

# The Many Paths Forward

A SKILLS-BASED APPROACH TO OCCUPATIONAL MOBILITY AND  
OPPORTUNITY OCCUPATIONS

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## Executive Summary

Good jobs requiring less than a bachelor's degree seemed to disappear from the state and national economy starting in the 1970s. In previous research, we highlighted the presence of "Opportunity Occupations" in New York State — jobs that pay above the state median wage, require less than a bachelor's degree for entry, and are projected to grow in New York from 2020 through 2030. Opportunity Occupations can provide upward mobility for jobseekers without bachelor's degrees. In this paper, we examine and present basic information on transitions into Opportunity Occupations from lower-wage occupations.

- More than half of all employment in New York State, and over 99% of employment in low-wage occupations, is within reach of an Opportunity Occupation.
- When considering transitions between low-wage occupations and Opportunity Occupations (we call these "top transitions"), the top educational pairing is high school only for both occupations.
- Most of the top transitions with the highest similarity between jobs are within the same occupational group, most commonly one of the skilled trades. (E.g., apprentice or assistant to journeyman.)
- In terms of employment, the top origin (low wage) occupation is "Home Health and Personal Care Aide." In terms of number of transitions, the top origin occupation was "Maintenance and Repair Workers, General."
- In terms of employment, the top destination (opportunity) occupation was "First-Line Supervisor of Office and Administrative Support Workers." In terms of number of transitions, the top destination occupation was "First-Line Supervisors of Mechanics, Installers, and Repairers."
- Of the state's 10 labor market regions, New York City has the highest average potential raise for moving from a low-wage occupation to an Opportunity Occupation. Western New York has the largest number of low-wage occupations with potential transitions to Opportunity Occupations (called "top transitions").
- Among the top in-demand job attributes (knowledge, skills, or abilities) in destination occupations are Customer and Personal Service (knowledge), Active Listening (skills), and Oral Expression (abilities).

In brief, we find that New York State provides significant opportunities for advancement from low-wage occupations into Opportunity Occupations. Opportunity Occupations are within reach of most low-wage workers in New York State.

## Background and Introduction

Since the 1970s, jobs that afforded a decent living to Americans with less than a bachelor's degree have been increasingly difficult to come by, to the point that they seem to have disappeared. These jobs — called “middle-skill jobs” because they required some experience, training, and education, but did not require a bachelor's degree — have been decreasing as a share of the overall job market. At the same time, “lower-skill jobs” (requiring minimal education and training) and “higher-skill jobs” (requiring a bachelor's degree at minimum) have both been on the upswing.

While individual workers at the lower end of the wage spectrum are often able to increase their take-home pay over time by accumulating skills, gaining experience, and sometimes changing career paths, some earn low wages indefinitely . . . At the same time, employer surveys indicate a shortage of qualified applicants, even during periods of high unemployment, suggesting that the often-discussed ‘skills gap’ does not disappear in times of abundant labor. (Demaria, Fee, & Wardrip, 2020, p. 2)

In a previous report (New York State Department of Labor, 2024), we showed that this national phenomenon (also referred to as “job polarization”) appeared to have impacted New York State as well, but the existence of Opportunity Occupations provides a potential path forward for low-wage workers. Though the specific definition of Opportunity Occupation can differ, in general the term refers to jobs that don't require a bachelor's degree but do pay decent wages (above the median wage for the area) and have growth potential. The concept was studied in two papers published jointly by the Federal Reserve Banks of Philadelphia, Cleveland, and Atlanta (Wardrip, Fee, Nelson, & Andreason, 2015; Fee, Nelson, & Wardrip, 2019).

In our 2024 report, we defined Opportunity Occupations as those occupations that required less than a bachelor's degree for entry, paid above the area annual median wage (the state's median wage in the statewide analysis), and was projected to grow from 2020 through 2030.

In this paper, we highlight some of the characteristics of transitions between lower-wage occupations and Opportunity Occupations in New York State. This paper is inspired by a report published by the Federal Reserve Bank-Philadelphia (FRB-P) in 2020 (Demaria, Fee, & Wardrip, 2020). Similar to the FRB-P report:

We explore a skills-based approach to occupational mobility because it could both offer economic pathways out of lower-wage work for those without a bachelor's degree and inform a more efficient and equitable talent identification process for employers. The lessons from this analysis . . . resonate both in a tight labor market when open positions are difficult to fill and in times of economic recovery, as

millions search for jobs that leverage and fully reward their experience and aptitude. (Demaria, Fee, and Wardrip 2020, p.2)

This skills-based approach is based on the supportable notion that similar jobs (as determined by similar tasks being performed) require similar knowledge, skills, and abilities (KSAs) to perform. Accordingly, workers can transfer their KSAs from one job to another if the two jobs are similar enough in terms of the tasks performed.

A skills-based approach, if implemented in workforce development system, and by employers as part of the hiring process, can help both workers and businesses. Employers — who frequently decry a shortage of skilled workers (Melhorn, 2025), and a “skills mismatch” (Handel, 2005; Dychtwalk, Erickson, & Morison, 2006) — could see their talent pools enlarge considerably. Workers in search of jobs that pay well could see the field of occupations they can transfer into also enlarge considerably.

True occupational mobility helps both sides of the coin.

## The Basics of the Current Paper

We model this paper on the FRB-P paper cited above. One important difference, though, is how we compare occupations to determine similarity. The FRB-P report relied on KSAs, but we rely on tasks. Our comparative approach is based on similarity metrics developed for the federal government’s “Occupational Information Network” database project (O\*NET) (Dahlke, Putka, Shewach, & Lewis, 2022).

Using this task-based analysis, we develop “similarity scores,” ranging from 0 to 100, between pairings of the 689 occupations for which we have the required data. The occupation in the pairing that a person starts from is called the “origin occupation,” and the occupation in the pairing that person might potentially transition into is called the “destination occupation.”

The similarity scores should be considered roughly like a percentage. 100 is the best pairing (near complete, or about 100%, overlap between the tasks performed in the origin occupation and the destination occupation). Any occupation should have a similarity score of 100 (100%) with itself. A score of 0 means the two occupations in the pairing had no tasks in common.

We consider transitions that meet the following criteria.

- “New York State” is the region for both the origin occupation and the destination occupation. (We briefly analyze transitions within the various regions, but our focus is statewide. The dashboard that accompanies this paper can analyze transitions within regions.)
- The transition has a similarity score of 80 or more. (In other words, there is 80% or more overlap between the tasks of the destination and origin occupations.)

- There is a median wage increase of at least 10% from the origin occupation to the destination occupation.
- The destination occupation is an Opportunity Occupation, meeting all associated criteria and conditions described above.
- The destination occupation has over 5,000 jobs in New York State.
- The median wage of the origin occupation is less than \$54,276 (the statewide median wage used for the Opportunity Occupations report).

We refer to these pairings as “top transitions” and they are the focus of our analysis.

Using O\*NET KSA ratings data, we compiled data on 120 KSAs for each occupation and ranked each KSA by its “importance” and the “level” of proficiency required for an occupation.

More details regarding our method can be found in the Appendix section.

We attempted to answer the following research questions.

1. What are the characteristics of top transitions?
2. Which occupations provide lower-wage workers with the greatest potential for occupational mobility?
3. Which labor market regions in New York State provide lower-wage workers with the greatest potential for upward occupational mobility?
4. How does the demand for KSAs vary by occupational education requirements and pay level?

But first we consider some of the basics of job transitions in New York State.

# New York's Job Transitions, by the Numbers

## Table 1, The Basics of Top Transitions

### Transitions

Indicator	Amount
Total potential pairings (689 X 688)	474,032
Pairings we have data for	445,554
Top pairings	3,927
Origin titles in top pairings	247
Destination titles in top pairings	65

### Employment

Indicator	Amount
Total Employment in origin titles in top pairings	4,869,200
Total Employment in origin titles in ALL pairings	9,613,880
Percent of Employment in origin titles in top pairings	50.6%
Total Employment in low-wage titles	4,912,660
Percent of Employment in low-wage titles in top pairings	99.1%

Source: Calculated using data from the Occupational Employment and Wage Survey (OEWS) and the Occupational Information Network (O\*NET).

Table 1 shows that over half (50.6%) of all workers, and almost all (99.1%) of those employed in low-wage jobs could potentially transfer into an Opportunity Occupation. This amounts to 4,869,200 workers in low-wage jobs within reach of a top transition.

If there is a single takeaway from this report, it is that transitions to Opportunity Occupations are within reach of almost all low-wage workers in our state. New York State remains a state of opportunity for individuals without bachelor's degrees.

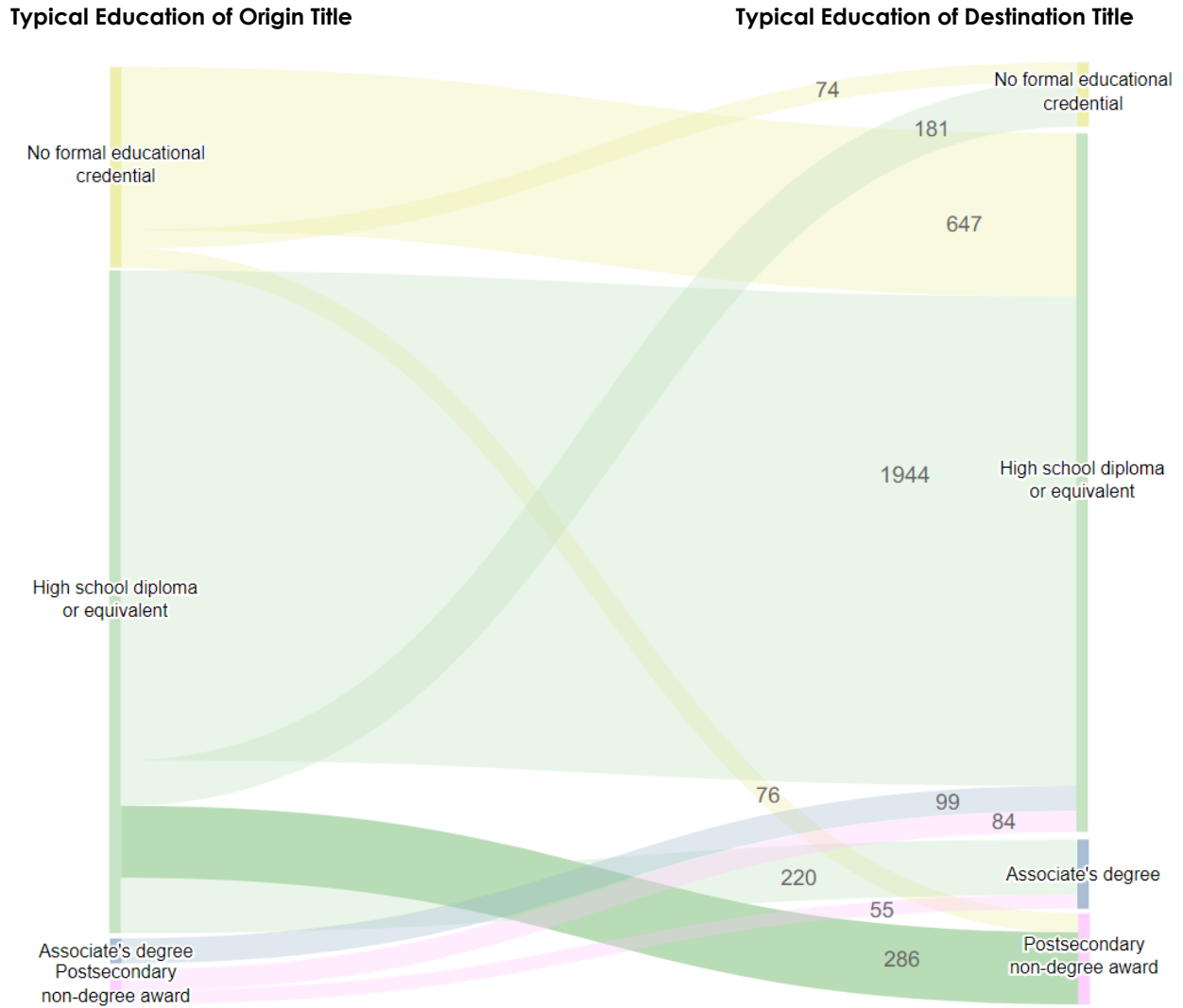
## Research Question 1: What are the characteristics of top transitions?

We consider several different characteristics.

### **Education Required by Top Pairings**

There are 32 distinct educational pairings involved in top transitions. In terms of the numbers of transitions they are associated with, the most common were as follows:

**Table 2, The Most Common Education Pairings for Top Transitions**



Source: Calculated using data from OEWS and O\*NET.

By far the most common educational pairing for top transitions is high school (HS) or equivalent in both the origin and destination titles. No formal education to HS is the second most common pairing. The educational pairings reinforced just how within reach top transitions are for many low-wage workers.

## Top Transitions by Similarity Score

**Table 3, Top Transitions with the Highest Similarity Score**

Origin Title	Destination Title	Similarity Score
Multiple Machine Tool Setters, Operators, & Tenders, Metal & Plastic	Industrial Machinery Mechanics	100.0
Physical Therapist Aides	Physical Therapist Assistants	100.0
Helpers--Pipelayers, Plumbers, Pipefitters, & Steamfitters	Plumbers, Pipefitters, & Steamfitters	100.0
Structural Metal Fabricators & Fitters	Sheet Metal Workers	100.0
Nursing Assistants	Licensed Practical & Licensed Vocational Nurses	99.9
Helpers--Electricians	Electricians	99.9
Cutting, Punching, & Press Machine Setters, Operators, & Tenders, Metal & Plastic	Industrial Machinery Mechanics	99.9
Paper Goods Machine Setters, Operators, & Tenders	Industrial Machinery Mechanics	99.9
Extruding, Forming, Pressing, & Compacting Machine Setters, Operators, & Tenders	Industrial Machinery Mechanics	99.9
Grinding, Lapping, Polishing, & Buffing Machine Tool Setters, Operators, & Tenders, Metal & Plastic	Industrial Machinery Mechanics	99.9

Source: Calculated using data from OEWS and O\*NET.

Most of these transitions are from lower-level titles in the skilled trades to journey-level titles within the skilled trades, either the same trade or a similar one. The rest are in health occupations but followed a similar path.

There are 16 transitions that barely meet the similarity score criterion for a top transition (all 80.0):

**Table 4, Least Similar Top Transitions**

Origin Title	Destination Title
Retail Salespersons	First-Line Supervisors of Production & Operating Workers
Retail Salespersons	Property, Real Estate, & Community Assn. Managers
Maids & Housekeeping Cleaners	First-Line Supervisors of Transp. & Material Moving Workers, Except Aircraft Cargo Handling Supervisors
Light Truck Drivers	Telecoms. Line Installers & Repairers
Tutors & Teachers & Instructors, All Other	Eligibility Interviewers, Gov't. Programs
Rehabilitation Counselors	Detectives & Criminal Investigators
Hotel, Motel, & Resort Desk Clerks	Eligibility Interviewers, Gov't. Programs
Automotive Body & Related Repairers	Telecoms. Equip. Installers & Repairers, Except Line Installers
Phlebotomists	Production, Planning, & Expediting Clerks

Ushers, Lobby Attendants, & Ticket Takers	First-Line Supervisors of Transp. & Material Moving Workers, Except Aircraft Cargo Handling Supervisors
Transportation Security Screeners	Eligibility Interviewers, Gov't. Programs
Machine Feeders & Offbearers	Construction & Building Inspectors
Helpers--Carpenters	Telecoms. Equip. Installers & Repairers, Except Line Installers
Food Cooking Machine Operators & Tenders	Sheet Metal Workers
Plating Machine Setters, Operators, & Tenders, Metal & Plastic	Telecoms. Equip. Installers & Repairers, Except Line Installers
Woodworkers, All Other	Water & Wastewater Treatment Plant & System Operators

Source: Calculated using data from OEWS and O\*NET.

Here, we see more transitions between different occupational lines. The data suggest that transitions between different occupational lines potentially are harder than a direct line promotion, but often are still within reach.

## Research Question 2: Which occupations provide lower-wage workers with the greatest potential for upward occupational mobility?

### **Origin Occupations**

There are 247 distinct origin occupations involved in top transitions. In terms of employment, the top ten are as follows.

**Table 5, Origin Occupations with the Highest Number of Jobs**

Origin Occupation	2020 Employment in Origin Occupation
Home Health & Personal Care Aides	510,870
Retail Salespersons	228,600
Office Clerks, General	181,740
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	179,080
Cashiers	177,320
Secretaries & Admin. Assistants, Except Legal, Medical, & Executive	168,910
Fast Food & Counter Workers	163,510
Customer Svc. Reps.	151,630
Laborers & Freight, Stock, & Material Movers, Hand	130,440
Teaching Assistants, Except Postsecondary	121,020

Source: Calculated using data from OEWS and O\*NET.

In terms of the number of potential transitions into Opportunity Occupations, the top ten origin occupations are as follows.

**Table 6, Origin Occupations with the Highest Number of Top Transitions**

Origin Occupation	Transitions Count
Maintenance and Repair Workers, General	37
Miscellaneous Assemblers and Fabricators	36
Dispatchers, Except Police, Fire, and Ambulance	35
Inspectors, Testers, Sorters, Samplers, and Weighers	33
Helpers—Installation, Maintenance, and Repair Workers	32
Highway Maintenance Workers	30
Septic Tank Servicers and Sewer Pipe Cleaners	30
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	30
Medical Appliance Technicians	30
Office Clerks, General	29

Source: Calculated using data from OEWS and O\*NET.

### **Destination Occupations**

There are 65 distinct destination occupations involved in top transitions. In terms of employment, the top ten destination occupations are as follows.

**Table 7, Destination Occupations with the Highest Number of Jobs**

Destination Occupation	2020 Employment in Destination Occupation
First-Line Supervisors of Office & Admin. Support Workers	105,800
Sales Reps., Wholesale & Mfg., Except Technical & Scientific Products	71,830
Heavy & Tractor-Trailer Truck Drivers	65,890
Carpenters	60,180
Police & Sheriff's Patrol Officers	60,080
Sales Reps. of Svcs., Except Advertising, Insurance, Fin. Svcs., & Travel	58,310
Licensed Practical & Licensed Vocational Nurses	48,730
Production, Planning, & Expediting Clerks	47,020
Computer User Support Specialists	45,890
Electricians	39,860

Source: Calculated using data from OEWS and O\*NET.

In terms of number of potential transitions from origin job titles, the top ten Opportunity Occupations are as follows.

**Table 8, Destination Occupations with the Highest Number of Top Transitions**

Destination Occupation	Transitions Count
First-Line Supervisors of Mechanics, Installers, & Repairers	131
First-Line Supervisors of Production & Operating Workers	129
Production, Planning, & Expediting Clerks	127
Industrial Machinery Mechanics	127
Operating Engineers & Other Construction Equip. Operators	125
Control & Valve Installers & Repairers, Except Mechanical Door	121
Sheet Metal Workers	118
First-Line Supervisors of Construction Trades & Extraction Workers	115
Carpenters	112
Plumbers, Pipefitters, & Steamfitters	111

Source: Calculated using data from OEWS and O\*NET.

The average similarity scores between the highest-wage destination occupations and every origin occupation they were paired with in a top transition are as follows.

**Table 9, Average Similarity Score of the Highest-Paid Destination Occupations**

Destination Occupation	Median Annual Wage	Average Similarity Score
First-Line Supervisors of Police & Detectives	\$127,077	85.18
First-Line Supervisors of Non-Retail Sales Workers	\$111,995	88.41
Electrical Power-Line Installers & Repairers	\$109,943	90.22
Detectives & Criminal Investigators	\$100,549	85.37
Advertising Sales Agents	\$100,292	88.59
Control & Valve Installers & Repairers, Except Mechanical Door	\$99,536	93.81
Property, Real Estate, & Community Assn. Managers	\$94,712	85.84
Respiratory Therapists	\$93,938	92.87
Dental Hygienists	\$92,451	90.9
Telecoms. Line Installers & Repairers	\$91,276	86.33

Source: Calculated using data from OEWS and O\*NET.

Occupations that pay high wages and have high average similarity scores for all top transitions are jobs that are upwardly mobile and within reach of many low-wage workers.

The destination occupations with the highest average similarity scores for all the top transitions with low-wage occupations are as follows.

**Table 10, Destination Occupations with the Highest Average Similarity Scores**

Destination Occupation	Average Similarity Score	Median Annual Wage
Industrial Machinery Mechanics	95.97	\$62,936
Sheet Metal Workers	94.25	\$64,470
Control & Valve Installers & Repairers, Except Mechanical Door	93.81	\$99,536
Plumbers, Pipefitters, & Steamfitters	93.09	\$79,251
Carpenters	92.89	\$64,353
Respiratory Therapists	92.87	\$93,938
Actors	92.70	\$60,497
Licensed Practical & Licensed Vocational Nurses	92.65	\$59,889
Cement Masons & Concrete Finishers	92.37	\$73,149
Diagnostic Medical Sonographers	92.29	\$89,277

Source: Calculated using data from OEWS and O\*NET.

Here are the destination occupations associated with the top ten average potential salary increases.

**Table 11, Destination Occupations with the Highest Average Potential Salary Increase**

Destination Occupation	Average of Potential Raise
First-Line Supervisors of Police & Detectives	186%
First-Line Supervisors of Non-Retail Sales Workers	165%
Electrical Power-Line Installers & Repairers	150%
Advertising Sales Agents	135%
Control & Valve Installers & Repairers, Except Mechanical Door	127%
Detectives & Criminal Investigators	123%
Respiratory Therapists	111%
Bus Drivers, Transit & Intercity	107%
Telecoms. Line Installers & Repairers	107%

Source: Calculated using data from OEWS and O\*NET.

### Research Question 3: Which regions of New York State provide lower-wage workers with the greatest potential for occupational mobility?

In this section, we depart from the statewide analysis to examine transitions into Opportunity Occupations at the regional labor market level. The statewide figure of 5,000 or more jobs in a destination occupation to qualify as a top transition is not appropriate for the regions. We calculate a new number based on each region's share

of annual private sector employment in New York State from the Quarterly Census of Employment and Wages (QCEW). We applied the resulting percentage to the statewide figure of 5,000. The resulting regional job criteria were as follows.

**Table 12, Level of Employment to Qualify as Top Transition**

Region	# of Jobs
Capital Region	268
Central New York	181
Finger Lakes	304
Hudson Valley	500
Long Island	701
Mohawk Valley	94
New York City	2,417
North Country	69
Southern Tier	134
Western New York	332

Source: Calculated using data from the Quarterly Census of Employment and Wages (QCEW).

The count of top transitions is calculated using the adjusted criteria by region.

New York City's robust economy provides the largest average potential raise, but its preponderance of higher skill work limits its number of transitions. To illustrate this, note how much higher New York City's average wage was compared to the other regions, according to QCEW data from 2023.

**Table 13, Transitions and Potential Raises by Region**

Region	Transitions	Average Potential Raise
Capital Region	7,068	79%
Central New York	5,818	77%
Finger Lakes	6,764	77%
Hudson Valley	5,173	87%
Long Island	5,814	90%
Mohawk Valley	4,868	79%
New York City	6,655	98%
North Country	4,738	68%
Southern Tier	5,999	79%
Western New York	7,100	72%

Source: Calculated using data from OEWS and QCEW.

Despite this, New York City ranks fourth in terms of the number of top transitions. Western New York, which is in the midst of an ongoing “slow and steady” recovery from the recession induced by the COVID-19 pandemic (Glass, 2025), has the largest number of transitions, though only half the average wage of New York City.

**Table 14, Regional Average Wage**

Area	Average Wage, 2023
Capital Region	\$70,029
Central New York	\$63,170
Finger Lakes	\$63,771
Hudson Valley	\$75,180
Long Island	\$75,648
Mohawk Valley	\$54,733
New York City	\$121,661
North Country	\$53,699
Southern Tier	\$63,976
Western New York	\$60,574

Source: Calculated using data from QCEW.

## Research Question 4: How does the demand for KSAs vary by occupational education requirements and pay level?

We defined the top KSAs within the destination occupations involved in top transitions as those which had importance and level scores of 4.0 or over, and paired them with the education level usually required for entry into the destination occupation in the pairing. We determined the top KSA/educational pairings in all top transitions by calculating the percentage of employment, in top transitions, within which each KSA was required and paired with a given level of education typically required for entering into a destination occupation.

In terms of percentage of total employment, the top 25 KSAs and typical education required for entry in top transitions were as follows.

**Table 15, The Top In-Demand KSAs and Education Levels in Top Transitions**

Knowledge, Skill, or Ability	Attribute	Typical Education for Destination. Entry	% of Emp. in Top Transitions	Weighted Average*, Destination			
				Emp.	Median Wage	Importance	Level
Knowledge	Customer & Personal Svc.	High School	9.5%	46,339	80,611	4.43	5.18
Ability	Oral Expression	High School	9.0%	49,606	81,226	4.04	4.06
Ability	Oral Comprehension	High School	8.3%	44,512	83,153	4.11	4.02

Skill	Speaking	High School	5.4%	60,586	84,600	4.03	4.01
Knowledge	Admin. & Mgmt.	High School	4.1%	59,236	80,762	4.31	4.31
Knowledge	English Language	High School	3.9%	44,712	82,173	4.27	4.43
Knowledge	Sales & Marketing	High School	3.7%	48,475	80,354	4.61	5.13
Ability	Written Comprehension	High School	3.6%	64,426	84,108	4.01	4.00
Skill	Monitoring	High School	3.1%	73,860	87,321	4.00	4.07
Skill	Active Listening	High School	3.0%	40,280	85,407	4.05	4.04
Knowledge	Building & Construction	High School	2.3%	40,429	73,702	4.46	5.35
Ability	Problem Sensitivity	High School	2.1%	36,001	89,020	4.29	4.17
Knowledge	Public Safety & Security	High School	1.9%	38,415	87,152	4.78	5.33
Knowledge	Law & Gov't.	High School	1.8%	38,930	87,720	4.74	4.93
Ability	Deductive Reasoning	High School	1.5%	46,786	84,340	4.20	4.14
Knowledge	Production & Processing	High School	1.5%	35,069	63,851	4.28	4.87
Knowledge	Psychology	High School	1.3%	51,257	92,185	4.08	5.23
Knowledge	Mechanical	High School	1.2%	19,016	73,478	4.37	5.12
Ability	Problem Sensitivity	Postsecondary	1.1%	40,751	64,510	4.03	4.21
Ability	Near Vision	High School	1.1%	29,925	72,758	4.00	4.10
Ability	Oral Comprehension	Postsecondary	1.0%	43,987	60,594	4.00	4.11
Ability	Oral Comprehension	Some College	0.9%	40,421	65,735	4.00	4.02
Ability	Oral Expression	Some College	0.9%	40,421	65,735	4.02	4.00
Skill	Troubleshooting	High School	0.9%	33,556	74,595	4.00	4.00
Ability	Oral Expression	Postsecondary	0.9%	48,730	59,889	4.00	4.12

\*Weighted by 2020 employment

Postsecondary: Postsecondary non-degree award

Some college: Some college, no degree

Source: Calculated using data from OEWS and O\*NET.

While we focused on tasks to determine similarities between occupations, understanding knowledge, skills, and abilities associated with those tasks is essential in a job search. Simply put, knowledge is what you know – information acquired through education, training, or experience. Various spheres of knowledge represent second-most of the top in-demand KSAs in top transitions (10 of 25) and range from customer service to mechanics. Skills are what you can do, often developed through practice. They include hard skills like accounting or coding to soft skills like speaking, monitoring, active listening, and troubleshooting, which are the only four skills that appear in the top in-demand KSAs, each time paired with high school as the most-commonly-required typical education needed for entry a destination occupation within a given top transition. Lastly, abilities can be thought of as your potential – more general capabilities or aptitudes that allow you to apply skills and knowledge. Eleven abilities appear on the top 25 list of KSAs, making it the most-numerous category of attributes. The top abilities are oral expression and oral comprehension.

Most KSAs are paired with high school or equivalent as the typical education needed for entry into the destination occupation. This reflects the fact that, as related above

(see Table 2), this level of education is by far the most-popular educational pairing in top transitions.

## Conclusion

Job polarization is a very real phenomenon and has had major economic consequences for many people. However, that is not the same as saying that there are no longer good opportunities for workers without a bachelor's degree. New York State's labor market continues to provide significant opportunities for upward advancement from low-wage occupations into Opportunity Occupations.

- Most workers in low-wage jobs in New York State are within reach of an Opportunity Occupation.
- The top two educational pairings in top transitions are high school to high school and no formal educational credential to high school, further driving home just how realistic these top transitions are for many lower-wage workers.
- Most of the top transitions with the highest similarity score are from within the same occupational group, most-commonly one of the skilled trades. (For example, from "Helpers--Electrician" to "Electricians.")
- In terms of employment, the top origin occupation is "Home Health and Personal Care Aide," with "Retail Salesperson" being a distant, but still-populous, second. In terms of number of transitions, the top origin occupation was "Maintenance and Repair Workers, General," but close second and third places are "Miscellaneous Assemblers and Fabricators" and "Dispatchers, Except Police, Fire, and Ambulance."
- In terms of employment, the top destination occupation is "First-Line Supervisor of Office and Administrative Support Workers," with "Sales Representative, Wholesale and Manufacturing, Except Technical and Scientific Products" being a distant, but still-populous second. In terms of number of transitions, the top destination occupation is "First-Line Supervisors of Mechanics, Installers, and Repairers," but a close second is "First-Line Supervisor of Production and Operating Workers."
- New York City has the highest average potential salary increase (nearly double) between the origin and the destination occupations. Western New York has the greatest number of top transitions.
- Among the top in-demand KSAs in destination occupations are Customer and Personal Service (knowledge), Active Listening (skills), and Oral Expression (abilities).

[Click here](#) for our Opportunity Occupations/Mobility dashboard(s) and click here to find a [career center](#) to begin your journey in the state of opportunity — New York, the Empire State.

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## Appendix: Data and Methods

### **The Inspiration**

This paper and its method are modeled after a paper published by the Federal Reserve Bank-Philadelphia (FRB-P) in 2020 (Demaria, Fee, & Wardrip, 2020). In that paper, the writers explored what they called “a skills-based approach to occupational mobility.”

We draw on a body of research that defines an occupation as a bundle of tasks, the successful completion of which requires a particular array of knowledge, skills, and abilities . . . In essence, then, ‘skills define jobs’ . . . and what differentiates a given occupation from the rest is the combination and importance of the skills it requires. Workers can transfer their skills from one job to another in order to accomplish occupation – specific tasks reliant on their skills. (Demaria, Fee, & Wardrip, 2020, pp. 2-3)

The FRB-P authors used a variety of methods to discover overlap in knowledge, skills, and abilities (KSAs, they used the term “skills”) across a huge number of occupations and studied potential overlap between lower-wage jobs and middle-wage jobs. They also studied the most-commonly required KSAs in the various economies they covered. Their focus was national and regional.

## **Job Comparisons**

One difference between our study and the FRB-P study is that our focus is on New York State and its regions. Another difference between the 2020 study and ours is our method of comparing jobs. Whereas they relied on comparing KSAs, we rely on tasks performed on the job. Our approach is close to that developed for the federal government's "Occupational Information Network" database project (O\*NET) (Dahlke, Putka, Shewach, & Lewis, 2022). The idea is that if the tasks and activities associated with two different occupations are similar, then the occupations can be considered "related," and that this similarity of tasks would have more obvious validity than would a comparison of KSAs. We perform a similar analysis, for every job we have data for with New York State and its 10 labor market regions.

We utilized the O\*NET "Related Occupations Research Dataset" which was developed using their more-detailed O\*NET-SOC (Standard Occupational Classification) taxonomy and includes data on 923 occupational titles. However, we are studying transitions into Opportunity Occupations which were classified using the 2010-2018 hybrid SOC system. We were able to match 689 occupations with data provided in the O\*NET dataset.

Using the similarity of tasks analysis described above, we developed similarity scores between the two titles in each pairing and rated the similarity between them from 0 to 100. The job a person is assumed to be starting from is called the "origin occupation," and the job that person might potentially transition into is called the "destination occupation."

The similarity scores should be considered roughly like a percentage. A score of 100 is the best pairing (near complete, or 100%, overlap between the origin occupation and the destination occupation). Any given job title should have a 100 (100%) match with itself. A score of 0 means the two jobs in the pairing have nothing whatsoever in common.

## **Top Transitions**

With this in mind, we focus on "top transitions" that meet the following criteria:

- "New York State" is the region for both the origin occupation and the destination occupation. (For now, we're studying *statewide* transitions, though we also do some preliminary comparisons among the regions.)
- The transition has a similarity score of 80 or more. (In other words, there is 80% or more overlap between the destination and origin occupations in terms of the criteria outlined above.)
- There is a median wage increase of 10% or more from the origin occupation to the destination occupation.

- The destination occupation is an Opportunity Occupation, with all associated criteria and conditions as described above.
- The destination title has over 5,000 jobs in New York State.
- The median wage of the origin title is under \$54,276 (which is the statewide median wage we used for the Opportunity Occupations report).

### **Knowledge, Skills, and Abilities**

In addition to informing us about the bundles of tasks (duties) performed by the various occupations, O\*NET's data also informed us which KSAs were commonly associated with those bundles of tasks, and to what intensity the various KSAs were needed to successfully perform those bundles of tasks. We processed data for 120 separate and distinct attributes (the individual KSAs), considering each along two vectors: the "importance" of it and the "level" required for a given job under consideration.

As a term, "KSAs" generally refers to the package of attributes required of an individual to perform a job, and the package of attributes that individuals bring to the table when they get a job. The common definitions of each of these distinct but highly related terms are spelled out in this graphic assembled by [thehumancapitalhub.com](http://thehumancapitalhub.com). The FRB-P report we draw inspiration from combined KSAs together under the moniker of "skills." For our analysis, however, we're maintaining the traditional separation.

**Figure 1, KSAs Explained**



Source: TheHumanCapitalHub.com

Just like our definitions of the various occupations, our list and definitions of the specific KSAs come from the USDOL's O\*NET project. So, for example, they consider "reading comprehension" to be a skill, "knowledge of human behavior and performance" to be knowledge, and "reaction time" to be an ability. There is some overlap between the different attributes.

For each KSA, "importance" to each job is measured on a scale of 1.0 to 5.0 and the "level" required for each job on a scale from 0.0 to 7.0. Based on the scales, the mid-point values of a given KSA would be 3.0 and 3.5 for importance and level, respectively. We also calculate the mean and median values weighted by share of 2020 employment for all KSA at the state level.

**Table 16, Information on the KSA Scale**

		<b>Importance</b>	<b>Level</b>
Scale Information	Minimum	1.00	0.00
	Maximum	5.00	7.00
	Mid-Point of Scale	3.00	3.50
Weighted Average of All Scores	Knowledge	2.23	1.94
	Skills	2.50	2.20
	Abilities	2.39	2.06
Weighted Average of the Medians of All Scores	Knowledge	2.05	1.71
	Skills	2.62	2.57
	Abilities	2.34	2.15

Source: Calculated using data from OEWS and O\*NET.

Combining KSA data with data on transitions enable us to see which KSAs were most in-demand in top transitions.