

Using the Occupational Mobility Explorer to Understand Which Skills Are Most in Demand

Kyle D. Fee, Policy Advisor



The views expressed in this report are those of the author(s) and are not necessarily those of the Federal Reserve Bank of Cleveland or the Board of Governors of the Federal Reserve System.



This work is licensed under a **Creative Commons Attribution-NonCommercial 4.0 International License**. This paper and its data are subject to revision; please visit **ClevelandFed.org** for updates.

Introduction

Knowing which skills employers want is crucial for many players in the economy, be they individuals, schools, economic development agencies, or workforce development groups—especially given rising interest in skills-based hiring. The Occupational Mobility Explorer (OME), originally released by the Federal Reserve Banks of Cleveland and Philadelphia, provides an opportunity to investigate the market demand for over 2,300 skills across more than 600 occupations. Data from the OME can help people determine how to use skills that they already have to find new career paths while strengthening the broader economy in the process. Awareness of underlying data can also help put into context the frequent news stories about labor market trends. For example, recent headlines have focused on the tremendous growth in the demand for AI-related skills. And while it is true that the share of job postings for AI-related skills has increased, these skills were found in just 1.6 percent of job ads posted in 2023.¹

Thus, in this report, using data from the OME, I answer the following questions: Which skills are most in demand by employers? How does demand for skills vary across Fourth District states? How does demand for skills vary across the wage distribution? And which skills should be invested in to promote economic mobility?

Key findings include the following:

- A variety of “social and soft” skills make up the most requested skills by employers. The most requested skill is “communication”; over a third of all job ads include this skill. There is not too much variation in the top-requested skills when comparing the nation and Fourth District states, but there is some notable variation among Fourth District states.
- Commonly requested skills are similar across wage quartiles.
- “Social and soft” skills are important for economic mobility.

While not discounting the role of technical education or specific training necessary for some occupations, these findings align with the notion that “social and soft” skills, sometimes referred to as “twenty-first century,” “noncognitive,” “interpersonal,” or “people” skills, are imperative for success in today’s labor market.² Additionally, a LinkedIn survey found that 90 percent of international business executives believe that “soft skills” are more important than ever.³ Moreover, social skills-intensive occupations have experienced faster employment and wage growth than other occupations since 1980, while the economic returns for social skills in the labor market increased from the 1990s to the 2000s.⁴ Technological change is thought to be one reason for the increased importance of social interaction in the labor market. While routine tasks have been and continue to be automated, there is currently no way for technology to automate nonroutine or higher-order tasks that require social interaction.⁵ The 2021 Occupational Requirements Survey estimates that roughly 60 percent of US employment requires more advanced people skills, with many higher-wage occupational groups (legal, business and financial operations, education, computer and mathematical, healthcare, and architecture and engineering) requiring more advanced people skills for greater than 90 percent of employment.⁶

Data

This analysis uses data from the OME, which includes 2,326 unique skills extracted from over 124 million online job ads from 2021 through 2023. The included skills are “scraped” by Lightcast from job descriptions across over 600 occupations; the OME uses the top 25 most requested skills for each occupation. The data do not indicate a level of mastery or proficiency required, but, rather, only that the skill is requested by the employer. As a result, the primary metric in this analysis is the share of job ads that request a particular skill. One caveat to this approach is that it tends to highlight skills that are common across occupations. Job ads are aggregated across occupations for the national- and state-level portions of this analysis. Based on the BLS’s 2023 Occupational Employment and Wage Statistics, occupations are placed into four equally sized groups (total employment for each wage quartile is approximately 37 million) based on national median hourly wages to examine how demand for skills varies across the wage distribution.

Findings

Table 1 lists the 15 most requested skills in online job ads by employers across Kentucky, Ohio, Pennsylvania, West Virginia, and the United States. A variety of “social and soft” skills are at or near the top of this list. Overall, the most requested skill is “communication,” which was specified by employers in over a third of all job ads nationally. “Customer service” and “management” are the next most in-demand skills, mentioned in 26.9 and 23.0 percent of job ads, respectively. “Sales,” “operations,” and “leadership” skills are next, with each requested by employers in roughly 15 percent of job ads. Rounding out the top 10 are “detail-oriented,” “problem-solving,” “writing,” and “planning” skills, specified in about 1 of every 10 job ads. Notably, employers have similar levels of demand for physical labor and digital skills. Roughly 8 percent of job ads request “lifting ability,” “Microsoft Excel,” and “Microsoft Office” skills.

Table 1. Top Employer-requested Skills Nationally and in Fourth District States, 2021–2023

National		Kentucky		Ohio		Pennsylvania		West Virginia	
Skill	% of job ads	Skill	% of job ads	Skill	% of job ads	Skill	% of job ads	Skill	% of job ads
Communication	34.2%	Communication	32.8%	Communication	32.9%	Communication	33.2%	Communication	29.3%
Customer service	26.9%	Customer service	27.7%	Customer service	26.5%	Customer service	24.1%	Customer service	25.0%
Management	23.0%	Management	21.7%	Management	21.2%	Management	22.3%	Management	21.2%
Sales	16.6%	Sales	15.0%	Sales	15.3%	Sales	14.1%	Sales	15.3%
Operations	15.8%	Operations	14.0%	Operations	13.3%	Operations	13.6%	Operations	14.1%
Leadership	14.6%	Leadership	12.4%	Leadership	12.3%	Leadership	12.5%	Leadership	13.2%
Detail-oriented	12.5%	Detail-oriented	10.7%	Detail-oriented	10.8%	Detail-oriented	10.4%	Merchandising	9.3%
Problem-solving	11.3%	Problem-solving	8.1%	Problem-solving	9.4%	Problem-solving	9.4%	Nursing	9.2%
Writing	10.4%	Lifting ability	7.9%	Writing	6.9%	Planning	7.1%	Planning	7.5%
Planning	9.7%	Nursing	7.3%	Lifting ability	6.7%	Writing	7.0%	Problem-solving	6.4%
Interpersonal communications	8.0%	Writing	6.8%	Nursing	6.5%	Nursing	7.0%	Writing	6.3%
Lifting ability	7.9%	Planning	6.4%	Planning	6.5%	Lifting ability	5.6%	Lifting ability	5.8%
Microsoft Excel	7.9%	Merchandising	6.2%	Microsoft Office	5.8%	Microsoft Excel	5.6%	Detail-oriented	5.7%
Microsoft Office	7.7%	Microsoft Office	5.2%	Microsoft Excel	5.5%	Microsoft Office	5.6%	Coordinating	5.0%
Multitasking	7.2%	Microsoft Excel	5.1%	Merchandising	5.2%	Merchandising	5.2%	Cash register	4.7%

Source: Occupational Mobility Explorer

There is not too much variation in the top-requested skills when comparing the nation and Fourth District states, but there is some notable variation among Fourth District states. The top eight most requested skills are the same across Kentucky, Ohio, Pennsylvania, and the nation. Meanwhile, West Virginia’s top six skills are the same as those for the other Fourth District states and the nation. Employers have a comparable level of demand for physical labor and digital skills in Ohio and Pennsylvania, just as they do nationally, while demand for “lifting ability” well outpaces demand for “Microsoft Excel” or “Microsoft Office” in Kentucky and West Virginia. Notably, there is stronger demand for “merchandising” and “nursing” skills among employers in Fourth District states than nationally.

Before discussing which skills are important for economic mobility, it is useful to understand how skills demand varies across the wage distribution. Returning to national data, I place occupations into four equally sized groups based on their median hourly wage. The first quartile consists of the lowest-wage occupations including home health and personal care aides, retail salespersons, fast food and counter workers, and cashiers. At the other

end of the wage distribution, the fourth quartile is made up of the highest-wage occupations such as registered nurses, accountants, software developers, and various management roles. Table 1 in the Appendix lists the largest occupations in each wage quartile.

The top 15 employer-requested skills in job ads for each wage quartile are shown in Table 2. Interestingly, the most requested skills are markedly similar across the groups. Six of the top 10 requested skills for the lowest-wage occupations, namely “customer service,” “communication,” “sales,” “management,” “detail-oriented,” and “operations” skills (shaded in gray in Table 2) are also commonly requested for higher-paying occupations. Additionally, some skills such as “communication,” “management,” “operations,” “problem-solving,” “leadership,” “planning,” and “writing” (italicized and bolded in Table 2) are requested more frequently as wages increase. Similarly, digital skills are more likely to be requested as wages increase. Alternatively, skills like “customer service,” “merchandising,” and “lifting ability” are requested less frequently as wages increase.

Table 2. Top Employer-requested Skills by Wage Quartile, 2021–2023

First quartile Average hourly wage: \$15.87		Second quartile Average hourly wage: \$19.74		Third quartile Average hourly wage: \$28.21		Fourth quartile Average hourly wage: \$50.91	
Skill	% of job ads	Skill	% of job ads	Skill	% of job ads	Skill	% of job ads
Customer service	40.4%	Customer service	36.6%	Communication	35.5%	Communication	37.6%
Communication	29.1%	Communication	33.3%	Customer service	26.8%	Management	29.3%
Sales	22.6%	Management	19.3%	Management	20.9%	Leadership	21.2%
Management	17.3%	Sales	15.1%	Sales	16.4%	Operations	17.0%
Merchandising	16.0%	Operations	14.6%	Operations	14.8%	Customer service	15.0%
Lifting ability	14.5%	Detail-oriented	13.8%	Detail-oriented	12.3%	Problem-solving	14.8%
Cleanliness	12.6%	Lifting ability	11.0%	Leadership	10.9%	Planning	14.1%
Restaurant operation	11.8%	Warehousing	10.3%	Problem-solving	10.2%	Writing	11.5%
Detail-oriented	10.6%	Merchandising	8.6%	Writing	9.8%	Project management	10.7%
Operations	8.1%	Computer literacy	8.6%	Microsoft Office	7.9%	Nursing	10.6%
Sanitation	8.0%	Problem-solving	8.2%	Microsoft Excel	6.9%	Sales	10.1%
Housekeeping	7.4%	Leadership	7.9%	Marketing	5.8%	Detail-oriented	9.7%
Selling techniques	7.0%	English language	7.2%	Multitasking	5.7%	Microsoft Excel	8.3%
Multitasking	6.8%	Multitasking	6.0%	Planning	5.6%	Research	7.8%
Cash register	5.9%	Forklift truck	5.5%	Troubleshooting	5.2%	Microsoft Office	6.9%

Source: Occupational Mobility Explorer; Occupational Employment and Wage Statistics, 2023

By going one step further, I can identify which skills can help promote economic mobility. To receive this classification, a skill must meet two criteria. First, the share of total job ads that are present for the typical occupation that requests this skill must increase across three consecutive wage quartiles (and the skill must be associated with at least 10 percent of wage quartile employment). Second, the skill must be associated with occupations that account for at least 20 percent of total employment in the OME.

Table 3 presents the 11 skills identified as supportive of an individual’s economic mobility. The five core economic mobility skills (shaded in gray) are requested for occupations that are associated with more than 50 percent of total OME employment. The five core skills, “communication,” “management,” “operations,” “problem-solving,” and “leadership,” are all indeed “social and soft” skills. “Communication” and “management” skills are increasingly requested by employers for higher-wage occupations and are requested in almost all jobs in the OME. The remainder of the identified economic mobility skills include additional “social and soft” skills, namely “writing,” “planning,” “organizational skills,” and “time management,” and a pair of skills related to one’s ability to process information: “Microsoft Excel” and “research.”

Conclusion

The OME provides an opportunity to better understand the overall market demand for various skills. In this report, I find that employers have strong demand for “social and soft” skills and that many of these skills could help to promote individual economic mobility. Prioritizing the development of these skills in curricula and training programs could provide individuals with a set of transferable skills that are applicable to a wide swath of job opportunities. Relatedly, the development of industry-recognized credentials for “social and soft” skills presents an opportunity to equip individuals with a portable set of skills that are widely in demand. While technical education or specific training may be required for most occupations, the strong demand for “social and soft” skills signals their importance in the overall labor market and aligns with the perspective that “developing a balanced portfolio of technical and noncognitive skills appears to be the key to finding and retaining family-sustaining employment.”⁷

Table 3. Skills That Are Important for Economic Mobility, 2021–2023

Skill	Share of OME employment associated with skill
Communication	100%
Management	97%
Operations	78%
Problem-solving	60%
Leadership	52%
Writing	48%
Planning	35%
Microsoft Excel	30%
Organizational skills	25%
Research	23%
Time management	22%

Source: Occupational Mobility Explorer; Occupational Employment and Wage Statistics, 2023

Appendix

Table A1. Largest Occupations in Each Wage Quartile

		Number of jobs
First quartile Average hourly wage: \$15.87	Home health and personal care aides	3,689,350
	Retail salespersons	3,684,740
	Fast food and counterworkers	3,676,580
	Cashiers	3,298,660
	Stockers and order fillers	2,872,680
	Waiters and waitresses	2,237,850
	Janitors and cleaners, except maids and housekeeping cleaners	2,172,500
	Cooks, restaurant	1,412,350
	Teaching assistants, except postsecondary	1,337,320
	Receptionists and information clerks	1,003,820
Second quartile Average hourly wage: \$19.74	Laborers and freight, stock, and material movers, hand	3,008,300
	Customer service representatives	2,858,710
	Office clerks, general	2,496,370
	Secretaries and administrative assistants, except legal, medical, and executive	1,785,430
	Maintenance and repair workers, general	1,503,150
	Miscellaneous assemblers and fabricators	1,489,280
	Nursing assistants	1,351,760
	Security guards	1,202,940
	First-line supervisors of food preparation and serving workers	1,176,540
	First-line supervisors of retail sales workers	1,087,890
Third quartile Average hourly wage: \$28.21	Heavy and tractor-trailer truck drivers	2,044,400
	First-line supervisors of office and administrative support workers	1,504,570
	Bookkeeping, accounting, and auditing clerks	1,501,910
	Elementary school teachers, except special education	1,410,070
	Sales representatives, wholesale and manufacturing, except technical and scientific products	1,288,920
	Sales representatives of services, except advertising, insurance, financial services, and travel	1,142,020
	Secondary school teachers, except special and career/technical education	1,045,170
	Human resources specialists	895,970
	Electricians	712,580
	Carpenters	700,290
Fourth quartile Average hourly wage: \$50.91	General and operations managers	3,507,810
	Registered nurses	3,175,390
	Software developers	1,656,880
	Accountants and auditors	1,435,770
	Business operations specialists, all other	1,103,440
	Project management specialists	947,630
	Market research analysts and marketing specialists	846,370
	Management analysts	838,140
	Financial managers	787,340
	First-line supervisors of construction trades and extraction workers	777,420

Source: Occupational Mobility Explorer; Occupational Employment and Wage Statistics, 2023

Endnotes

1. Lightcast. n.d. “The Lightcast Global AI Skills Outlook.” Accessed March 21, 2025. <https://lightcast.io/resources/research/the-lightcast-global-ai-skills-outlook>.
2. Office of Disability Employment Policy. n.d. “Soft Skills: The Competitive Edge.” US Department of Labor. Accessed March 21, 2025. <https://www.dol.gov/agencies/odep/publications/fact-sheets/soft-skills-the-competitive-edge>.

Global Partnership for Education. 2020. “21st Century Skills: What Potential Role for the Global Partnership for Education?” <https://www.globalpartnership.org/content/21st-century-skills-what-potential-role-global-partnership-education>.
3. Brodnitz, Dan. 2024. “The Most In-Demand Skills of 2024.” Data Insights. LinkedIn. February 8, 2024. <https://www.linkedin.com/business/talent/blog/talent-strategy/linkedin-most-in-demand-hard-and-soft-skills>.
4. Deming, David J. 2017. “The Growing Importance of Social Skills in the Labor Market.” *The Quarterly Journal of Economics* 132 (4): 1593–1640. <https://doi.org/10.1093/qje/qjx022>.
5. Autor, David H. 2015. “Why Are There Still So Many Jobs? The History and Future of Workplace Automation.” *Journal of Economic Perspectives* 29 (3): 3–30. <https://doi.org/10.1257/jep.29.3.3>.
6. “In jobs that require basic people skills, workers are often alone, or usually are only expected to engage in simple, brief work-related communication and to treat others in a non-offensive manner. In jobs that require more than basic people skills, workers are expected to engage in more than simple communication with others. Critical tasks involving instructing, mentoring, or supervising others always require more than basic people skills. Likewise, regularly engaging in persuasion or negotiation as part of their critical tasks is considered more than basic people skills.”

Cluskey, Kenneth, and Kristen Monaco. 2021. “Minds at Work: What’s Required According to the Occupational Requirements Survey.” *Beyond the Numbers: Special Studies & Research* 10 (5). US Bureau of Labor Statistics. <https://www.bls.gov/opub/btn/volume-10/minds-at-work-whats-required-according-to-the-occupational-requirements-survey.htm>.
7. Brent Orrell. 2018. “STEM Without Fruit: How Noncognitive Skills Improve Workforce Outcomes.” American Enterprise Institute. <https://www.aei.org/research-products/report/stem-without-fruit-how-noncognitive-skills-improve-workforce-outcomes/>.

Get to know us

Check us out. You'll find analyses, research findings, tools, and more to help you do your job, whether you're a practitioner, academic, banker, elected official, or policymaker.



Meet the team



Our blog provides informal observations on what we see and hear across the District



Occupational Mobility Explorer

Connect

@CleveFed_ComDev
@ClevelandFed
LinkedIn

Subscribe

Get regular updates of our work two ways



Subscribe to CD updates, delivered 2–4 times per year



Sign up for Cleveland Fed Digest to receive monthly updates from across the Cleveland Fed