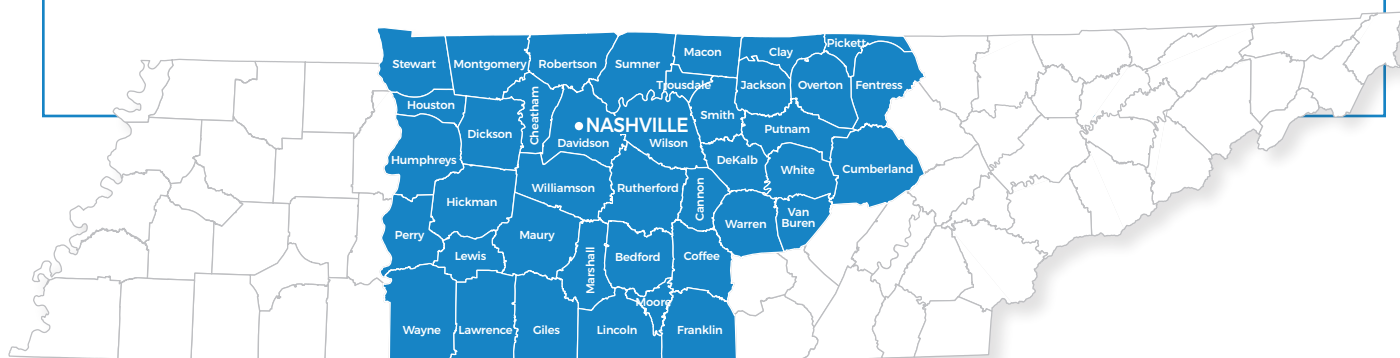


2021 MIDDLE TENNESSEE WAGE & BENEFIT SURVEY

SUMMARY REPORT



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Tennessee Department of Labor & Workforce Development
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EXECUTIVE SUMMARY

The Business and Economic Research Center (BERC) at Middle Tennessee State University conducted a 40-county wage and benefit survey, primarily of manufacturing and distribution companies, in Middle Tennessee between February 1 and March 29, 2021. The survey was sponsored by USDA Rural Development, Middle Tennessee Industrial Development Association (MTIDA), Tennessee Department of Labor & Workforce Development, and TVA Economic Development, with support of regional partners – Middle Tennessee Regional Workforce Boards, Nashville Area Chamber of Commerce, Greater Nashville Regional Council, South Central Tennessee Development District, Upper Cumberland Development District, Tennessee Central Economic Authority, The Highlands Economic Partnership, and Tennessee Chamber of Commerce & Industry. The purpose of the survey project is to provide local economic development officials and human resource managers a clear understanding of the compensation structure of key occupations in the region.

Across the region, 1,266 companies were invited to participate in this online wage and benefit survey. As of March 29, 2021, BERC received 309 completed surveys with an overall response rate of 24.4 percent. The 309 companies employed 53,758 people.

Key Highlights

General

- The average number of hours in a workweek is 40.
- Average annual sales/revenue of the covered establishments is \$358.8 million.
- On average, covered establishments offer about 9 paid holidays per year.
- On average, covered establishments offer approximately 15 PTO days or 12 annual vacation days.

Health Insurance and Benefits

- 92.4 percent of companies surveyed offer individual medical insurance plans to employees. Family medical insurance is also offered by 88.8 percent of the companies. Cost sharing is a common practice among the companies.
- Companies offer a range of retirement benefit plans. About 90 percent of responding companies offer 401(k) plans.
- Approximately 80 percent of companies offer career development opportunities; tuition reimbursement is offered by about almost 50 percent of companies.
- Overall, total employee benefits are equivalent to approximately 24 percent of wage and salary costs to employers in the study market area; benefits represent about 19 percent of total compensation.

Wages

- The unweighted median hourly wage across occupations in the study market area is \$25.29. The study provides details of wages and benefits by occupation.



INTRODUCTION

The Business and Economic Research Center (BERC) at Middle Tennessee State University conducted a wage and benefit survey for a 40-county region in Middle Tennessee between February 1 and March 29, 2021. The survey was sponsored by USDA Rural Development, Middle Tennessee Industrial Development Association (MTIDA), Tennessee Department of Labor & Workforce Development, and TVA Economic Development, as well as regional partners – Middle Tennessee Regional Workforce Boards, Nashville Area Chamber of Commerce, Greater Nashville Regional Council, South Central Tennessee Development District, Upper Cumberland Development District, Tennessee Central Economic Authority, The Highlands Economic Partnership, and Tennessee Chamber of Commerce & Industry. The purpose of the survey is to provide local economic development officials and human resource managers a clear understanding of the compensation structure of key occupations in the region.

In designing the online wage and benefit survey, BERC consulted existing wage and benefit surveys as well as the U.S. Bureau of Labor and Statistics (BLS) methodology for the Quarterly Census of Employment and Wages (QCEW) and the BLS Occupational Outlook Handbook to make the regional survey results comparable to national and state-level occupational characteristics. BERC retained the Standard Occupational Classification (SOC) codes for all occupations included in the survey.

BERC, in consultation with the MTIDA, targeted 1,266 companies in the region. Although the study sought to collect information for more than 250 occupations, the survey response rate did not allow for a detailed profile of every occupation. The 208 detailed occupation profiles that are provided in the report will allow local economic development officials and human resource professionals to examine specific occupations compared to average wages in the region.

The summary report is organized as follows: this introduction provides a brief description of the study region, study tasks, and general characteristics of industries in the region; section two introduces the conceptual framework and study methodology; section three presents survey results. Appendix A provides rich details for the selected occupations; and Appendix B discusses the impact of COVID-19 on companies surveyed. The summary tables and occupation profiles documents associated with this



40-county area study are reported in separate documents. Parallel groups of reports were prepared for 12 sub-regions.

A. Study Region

The study market area includes the following counties: Bedford, Cannon, Cheatham, Clay, Coffee, Cumberland, Davidson, DeKalb, Dickson, Fentress, Franklin, Giles, Hickman, Houston, Humphreys, Jackson, Lawrence, Lewis, Lincoln, Macon, Marshall, Maury, Montgomery, Moore, Overton, Perry, Pickett, Putnam, Robertson, Rutherford, Smith, Stewart, Sumner, Trousdale, Van Buren, Warren, Wayne, White, Williamson, and Wilson. A map of the region can be seen below.



B. Study Tasks and Research Questions

What is the purpose of this study? Which sectors are surveyed? What types of occupational data are collected. Primary research questions this survey addresses are:

- What is the compensation structure in the 40-county region?
- What are the characteristics of key occupations?
- How do average wages for key occupations compare with overall average wages in the study region?

The purpose of this study is to provide information that (1) enables human resource managers to make informed decisions about the prevailing compensation structure and (2) enhances local economic development officials' understanding of the compensation structure in their market as they support prospective businesses transitioning to the region.



In terms of compensation structure and occupation characteristics, the wage and benefit survey captures wages and benefits for each occupation as well as occupational characteristics such as educational or licensing requirements and difficulty of filling vacant positions. Included in the benefits discussion are annual paid and unpaid leave; sick leave; personal days off; medical, dental, and vision insurance; retirement benefits; and other incentives. BERC profiled only occupations in the region for which a sufficient number of survey respondents provided information; likewise, BERC included specific occupation characteristic details only for those survey questions to which a sufficient number of respondents replied.



CONCEPTUAL FRAMEWORK AND METHODOLOGY

The wage and benefit study of the 40-county middle Tennessee area used an online survey in the Qualtrics platform. This section details survey design and analysis and defines concepts used throughout the data analysis section.

A. Definitions

The following concepts will be used throughout the report:

Annual Wage: Annual wage is annualized salary and wages, calculated as follows:

$$\begin{aligned} \text{Annual Wage} &= 52 \times \text{Weekly Wage} \text{ (1 Year = 52 Weeks)} \\ &= 52 \times (40 \times \text{Hourly Wage}) \text{ (1 Week = 40 Hours)} \\ &= 52 \times (5 \times 8 \times \text{Hourly Wage}) \text{ (Work Week = 5 Days; and 1 Day = 8 Hours)} \end{aligned}$$

Average (or Mean) Wage: Average wage is the sum of the wages divided by the number of reporting establishments.

$$\begin{aligned} \text{Average Wage:} \\ (\text{Sum of wages for an occupation}) / (\text{Number of companies reporting that occupation}) \end{aligned}$$

Weighted Average Wage:

$$(\text{Sum of total wages for all employees in an occupation}) / (\text{Number of total employees in that occupation})$$

Median (Middle Position) Wage: Median wage represents the wage level that falls above 50 percent of wages and below 50 percent of wages.

Difficulty of Filling: Difficulty of filling a vacant position, with 1 being extremely easy and 10 being extremely difficult.

B. Survey Design

BERC designed the Middle Tennessee Industrial Wage and Benefit Survey in consultation with local economic development officials after a review of multiple survey instruments, and with feedback from previous iterations of wage and benefit surveys. The survey instrument contains three main sections: an initial section describing survey confidentiality and IRB agreements; a second section requesting details about company characteristics and benefits offered; and a third section with fields related to specific occupations within the company.



The list of companies to be surveyed, primarily in manufacturing and distribution sectors, was provided by the survey sponsors. Each company was assigned a unique ID, sent to an identified survey contact by BERC through the Qualtrics platform.

The occupations to be included were selected using the BLS (www.bls.gov) staffing pattern for the manufacturing sector and consultation with local economic development officials. BERC retained the original SOC code and title for occupations for the purpose of comparing the local compensation structure with the regional, state, or national compensation structure for the same occupation.

The survey fields included characteristics of each occupation: number of jobs, part-time status, maximum, minimum, and average wage, number of vacancies, licensing requirement, educational level requirement, and difficulty of filling a vacant position.

C. Survey Administration

BERC conducted the online wage and benefit survey between February 1 and March 29, 2021. In advance of the survey opening, a guide to the survey was sent through US mail by MTIDA to approximately 1,571 companies, primarily manufacturing and distribution companies, in the 40-county study market area. BERC sent initial invitations to participate through the Qualtrics survey platform, with multiple reminders through both Qualtrics and MTSU email, to email contacts at a total of 1,470 companies, of which 1,266 were eventually confirmed as valid potential participants (functioning email addresses to contacts at companies that had not closed). A total of 510 companies accessed the survey instrument, 98 of those companies opted out, resulting in a total 412 companies that accessed the survey and did not opt out. BERC received 309 completed surveys with a response rate of 24.4 percent.

Table 1. Wage and Benefit Survey Response Rate

Number of Companies Invited	1,266
Number of Completed Surveys	309
Response Rate	24.4%

D. Data Analysis

BERC reviewed all survey data for accuracy and consistency. The standardized and cleaned survey response database contains a unique company code for each responding company and survey responses to the survey fields. BERC did not receive responses for every occupation included in the survey; companies in the 40-county region supplied information for 208 occupations. In the following section, BERC presents the survey results.



SURVEY RESULTS

This section provides a comprehensive analysis of the wage and benefit survey. First, BERC groups the companies by employment size using the following three categories:

- Less Than 100
- 100–350
- More than 350

All major categories of data except wages by occupation are presented using these three categories. Where data is available, BERC presents survey findings using both average (=mean) and median, unweighted (by number of companies) and weighted (by number of jobs). Occupational wages include both hourly and annualized wages; the calculation assumes a 40-hour workweek and 52 workweeks annually.

A. Establishments by Employment Size and Average Revenue

Of the establishments surveyed, 58.3 percent reported employment size as fewer than 100 employees. An additional 30.1 percent reported between 100 and 350 employees and 11.6 percent over 350. Overall, these 309 companies account for a total of 53,758 employees. Of these employees, 4.27 percent were part-time.

Table 2. Employment by Establishment Size and Part-time Status

Employment Size	Number of Companies	Number of Employees			Part-time Workers
		Total	Median	Average	
Less Than 100	180	7,589	40	42	3.7%
100 - 350	93	17,004	172	183	5.7%
Over 350	36	29,165	584	810	3.5%
Regional	309	53,758	78	174	4.3%

Note: N/A means disclosure standards are not met.

Average weekly hours Table 3 presents average weekly hours in the 40-county study market area. In general, median total weekly work hours are 3,197 in the study market area. Average weekly hours per employee are around 40. The table below shows average total weekly work hours for companies by employment size: total average weekly work hours for companies in the over-350 employment



range are 32,595. At the other end of the spectrum are companies with employment less than 100, whose average weekly work hours total 1,731

Table 3. Workweek hours by Employment Size

Employment Size	Average Weekly Hours	Average Weekly Hours Per Employee	Median Weekly Hours	Median Weekly Hours Per Employee
Less Than 100	1,731	40	1,600	40
100 - 350	7,405	40	6,840	40
Over 350	32,595	40	23,480	40
Regional	7,072	40	3,197	40

Note: N/A means disclosure standards are not met.

Union Membership Some responding companies indicated members of their workforce were unionized. As these companies represent only 5 percent or less of total responses, BERC excluded union membership from a detailed analysis.

Annual Revenue Overall, the average annual sales/revenue is \$359 million with a median of \$14 million. More details of revenue by company size can be seen in the table below.

Table 4. Annual Sales/Revenue by Employment Size

Employment Size	Number of Companies Reporting	Average Revenue	Median Revenue
Less Than 100	134	\$41,094,081	\$8,366,969
100 - 350	54	\$193,530,543	\$52,583,616
Over 350	19	\$3,068,942,588	\$200,000,000
Regional	207	\$358,778,577	\$14,000,000

Note: N/A means disclosure standards are not met.

B. Employee Benefits

BERC asked four series of questions regarding employee benefits: time off, types of insurance, retirement, and education or professional development. This section first provides a brief overview of employers' responses for each category and then analyzes each specific benefit in further detail.

Holidays and Leave Time In this category of benefits, BERC included holidays, PTO days, vacation days, paid sick leave, paid jury duty, and time off to vote. In this study market area, 31.8 percent of companies offer a PTO package that combines vacation days, sick leave, and personal days. The other 68.2 percent of companies offer vacation days, sick leave, and/or personal days separately.



Companies with PTO packages offer an average of 15 PTO days for 5-year employees, an average of 4 days that can be carried over to the next year, and an average of 21 maximum PTO days that can be accumulated by a full-time employee. The following table shows further details of PTO days.

Table 5. PTO Days by Employment Size

Employment Size	Average PTO Days			Average Carry-over Days	Average Maximum PTO Days
	1-year Employment	5-year Employment	10-year Employment		
Less Than 100	9.5	14.6	17.9	4.1	20.0
100 - 350	9.1	14.8	17.8	3.7	21.8
Over 350	12.7	17.5	21.5	4.5	22.3
Regional	9.7	15.0	18.3	4.1	20.8

Note: N/A means disclosure standards are not met.

Companies offering vacation days, sick leave, and other types of time off separately, offer an average of 12 vacation days and 3 sick days for 5-year employees. Some also provide other types of leave. The following charts and tables provide further detail.

Chart 1. Vacation Days by Employment Size

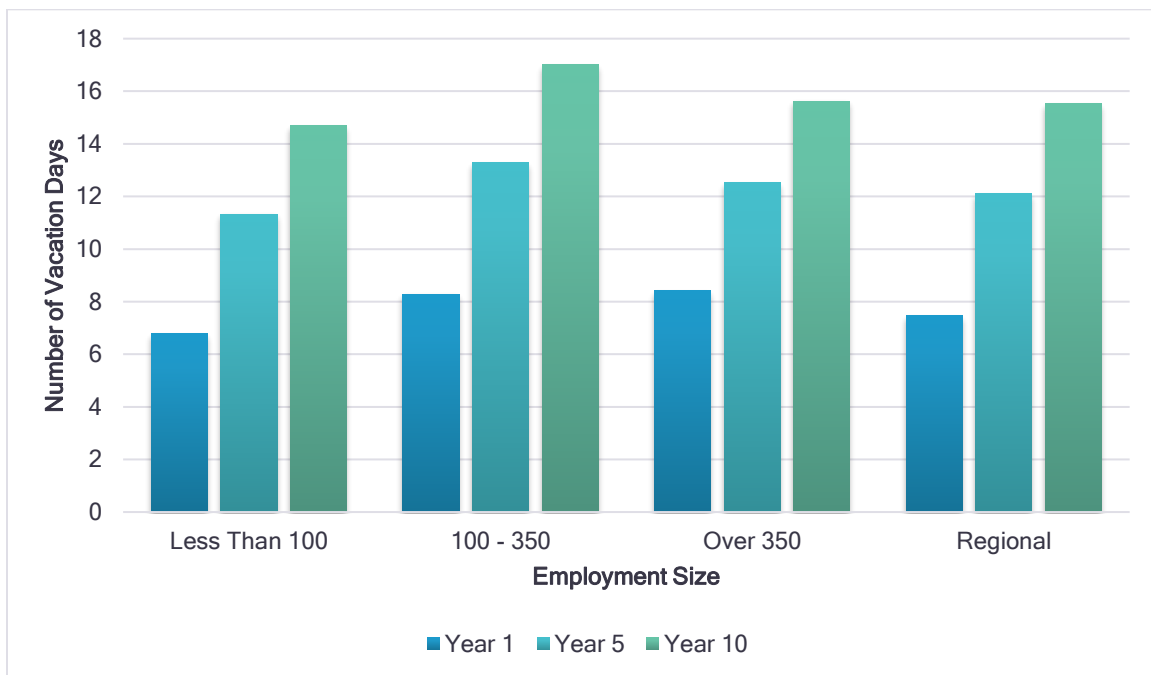
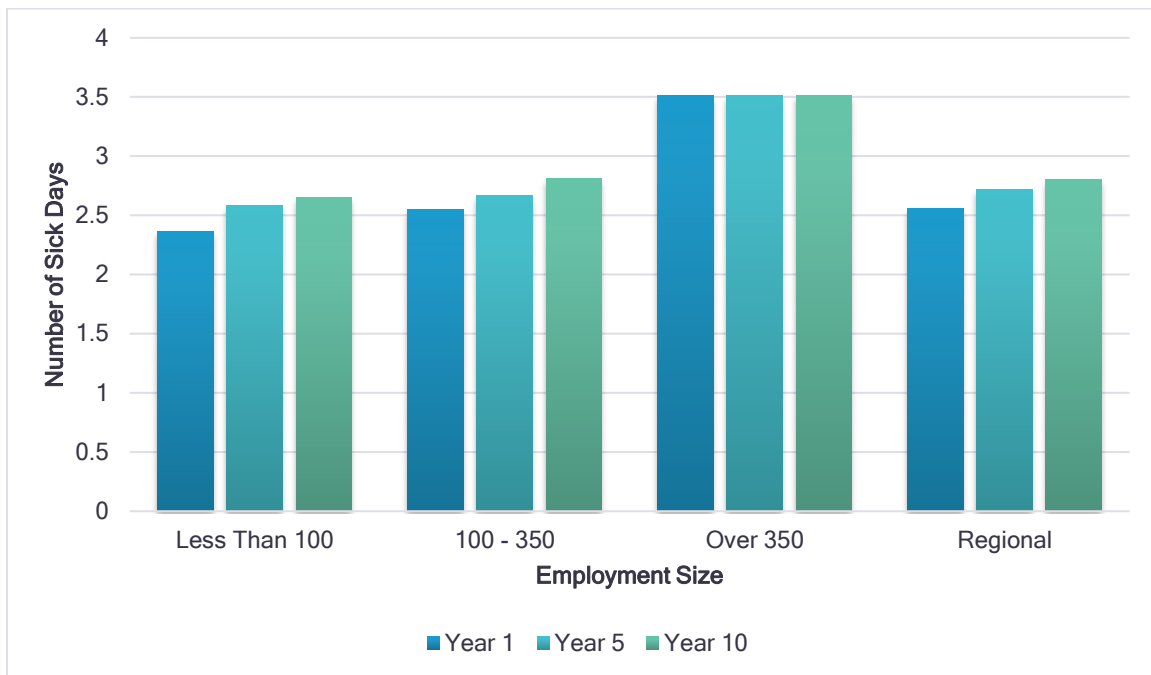


Chart 2. Sick Days by Employment Size



Other types of paid leave reported by surveyed companies are summarized in Table 6.

Table 6. Other Paid Leave

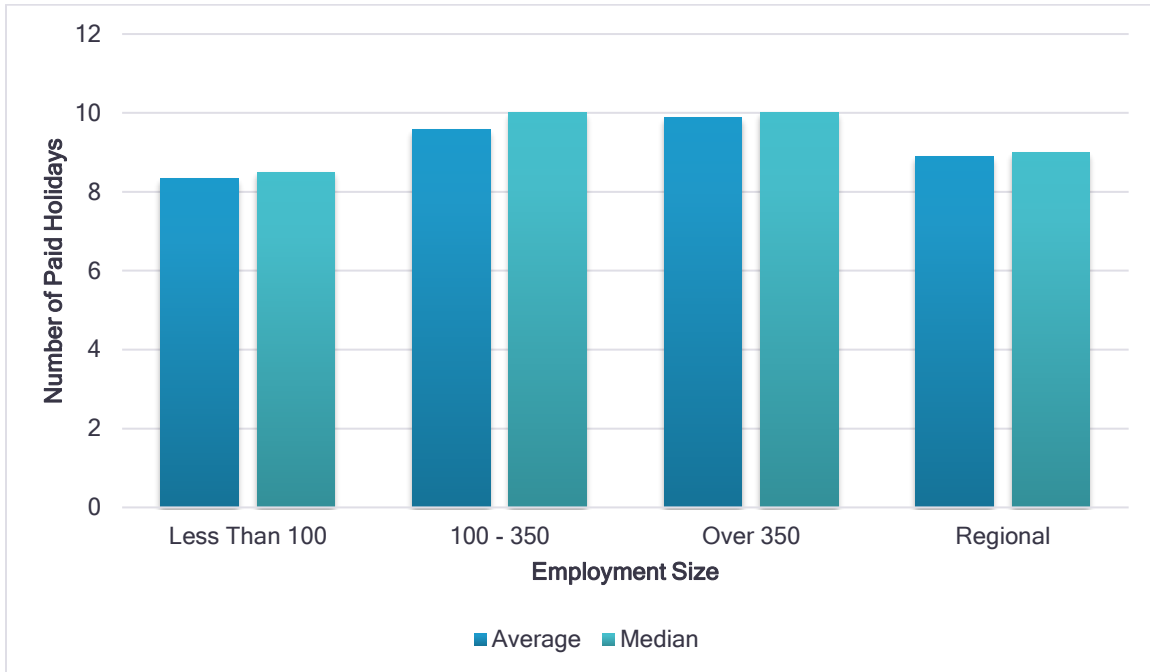
Type of Paid Leave	Percent of Companies
Personal Leave	19.5
Bereavement Leave	86.9
Jury Duty Time Off	89.4
Time Off to Vote	36.6
Maternity Leave	32.1
Paternity Leave	16.1
Adoption Leave	17.2

Note: N/A means disclosure standards are not met.



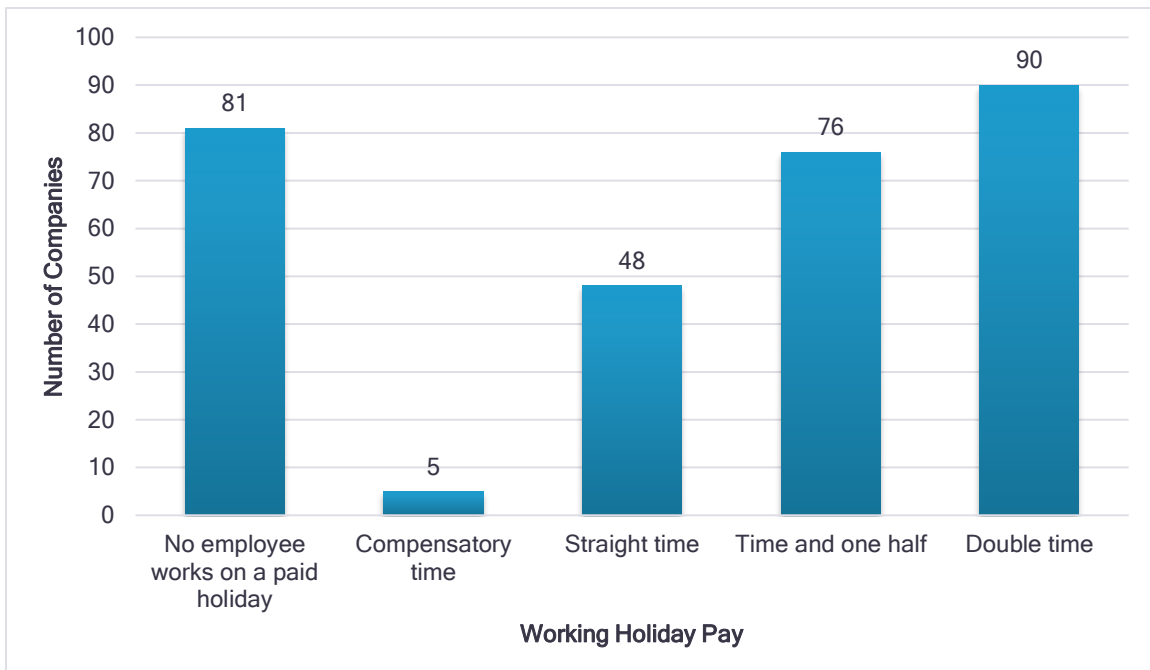
How do paid holidays vary by employment size? Chart 3 presents median and average number of paid holidays by employment size. On average, the study market area companies offer 9 paid holidays annually.

Chart 3. Paid Holidays by Employment Size



What policies do companies have regarding pay for working on a holiday? The chart below shows the common practices for working holiday pay.

Chart 4. Working Holiday Pay



Insurance What kinds of medical insurance do area companies offer their employees? Who pays what portion of the insurance premiums? The charts below show the types of insurance packages and coverages as well as the percent of reporting companies offering health, dental, vision, life, and disability insurance.

Chart 5. Insurance Packages Provided by Companies

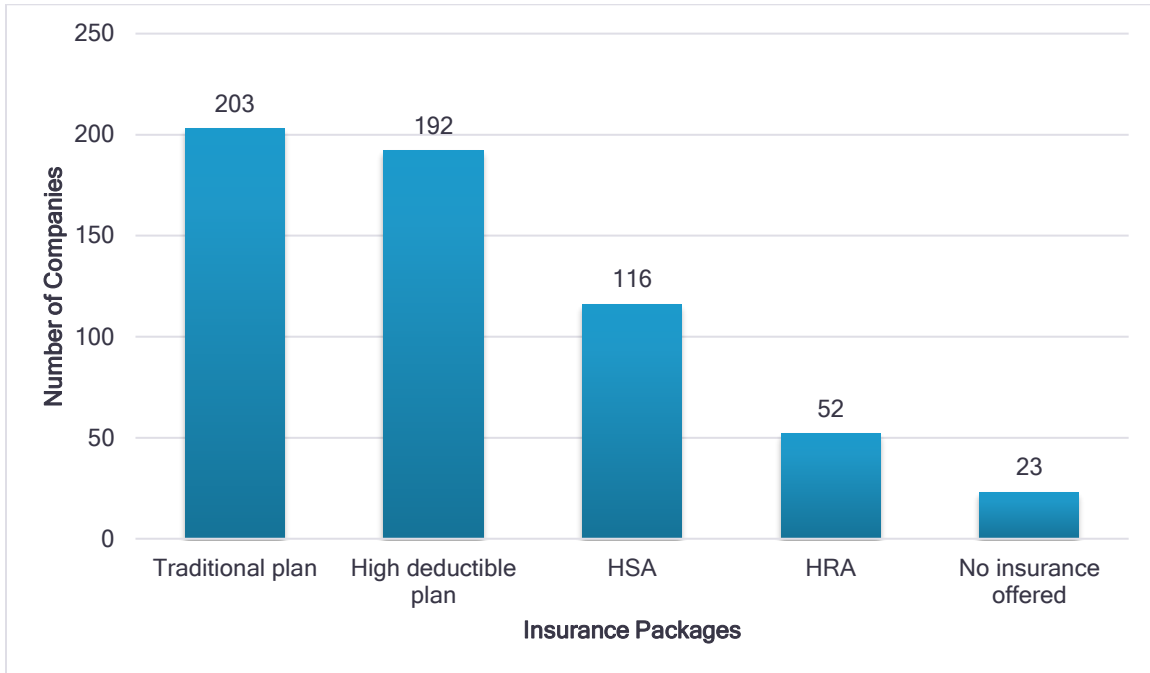
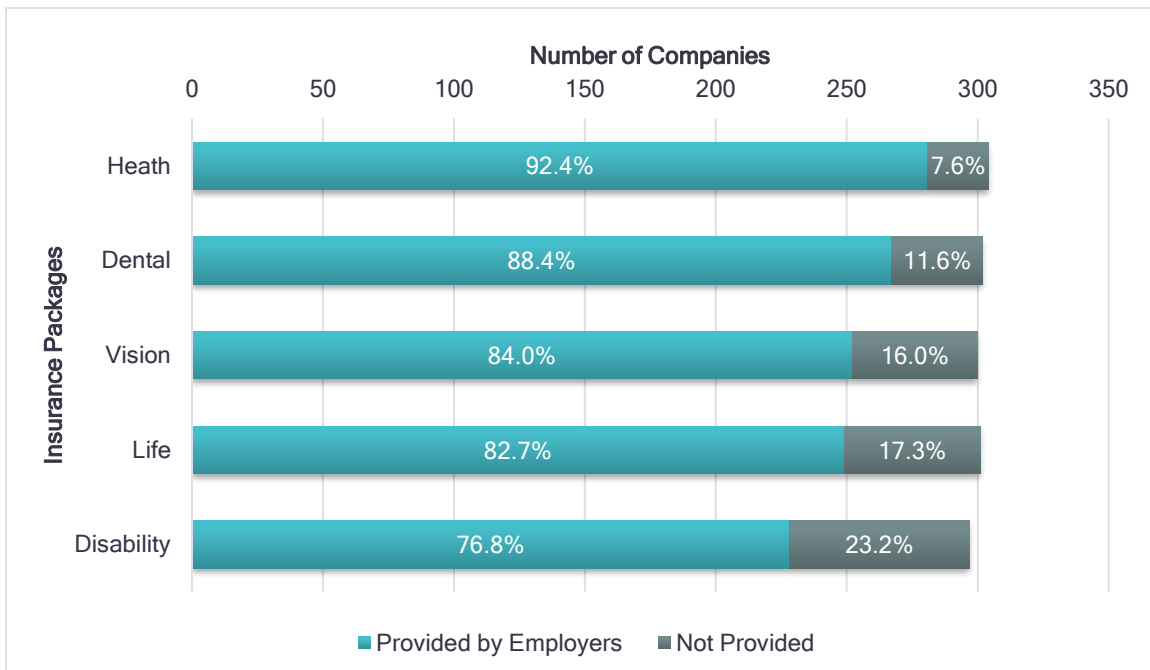


Chart 6. Types of Insurance Provided by Employers



Only about 7 percent of reporting companies offer no insurance benefits. More than 90 percent offer health insurance, as seen in Chart 6. Some companies also offer Wellness programs (40 percent).

What is the average cost of providing medical insurance? Overall, for an individual plan, employees are expected to pay an average of \$1,662 for health insurance, \$224 for dental, and \$84 for vision. The employer's share per employee is significantly higher for health insurance (\$4,530) while relatively lower for dental insurance (\$184) and vision insurance (\$57). When dependents are added to the benefit plan, employee's cost for health insurance increases to \$5,582, and vision to \$218. Similarly, the cost to employers of insuring dependents increases significantly for health (\$11,267) and vision insurance (\$144). Of course, the cost of insurance to both employees and employers varies by establishment size. Table 7 provides detailed cost figures by establishment size.

Table 7. Insurance Costs by Employment Size-Individual

Employment Size	Health Insurance		Dental Insurance		Vision Insurance	
	Employee Cost	Employer Cost	Employee Cost	Employer Cost	Employee Cost	Employer Cost
Less Than 100	\$1,710	\$4,617	\$270	\$206	\$92	\$51
100 - 350	\$1,630	\$4,313	\$170	\$134	\$70	\$49
Over 350	\$1,527	\$4,801	\$165	\$228	\$95	\$109
Regional	\$1,662	\$4,530	\$224	\$184	\$84	\$57

Note1: N/A means disclosure standards are not met.

Note2: In some cases Health, Dental, and Vision included in one plan.

Table 8. Insurance Costs by Employment Size-with Dependents

Employment Size	Health Insurance		Dental Insurance		Vision Insurance	
	Employee Cost	Employer Cost	Employee Cost	Employer Cost	Employee Cost	Employer Cost
Less Than 100	\$6,209	\$10,217	\$747	\$455	\$194	\$129
100 - 350	\$5,223	\$12,465	\$571	\$394	\$235	\$133
Over 350	\$3,876	\$13,141	\$441	\$760	\$266	\$248
Regional	\$5,582	\$11,267	\$650	\$465	\$218	\$144

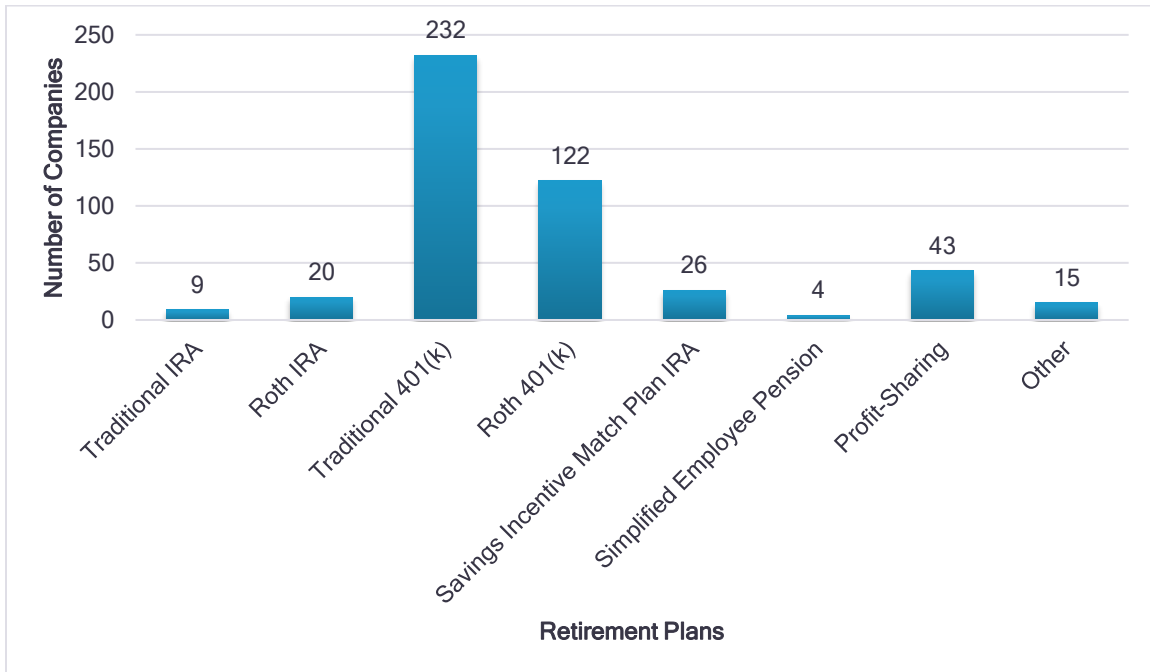
Note1: N/A means disclosure standards are not met.

Note2: In some cases Health, Dental, and Vision included in one plan.

Retirement Plans The following chart, Chart 7, shows defined contribution plans the companies in the study market area offer to their employees. A Traditional 401 (k) is offered by about 90 percent of the companies. Profit sharing is offered by about 17 percent of the companies.



Chart 7. Retirement Plans Provided by Companies



Tuition Reimbursement Benefits In the study market area, about 49 percent of companies include tuition reimbursement as a benefit to their employees. A higher percentage of companies with employee size over 350 (81 percent) offer tuition reimbursement compared to companies with employee size less than 100 (33 percent). The table below provides data on the number of employees taking advantage of educational reimbursement, retention rate, and rate of advancement in the last five years.



Table 9. Tuition Reimbursement in Last Five Years by Employment Size

Employment Size	Average Number of Employees Using Tuition Reimbursement	Average Percent of Employee Retention After Reimbursement	Average Percent of Employees Advancing After Reimbursement
Less Than 100	1.2	72%	51%
100 - 350	4.0	80%	62%
Over 350	13.8	73%	44%
Regional	4.4	76%	55%

Note: N/A means disclosure standards are not met.

Tuition reimbursement eligibility About 54 percent of companies require an employee to work at least one year before eligibility for tuition reimbursement. In addition, For most reporting companies (90 percent) the reimbursement decision depends on the courses in which the employee enrolls. Many companies indicated reimbursement is based on the grade employees earn: approximately 65 percent require a grade of C or above for full reimbursement.

Where employees study Employees study at wide range of accredited institutions including public and private four-year universities, online schools, local community colleges, Tennessee College of Applied Technology (TCAT) centers, as well as through other technical programs, and conferences and workshops. The three most frequently listed institutions in the 40-county region were: Middle Tennessee State University, Austin Peay State University, and Motlow State Community College.

C. Value of Benefits

Total compensation for an employee consists of wages plus benefits. BERC asked employers to report average cost of employee benefits as a percent of wages and salaries cost. A total of 168 companies responded to this question. Average cost of benefits equals about 23.6 percent of costs of employee wages and salaries in those companies. BERC will use this average figure to estimate total employee compensation throughout the rest of this analysis. The following formula for each occupation will be used:

$$\text{Total Compensation} = \text{Average Wage} + (\text{Average Wage} \times 0.236)$$



D. Selected Workplace Issues

BERC asked employers about a few selected workplace issues: employee turnover, absenteeism, addiction-related challenges, and training for employees.

Employee Turnover What percent of companies cite employee turnover as an issue? Slightly more than 59 percent of employers indicate this is an issue. Mid-size companies are more likely to report employee turnover as a challenge.

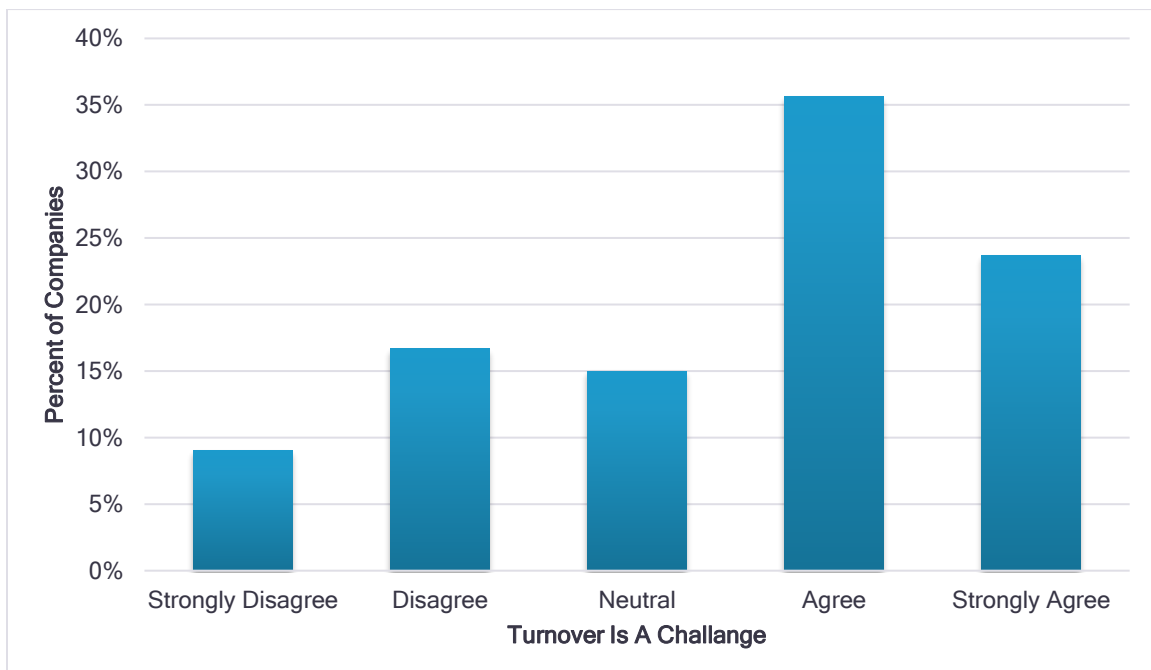
Table 10. Employees Left Voluntarily in the Last 12 Months

Employment Size	Average Annual Turnover	Median Annual Turnover	Median Annual Turnover Rate
Less Than 100	26.6	9.5	19.3%
100 - 350	72.2	32.0	19.2%
Over 350	172.7	92.0	12.5%
Regional	57.4	19.0	18.8%

Note: N/A means disclosure standards are not met.

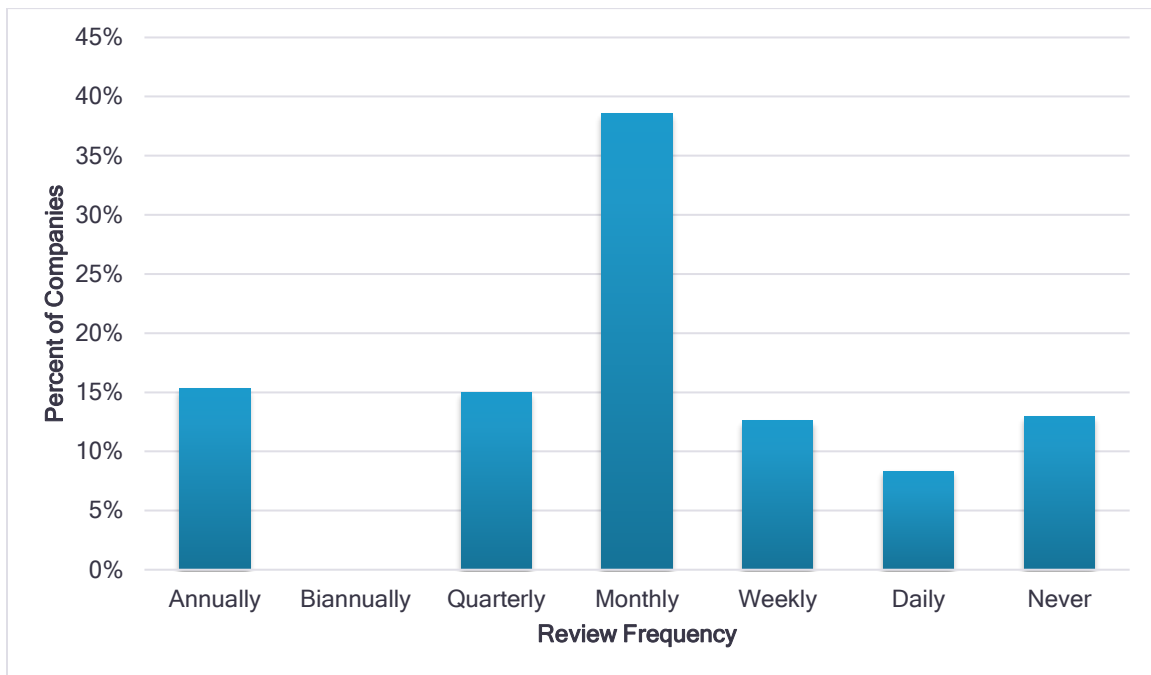
What is the average percent of employee turnover? The median annual employee turnover rate is 18.8 percent. When asked about the reason for turnover, the top three responses were Found Other Employment, Job Abandonment, and Job Dissatisfaction.

Chart 8. Turnover as a Challenge in Company's Normal Operations



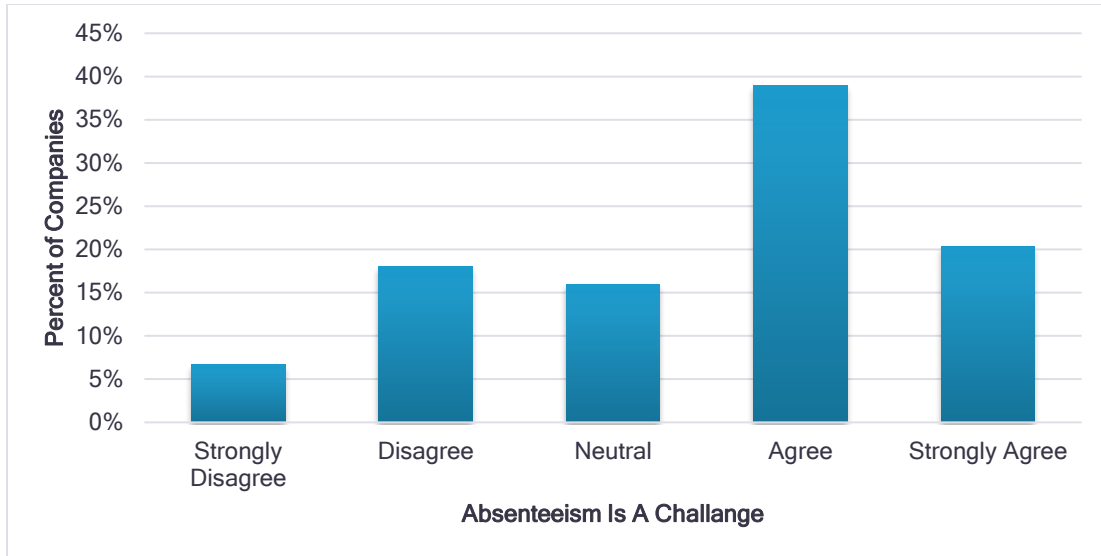
How often do the management teams review the turnover rates? In the 40-county middle Tennessee area surveyed, almost 40 percent of responding companies review turnover rates monthly.

Chart 9. Turnover Review Frequencies

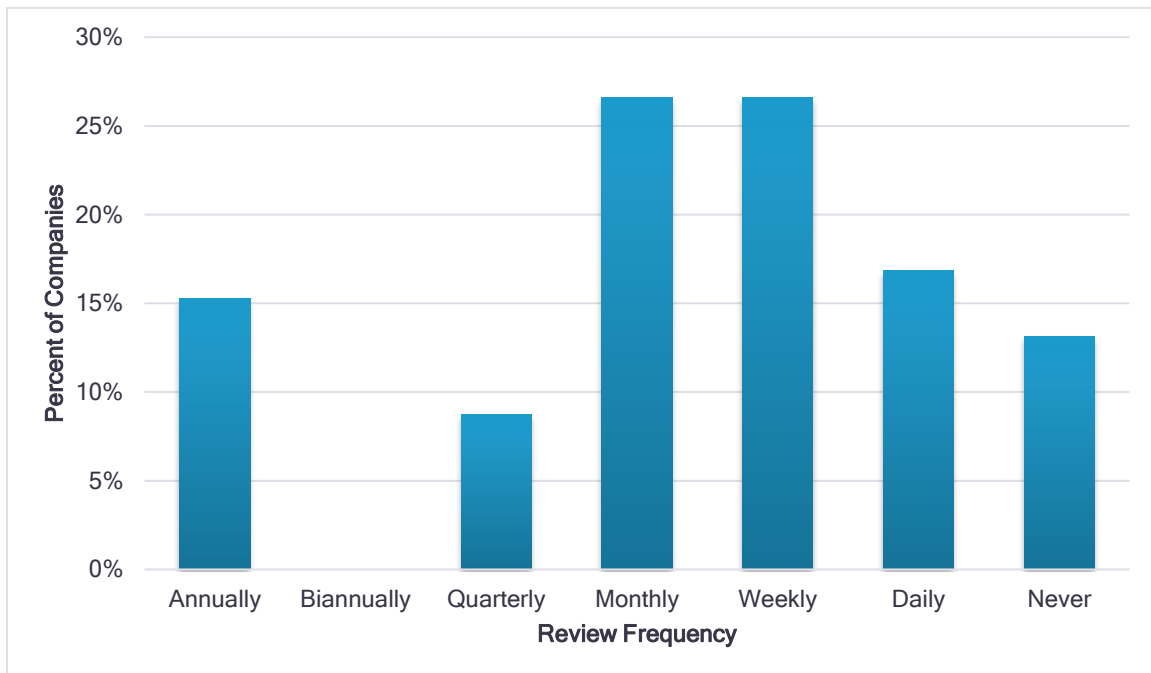


Absenteeism Is employee absenteeism a problem? Chart 10 shows that almost 60 percent of employers agree or strongly agree that this is a concern. Mid-size companies were more likely to report absenteeism as a challenge. When asked the most important factors for absenteeism, the top three reasons given were Illness, Family or Child Care, and Transportation-Related.



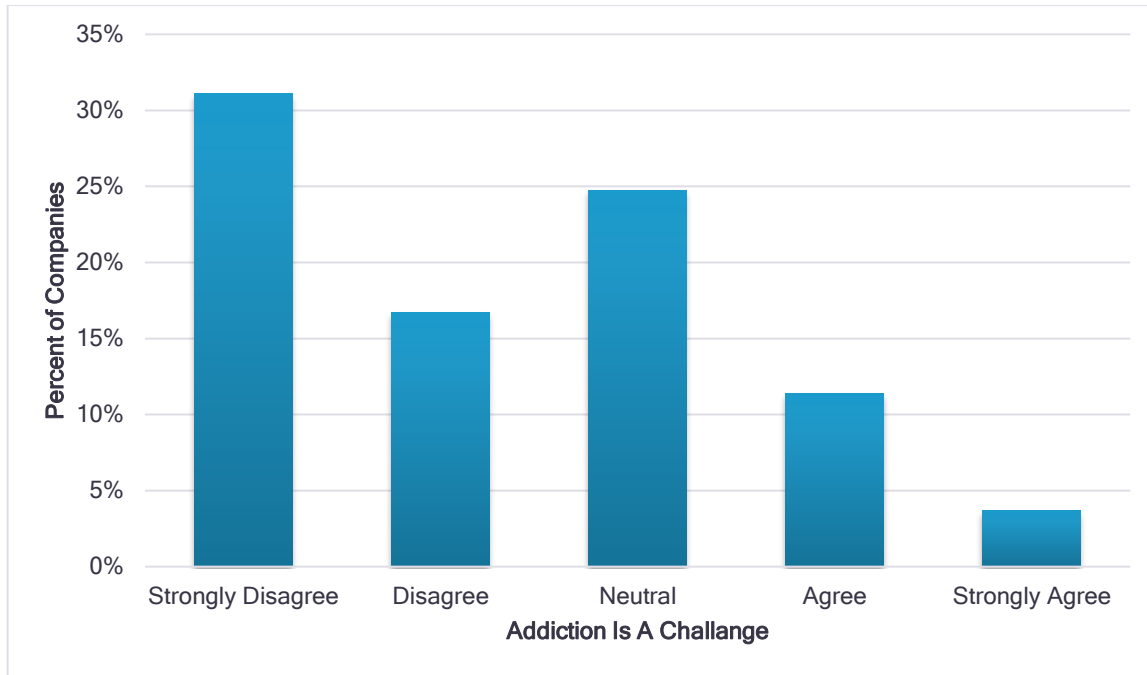
Chart 10. Absenteeism as a Challenge in Company's Normal Operations

How often do the management teams review absenteeism rates? Across the region, about 53 percent of responding companies review absenteeism rates either monthly or weekly.

Chart 11. Absenteeism Review Frequencies

Drug or addiction-related issues Among companies surveyed, a total of 48 percent did not find (strongly disagreed or disagreed) that employees confronting drug or addiction-related issues for themselves or their families presented a challenge to the company's operations over the past 12 months.

Chart 12. Addiction as a Challenge in Company's Normal Operations



Training What types of training do companies provide? On-site training is carried out by 81 percent of companies and 37 percent of companies provide off-site training. The most frequent types of on-site training provided by surveyed companies are: Health and Safety, Forklift Operation, and Leadership. The most frequent types of training provided by reporting companies off-site are: Computer Skills and Software, Leadership, and Professional/Career Development. Large companies tend to have more employees participate in training both on-site and off-site.

Table 11. Training Participation by Employment Size

Employment Size	Percent of Companies Providing On-site Training	Average Participation Rate for On-site Training	Percent of Companies Providing Off-site Training	Average Participation Rate for Off-site Training
Less Than 100	77%	77%	25%	19%
100 - 350	89%	79%	54%	15%
Over 350	76%	91%	53%	31%
Regional	81%	79%	37%	19%

Note: N/A means disclosure standards are not met.



E. Wages and Total Compensation

This section provides wage data for companies and selected occupations surveyed in the study market area. The wage data will be presented in two general formats: (1) average wage by establishment size and cumulative wage distribution and (2) average wage by selected occupation. In presenting wage data, BERC will use both weighted (by number of jobs) and unweighted (by number of establishments) data. However, in the Occupation Profile report, where 208 occupations are profiled individually, BERC will use establishment-level (unweighted) wage data.

As previously stated, BERC identified over 250 occupations for inclusion in the wage and benefit survey. The companies responding to the survey in this region provided data for a total of 208 occupations. If fewer than three companies reported on a given occupation, BERC excluded that occupation from analysis.

Wages by Establishment Size Throughout this section, BERC uses the terms “establishment size” and “company size” interchangeably. How do wages vary by establishment size? Tables 12 and 13 present aggregate wage data by both hourly and annualized wages. Unweighted wage data is the establishment data, whereas weighted wage data is employment-adjusted. Overall, reporting companies pay an average hourly wage of \$30.57. The median establishment wage is \$25.29. Annualized average and median establishment wages are \$63,588 (average) and \$52,593 (median). Tables 12 and 13 illustrate slight variations in wage by employment size.

Table 12. Hourly Wage by Employment Size

Employment Size	Unweighted Wages		Weighted Wages		Number of Positions
	Average	Median	Average	Median	
Less Than 100	\$28.61	\$23.91	\$21.14	\$17.85	6,882
100 - 350	\$31.75	\$26.50	\$23.24	\$19.00	11,547
Over 350	\$33.23	\$29.80	\$22.12	\$19.29	16,743
Regional	\$30.57	\$25.29	\$22.30	\$19.00	35,172

Table 13. Annual Wage by Employment Size

Employment Size	Unweighted Wages		Weighted Wages		Number of Positions
	Average	Median	Average	Median	
Less Than 100	\$59,505	\$49,733	\$43,980	\$37,135	6,882
100 - 350	\$66,041	\$55,120	\$48,335	\$39,520	11,547
Over 350	\$69,110	\$61,984	\$46,008	\$40,124	16,743
Regional	\$63,588	\$52,593	\$46,375	\$39,520	35,172



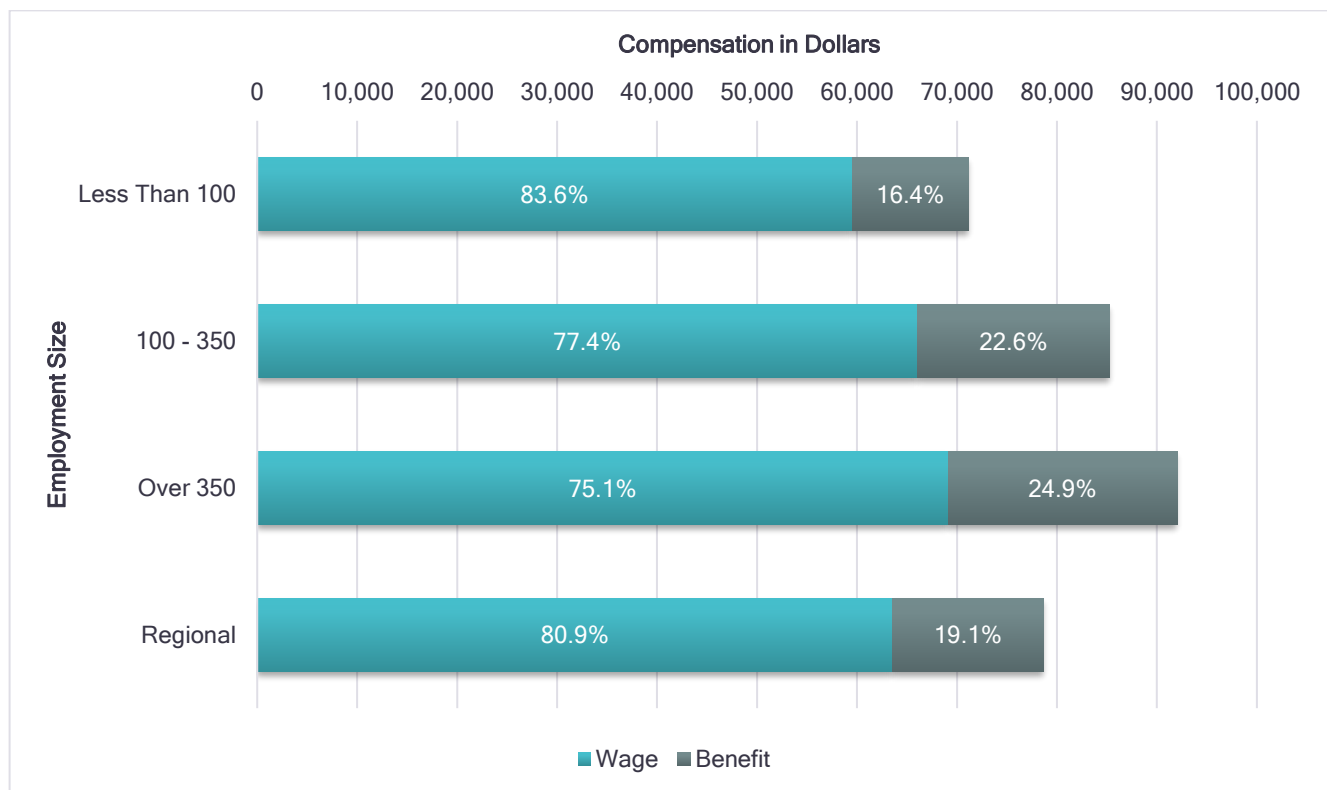
Other Pay Practices In the study market area, other common pay practices include bonus/ incentive pay and merit pay increases.

For employees working second and third shifts, reporting companies offer 7.7 percent (second shift) and 7.8 percent (third shift) or \$0.67 (second) and \$0.81 (third) per hour increases, on average.

More than 47 percent of companies gave a general pay increase in the past two years; the average increase was 4 percent. About 65 percent of companies indicated they anticipate the next increase in 2021.

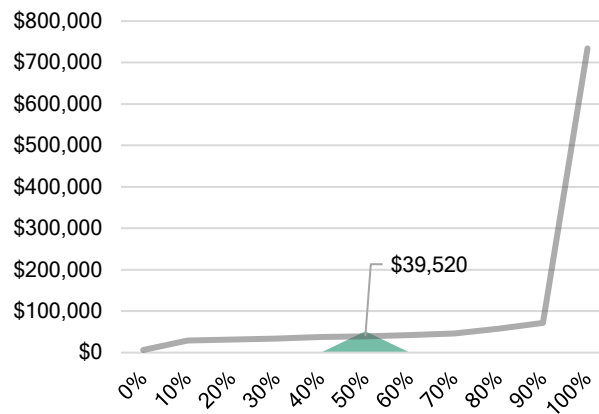
Total Compensation Although average compensation varies by establishment size, overall average compensation in the study market area is \$78,623. The total compensation figures in Chart 13 represent unweighted establishment wages plus benefits.

Chart 13. Total Compensation by Employment Size



Finally, Chart 14 below plots wage distribution in the study market area. Overall wage distribution is highly skewed at the tenth decile. The median wage in the distribution is marked on the chart. This chart is also used in the Occupation Profile report for the 40-county region.

Chart 14. Wage Distribution in the Study Market Area



Wages by Occupation Where data is available, based on number of respondents, BERC provided in its reporting rich detail by occupation. Summary Tables and Occupation Profiles report documents provide detail regarding number of jobs, educational requirements, difficulty of filling position as well as wage by occupation. In the Appendix A that follows occupation-level wage tables from the Summary Tables report are appended.



APPENDIX A: OCCUPATION-LEVEL DATA

There are three separate report documents for each region in the 2021 Middle Tennessee Industrial Wage and Benefit Survey reports. All documents can be found in the online region folder:

- Summary Report
- Occupation Profiles
- Summary Tables

The **Summary Report** is this document.

Occupation Profiles are individual, one-page, detailed profiles of each occupation for which sufficient information was provided by respondents in the region. Each page can be used as standalone document. The Occupation Profiles are not reproduced here in the main summary report; they are available in the online region folder.

Summary Tables. There are four occupation Summary Tables for each region providing characteristics of occupations in summary form, including number of companies reporting, number of positions, minimum educational requirements (in tables I and II), and wage information (in tables III and IV).

The two wage tables (hourly and annualized) are also inserted into this Summary Report as Appendix A: Table A and Appendix A: Table B.

Wage Tables

Appendix A Table A: Average Hourly Wages for the Covered Occupations

Minimum Hourly Wages
Maximum Hourly Wages
Current Hourly Wages

Appendix A Table B: Average Annualized Wages for the Covered Occupations

Weighted (by Job) Average and Median Wages
Unweighted (by Company) Average and Median Wages



Appendix A Table A: Wage and Benefits Survey 2021:
Average Hourly Wages (Unweighted) for the Covered Occupations

SOC Code and Title		Minimum Hourly Average Median		Maximum Hourly Average Median		Current Wages Average Median	
11-0000	Management Occupations						
11-1011	Chief Executive	\$77.11	\$58.35	\$125.00	\$92.54	\$94.00	\$79.53
11-1021	General and Operations Managers	\$50.24	\$43.85	\$66.86	\$60.42	\$54.31	\$50.23
11-2021	Marketing Managers	\$35.20	\$33.91	\$47.71	\$46.13	\$40.13	\$40.00
11-2022	Sales Managers	\$44.06	\$40.00	\$60.50	\$55.00	\$49.61	\$47.24
11-3010	Administrative Services and Facilities Managers	\$29.03	\$28.85	\$36.41	\$34.00	\$36.10	\$36.00
11-3021	Computer and Information Systems Managers	\$40.54	\$37.96	\$54.54	\$48.00	\$44.31	\$40.00
11-3031	Financial Managers	\$47.46	\$44.12	\$58.91	\$52.78	\$51.39	\$49.00
11-3051	Industrial Production Managers	\$31.76	\$30.00	\$42.63	\$40.00	\$38.11	\$35.35
11-3061	Purchasing Managers	\$31.84	\$30.72	\$40.96	\$38.46	\$36.91	\$36.00
11-3071	Transportation, Storage, and Distribution Managers	\$30.35	\$28.85	\$38.30	\$34.50	\$35.56	\$34.50
13-0000	Business and Financial Occupations						
13-1020	Buyers and Purchasing Agents	\$23.27	\$22.06	\$32.20	\$30.00	\$26.96	\$25.67
13-1031	Claims Adjusters, Examiners, and Investigators	\$21.70	\$18.36	\$27.36	\$32.00	\$24.22	\$23.39
13-1041	Compliance Officers	\$38.87	\$41.00	\$55.32	\$43.71	\$45.75	\$40.00
13-1051	Cost Estimators	\$29.49	\$31.00	\$37.93	\$34.36	\$33.56	\$32.35
13-1071	Human Resources Specialists	\$25.08	\$22.38	\$35.00	\$33.27	\$29.21	\$27.35
13-1081	Logisticians	\$20.04	\$19.50	\$30.33	\$26.00	\$25.11	\$24.00
13-1111	Management Analysts	N/A	N/A	\$33.34	\$32.03	\$36.74	\$35.02
13-1141	Compensation, Benefits, and Job Analysis Specialists	\$23.67	\$24.00	\$33.89	\$34.00	\$28.42	\$27.00
13-1151	Training and Development Specialists	\$24.13	\$26.92	\$25.09	\$26.92	\$29.52	\$26.92
13-1161	Market Research Analysts and Marketing Specialists	\$20.13	\$20.00	\$40.21	\$41.68	\$26.55	\$28.23
13-1198	Project Management Specialists and Business Operations Specialists, All Other	\$33.36	\$28.00	\$52.07	\$43.10	\$38.17	\$35.46
13-2011	Accountants and Auditors	\$27.85	\$25.62	\$38.31	\$38.42	\$32.20	\$28.92
13-2031	Budget Analysts	N/A	N/A	N/A	N/A	N/A	N/A
13-2072	Loan Officers	N/A	N/A	N/A	N/A	N/A	N/A
13-2098	Financial and Investment Analysts, Financial Risk Specialists, and Financial Specialists, All Other	\$30.72	\$28.00	\$50.71	\$49.03	\$39.37	\$39.00
15-0000	Computer Occupations						
15-1211	Computer Systems Analysts	\$27.60	\$27.98	\$42.02	\$38.16	\$32.48	\$31.45
15-1231	Computer Network Support Specialists	\$27.05	\$25.00	\$35.22	\$35.23	\$32.00	\$30.68
15-1232	Computer User Support Specialists	\$20.41	\$19.18	\$27.14	\$26.44	\$24.55	\$23.66
15-1244	Network and Computer Systems Administrators	\$29.06	\$31.00	\$40.48	\$36.34	\$32.16	\$31.44
15-1251	Computer Programmers	\$34.17	\$30.00	\$58.77	\$59.80	\$43.99	\$39.00
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	\$28.58	\$27.63	\$51.16	\$50.47	\$24.05	\$23.50
15-1299	Computer Occupations, All Other	\$30.96	\$30.76	\$40.49	\$41.47	\$31.98	\$31.53



		Minimum Hourly		Maximum Hourly		Current Wages	
		Average	Median	Average	Median	Average	Median
17-0000	Engineering Occupations						
17-2011	Aerospace Engineers	\$33.77	\$28.85	\$55.79	\$47.44	\$55.88	\$54.93
17-2031	Bioengineers and Biomedical Engineers	N/A	N/A	N/A	N/A	N/A	N/A
17-2041	Chemical Engineers	\$31.51	\$30.04	\$40.80	\$39.81	\$40.64	\$39.74
17-2051	Civil Engineers	\$44.50	\$46.00	\$61.00	\$63.50	\$46.60	\$50.00
17-2061	Computer Hardware Engineers	N/A	N/A	N/A	N/A	\$39.00	\$38.50
17-2071	Electrical Engineers	\$36.45	\$33.32	\$55.85	\$52.00	\$44.40	\$42.64
17-2072	Electronics Engineers, Except Computer Engineers	N/A	N/A	N/A	N/A	N/A	N/A
17-2111	Health and Safety Engineers, Except Mining Safety	\$33.16	\$33.55	\$42.99	\$41.44	\$39.54	\$39.29
17-2112	Industrial Engineers	\$31.37	\$30.60	\$43.06	\$40.93	\$37.43	\$38.23
17-2131	Materials Engineers	\$31.28	\$38.20	\$38.35	\$40.10	\$38.23	\$38.19
17-2141	Mechanical Engineers	\$33.02	\$30.00	\$48.10	\$47.00	\$39.26	\$38.00
17-2199	Engineers, All Other	\$31.95	\$29.00	\$48.64	\$49.30	\$36.39	\$36.13
17-3013	Mechanical Drafters	\$19.89	\$19.25	\$26.28	\$25.00	\$22.57	\$21.87
17-3023	Electrical and Electronic Engineering Technologists and Technicians	\$21.02	\$21.00	\$36.68	\$35.86	\$26.18	\$24.62
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	\$23.80	\$23.00	\$28.43	\$28.55	\$30.07	\$27.75
17-3026	Industrial Engineering Technologists and Technicians	\$23.76	\$23.00	\$39.02	\$28.94	\$29.28	\$25.66
17-3027	Mechanical Engineering Technologists and Technicians	\$23.18	\$21.00	\$32.09	\$31.45	\$25.72	\$25.17
17-3098	Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other	\$18.47	\$17.35	\$35.56	\$20.00	\$25.77	\$25.92
19-0000	Life, Physical, and Social Science Occupations						
19-1012	Food Scientists and Technologists	N/A	N/A	N/A	N/A	\$30.50	\$25.22
19-2030	Chemists and Materials Scientists	\$29.46	\$26.00	\$40.25	\$35.00	\$33.23	\$32.00
19-4010	Agricultural and Food Science Technicians	N/A	N/A	N/A	N/A	N/A	N/A
19-4031	Chemical Technicians	\$17.22	\$16.55	\$30.20	\$27.45	\$20.38	\$19.26
19-5011	Occupational Health and Safety Specialists	\$30.35	\$25.69	\$44.10	\$41.41	\$34.22	\$31.00
27-0000	Arts, Design, and Media Occupations						
27-1021	Commercial and Industrial Designers	\$24.53	\$23.80	\$38.84	\$34.50	\$30.27	\$27.88
27-1024	Graphic Designers	\$22.31	\$22.00	\$30.02	\$28.53	\$26.76	\$26.00
27-1026	Merchandise Displayers and Window Trimmers	N/A	N/A	N/A	N/A	N/A	N/A
27-3042	Technical Writers	N/A	N/A	N/A	N/A	N/A	N/A
29-0000	Healthcare Practitioners and Technical Occupations						
29-1141	Registered Nurses	\$27.71	\$29.43	\$33.64	\$35.00	\$31.46	\$35.92
33-0000	Protective Service Occupations						
33-9032	Security Guards	\$10.51	\$10.00	\$16.85	\$11.70	\$12.85	\$12.75



		Minimum Hourly		Maximum Hourly		Current Wages	
		Average	Median	Average	Median	Average	Median
35-0000	Food Preparation and Serving Related Occupations						
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	\$19.71	\$20.91	\$24.65	\$25.48	\$23.07	\$24.17
35-2021	Food Preparation Workers	\$12.19	\$12.00	\$17.69	\$16.57	N/A	N/A
37-0000	Building and Grounds Cleaning and Maintenance Occupations						
37-1010	First-Line Supervisors of Building and Groundskeeping and Maintenance Workers	\$24.55	\$24.58	\$34.57	\$32.75	\$29.76	\$29.06
37-2010	Janitors and Cleaners, Maids and Housekeeping, Building Cleaning Workers	\$13.92	\$13.00	\$16.62	\$16.00	\$14.73	\$14.54
37-3010	Grounds Maintenance Workers	\$16.58	\$16.29	\$21.62	\$22.00	\$18.71	\$17.00
41-0000	Sales and Related Occupations						
41-1012	First-Line Supervisors of Non-Retail Sales Workers	\$29.90	\$33.00	\$37.51	\$37.50	\$35.41	\$37.50
41-2011	Cashiers	\$11.73	\$10.25	\$15.13	\$15.19	\$12.73	\$11.91
41-2031	Retail Salespersons	\$17.02	\$17.19	\$34.02	\$37.88	\$26.98	\$26.37
41-3091	Sales Representatives of Services	\$23.60	\$22.00	\$40.01	\$41.00	\$29.36	\$29.22
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$26.28	\$25.00	\$34.57	\$32.16	\$31.49	\$28.00
41-4012	Sales Representatives, Wholesale and Manufacturing, EXCEPT Technical and Scientific Products	\$26.38	\$28.27	\$39.17	\$35.00	\$34.11	\$31.25
41-9011	Demonstrators and Product Promoters	N/A	N/A	N/A	N/A	N/A	N/A
41-9031	Sales Engineers	\$37.29	\$34.13	\$48.63	\$48.35	\$40.03	\$37.00
43-0000	Office and Administrative Support Occupations						
43-1011	First-Line Supervisors of Office and Administrative Support Workers	\$24.32	\$21.82	\$34.77	\$30.00	\$28.72	\$25.00
43-3011	Bill and Account Collectors	\$18.32	\$18.50	\$22.81	\$20.00	\$21.21	\$19.00
43-3021	Billing and Posting Clerks	\$18.77	\$18.00	\$26.80	\$21.29	\$20.48	\$18.85
43-3031	Bookkeeping, Accounting, and Auditing Clerks	\$18.92	\$18.34	\$24.65	\$23.54	\$21.48	\$20.00
43-3051	Payroll and Timekeeping Clerks	\$18.97	\$18.00	\$26.50	\$25.00	\$23.21	\$21.00
43-3061	Procurement Clerks	\$18.89	\$18.12	\$24.61	\$24.44	\$20.80	\$20.75
43-4051	Customer Service Representatives	\$17.30	\$16.25	\$23.07	\$22.00	\$20.58	\$19.00
43-4151	Order Clerks	\$16.53	\$15.00	\$19.36	\$18.87	\$17.29	\$15.00
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	\$19.97	\$19.65	\$23.18	\$22.36	\$21.79	\$21.48
43-4171	Receptionists and Information Clerks	\$14.95	\$14.00	\$17.77	\$17.14	\$16.30	\$16.00
43-4199	Information and Records Clerks, All Other	\$18.69	\$20.00	\$22.32	\$21.96	\$20.64	\$18.50
43-5061	Production, Planning, and Expediting Clerks	\$20.81	\$19.23	\$26.56	\$26.12	\$25.00	\$23.80
43-5071	Shipping, Receiving, and Inventory Clerks	\$16.32	\$15.00	\$20.69	\$20.00	\$18.98	\$18.13
43-5111	Weighers, Measurers, Checkers, and Samplers Recordkeeping	\$15.24	\$15.78	\$17.65	\$16.97	\$16.91	\$17.50
43-6011	Executive Secretaries and Executive Administrative Assistants	\$20.93	\$19.60	\$26.88	\$24.86	\$26.49	\$25.58
43-6014	Secretaries and Administrative Assistants Except Executive	\$20.52	\$16.92	\$27.91	\$21.17	\$23.31	\$23.08
43-9061	Office Clerks, General	\$16.64	\$16.90	\$20.37	\$20.00	\$17.32	\$17.08
43-9199	Office and Administrative Support Workers, All Other	\$17.27	\$17.46	\$23.63	\$23.69	\$20.05	\$19.66



		Minimum Hourly		Maximum Hourly		Current Wages	
		Average	Median	Average	Median	Average	Median
47-0000	Construction and Extraction Occupations						
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	\$26.00	\$25.00	\$32.33	\$30.00	\$27.44	\$24.88
47-2061	Construction Laborers	N/A	N/A	N/A	N/A	\$16.00	\$16.00
47-2111	Electricians	\$20.08	\$18.19	\$32.07	\$31.00	\$24.37	\$22.00
47-2211	Sheet Metal Workers	\$15.67	\$14.00	\$27.33	\$31.00	\$21.50	\$21.50
47-3013	Helpers-Electricians	\$15.67	\$16.00	N/A	N/A	\$17.67	\$17.00
49-0000	Installation, Maintenance, and Repair Occupations						
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	\$30.36	\$30.00	\$38.49	\$35.00	\$35.33	\$35.00
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	\$24.74	\$24.35	\$31.91	\$30.85	\$28.51	\$29.48
49-3023	Automotive Service Technicians and Mechanics	N/A	N/A	N/A	N/A	N/A	N/A
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	\$23.01	\$25.15	\$22.25	\$25.00	\$22.19	\$23.50
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	N/A	N/A	N/A	N/A	\$29.37	\$29.00
49-9041	Industrial Machinery Mechanics	\$21.24	\$21.50	\$28.66	\$30.00	\$25.37	\$25.67
49-9043	Maintenance Workers, Machinery	\$20.72	\$19.18	\$27.68	\$27.00	\$25.18	\$24.87
49-9044	Millwrights	\$21.20	\$24.00	\$28.60	\$29.00	\$25.86	\$25.00
49-9071	Maintenance and Repair Workers, General	\$20.35	\$19.75	\$27.97	\$27.62	\$23.48	\$23.00
49-9099	Installation, Maintenance and Repair Workers, All Other	\$16.64	\$15.25	\$28.55	\$20.63	\$19.58	\$18.25
51-0000	Production Occupations						
51-1011	First-Line Supervisors of Production and Operating Workers	\$23.60	\$24.00	\$32.31	\$31.33	\$27.55	\$28.00
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	N/A	N/A	N/A	N/A	N/A	N/A
51-2021	Coil Winders, Tapers, and Finishers	N/A	N/A	N/A	N/A	N/A	N/A
51-2028	Electrical, Electronic, and Electromechanical Assemblers	\$17.99	\$16.00	\$28.60	\$25.68	\$23.47	\$21.50
51-2031	Engine and Other Machine Assemblers	\$16.50	\$16.00	\$20.42	\$19.84	\$19.25	\$19.58
51-2041	Structural Metal Fabricators and Fitters	\$16.27	\$17.25	\$25.10	\$23.19	\$21.14	\$20.27
51-2051	Fiberglass Laminators and Fabricators	N/A	N/A	N/A	N/A	\$18.50	\$20.14
51-2090	Miscellaneous Assemblers and Fabricators	\$13.96	\$14.00	\$19.94	\$19.67	\$16.78	\$16.50
51-3011	Bakers	N/A	N/A	N/A	N/A	N/A	N/A
51-3021	Butchers and Meat Cutters	N/A	N/A	N/A	N/A	N/A	N/A
51-3099	Food Processing Workers, All Other	\$13.90	\$15.00	\$18.74	\$17.00	\$15.41	\$15.00
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	\$14.89	\$15.22	\$20.05	\$20.87	\$18.18	\$17.64
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	\$14.66	\$15.00	\$17.18	\$17.00	\$18.82	\$17.45
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	\$15.64	\$16.00	\$20.57	\$20.59	\$18.32	\$18.00
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	\$14.71	\$15.00	\$20.86	\$20.59	\$17.33	\$17.00
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$17.55	\$18.00	\$22.49	\$21.00	\$19.95	\$19.50



		Minimum Hourly		Maximum Hourly		Current Wages	
		Average	Median	Average	Median	Average	Median
51-0000	<i>Production Occupation continued</i>						
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$16.09	\$13.77	\$20.53	\$19.48	\$19.24	\$17.00
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$16.50	\$16.00	\$23.84	\$23.50	\$21.58	\$21.58
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	\$17.73	\$16.00	\$26.25	\$25.45	\$18.64	\$17.45
51-4041	Machinists	\$17.90	\$16.30	\$25.82	\$25.22	\$22.59	\$22.00
51-4051	Metal-Refining Furnace Operators and Tenders	\$15.57	\$14.75	\$20.65	\$19.41	\$17.98	\$17.00
51-4052	Pourers and Casters, Metal	\$16.05	\$15.00	\$20.84	\$20.20	\$19.07	\$17.97
51-4071	Foundry Mold and Coremakers	\$16.42	\$15.00	\$22.44	\$22.13	\$20.53	\$21.46
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	\$16.96	\$15.00	\$22.48	\$22.13	\$19.23	\$19.23
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$17.14	\$17.40	\$23.02	\$21.75	\$20.58	\$20.93
51-4111	Tool and Die Makers	\$20.76	\$20.04	\$29.36	\$29.50	\$26.47	\$26.65
51-4121	Welders, Cutters, Solderers, and Brazers	\$16.77	\$15.53	\$22.55	\$20.95	\$19.61	\$18.30
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	\$15.10	\$14.53	\$18.51	\$19.08	\$17.54	\$17.95
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	\$16.76	\$15.63	\$22.34	\$21.82	\$20.29	\$18.10
51-4193	Plating Machine Setters, Operators, and Tenders, Metal and Plastic	\$14.83	\$14.50	\$17.75	\$17.75	\$17.08	\$18.00
51-4199	Metal Workers and Plastic Workers, All Other	\$13.68	\$12.50	\$18.40	\$19.13	\$15.93	\$15.89
51-5111	Prepress Technicians and Workers	N/A	N/A	N/A	N/A	N/A	N/A
51-6031	Sewing Machine Operators	\$11.85	\$11.58	\$15.93	\$15.50	\$13.34	\$13.61
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	\$14.73	\$15.60	\$17.53	\$15.60	\$16.83	\$15.60
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	\$13.09	\$12.75	\$15.70	\$16.00	\$14.53	\$15.25
51-7042	Woodworking Machine Setters, Operators, and Tenders, Wood	\$11.40	\$11.55	\$15.56	\$16.30	\$15.42	\$14.07
51-8031	Water and Wastewater Treatment Plant and System Operators	\$18.62	\$16.50	\$24.72	\$22.85	\$21.02	\$18.88
51-8091	Chemical Plant and System Operators	N/A	N/A	N/A	N/A	\$25.33	\$27.00
51-9011	Chemical Equipment Operators and Tenders	\$17.08	\$14.25	\$34.04	\$31.00	\$24.41	\$23.32
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	\$13.38	\$14.00	\$18.31	\$18.00	\$15.84	\$15.50
51-9022	Grinding and Polishing Workers, Hand	N/A	N/A	N/A	N/A	N/A	N/A
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	\$17.59	\$14.00	\$25.87	\$22.00	\$19.64	\$18.49
51-9031	Cutters and Trimmers, Hand	N/A	N/A	N/A	N/A	\$13.60	\$12.64
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	N/A	N/A	N/A	N/A	\$24.58	\$17.55
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	\$12.43	\$12.00	\$19.19	\$20.25	\$18.22	\$16.00



		Minimum Hourly		Maximum Hourly		Current Wages	
		Average	Median	Average	Median	Average	Median
51-0000	<i>Production Occupation continued</i>						
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	\$16.15	\$14.50	\$22.06	\$21.95	\$18.36	\$16.43
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$15.98	\$15.53	\$21.45	\$20.90	\$19.22	\$19.34
51-9111	Packaging and Filling Machine Operators and Tenders	\$14.76	\$13.85	\$18.24	\$18.50	\$16.30	\$15.00
51-9123	Painting, Coating, and Decorating Workers	\$15.35	\$14.83	\$17.90	\$18.00	\$17.09	\$16.72
51-9124	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	\$14.05	\$14.20	\$18.06	\$18.00	\$17.17	\$16.00
51-9161	Computer Numerically Controlled Tool Operators	N/A	N/A	N/A	N/A	\$23.06	\$21.81
51-9162	Computer Numerically Controlled Tool Programmers	\$22.03	\$20.65	\$30.77	\$28.61	\$30.18	\$30.00
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	\$13.51	\$14.13	\$16.38	\$16.63	\$14.58	\$15.04
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	N/A	N/A	N/A	N/A	\$17.89	\$16.00
51-9196	Paper Goods Machine Setters, Operators, and Tenders	\$17.52	\$17.00	\$21.22	\$23.30	\$19.23	\$21.00
51-9197	Tire Builders	N/A	N/A	N/A	N/A	N/A	N/A
51-9198	Helpers-Production Workers	\$12.77	\$12.47	\$16.62	\$17.21	\$14.93	\$14.00
51-9199	Production Workers, All Other	\$14.13	\$14.00	\$19.30	\$18.19	\$16.14	\$15.52
53-0000	<i>Transportation and Material Moving Occupations</i>						
53-1047	First-Line Supervisors of Transportation and Material Moving Workers	\$21.23	\$20.00	\$27.93	\$27.16	\$25.69	\$25.85
53-3031	Driver/Sales Workers	\$18.56	\$18.90	\$41.67	\$24.22	\$25.66	\$19.95
53-3032	Heavy and Tractor-Trailer Truck Drivers	\$19.18	\$17.50	\$23.27	\$22.00	\$21.52	\$20.25
53-3033	Light Truck Drivers	\$16.98	\$14.21	\$19.96	\$18.23	\$18.18	\$17.00
53-7011	Conveyor Operators and Tenders	\$15.85	\$15.84	\$17.28	\$17.35	\$18.50	\$17.57
53-7021	Crane and Tower Operators	N/A	N/A	N/A	N/A	\$27.71	\$30.00
53-7051	Industrial Truck and Tractor Operators	\$14.90	\$14.50	\$18.32	\$17.88	\$16.81	\$16.02
53-7061	Cleaners of Vehicles and Equipment	N/A	N/A	N/A	N/A	N/A	N/A
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	\$14.92	\$14.53	\$18.70	\$17.18	\$16.77	\$15.86
53-7063	Machine Feeders and Offbearers	N/A	N/A	N/A	N/A	N/A	N/A
53-7064	Packers and Packagers, Hand	\$13.53	\$13.94	\$17.77	\$15.71	\$14.96	\$15.00
53-7065	Stockers and Order Fillers	\$13.55	\$13.15	\$15.88	\$16.00	\$14.93	\$14.44
53-7190	Material Moving Workers, All Other	\$15.01	\$14.06	\$19.06	\$19.00	\$17.02	\$16.53



**Appendix A Table B: Wage and Benefits Survey 2021:
Average Annualized Wages for the Covered Occupations**

SOC Code and Title	Weighted (by Job)		Unweighted (by Company)	
	Average	Median	Average	Median
11-0000 Management Occupations				
11-1011 Chief Executive	\$187,335	\$147,264	\$195,524	\$165,422
11-1021 General and Operations Managers	\$93,299	\$68,239	\$112,954	\$104,468
11-2021 Marketing Managers	\$91,864	\$94,297	\$83,478	\$83,200
11-2022 Sales Managers	\$106,457	\$99,527	\$103,192	\$98,259
11-3010 Administrative Services and Facilities Managers	\$74,619	\$67,980	\$75,079	\$74,880
11-3021 Computer and Information Systems Managers	\$101,025	\$101,920	\$92,175	\$83,200
11-3031 Financial Managers	\$110,801	\$105,040	\$106,899	\$101,920
11-3051 Industrial Production Managers	\$73,851	\$62,400	\$79,275	\$73,528
11-3061 Purchasing Managers	\$80,909	\$79,040	\$76,768	\$74,880
11-3071 Transportation, Storage, and Distribution Managers	\$77,156	\$73,902	\$73,973	\$71,760
13-0000 Business and Financial Occupations				
13-1020 Buyers and Purchasing Agents	\$61,171	\$56,285	\$56,069	\$53,383
13-1031 Claims Adjusters, Examiners, and Investigators	\$51,551	\$48,651	\$50,372	\$48,651
13-1041 Compliance Officers	\$95,880	\$78,094	\$95,150	\$83,200
13-1051 Cost Estimators	\$85,922	\$79,040	\$69,802	\$67,288
13-1071 Human Resources Specialists	\$61,994	\$56,368	\$60,758	\$56,888
13-1081 Logisticians	\$50,764	\$42,557	\$52,221	\$49,920
13-1111 Management Analysts	\$76,939	\$69,727	\$76,414	\$72,831
13-1141 Compensation, Benefits, and Job Analysis Specialists	\$60,328	\$58,760	\$59,110	\$56,160
13-1151 Training and Development Specialists	\$56,535	\$49,920	\$61,409	\$55,994
13-1161 Market Research Analysts and Marketing Specialists	\$59,382	\$59,208	\$55,215	\$58,718
13-1198 Project Management Specialists and Business Operations Specialists, All Other	\$83,734	\$80,521	\$79,401	\$73,746
13-2011 Accountants and Auditors	\$69,075	\$62,400	\$66,974	\$60,154
13-2031 Budget Analysts	N/A	N/A	\$67,402	\$67,402
13-2072 Loan Officers	N/A	N/A	\$46,821	\$46,821
13-2098 Financial and Investment Analysts, Financial Risk Specialists, and Financial Specialists, All Other	\$80,512	\$84,911	\$81,879	\$81,120
15-0000 Computer Occupations				
15-1211 Computer Systems Analysts	\$72,292	\$79,043	\$67,561	\$65,406
15-1231 Computer Network Support Specialists	\$67,737	\$65,501	\$66,569	\$63,804
15-1232 Computer User Support Specialists	\$50,935	\$47,017	\$51,054	\$49,213
15-1244 Network and Computer Systems Administrators	\$69,104	\$67,652	\$66,898	\$65,395
15-1251 Computer Programmers	\$87,639	\$80,682	\$91,494	\$81,120
15-1256 Software Developers and Software Quality Assurance Analysts and Testers	\$95,472	\$106,721	\$50,029	\$48,880
15-1299 Computer Occupations, All Other	\$88,962	\$78,800	\$66,520	\$65,582



		Weighted (by Job)		Unweighted (by Company)	
		Average	Median	Average	Median
17-0000	Engineering Occupations				
17-2011	Aerospace Engineers	\$117,850	\$92,506	\$116,220	\$114,254
17-2031	Bioengineers and Biomedical Engineers	N/A	N/A	N/A	N/A
17-2041	Chemical Engineers	\$83,606	\$72,800	\$84,529	\$82,649
17-2051	Civil Engineers	\$79,040	\$64,480	\$96,928	\$104,000
17-2061	Computer Hardware Engineers	N/A	N/A	\$81,120	\$80,080
17-2071	Electrical Engineers	\$92,419	\$89,658	\$92,361	\$88,681
17-2072	Electronics Engineers, Except Computer Engineers	N/A	N/A	\$78,676	\$78,676
17-2111	Health and Safety Engineers, Except Mining Safety	\$80,600	\$79,040	\$82,234	\$81,723
17-2112	Industrial Engineers	\$85,617	\$83,475	\$77,860	\$79,518
17-2131	Materials Engineers	\$79,149	\$74,127	\$79,521	\$79,435
17-2141	Mechanical Engineers	\$79,956	\$79,577	\$81,654	\$79,040
17-2199	Engineers, All Other	\$70,403	\$63,589	\$75,687	\$75,140
17-3013	Mechanical Drafters	\$46,677	\$44,834	\$46,950	\$45,490
17-3023	Electrical and Electronic Engineering Technologists and Technicians	\$61,910	\$56,576	\$54,452	\$51,210
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	\$62,289	\$61,183	\$62,537	\$57,720
17-3026	Industrial Engineering Technologists and Technicians	\$80,648	\$101,920	\$60,907	\$53,373
17-3027	Mechanical Engineering Technologists and Technicians	\$52,235	\$51,886	\$53,490	\$52,343
17-3098	Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other	\$72,452	\$71,913	\$53,606	\$53,914
19-0000	Life, Physical, and Social Science Occupations				
19-1012	Food Scientists and Technologists	\$60,689	\$50,149	\$63,433	\$52,458
19-2030	Chemists and Materials Scientists	\$70,697	\$75,091	\$69,111	\$66,560
19-4010	Agricultural and Food Science Technicians	N/A	N/A	\$38,532	\$38,532
19-4031	Chemical Technicians	\$42,169	\$39,224	\$42,383	\$40,050
19-5011	Occupational Health and Safety Specialists	\$70,135	\$62,740	\$71,187	\$64,480
27-0000	Arts, Design, and Media Occupations				
27-1021	Commercial and Industrial Designers	\$74,482	\$77,820	\$62,965	\$57,990
27-1024	Graphic Designers	\$51,076	\$49,717	\$55,652	\$54,080
27-1026	Merchandise Displayers and Window Trimmers	N/A	N/A	\$30,867	\$30,867
27-3042	Technical Writers	N/A	N/A	\$52,250	\$52,250
29-0000	Healthcare Practitioners and Technical Occupations				
29-1141	Registered Nurses	\$74,356	\$61,505	\$65,430	\$74,714
33-0000	Protective Service Occupations				
33-9032	Security Guards	\$27,506	\$25,896	\$26,725	\$26,520
35-0000	Food Preparation and Serving Related Occupations				
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	\$46,030	\$37,135	\$47,982	\$50,274
35-2021	Food Preparation Workers	N/A	N/A	\$29,713	\$29,713



		Weighted (by Job)		Unweighted (by Company)	
		Average	Median	Average	Median
37-0000	<i>Building and Grounds Cleaning and Maintenance Occupations</i>				
37-1010	First-Line Supervisors of Building and Groundskeeping and Maintenance Workers	\$58,932	\$56,635	\$61,891	\$60,445
37-2010	Janitors and Cleaners, Maids and Housekeeping, Building Cleaning Workers	\$30,895	\$30,160	\$30,645	\$30,243
37-3010	Grounds Maintenance Workers	\$40,462	\$35,360	\$38,915	\$35,360
41-0000	<i>Sales and Related Occupations</i>				
41-1012	First-Line Supervisors of Non-Retail Sales Workers	\$75,865	\$83,397	\$73,659	\$78,000
41-2011	Cashiers	\$24,634	\$23,788	\$26,471	\$24,773
41-2031	Retail Salespersons	\$44,803	\$38,418	\$56,124	\$54,850
41-3091	Sales Representatives of Services	\$66,977	\$67,730	\$61,064	\$60,778
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$67,550	\$56,846	\$65,506	\$58,240
41-4012	Sales Representatives, Wholesale and Manufacturing, EXCEPT Technical and Scientific Products	\$76,375	\$72,111	\$70,958	\$65,000
41-9011	Demonstrators and Product Promoters	N/A	N/A	N/A	N/A
41-9031	Sales Engineers	\$80,459	\$74,880	\$83,253	\$76,960
43-0000	<i>Office and Administrative Support Occupations</i>				
43-1011	First-Line Supervisors of Office and Administrative Support Workers	\$53,712	\$47,024	\$59,744	\$52,000
43-3011	Bill and Account Collectors	\$47,797	\$41,600	\$44,111	\$39,520
43-3021	Billing and Posting Clerks	\$42,034	\$39,208	\$42,588	\$39,208
43-3031	Bookkeeping, Accounting, and Auditing Clerks	\$43,213	\$41,090	\$44,684	\$41,600
43-3051	Payroll and Timekeeping Clerks	\$47,697	\$42,640	\$48,272	\$43,680
43-3061	Procurement Clerks	\$45,496	\$46,887	\$43,273	\$43,160
43-4051	Customer Service Representatives	\$37,350	\$33,280	\$42,801	\$39,520
43-4151	Order Clerks	\$34,091	\$31,200	\$35,965	\$31,200
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	\$46,686	\$46,072	\$45,332	\$44,678
43-4171	Receptionists and Information Clerks	\$35,958	\$37,263	\$33,902	\$33,280
43-4199	Information and Records Clerks, All Other	\$43,839	\$39,000	\$42,931	\$38,480
43-5061	Production, Planning, and Expediting Clerks	\$53,617	\$52,374	\$52,004	\$49,504
43-5071	Shipping, Receiving, and Inventory Clerks	\$36,988	\$33,435	\$39,487	\$37,710
43-5111	Weighers, Measurers, Checkers, and Samplers Recordkeeping	\$36,218	\$34,429	\$35,181	\$36,400
43-6011	Executive Secretaries and Executive Administrative Assistants	\$56,609	\$54,995	\$55,094	\$53,196
43-6014	Secretaries and Administrative Assistants Except Executive	\$50,953	\$50,679	\$48,493	\$48,006
43-9061	Office Clerks, General	\$38,191	\$38,188	\$36,030	\$35,516
43-9199	Office and Administrative Support Workers, All Other	\$42,682	\$40,929	\$41,700	\$40,893
47-0000	<i>Construction and Extraction Occupations</i>				
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	\$65,832	\$51,957	\$57,070	\$51,740
47-2061	Construction Laborers	\$33,534	\$29,256	\$33,280	\$33,280
47-2111	Electricians	\$53,225	\$49,934	\$50,697	\$45,760
47-2211	Sheet Metal Workers	\$39,031	\$35,360	\$44,720	\$44,720
47-3013	Helpers-Electricians	\$36,564	\$34,147	\$36,747	\$35,360



		Weighted (by Job)		Unweighted (by Company)	
		Average	Median	Average	Median
49-0000	Installation, Maintenance, and Repair Occupations				
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	\$75,731	\$78,624	\$73,480	\$72,800
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	\$51,283	\$49,920	\$59,302	\$61,308
49-3023	Automotive Service Technicians and Mechanics	N/A	N/A	\$56,732	\$56,732
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	\$46,150	\$45,760	\$46,150	\$48,880
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$63,445	\$56,160	\$61,079	\$60,320
49-9041	Industrial Machinery Mechanics	\$53,968	\$54,075	\$52,778	\$53,394
49-9043	Maintenance Workers, Machinery	\$56,744	\$52,368	\$52,365	\$51,719
49-9044	Millwrights	\$53,093	\$51,196	\$53,783	\$52,000
49-9071	Maintenance and Repair Workers, General	\$56,403	\$56,160	\$48,841	\$47,840
49-9099	Installation, Maintenance and Repair Workers, All Other	\$42,391	\$41,914	\$40,731	\$37,960
51-0000	Production Occupations				
51-1011	First-Line Supervisors of Production and Operating Workers	\$57,704	\$56,618	\$57,297	\$58,240
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	N/A	N/A	\$60,736	\$60,736
51-2021	Coil Winders, Tapers, and Finishers	N/A	N/A	\$31,200	\$31,200
51-2028	Electrical, Electronic, and Electromechanical Assemblers	\$46,449	\$39,270	\$48,818	\$44,720
51-2031	Engine and Other Machine Assemblers	\$39,605	\$36,341	\$40,040	\$40,726
51-2041	Structural Metal Fabricators and Fitters	\$40,263	\$41,687	\$43,976	\$42,162
51-2051	Fiberglass Laminators and Fabricators	\$32,820	\$27,040	\$38,487	\$41,891
51-2090	Miscellaneous Assemblers and Fabricators	\$36,013	\$36,065	\$34,899	\$34,320
51-3011	Bakers	N/A	N/A	\$39,031	\$39,031
51-3021	Butchers and Meat Cutters	N/A	N/A	N/A	N/A
51-3099	Food Processing Workers, All Other	\$30,247	\$28,296	\$32,061	\$31,200
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	\$40,572	\$38,309	\$37,817	\$36,691
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	\$30,136	\$28,080	\$39,146	\$36,296
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	\$40,152	\$37,310	\$38,112	\$37,440
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	\$38,356	\$39,211	\$36,037	\$35,360
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$40,402	\$38,480	\$41,493	\$40,560
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$41,809	\$37,713	\$40,028	\$35,360
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$36,395	\$32,358	\$44,893	\$44,876
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	\$36,134	\$34,258	\$38,763	\$36,296
51-4041	Machinists	\$46,724	\$45,825	\$46,978	\$45,760
51-4051	Metal-Refining Furnace Operators and Tenders	\$38,127	\$36,376	\$37,403	\$35,360
51-4052	Pourers and Casters, Metal	\$41,390	\$38,394	\$39,666	\$37,378
51-4071	Foundry Mold and Coremakers	\$44,430	\$41,235	\$42,702	\$44,637



		Weighted (by Job)		Unweighted (by Company)	
		Average	Median	Average	Median
51-0000	<i>Production Occupations continued</i>				
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	\$35,520	\$31,200	\$40,006	\$39,998
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$36,765	\$34,047	\$42,799	\$43,534
51-4111	Tool and Die Makers	\$58,167	\$58,779	\$55,058	\$55,432
51-4121	Welders, Cutters, Solderers, and Brazers	\$42,985	\$38,386	\$40,790	\$38,064
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	\$40,561	\$39,517	\$36,491	\$37,336
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	\$39,625	\$37,020	\$42,207	\$37,648
51-4193	Plating Machine Setters, Operators, and Tenders, Metal and Plastic	\$36,010	\$34,320	\$35,533	\$37,440
51-4199	Metal Workers and Plastic Workers, All Other	\$36,975	\$36,533	\$33,139	\$33,051
51-5111	Prepress Technicians and Workers	N/A	N/A	\$46,488	\$46,488
51-6031	Sewing Machine Operators	\$24,249	\$23,013	\$27,745	\$28,309
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	\$38,384	\$34,282	\$35,006	\$32,448
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	\$28,682	\$27,329	\$30,214	\$31,720
51-7042	Woodworking Machine Setters, Operators, and Tenders, Wood	\$28,288	\$27,290	\$32,077	\$29,255
51-8031	Water and Wastewater Treatment Plant and System Operators	\$48,663	\$41,579	\$43,731	\$39,270
51-8091	Chemical Plant and System Operators	\$65,437	\$60,553	\$52,693	\$56,160
51-9011	Chemical Equipment Operators and Tenders	\$55,447	\$53,085	\$50,768	\$48,495
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	\$33,281	\$31,943	\$32,954	\$32,240
51-9022	Grinding and Polishing Workers, Hand	N/A	N/A	\$29,120	\$29,120
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	\$42,339	\$35,231	\$40,851	\$38,459
51-9031	Cutters and Trimmers, Hand	\$29,686	\$26,706	\$28,281	\$26,291
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	\$36,914	\$31,772	\$51,126	\$36,504
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	\$33,623	\$33,604	\$37,907	\$33,280
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	\$37,901	\$33,842	\$38,185	\$34,174
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$39,542	\$36,049	\$39,977	\$40,227
51-9111	Packaging and Filling Machine Operators and Tenders	\$32,897	\$33,049	\$33,896	\$31,200
51-9123	Painting, Coating, and Decorating Workers	\$37,345	\$36,126	\$35,552	\$34,778
51-9124	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	\$38,276	\$35,346	\$35,707	\$33,280
51-9161	Computer Numerically Controlled Tool Operators	\$53,246	\$49,921	\$47,954	\$45,354
51-9162	Computer Numerically Controlled Tool Programmers	\$63,831	\$60,512	\$62,768	\$62,400
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	\$29,115	\$26,867	\$30,326	\$31,273
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	\$33,915	\$33,030	\$37,218	\$33,280
51-9196	Paper Goods Machine Setters, Operators, and Tenders	\$39,892	\$34,272	\$40,003	\$43,680
51-9197	Tire Builders	N/A	N/A	\$37,752	\$37,752
51-9198	Helpers-Production Workers	\$32,367	\$28,736	\$31,056	\$29,120
51-9199	Production Workers, All Other	\$36,883	\$39,614	\$33,572	\$32,282



		Weighted (by Job)		Unweighted (by Company)	
		Average	Median	Average	Median
53-0000	<i>Transportation and Material Moving Occupations</i>				
53-1047	First-Line Supervisors of Transportation and Material Moving Workers	\$44,626	\$40,133	\$53,445	\$53,758
53-3031	Driver/Sales Workers	\$72,348	\$51,620	\$53,369	\$41,496
53-3032	Heavy and Tractor-Trailer Truck Drivers	\$48,211	\$43,755	\$44,760	\$42,120
53-3033	Light Truck Drivers	\$36,022	\$32,240	\$37,806	\$35,360
53-7011	Conveyor Operators and Tenders	\$36,085	\$33,079	\$38,470	\$36,535
53-7021	Crane and Tower Operators	\$59,070	\$62,573	\$57,637	\$62,400
53-7051	Industrial Truck and Tractor Operators	\$37,553	\$37,300	\$34,973	\$33,311
53-7061	Cleaners of Vehicles and Equipment	N/A	N/A	N/A	N/A
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	\$41,550	\$37,159	\$34,886	\$32,978
53-7063	Machine Feeders and Offbearers	N/A	N/A	\$28,746	\$28,746
53-7064	Packers and Packagers, Hand	\$31,558	\$31,200	\$31,123	\$31,200
53-7065	Stockers and Order Fillers	\$29,024	\$30,566	\$31,045	\$30,035
53-7190	Material Moving Workers, All Other	\$38,517	\$39,107	\$35,393	\$34,382



APPENDIX B: COVID-19 IMPACT ON MANUFACTURING SECTOR

Introduction

The 2021 Middle Tennessee Industrial Wage and Benefit Survey included three open-ended questions regarding the impact of COVID-19 on various aspects of the companies' operations in the manufacturing sector. This section briefly analyzes responses to these questions. The following analysis provides a 40-county level perspective on the impact of COVID-19 on the surveyed companies.

Method. The survey asked three open-ended questions regarding the impact of COVID-19 on

- companies' training needs;
- companies' human resource practices;
- and companies' overall business operations.

The responses to these questions, then, were carefully reviewed and standardized. After data cleaning and standardization, BERC used qualitative data analysis software to identify each question's cluster of responses and keywords.

Results

BERC organized the results for each question under two separate segments: (1) cluster analysis and (2) key topic analysis. Cluster analysis groups similar responses together. Key topic analysis identifies the most frequently used keywords to describe the impact of COVID-19 on different aspects of companies' operations in the manufacturing sector.

Impact of COVID-19 on Training Needs

How has COVID-19 impacted your training needs? A total of 216 manufacturing companies responded to this open-ended question.

Cluster Analysis. The cluster analysis shows that 33.8 percent of respondents indicated that COVID-19 had little or no impact on their training needs. In other words, COVID-19 did have an impact on the training needs of two-thirds of the respondents. Table B1 identifies 11 clusters from the open-ended responses regarding the impact of COVID-19 on the training needs of the manufacturing companies.

The first column in the Table B1 shows the cluster number, second column cluster name, third column percent of responses, and the fourth column lists up to three representative sample responses. The top clusters are (1) no impact (33.80 percent); (2) virtual training (9.26 percent); (3) training challenges because of social distancing (6.48 percent); (4) lack of in-person training (5.56 percent); and (5) class size and frequency of training (5.09 percent).



Table B1. The COVID-19 Impact on Training Needs: Cluster Analysis

Cluster Number	Cluster Name	Percent of Responses	Sample Responses
1	No or very little impact	33.80%	(1) No impact (2) Very little impact
2	Yes	3.24%	(1) Yes, there has been an impact
<i>Qualified responses</i>			
3	Lack of in-person training opportunities	5.56%	(1) In PERSON has had to go to online webinar training. (2) In PERSON training halted. Virtual training when effective (3) It has prompted us to stop all in PERSON training.
4	Virtual training	9.26%	(1) We have had to go VIRTUAL TRAINING (2) TRAINING has moved to basically VIRTUAL sessions (3) All TRAINING moved to VIRTUAL learning which isn't as effective.
5	Training change because of CDC guidelines	2.31%	(1) Company had to pivot to follow CDC GUIDELINES (2) Yes, because of the CDC GUIDELINES we could not conduct TRAINING . (3) We have had to modify our TRAINING practices to the current CDC GUIDELINES .
6	Training challenges because of social distancing	6.48%	(1) Very DIFFICULT to have TRAINING due to limited space and number that can attend at one time. (2) Some classes canceled or POSTPONED due to exposure and the need for more space for social distancing. (3) Trainings that were not necessary were POSTPONED due to COVID-19.
7	Class size and frequency of training	5.09%	(1) FREQUENCY of TRAINING and SIZE of CLASSES . (2) We have had to space out TRAININGS and CLASSES . (3) More virtual CLASSES needed due to limited space and high number of employees needing the TRAINING .
8	Limiting training ability	4.17%	(1) LIMITED our ability to do in person TRAINING ; have moved to more online TRAINING (2) TRAINING has been LIMITED due to social distancing (3) LIMITED our ability to gather employees together in large groups. LIMITED our ability to travel offsite for TRAINING .
9	Use of smaller groups in training	4.17%	(1) SMALLER GROUPS of TRAINING and more need to TRAIN due to absences caused by COVID-19 (2) We do SMALLER GROUPS and do not do any outside TRAINING (3) Takes a long time for TRAINING in SMALL GROUPS
10	Eliminating group training sessions	2.78%	(1) We have not had TRAINING SESSIONS since COVID (2) Reduced GROUP TRAINING SESSIONS . (3) Yes, not ABLE to GATHER in large GROUP meetings.
11	Unable to meet, travel, and train	3.70%	(1) Unable to PARTICIPATE in TRAINING (2) We are UNABLE to provide classroom TRAINING . (3) We are not really able to travel much for training and our company does not allow any VISITORS

Source: BERC 2021 Wage and Benefit Survey



Key Topics about the Impact on Training. Table B2 shows the key topics and associated keywords that emerged throughout the textual responses regarding the impact of COVID-19 on the training needs of the manufacturing companies. This analysis is somewhat similar to the cluster analysis presented in Table B1 but gives additional details on the keywords used to describe the impact of COVID-19 on training needs. Social distancing, moving in-person training to virtual training, smaller group training, and guidelines and workplace requirements appear across the responses.

Table B2. The Impact of Covid-19 on Training Needs: Key Topics

TOPIC	KEYWORDS	COHERENCE	FREQ	CASES	% CASES
Number People	number; people; visitors; limited; site; time; room; reduced; space	0.443	20	14	4.53%
Complete Requirement	complete; requirements; employees; time; virtual; training; sessions; site	0.360	35	25	8.09%
Group Meetings	group; meetings; sessions; reduced; room; distance; impacted	0.360	19	13	4.21%
Travel Offsite	travel; offsite; ability; limited; employees; visitors	0.358	13	8	2.59%
Smaller Groups	smaller; groups; required; covid; train; training; online; smaller groups	0.355	30	25	8.09%
Social Distancing	distancing; social; difficult; requirements; practices; social distancing	0.351	46	40	12.94%
CDC Guidelines	cdc; guidelines; required; trainings; train; practices; cdc guidelines	0.327	30	14	4.53%
Person Training Moved	person; moved; online; virtual; training; ability; person training; virtual training; online training	0.321	38	36	11.65%
Frequency of Training and Size	size; frequency; classes; frequency of training and size	0.320	19	12	3.88%

Source: BERC 2021 Wage and Benefit Survey



Impact of COVID-19 on Human Resource Practices

How has COVID-19 impacted your human resource (HR) practices? A total of 228 manufacturing companies responded to this open-ended question in the survey.

Cluster Analysis. The cluster analysis shows that 16.67 percent of respondents claimed that COVID-19 had little or no impact on their HR practices. In other words, COVID-19 did have an impact on the HR practices of nearly 85 percent of the respondents. Table B3 identifies 12 clusters from the open-ended responses regarding the impact of COVID-19 on HR practices of the manufacturing companies.

The first column in the table shows the cluster number, second column cluster name, third column percent of responses, and the fourth column provides up to three representative sample responses from the open-ended responses. The top clusters are (1) no impact (16.67 percent); (2) new HR policies and procedures (10.09 percent); (3) yes, major impact (9.21 percent); (4) challenges regarding attendance policies and paid leave (7.89 percent); (5) challenges dealing with CDC guidelines and other regulations (6.14 percent), and (6) challenges associated with in-person meeting and social distancing (6.14 percent).



Table B3. The COVID-19 Impact on Human Resource Practices: Cluster Analysis

Cluster Number	Cluster Name	Percent of Responses	Sample Responses
1	No impact	16.67%	(1) No impact (2) It has not IMPACTED our PRACTICES
2	Yes	9.21%	(1) Yes, major impact
<i>Qualified responses</i>			
3	Limited our interactions and made it difficult to hire	3.95%	(1) LIMITED our interaction with large groups. (2) Over all it was stressful and DIFFICULT . (3) Reporting cases are very DIFFICULT and have affected attendance a lot.
4	Hard to understand requirements and time consuming	2.63%	(1) More time UNDERSTANDING requirements and communicating them to others. (2) Hard to UNDERSTAND . (3) The administration of these protocols is TIME CONSUMING .
5	Dealing with CDC guidelines and other regulations	6.14%	(1) We have had to modify attendance and work with our COVID and EHS team to stay up to date with all CDC GUIDELINES . (2) Managing paid sick leave, changing CDC and DOL GUIDELINES . (3) Increased due to extra GUIDELINES , absences and quarantine policies
6	Challenges regarding attendance policies and paid leave	7.89%	(1) CHALLENGES have ARISEN in COMMUNICATIONS BASED on INTERACTION with EMPLOYEES and ADMINISTERING an ATTENDANCE POLICY/LEAVES , etc. (2) Greater CHALLENGES with ATTENDANCE , staffing, and LEAVE POLICIES . (3) Training EMPLOYEES on POLICY changes.
7	Problems with interviews and onboarding	4.82%	(1) Virtual INTERVIEWS and ONBOARDING as required (2) We have had to implement new policies concerning INTERVIEWING and ONBOARDING , we practice mask wearing, do regular temp checks, and practice social distancing. (3) We have had to lower the NUMBER of ORIENTATIONS /trainings we can do at one TIME .
8	Challenges associated with in-person meeting and social distancing	6.14%	(1) Only small group MEETINGS allowed, so we have to have more of them - to permit social distancing. (2) In PERSON gatherings have to be adjusted to small groups spread out over time. (3) Employees are working remotely, absenteeism has gone up, on-boarding new employees due to SOCIAL DISTANCING .
9	Increasing flexible work schedule	2.63%	(1) More FLEXIBLE with SCHEDULES and TIME off. (2) There has been a need to be more FLEXIBLE with TIME off due to school SCHEDULES or lack of child care. (3) We have added a flexible work schedule policy that allows employees the opportunity to work from home if their position allows for it.
10	New HR policies and procedures	10.09%	(1) We have had to add PROCEDURES and POLICIES . (2) Implementing changes in work PROCEDURES and safety practices. (3) Increased record keeping and added infection related PROCEDURES .
11	Tracking and Screening employee issues	4.39%	(1) A lot of hours SPENT on TRACKING employees on leave and contract TRACING . (2) We are now TRACKING who is out for qualifying paid sick time due to COVID. (3) Tracking, SCREENING , remote WORK , communication, etc.
12	Work from home challenges	5.26%	(1) We have had to develop a WORK from HOME policy, along with supporting those who could WORK from HOME . (2) More dealings with the option of WORKING from HOME . (3) We have started handling HR practice through MS Teams meetings, had HR department rotate WORKING at HOME .

Source: BERC 2021 Wage and Benefit Survey



Key Topics about the Impact on Human Resource Practices. Table B4 shows key topics and associated keywords that emerged throughout the textual responses regarding the impact of COVID-19 on human resource practices of manufacturing companies. This analysis is somewhat similar to cluster analysis presented in Table B3 but gives additional details on the keywords used to describe the impact of COVID-19 on HR practices. COVID-related issues, screening and temperature checks, CDC guidelines, and social distancing appear across the responses.

Table B4. The Impact of Covid-19 on Human Resource Practices: Key Topics

TOPIC	KEYWORDS	COHERENCE	FREQ	CASES	% CASES
Arisen In Communications Based Administering An Attendance Policy Leaves	Administering; Arisen; Based; Communications; Interaction; Leaves; Challenges; Attendance; Policy; Employees; Administering An Attendance Policy Leaves; Arisen In Communications Based	0.799	95	26	8.41%
Social Distancing	Social; Distancing; Wearing; Mask; Masks; Face; Year Social Distancing	0.448	45	29	9.39%
Virtual Events	Virtual; Events; Number; Focus; Required; Employee; Quarantine; Testing; Increased; Protocols; Interviews; Communication	0.444	43	19	6.15%
Cdc Guidelines	Guidelines; CDC; Site; Impacted; Practices; People; HR; Working; Team; CDC Guidelines; HR Practices	0.440	43	35	11.33%
Screening Temperature	Screening; Temperature; Work; Measures; Communication; Training; Return; Masks; Wearing; Remote; Unemployment; Track; Employees; Health; Tracking	0.431	48	37	11.97%
Spent Lot	Spent; Lot; Tracking; Time; Cases; Department; Procedures; Practices	0.417	27	19	6.15%
Covid Related	Related; COVID; Added; Absences; Procedures; Safety; Issues; Policies; Increased; Additional; Employee; Covid Related	0.414	53	47	15.21%
Contact Tracing	Contact; Tracing; Checks; Quarantine; Temperature; Protocols; Employees; Additional; COVID	0.406	34	22	7.12%
Sick Leave	Paid; Leave; Sick; FFCRA; Year; Tracking; Cases; CDC; Focus; Tracing; Sick Leave	0.394	39	28	9.06%

Source: BERC 2021 Wage and Benefit Survey



Impact of COVID-19 on Overall Business Practices

How has COVID-19 impacted your overall business practices? A total of 241 manufacturing companies responded to this open-ended question in the survey.

Cluster Analysis. The cluster analysis shows that only 9.13 percent of respondents indicated that COVID-19 had little or no impact on their overall business practices. In other words, COVID-19 did have an impact on the overall business practices of more than 90 percent of the respondents. Table B5 identifies about 10 clusters from the open-ended responses regarding the impact of COVID-19 on the overall business practices of the manufacturing companies.

The first column in the table shows the cluster number, second column cluster name, third column percent of responses, and the fourth column lists up to three representative sample responses from the open-ended responses. The top clusters are (1) challenges associated with social distancing, mask and cleaning (16.60 percent); (2) yes, major impact (10.37 percent); (3) no, minimal impact (9.13 percent); (4) effect on every aspect of the business (7.05 percent); (5) new way of doing business: working remotely (7.05 percent), (6) work from home challenges and scheduling (6.64 percent) and (7) major impact on absenteeism and other workplace issues (6.22 percent).



Table B5. The Covid-19 Impact on Overall Business Practices: Cluster Analysis

Cluster Number	Cluster Name	Percent of Responses	Sample Responses
1	No impact	9.13%	(1) No impact (2) Minimal
2	Yes	10.37%	(1) Yes, major impact
<i>Qualified responses</i>			
3	Major impact on Absenteeism and other workplace issues	6.22%	(1) ABSENTEEISM spike, increased hours for other employees, moving meetings to zoom (2) Increased ABSENTEEISM . (3) Customer closures, delayed parts, ABSENTEEISM with employees
4	Effect on every aspect of the business	7.05%	(1) COVID-19 forced the BUSINESS to become creative in the way every day BUSINESS was conducted. (2) Covid has impacted every part of most our lives including BUSINESS . (3) In a POSITIVE way
5	Dealing with CDC guidelines and other regulations	5.81%	(1) Necessary changes made throughout the company to comply with CDC GUIDELINES . (2) We have followed strict quarantine GUIDELINES when necessary. (3) We have followed the more stringent of corporate and/or TN Health Department GUIDELINES .
6	Production delays, increased cost, product delivery problems	4.15%	(1) Creates ripples and DELAYS with DELIVERY of materials and supplies. (2) INCREASED cost of doing business and slowed many processes down. (3) The shortage of employees showing up affects our CUSTOMERS and suppliers as well, so we get DELAYED and less information from our CUSTOMERS , and have more DELIVERY problems from our suppliers.
7	Challenges associated with social distancing, mask, and cleaning	16.60%	(1) EMPLOYEES are for the most part not happy about WORKING with MASKS on in a factory ENVIRONMENT . (2) We have enforced WEARING MASK , we do temperature screening, and SOCIAL distancing. (3) Many risk mitigation practices in the workplaces such as masks, SOCIAL DISTANCING , and extensive cleaning.
8	In-person meeting, virtual meetings, and communication issues	5.81%	(1) We conduct more VIRTUAL MEETINGS , we have had to find new areas for our crews to MEET . (2) Salary employees working from home more, virtual MEETINGS have replaced most in PERSON MEETINGS . (3) Limited our ability for in PERSON MEETINGS and social connection with our employees.
9	Work from home challenges and scheduling	6.64%	(1) We have also shifted to a rotating in-person work- SCHEDULE . (2) We are having to WORK more from HOME and do less traveling. (3) Yes, when able, EMPLOYEES can WORK from HOME ; slowed down when COVID was peaking... identified need for further cross-training
10	New way of doing business: working remotely	7.05%	(1) We are doing more WORK REMOTELY and virtually. (2) REMOTE WORKING implemented where feasible. Visitors not allowed on site. (3) We have had to adjust schedules and allow WORKING REMOTELY to keep safe distances within the building.

Source: BERC 2021 Wage and Benefit Survey



Key Topics about the Impact on Overall Business Practices. Table B6 shows the key topics and the associated keywords that emerged throughout the textual responses regarding the impact of COVID-19 on the overall business practices of the manufacturing companies. This analysis is somewhat similar to cluster analysis presented in Table B5 but gives additional details on the keywords used to describe the impact of COVID-19 on the overall business practices. Social distancing and wearing masks, employees working together and logistics, impact on business issues, and meetings appear across the responses.

Table B6. The Impact of Covid-19 on Overall Business Practices: Key Topics

TOPIC	KEYWORDS	COHERENCE	FREQ	CASES	% CASES
Employees Working Together And Logistics Coordinated Lunch And Break Times	Coordinated; Proximity; Logistics; Lunch; Break; Times; Working; Employees; Coordinated Lunch And Break Times; Employees Working Together And Logistics; Working From Home	0.651	78	31	10.03%
Allowed Essential	Allowed; Essential; Shut; Building; Visitors; Facility; Reduced; Months; People; Person; Temperature; Hours; Open; Working; Break; Areas	0.486	27	15	4.85%
Temperature Checks	Face; Checks; Temp; Mask; Testing; Policies; Temperature; Site; Customers; Travel; Temperature Checks	0.464	21	15	4.85%
Social Distancing Wear Masks	Social; Distancing; Masks; Wear; Distance; Wearing; Temp; Protocols; Mask; Social Distancing; Wear Masks	0.441	69	49	15.86%
Cleaning Plant	Cleaning; Plant; Ppe; Offices; Health; Supplies; Meeting; Visitors; Increased; Limited; Training	0.437	31	19	6.15%
Full Months	Full; Months; Hours; Additional; Making; Time; Year; Work; Part	0.408	15	9	2.91%
Slowed Delayed	Slowed; Delayed; Visits; Customer; Closed; Production; Reduced; Schedule; Increased; Site; Facility; Meetings	0.405	13	10	3.24%
Meetings Virtual	Meetings; Virtual; Person; Work; Home; Conduct; Remote; Safe	0.378	28	22	7.12%
Impacted Business	Impacted; Business; Layoffs; Covid; Part; Year; Workforce; Increase	0.376	28	23	7.44%

Source: BERC 2021 Wage and Benefit Survey



Key Phrases Used to Describe the Impact of COVID-19 on Overall Business Practices. In this section, BERC extracted the key phrases respondents used to describe the impact of COVID-19 on the overall business practices. Table B7 tabulates 16 key phrases seen across 241 responses. These key phrases appear at least three times across all responses. The prominent key phrases are social distancing, work from home, remote work, coordinated lunch and break times, and employees working together and logistics.

Table B7. The Impact of Covid-19 on Overall Business Practices: Key Phrases

	FREQUENCY	NO. CASES	% CASES	TF • IDF
Social Distancing	21	20	6.47%	29.5
Work From Home	11	11	3.56%	19.3
Remote Work	8	8	2.58%	15.2
Coordinated Lunch And Break Times	6	6	1.94%	10.3
Employees Working Together And Logistics	6	6	1.94%	10.3
Temperature Checks	5	5	1.62%	9.0
Wear Masks	5	5	1.62%	9.0
Business Practices	3	3	0.97%	6.0
CDC Guidelines	3	3	0.97%	6.0
Common Areas	3	3	0.97%	6.0
COVID Has Impacted	3	3	0.97%	6.0
Covid Protocols	3	3	0.97%	6.0
Hand Sanitizer	3	3	0.97%	6.0
Increased Absenteeism	3	3	0.97%	6.0
Person Meetings	3	3	0.97%	6.0
Virtual Meetings	3	3	0.97%	6.0

Source: BERC 2021 Wage and Benefit Survey

Conclusion

Although the impact of COVID-19 on the training needs of the manufacturing companies is less pronounced, according to the survey responses, the COVID-19 overall impact on the business practices is very significant. More than 90 percent of the respondents indicated that COVID-19 had an impact on their business practices. Many of the ways COVID-19 impacted businesses were negative, including increasing cost of doing business, workforce-related challenges, and delays in production. However, as suggested by some business respondents, the overall impact was positive for some companies as their revenues and business activities increased.

