Liability Company	0%	2%	5%	3%
Some Other	0%	7%	14%	9%
<b><i>Years in Business</i></b>				
4 years or less	5%	18%	27%	20%
5-9 years	14%	21%	14%	16%
10-19 years	38%	32%	25%	30%
20-39 years	29%	18%	25%	23%
40 years or more	14%	9%	8%	9%
<b><i>Number of Locations</i></b>				
One	86%	69%	69%	72%
Two	9%	13%	15%	14%
Three or More	5%	18%	15%	14%