Appendix: Healthcare, Early Care and Education, Information Technology, and Production/Manufacturing Career Trajectories and Occupational Transition Findings

A. Appendix Overview

The datasets compiled for the Career Trajectories and Occupational Transitions (CTOT) Study can be used to inform career pathways and other employment and training programs by (1) identifying launchpad occupations associated with higher than average wage growth, (2) identifying occupational and worker characteristics associated with wage growth, and (3) identifying specific occupational steps associated with wage growth (see Chapter 5 in the companion report). The box on the next page provides a glossary of study key concepts and terminology.

The CTOT study's full report, *Building Better Pathways: An Analysis of Career Trajectories and Occupational Transitions*, focuses on results across all the mid-level occupations included in the study.[1] However, career pathways programs (as well as other employment and training programs) sometimes focus on a single occupational cluster or small number of clusters. To provide additional information on specific occupations of interest to policymakers and practitioners, this appendix describes detailed findings for four occupational clusters, in four "spotlight" sections:

1. Healthcare – p. 3
2. Early care and education – p. 47
3. Information technology – p. 64
4. Production/manufacturing. – p. 76

Additional data for all other occupational clusters analyzed in the study and for individual occupations within those clusters can be accessed through an interactive dashboard at https://www.dol.gov/agencies/oasp/evaluation/resources/career-trajectories-and-occupational-transitions-dashboard

For each of the four occupational clusters, the appendix includes the following sections:

- **Cluster overview and summary of results**: What are the primary occupations and occupational titles, including starting wages, in the cluster? What are the key findings?
- **Occupational cluster results**: How do wage trajectories for workers in the occupations within the cluster of focus **compare to wage trajectories for workers overall**? What worker demographic characteristics are associated with **wage growth** in the cluster? What is the effect of changing jobs on wage trajectories?
- **Individual occupation results**: Within the cluster, which occupations are most promising in increasing earnings?
- **Occupational transitions results**: What are the 10-year wage trajectories of each occupation? What are the most common transitions from each occupation?

As in the report and corresponding to the types of occupations targeted by career pathways programs, these analyses focus on mid-level occupations that require some postsecondary preparation (whether formal or informal) but do not

[1] The full report and other study reports can be accessed at https://www.dol.gov/agencies/oasp/evaluation/currentstudies/Career-Pathways-Descriptive-and-Analytical-Study

generally require a four-year college degree. All occupations included correspond to O*NET Job Zones 2 (some preparation required) or 3 (medium preparation required).[2]

This analysis uses two datasets. The wage trajectories dataset comprises data from two nationally representative survey sources: Panel Study of Income Dynamics (PSID) (covering 2003-2017) and the National Longitudinal Survey of Youth (covering 1997-2018). The occupational transitions dataset uses data licensed from Emsi. It draws data from resumes and other worker-provided job descriptions covering a large sample of workers (128 million records).[3]

Information about each data source is included in Technical Appendix A in the report. Full details about dataset construction are included in its Technical Appendix B. The specific sources used in each analysis are listed below each exhibit. For more information, please see the full final report

Key Concepts and Terms

- Destination occupation: When a worker transitions between occupations, the new occupation is the "destination" occupation. Compare with *source occupation*.
- Entrant: A worker who takes a job in an occupation for the first time. Upon program completion, career pathways program participants are likely to become occupation entrants.
- Occupational cluster refers to a set of related occupations in the same field. Occupational cluster is often related to industry sector, but the two are not the same. For example, a school nurse is a healthcare worker but is employed in the education sector. Occupational cluster is about the job; industry sector is about the employer.
- Source occupation: When a worker transitions between occupations, the original occupation that the worker transitioned from is the "source" occupation. Compare with *destination occupation*.
- Trajectory: Where entrants are in the years after they first start a job in an occupation; described in terms of wage growth as well as other outcomes such as time spent not working, new degrees obtained, and whether they stay in the same occupational cluster.
- Transition: A job change from working in one occupation (the "source" occupation) to working in a different occupation (the "destination" occupation).
- Wage growth: For purposes of this study, the amount an entrant's wage increases over the 10-year period this study examines. *High wage growth* refers to wage increases that are higher than average; *low wage growth* refers to wage increases that are lower than average but are still an increase from the entrant's starting wage.

[2] As defined by O*NET (https://www.onetonline.org/help/online/zones), "some preparation" needed refers to jobs that require a high school diploma or GED, require little or no previous work-related experience, and/or require a few days to a few months of training. "Medium preparation" needed refers to jobs that require training in vocational schools, related on-the-job experience, or an associate's degree plus previous work-related skill, knowledge, or experience.

[3] The data presented here reflect several limitations. First, data for which there were fewer than 40 observations is suppressed. Additionally, this analysis is descriptive in nature and cannot determine whether any particular factors causes differences in wage growth. The analyses did not explore regional differences in trajectories, nor the role of some occupational characteristics that might be of interest such as unionization. The findings are also for a particular historical period and reflect labor market conditions from 1997 to 2018. They are subject to being affected both by cyclical changes in the economy and by trends in occupational structures during that time period.

B. Spotlight: Healthcare Cluster

Healthcare occupations are of particular interest in the career pathways field and occupational training programs generally. Healthcare is one of the most commonly targeted occupational clusters among career pathways programs. In this project's meta-analysis of 46 career pathways programs, nearly 60 percent included training in healthcare occupations (Peck et al., 2021).[4]

1. Cluster Overview and Summary of Results

Exhibit HC-1 summarizes the mid-level healthcare occupations included in the trajectories analysis. It includes the occupations used in the trajectories analysis, common job titles, O*NET code, starting wage, and sample size for the 10-year follow-up period. Occupations for which there are fewer than 40 entrants with 10 years of follow-up data are italicized. These occupations in italics are *included* in analyses of the healthcare cluster as a whole but are *excluded* from analyses presenting findings for individual occupations due to small sample sizes.

Exhibit HC-1. Occupations Included in Healthcare Occupational Cluster

Occupations Included in Trajectories Analyses (Broad Census Categories)	Common Job Titles	O*NET Job Zone	Starting Wage ($)	Sample Size (at 10 Years
Nursing, psychiatric, and home health aides	Health Aide; Home Care Giver; Hospital Corpsman; Mental Health Orderly/Technician; Nursing Attendant; Nursing Assistant	2.3	12.59	589
Health diagnosing and treating practitioner support technicians	Certified Retinal Angiographer; Operating Room Technician; Ophthalmic Diagnostic Sonographer; Ophthalmology Assistant; Patient Care Specialist; Surgical Technologist; Veterinary Nurse/Technician	2.9	12.98	109
Medical assistants and other healthcare support occupations	Certified Medical Transcriptionist; Laboratory Phlebotomist; Morgue Technician; Phlebotomy Services Technician; Respiratory Therapist Assistant; Service Technician; Speech-language Pathology Assistant; Transcription Specialist	2.6	13.01	294
Medical records and health information technicians	*Certified Coding Specialist; Coder; Health Information Management Inpatient Coding Auditors; Health Information Administrator/Technician; Health Unit Clerk; Medical Billing Specialist; Medical Office Technician; Medical Record Specialist; Medical Records Custodian*	*3.0*	*13.55*	*30*
Dental assistants	Dental Aide; Dental Assistant; Dental Nurse; Dental Office Manager; Oral Surgery Assistant	3.0	14.29	47
Emergency medical technicians (EMT) and paramedics	*Ambulance Driver-Paramedic; Emergency Medical Technician/Dispatcher (EMT); Emergency Room Technician; First Responder; Medical Technician; Multi Care Technician; Paramedic*	*3.0*	*14.51*	*33*
Miscellaneous health technologists and technicians (Misc. Health Techs)	*Certified Surgical First Assistant; Electrocardiographic Technician; Hearing Instrument Dispenser; Newborn Hearing Screener; Ophthalmic Diagnostic Imager; Ophthalmic Medical Technologist; Radiation Technician; Radiography Technician; Radiologic Technician;*	*3.3*	*15.90*	*27*
Clinical laboratory technologists and technicians	Blood Bank Technician; Cytogenetics Technologist; Cytotechnologist; Histologic Aide; Histotechnologist Supervisor; Laboratory Supervisor; Medical Technologist; Patient Care Technician; Tissue Technologist	3.8	17.34	45

[4] The full report for this meta-analysis, *A meta-analysis of 46 career pathways impact evaluations*, can be accessed at https://www.dol.gov/agencies/oasp/evaluation/currentstudies/Career-Pathways-Descriptive-and-Analytical-Study

Occupations Included in Trajectories Analyses (Broad Census Categories)	Common Job Titles	O*NET Job Zone	Starting Wage ($)	Sample Size (at 10 Years
Diagnostic related technologists and technicians	*Cardiograph Operator; Chief Nuclear Medicine Technologist; Computed Tomography Technologist; Laboratory Technician; Magnetic Resonance Imaging Coordinator; Mammographer; Mammography Technologist; Medical Imaging Director; Pulmonary Function Technician; Ultrasound Technologist*	*3.0*	*19.91*	*38*
Licensed practical (LPN) and licensed vocational nurses (LVN)	Charge Nurse; Clinic Nurse; Home Health Care Provider; Licensed Practical Nurse (LPN); Licensed Vocational Nurse (LVN); Nursing Technician; Office Nurse; Private Duty Nurse	3.0	20.83	58
Registered nurses (RN)	Admission Nurse Coordinator; Adult Psychiatric Mental Health Nurse Practitioner; Care Transitions Nurse; Clinical Nurse Specialist; Consultant Nurse; Occupational Health Nurse Supervisor; Progressive Care Manager; Public Health Staff Nurse; Staff Nurse; Surgical Registered Nurse	3.8	27.89	152
Massage therapists	*Bodywork Therapist; Licensed Massage Practitioner; Licensed Massage Therapist; Massage Operator; Mechanotherapist; Medical Massage Therapist; Skin Therapist; Therapeutic Massage Technician*	*3.0*	*40.50*	*25*

Notes: To determine the Job Zone we used the U.S. Bureau of Labor Statistics' O*NET Job Zone classifications to classify job levels. Because NLSY:97 and PSID use different systems to classify occupations, crosswalks are required. O*NET's occupational classifications are finer grained than Census classifications. As such, in some cases multiple O*NET codes correspond to a single Census code. In those cases, the Job Zone for the Census occupation is calculated as the simple average of the Job Zones for the set of corresponding O*NET codes. The study defined mid-level jobs as those with Job Zones of at least 2 but less than or equal to 3.8.
Sources: 2002 Census Occupations, O*NET Job Zones, NLSY:97 and Panel Study of Income Dynamics

As detailed below, the **key findings** for the healthcare occupational cluster are:

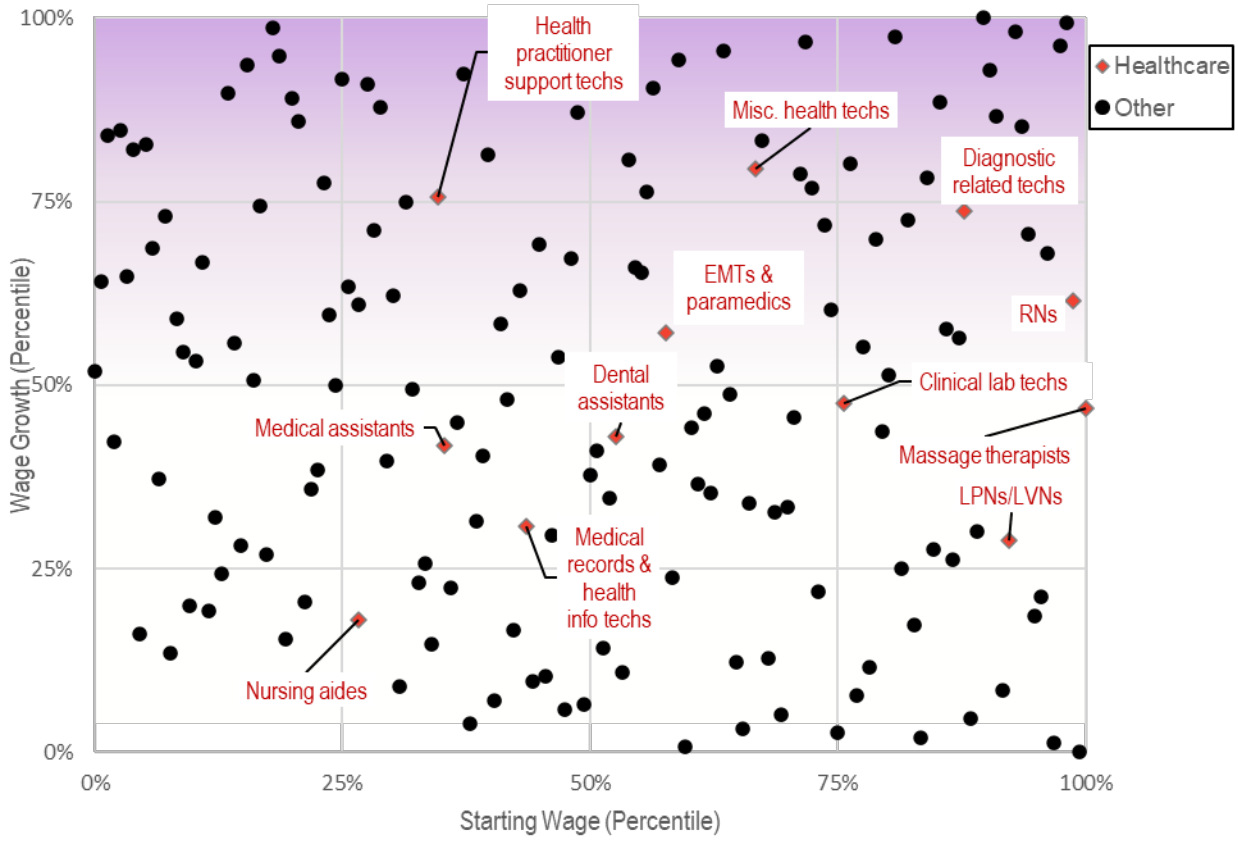
- Relative to mid-level occupations in other clusters, healthcare occupations have below average wage growth. Weighted median wage growth over 10 years across healthcare occupations is $5.94 per hour, compared to $7.36 per hour across all mid-level occupations.
- Most (eight of twelve) healthcare occupations offer a starting wage that is higher than the national average for mid-level occupations, but they vary in how much wage growth workers experience over time.
- Workers with the highest wages at the outset and in occupations with greater training requirements have the largest proportion of workers earning $25 per hour or more five years later.
- Workers experience differences in wage growth based on their race/ethnicity, with non-Hispanic White workers earning more than non-Hispanic Black or Hispanic workers. Ten years after starting in the same healthcare occupation, compared to non-Hispanic White workers, Black and Hispanic workers earn $3.59 less and $3.49 less per hour, respectively. There is no significant difference in wage growth based on age, gender, or parents' educational attainment.
- Workers who leave healthcare to work in a different field experience less wage growth than those who stay in the healthcare cluster. This contrasts with the study's finding that for mid-level occupations overall, leaving the entry cluster is associated with higher wage growth.

2. Occupational Cluster Results

HOW DO CAREER TRAJECTORIES FOR WORKERS IN HEALTHCARE JOBS COMPARE TO TRAJECTORIES FOR WORKERS OVERALL?

Most mid-level healthcare occupations offer higher than average starting wages, but how much wages grow after five years varies. Exhibit HC-2 shows starting wages and wage growth for mid-level healthcare occupations (indicated by red diamonds) in comparison to mid-level occupations overall (black dots) after five years. The occupations toward the right of the graph are those with the highest starting wages, and those at the top of the graph have higher wage growth. For example, Health Diagnosing and Treating Practitioner Support Technicians have lower than average starting wages but see higher than average wage growth at five years. Massage Therapists, on the other hand, have high starting wages but see lower than average wage growth.

Exhibit HC-2. Scatter Plot of Mid-Level Occupations' Starting Wages and Five-Year Wage Growth (in Dollars) Rank

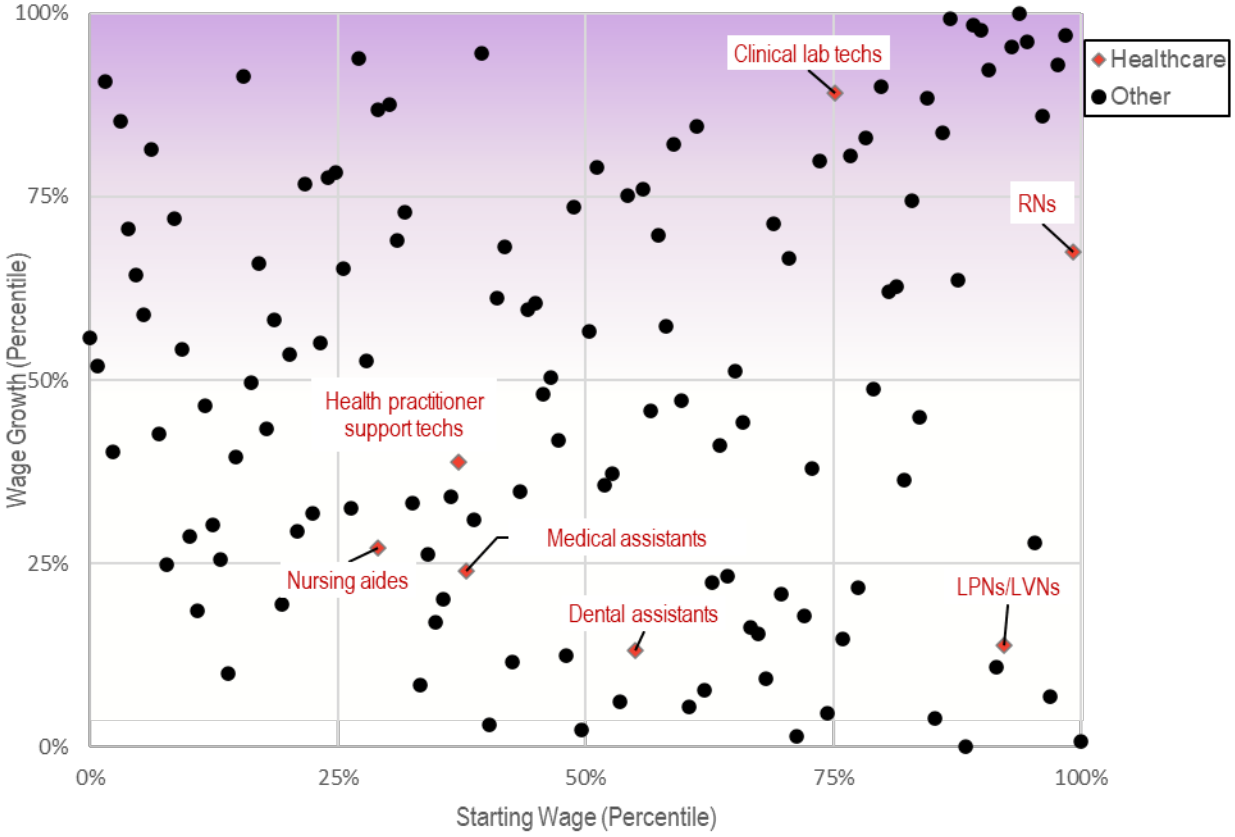


Note: Analyses include only occupations with data for at least 40 new entrants.
"Nursing Aides" reflects the full Census occupational category of "Nursing, psychiatric, and home health aides."

Source: NLSY:97 and Panel Study of Income Dynamics

Exhibit HC-3 shows these same results but for 10 years after starting a job. As shown, workers in some healthcare occupations, such as Clinical Laboratory Technologists and Technicians ("Clinical lab techs" in the graph), see higher than average wage growth than do other healthcare jobs after 10 years. In contrast, workers in other healthcare occupations see average or below average wage growth.

Exhibit HC-3. Scatter Plot of Mid-Level Occupations' Starting Wages and 10-Year Wage Growth (in Dollars) Rank

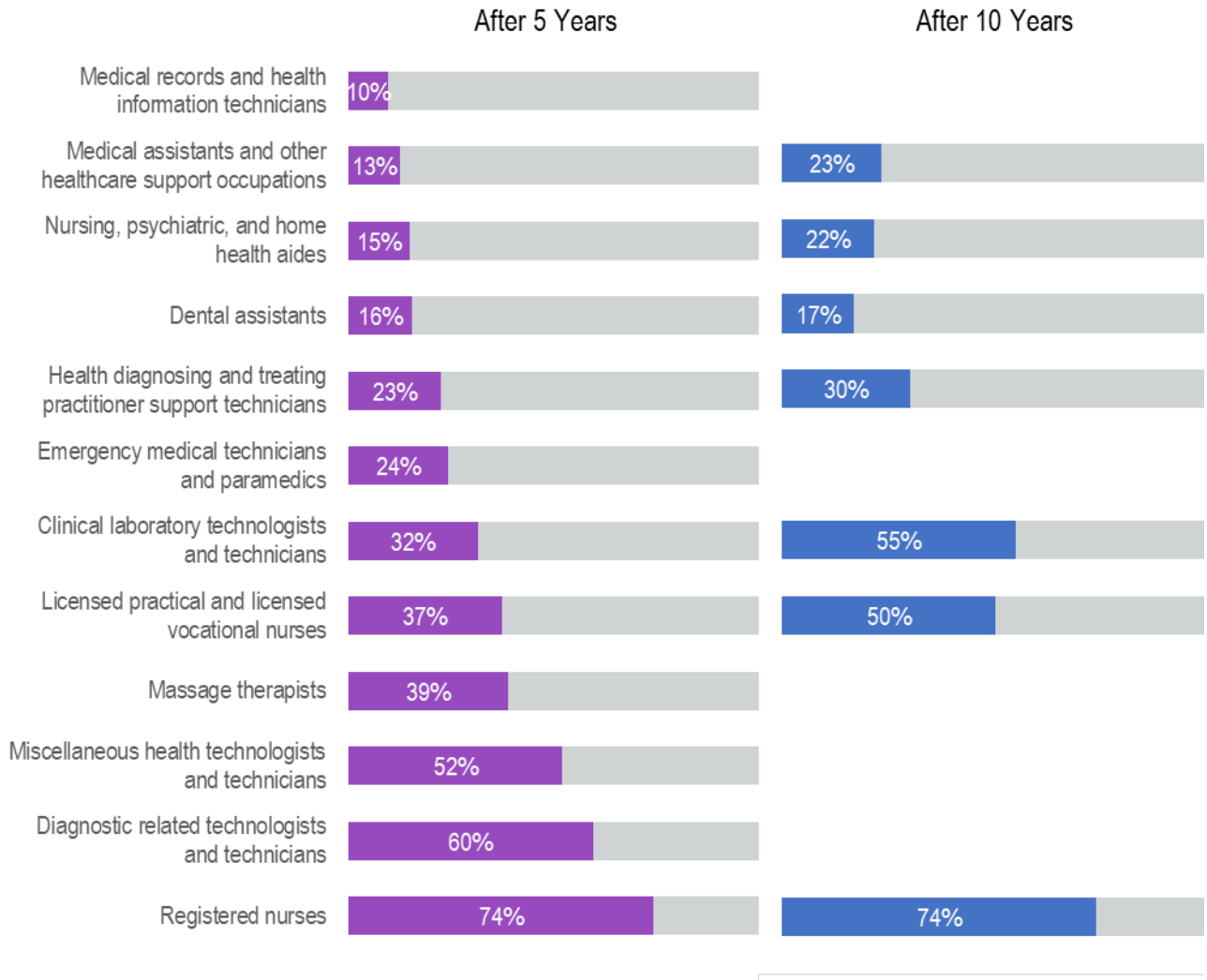


Note: Analyses include only occupations with data for at least 40 new entrants.
"Nursing Aides" reflects the full Census occupational category of "Nursing, Psychiatric, and Home Health Aides."
Source for all graphs on this page: NLSY:97 and Panel Study of Income Dynamics

FOR EACH OCCUPATION, HOW LIKELY IS IT THAT ENTRANTS WILL BE EARNING AT LEAST $25 PER HOUR FIVE OR 10 YEARS LATER?

Exhibit HC-4 shows the percentage of workers starting in each occupation who are earning $25 per hour, as a proxy for a wage considered sufficient to support a family, at five years (purple bar) and 10 years (blue bar) after starting in the occupation. In most occupations, the percentage of workers earning $25 per hour does not increase much between five and ten years. Though at five years more Licensed Practical Nurses than Clinical Laboratory Technologists are earning $25 per hour, this pattern reverses at 10 years, suggesting that the latter see an acceleration in wage growth from five to 10 years.

Exhibit HC-4. Proportion of Workers Earning $25 per Hour or More, at Five and 10 Years

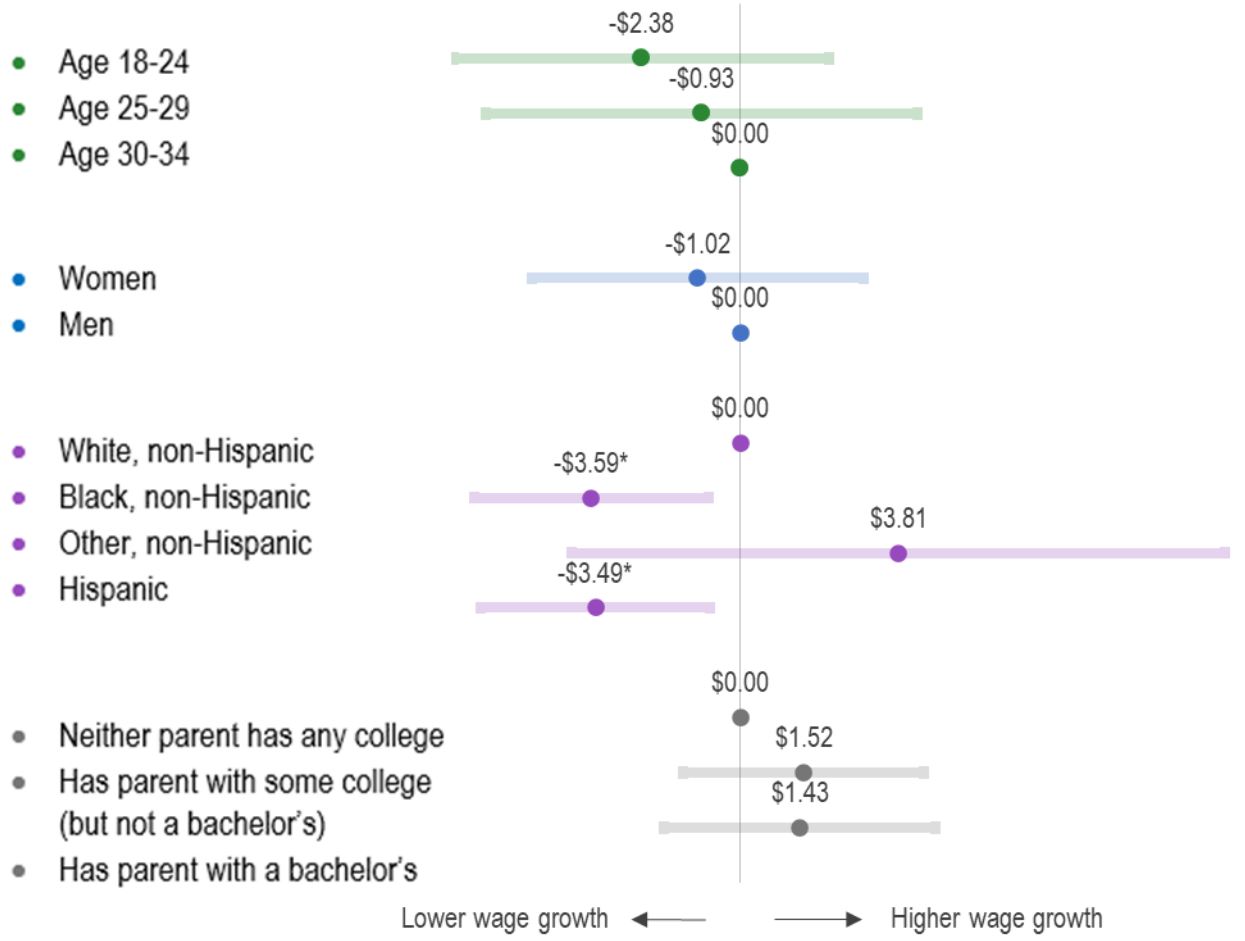


Note: *N*=2,210 after 5 years. *N*=1,294 after 10 years. The chart includes only occupations with data for at least 40 new entrants. Some occupations have a large enough sample observed for five years but the 10-year period sample is too small. Those occupations only have five-year findings shown.
Source for all graphs on this page: NLSY:97 and Panel Study of Income Dynamics

TO WHAT EXTENT DOES WAGE GROWTH VARY BASED ON DEMOGRAPHIC CHARACTERISTICS?

Exhibits HC-5 shows the average difference in wages 10 years after starting a job in healthcare for workers with different demographic characteristics, including age, gender, race/ethnicity, and family socioeconomic status (as indicated by parents' educational status). As shown, the differences in wages over this 10-year period vary substantially by race/ethnicity. Compared to non-Hispanic White workers starting in the same occupation, non-Hispanic Black and Hispanic workers earn $3.59 less and $3.49 less per hour, respectively. However, no significant differences in wage growth based on workers' age, gender, or parents' educational attainment are detected.

Exhibit HC-5. Ten-Year Wage Growth Differences Among Entrants to Healthcare Occupations, by Worker's Age, Gender, Race/Ethnicity, and Parents' Educational Attainment

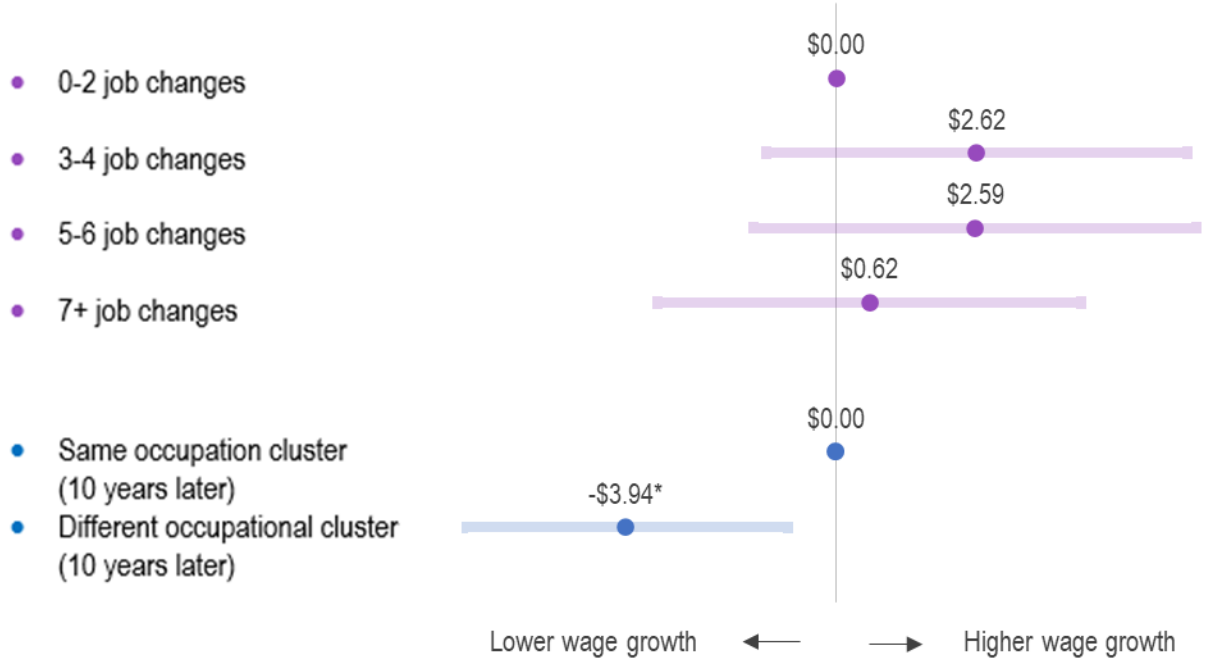


How to Read These Graphs: The dots represent the estimated difference in average wage growth for members of the given category, compared to members of the reference category who are otherwise similar (same starting occupation, starting wage, and demographic characteristics other than that one in question). Dots on the zero line are for the reference category itself (Age: 30-34; Gender: Men, Race/ethnicity: White non-Hispanic; Parental education: Neither parent has any college). Dots to the right indicate that, on average entrants from that demographic group experience more wage growth than do otherwise similar entrants from the reference category. For instance, 18-24-year-old entrants to an occupation see, on average, $2.38 per hour less in wage growth in the 10 years after entering the occupation compared to the otherwise similar 30-34-year-olds. The bars indicate how precise our estimates are (the 95 percent "confidence interval"); the actual wage difference could fall anywhere in that range, though they are more likely to fall toward the middle of the range than the ends.
Note: Estimates are drawn from OLS regressions that include occupation fixed effects and controls for the worker's starting wage in the occupation, data source, all of the individual-level characteristics above. Asterisks (*) indicate a statistically significant difference at the .05 level.
"Other, non-Hispanic" includes Asian Americans, Pacific Islanders, Native Americans, workers who report multiple racial identities, and workers who report no racial identity or Hispanic ethnicity. Those workers are grouped only because sample sizes are insufficient to consider each separately.
Source: NLSY97 and Panel Study of Income Dynamics

DO WORKERS WHO CHANGE JOBS WITHIN HEALTHCARE OR LEAVE HEALTHCARE EARN MORE OR LESS OVER 10 YEARS?

Exhibit HC-6 below shows average differences in wages 10 years after entering a healthcare occupation for workers with different numbers of job changes during this period. It shows the changes in wages for the number of job changes for those workers who stay in healthcare and those who change to a different occupation. As shown, no evidence of a difference in wage growth based on how frequently workers in healthcare change jobs is found. Some of the estimates indicate higher wage growth for those with three to six job changes (compared to two or fewer or seven or more), but these estimates are imprecise, as indicated by the bars showing the confidence intervals. However, workers who leave healthcare occupations earn nearly $4 less per hour after 10 years compared to those who stay in healthcare.

Exhibit HC-6. Ten-Year Wage Growth Differences in Healthcare, by Job and Occupational Cluster Changes During the 10-Year Trajectory



How to Read This Graph: The purple dots on this graph indicate the estimated difference in hourly wage growth 10 years after entering an occupation experienced for workers who made the stated number change, in comparison to the reference category (entrants who made 2 or fewer subsequent job changes). For example, entrants who change jobs 7 or more times over 10 years' experience, on average, $0.62 per hour more in wage growth over that same period than do otherwise similar entrants who make 2 or fewer job changes. The blue dots indicate the average difference in 10- year hourly wage growth between those who are working in a different occupational cluster than the one they had entered 10 years prior, in comparison to those who were still working in the same occupational cluster. The bars indicate how precise our estimates are (the 95 percent "confidence interval"); the actual wage difference could fall anywhere in that range, though they are more likely to fall toward the middle of the range than the ends.
Note: Estimates are drawn from OLS regressions that include controls for starting wage, data source, age, gender, race/ethnicity, starting education, parent education, and starting occupation. Asterisks (*) indicate a statistically significant difference at the .05 level.
Source: NLSY97 and Panel Study of Income Dynamics

3. Individual Occupation Results

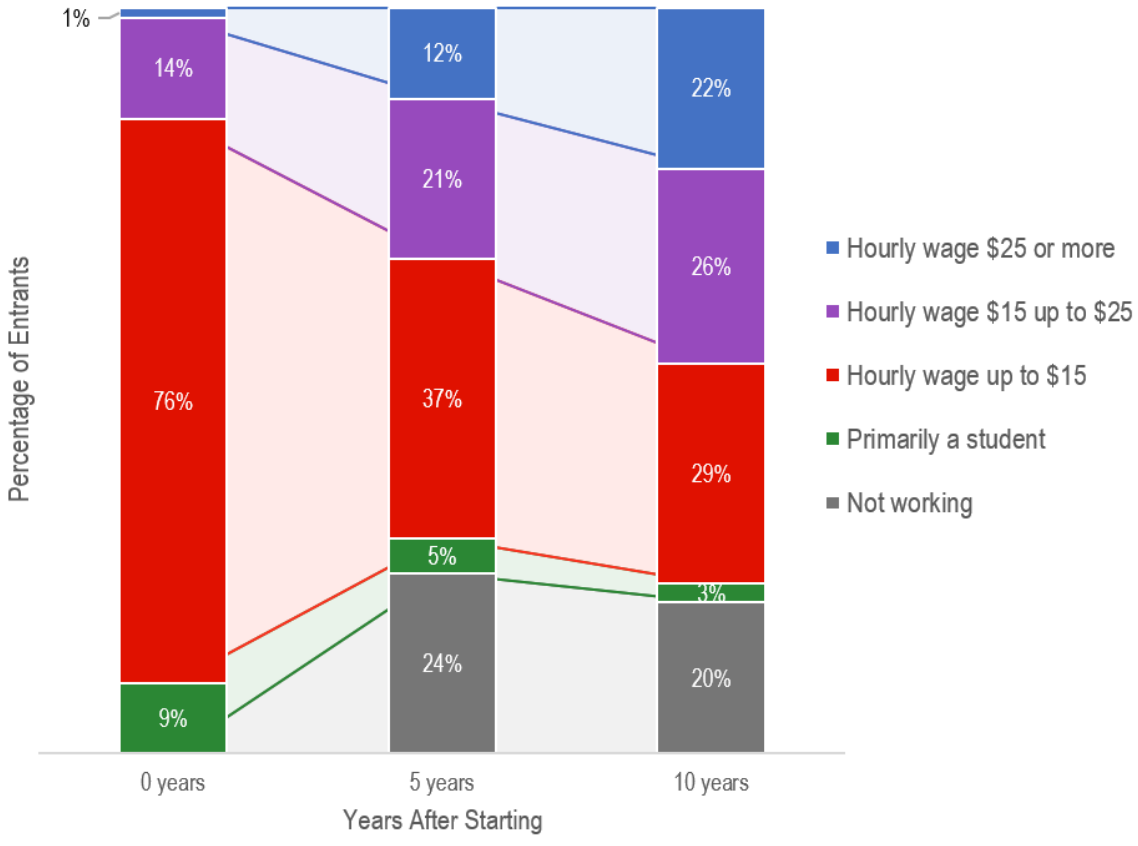
In this section, wage growth for specific healthcare occupations is presented. Exhibits HC-7 through HC-13 show 10-year wage trajectories for all healthcare occupations listed above on Exhibit HC-1. These charts show employment status at the start of the trajectory and five and 10 years later, including working for up to $15 per hour (red bars), working for $15-25 per hour (purple bars), and working for $25 or more per hour (blue bars), as well as time spent not working (green bars) or primarily as a student (grey bars).

In sum, for some occupations, including *Health Diagnosing and Treating Practitioner Support Technicians* (see Exhibit HC-8), relatively consistent wage growth over time is found: The proportion of workers earning more than $15 per hour (blue and purple bars) increases from the starting year to Year 5 and then from Year 5 to Year 10. In contrast, charts for other occupations such as *Dental Assistants* (see Exhibit HC-10) show a relatively stable proportion of workers earning more than $25 per hour (blue bars) from five to 10 years, suggesting wage growth may plateau over time. The study also finds differences in educational patterns. For some occupations, relatively large portions of workers spend time primarily as a student (see *Health Diagnosing and Treating Practitioner Support Technicians* on Exhibit HC-8), whereas it is comparatively rarer for other occupations (Nurses on Exhibit HC-12 and Exhibit HC-13). Results for each occupation are briefly summarized.

NURSING, PSYCHIATRIC, AND HOME HEALTH AIDES

Workers who start as Nursing, Psychiatric, and Home Health Aides have an average starting wage of $12.59. Ten years later, 22 percent are earning at least $25 per hour (blue bar), as shown on Exhibit HC-7.

Exhibit HC-7. Wage Trajectories Over Time for Nursing, Psychiatric, and Home Health Aides

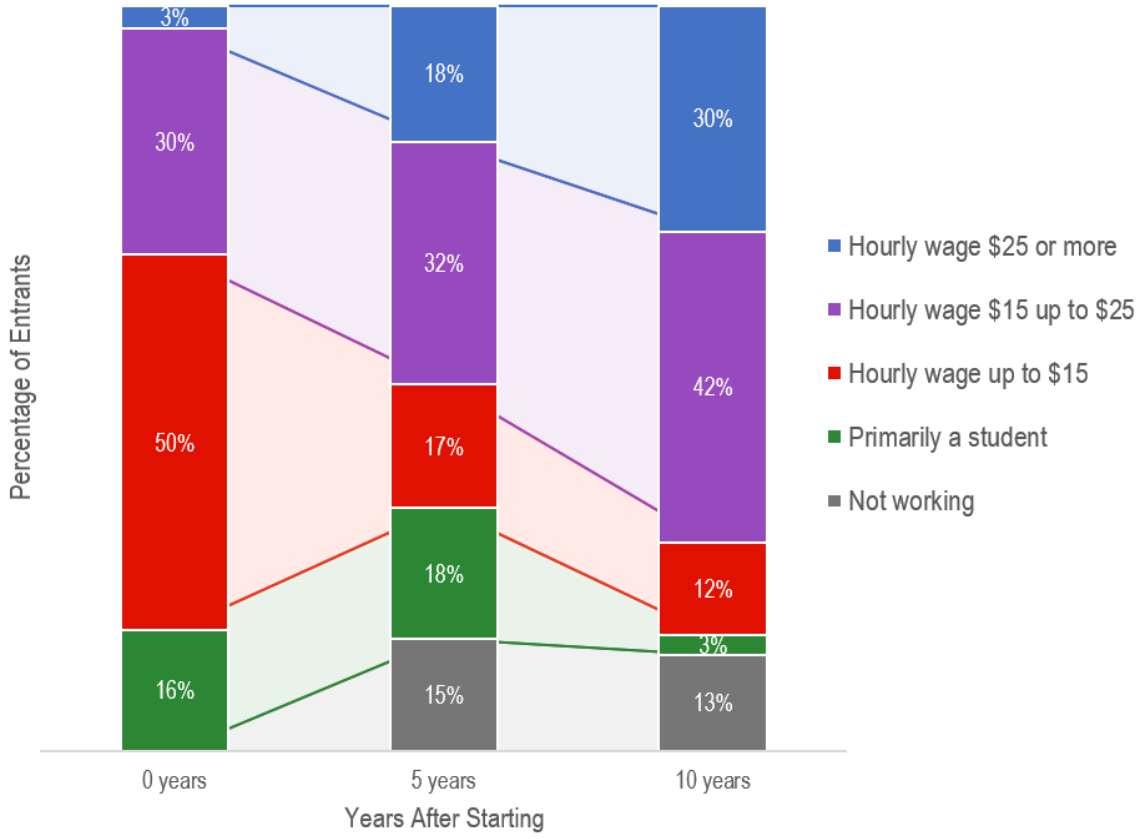


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 20 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

HEALTH DIAGNOSING AND TREATING PRACTITIONER SUPPORT TECHNICIANS

Workers who start as Health Diagnosing and Treating Practitioner Support Technicians have an average starting wage of $12.98. Ten years later, 30 percent are earning at least $25 per hour (blue bar) as shown on Exhibit HC-8.

Exhibit HC-8. Health Diagnosing and Treating Practitioner Support Technicians

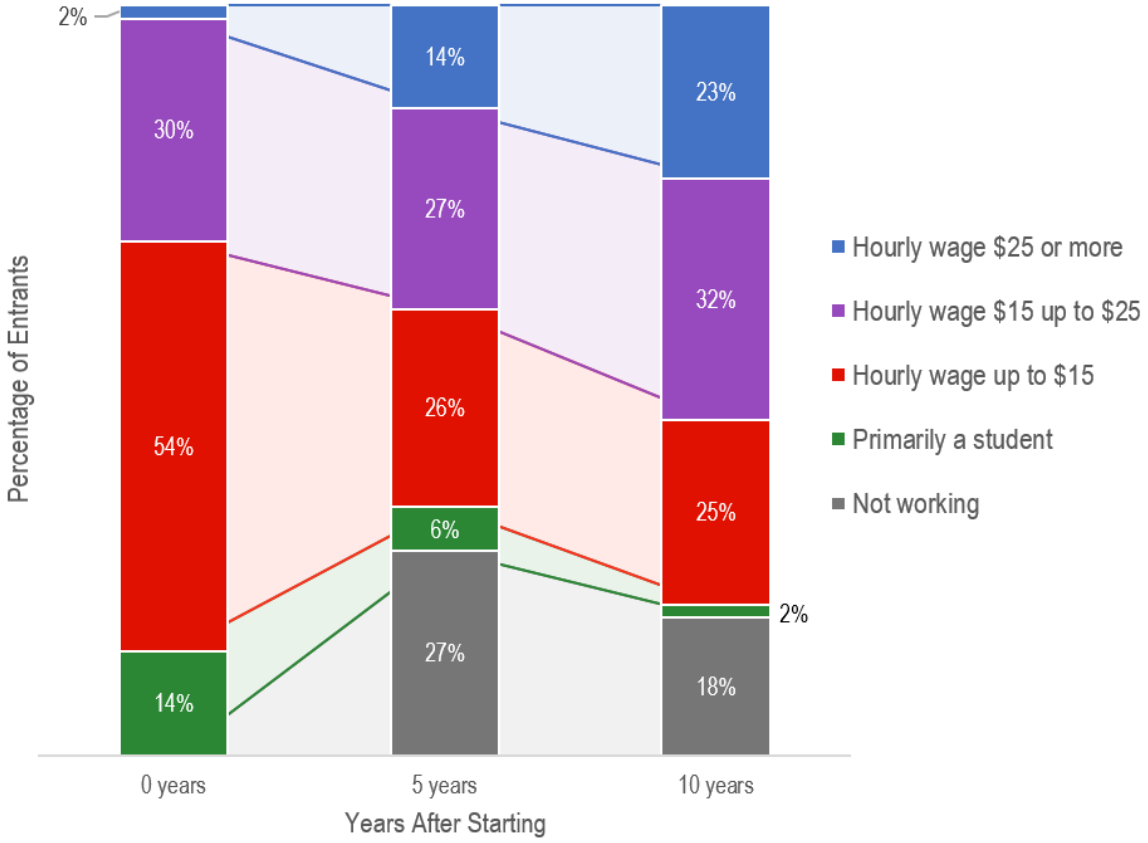


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 30 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

MEDICAL ASSISTANTS AND OTHER HEALTHCARE SUPPORT OCCUPATIONS

Workers who start as Medical Assistants and Other Healthcare Support Occupations have an average starting wage of $13.01. Ten years later, 23 percent are earning at least $25 per hour (blue bar), as shown on exhibit HC-9.

Exhibit HC-9. Medical Assistant and Other Healthcare Support Occupations

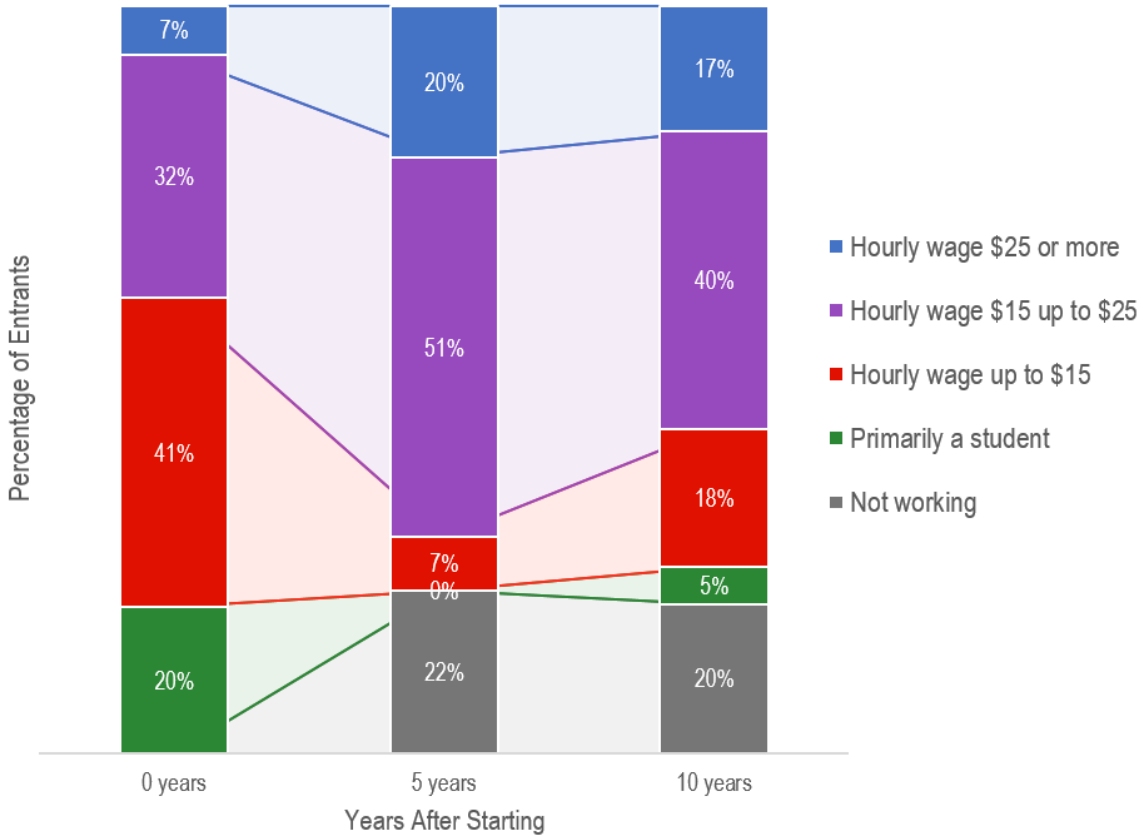


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 25 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

DENTAL ASSISTANTS

Workers who start as Dental Assistants have an average starting wage of $14.29. Ten years later, 17 percent are earning at least $25 per hour (blue bar), as shown on exhibit HC-10.

Exhibit HC-10. Dental Assistants

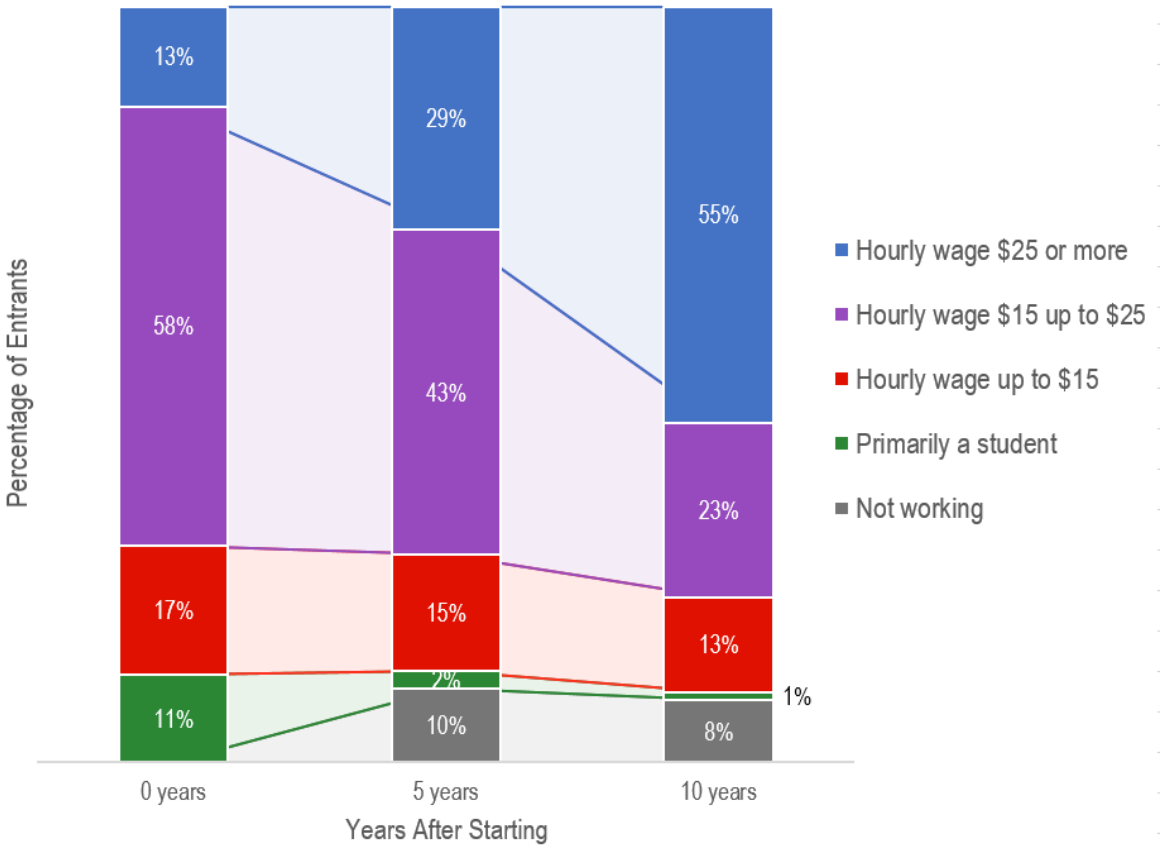


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 10 percent of workers are earning $25 per hour or more at entry, whereas around 20 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

CLINICAL LABORATORY TECHNOLOGISTS AND TECHNICIANS

Workers who start as Clinical Laboratory Technologists and Technicians have an average starting wage of $17.34. Ten years later, 55 percent are earning at least $25 per hour (blue bar), as shown on Exhibit HC-11.

Exhibit HC-11. Clinical Laboratory Technologists and Technicians

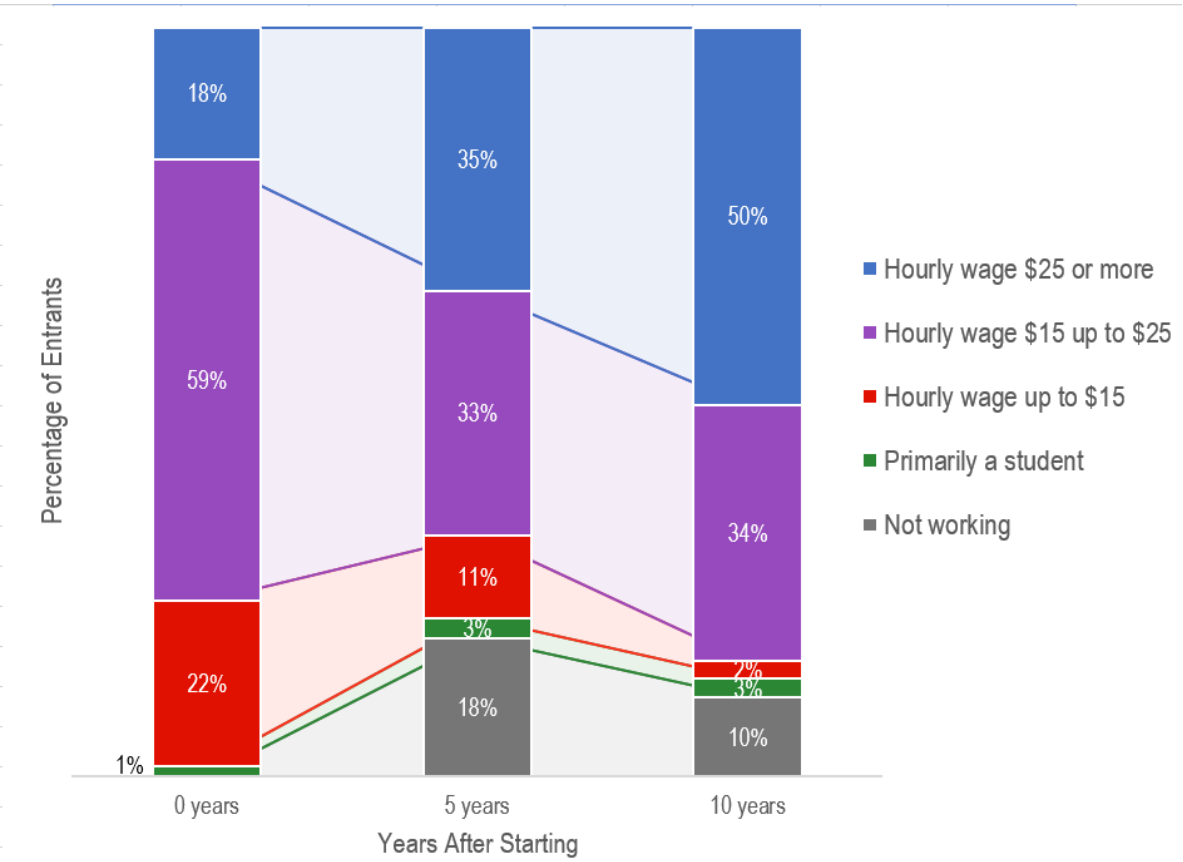


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 15 percent of workers are earning $25 per hour or more at entry, whereas 55 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

LICENSED PRACTICAL AND VOCATIONAL NURSES

Workers who start as Licensed Practical and Vocational Nurses have an average starting wage of $20.83. Ten years later, 50 percent are earning at least $25 per hour (blue bar), as shown on exhibit HC-12.

Exhibit HC-12. Licensed Practical and Vocational Nurses

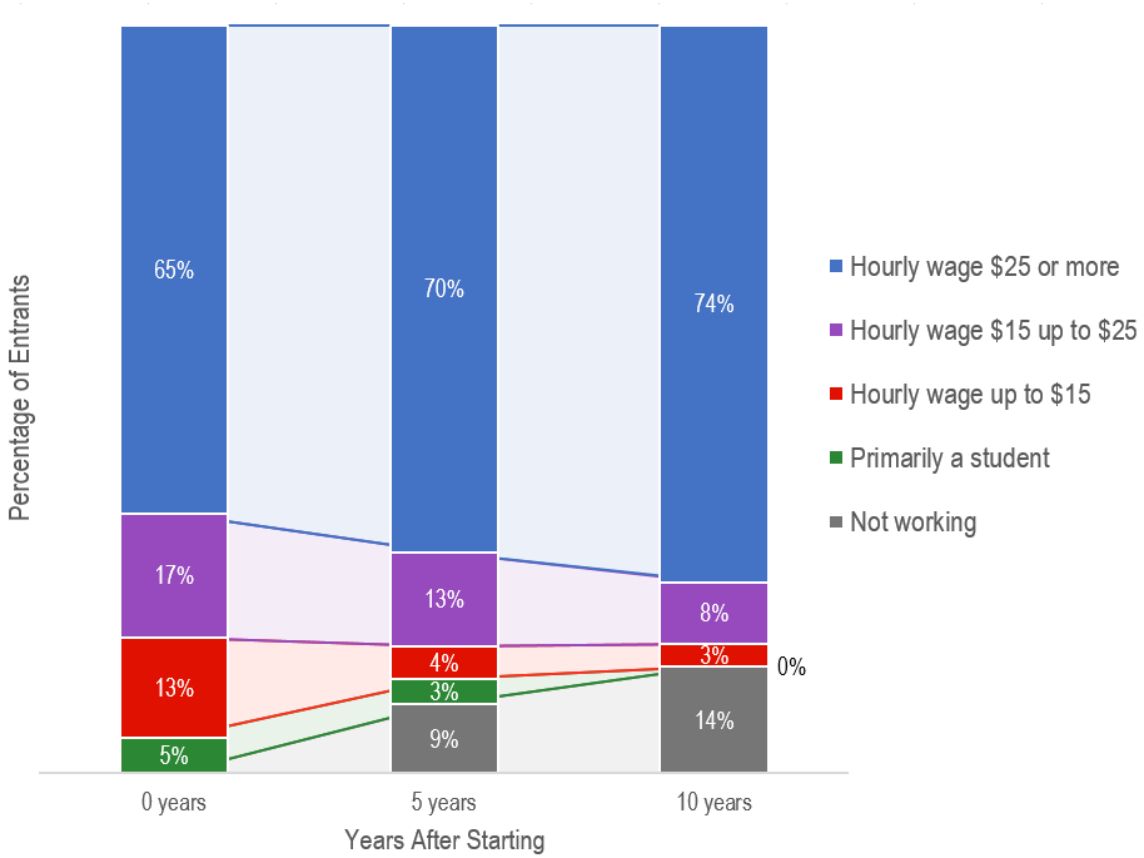


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 20 percent of workers are earning $25 per hour or more at entry, whereas 50 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

REGISTERED NURSES

Workers who start as Registered Nurses have an average starting wage of $27.89. Ten years later, 74 percent are earning at least $25 per hour (blue bar), as seen on exhibit HC-13.

Exhibit HC-13. Registered Nurses



How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, 65 percent of workers are earning $25 per hour or more at entry, whereas around 75 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

4. Occupational Transitions Results

In identifying promising occupational transitions, the study considers two factors: (1) the feasibility of an individual making the transition, as indicated by the relative frequency of that transition; and (2) whether the destination occupation leads to a higher wage. Each is discussed in turn below.

Exhibits HC-15 through HC-44 show the most common transitions from each "source" occupation to other "destination" occupations. The tables are ordered with the most common destination occupations first, and are color coded to show how the median wages of the source and destination occupations compare: green to indicate upward transitions, purple to indicate lateral transitions, and red to indicate downward transitions.[5] The 20 most common transitions are shown. The bar charts to the right of each table show the total proportion of transitions that are upward, lateral, or downward.

As noted, the transitions analyses use a more detailed occupational classification system. Exhibit HC-14 shows how the occupations included in the transitions analyses map to the occupations included in the earlier trajectories analyses.

Exhibit HC-14. Trajectory Occupations vs. Transitions Titles

Occupations Included in Trajectories Analyses (Broad Census Categories)	Corresponding SOC Code Titles included in Occupational Transitions Analyses
Nursing, psychiatric, and home health aides	*Home Health and Personal Care Aides; Nursing Assistants; Orderlies; Psychiatric Aides*
Health diagnosing and treating practitioner support technicians	*Dietetic Technicians; Pharmacy Technicians; Psychiatric Technicians; Surgical Technologists; Veterinary Technologists and Technicians; Ophthalmic Medical Technicians*
Medical assistants and other healthcare support occupations	*Medical Assistants; Medical Equipment Preparers; Medical Transcriptionists; Pharmacy Aides; Phlebotomists; Healthcare Support Workers, All Other*
Dental assistants	*Dental Assistants*
Emergency medical technicians and paramedics	*Emergency Medical Technicians and Paramedics*
Miscellaneous health technologists and technicians	*Hearing Aid Specialists; Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other*
Clinical laboratory technologists and technicians	*Clinical Laboratory Technologists and Technicians*
Diagnostic related technologists and technicians	*Cardiovascular Technologists and Technicians; Diagnostic Medical Sonographers; Nuclear Medicine Technologists; Radiologic Technologists and Technicians; Magnetic Resonance Imaging Technologists*
Licensed practical and licensed vocational nurses	*Licensed Practical and Vocational Nurses*
Registered nurses	*Registered Nurses*
Massage therapists	*Massage Therapists*

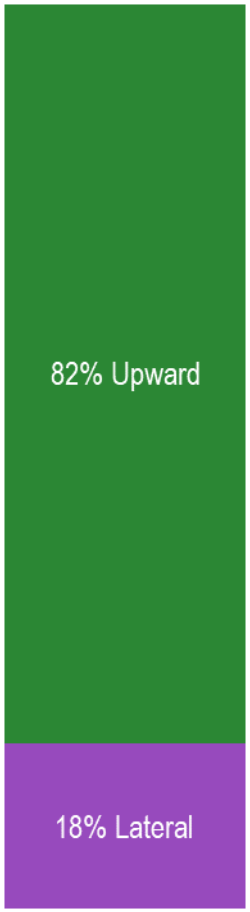
[5] Transitions are categorized as follows: upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

HOME HEALTH AND PERSONAL CARE AIDES

The most common subsequent jobs for Home Health and Personal Care Aides are Nursing Assistants (where workers earn $2.11 more per hour) and Customer Service Representatives ($4.54 more per hour). About 82 percent of next occupations have higher median wages.

Exhibit HC-15. Home Health and Personal Care Aides Transitions

Destination Occupation	Change in Median Wage
Nursing Assistants	$2.11 ↑
Customer Service Representatives	$4.54 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$5.97 ↑
Social and Human Service Assistants	$4.70 ↑
Cashiers	-$0.78 -
First-Line Supervisors of Office and Administrative Support Workers	$15.07 ↑
Registered Nurses	$23.09 ↑
Project Management Specialists and Business Operations Specialists, All Other	$23.22 ↑
Retail Salespersons	-$0.01 -
Medical Assistants	$4.58 ↑
Teaching Assistants, Except Postsecondary	$4.08 ↑
Receptionists and Information Clerks	$2.30 ↑
Childcare Workers	-$0.50 -
Chief Executives	$76.53 ↑
Maids and Housekeeping Cleaners	-$0.20 -
Computer User Support Specialists	$12.98 ↑
Waiters and Waitresses	-$1.15 -
Office Clerks, General	$4.22 ↑
Licensed Practical and Licensed Vocational Nurses	$10.68 ↑
Substitute Teachers, Short-Term	$1.69 -



How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

NURSING ASSISTANTS

The most common subsequent jobs for Nursing Assistants are Registered Nurses (where workers earn $20.98 more per hour) and Home Health and Personal Care Aides ($2.11 less per hour). About 70 percent of next occupations have higher median wages.

Exhibit HC-16. Nursing Assistants Transitions

Destination Occupation	Change in Median Wage
Registered Nurses	$20.98 ↑
Home Health and Personal Care Aides	-$2.11 ↓
Medical Assistants	$2.47 ↑
Customer Service Representatives	$2.43 ↑
Licensed Practical and Licensed Vocational Nurses	$8.57 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$3.86 ↑
Social and Human Service Assistants	$2.59 ↑
First-Line Supervisors of Office and Administrative Support Workers	$12.96 ↑
Cashiers	-$2.89 ↓
Project Management Specialists and Business Operations Specialists, All Other	$21.11 ↑
Retail Salespersons	-$2.12 ↓
Medical Secretaries and Administrative Assistants	$3.33 ↑
Psychiatric Technicians	$1.98 -
Receptionists and Information Clerks	$0.19 -
Office Clerks, General	$2.11 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	$6.24 ↑
Teaching Assistants, Except Postsecondary	$1.97 -
Waiters and Waitresses	-$3.26 ↓
Computer User Support Specialists	$10.87 ↑
Phlebotomists	$2.81 ↑

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

ORDERLIES

The most common subsequent jobs for Orderlies are Nursing Assistant (where workers earn $0.33 more per hour) and Customer Service Representatives ($2.76 more per hour). About 70 percent of next occupations have higher median wages.

Exhibit HC-17. Orderlies Transitions

Destination Occupation	Change in Median Wage
Nursing Assistants	$0.33 -
Customer Service Representatives	$2.76 ↑
Registered Nurses	$21.31 ↑
Radiologic Technologists and Technicians	$15.16 ↑
Security Guards	$0.34 -
Project Management Specialists and Business Operations Specialists, All Other	$21.44 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$4.19 ↑
Retail Salespersons	-$1.79 -
Cashiers	-$2.56 ↓
Stockers and Order Fillers	-$0.77 -
Medical Assistants	$2.80 ↑
First-Line Supervisors of Office and Administrative Support Workers	$13.29 ↑
Surgical Technologists	$9.29 ↑
Emergency Medical Technicians and Paramedics	$3.09 ↑
Social and Human Service Assistants	$2.92 ↑
Office Clerks, General	$2.44 ↑
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	-$0.74 -
Home Health and Personal Care Aides	-$1.78 -
Computer User Support Specialists	$11.20 ↑
Licensed Practical and Licensed Vocational Nurses	$8.90 ↑

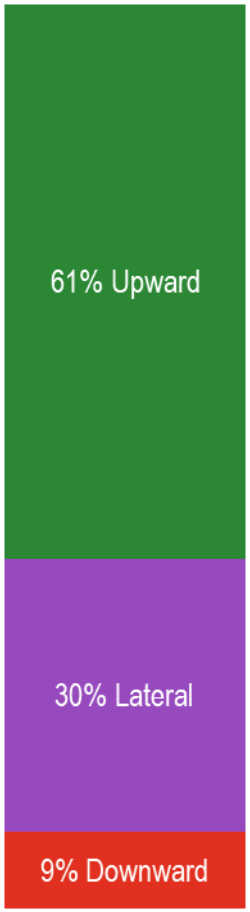
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PSYCHIATRIC AIDES

The most common subsequent jobs for Psychiatric Aides are Social and Human Service Assistants (where workers earn $1.89 more per hour) and Registered Nurses ($20.28 more per hour). About 61 percent of next occupations have higher median wages.

Exhibit HC-18. Psychiatric Aides Transitions

Destination Occupation	Change in Median Wage
Social and Human Service Assistants	$1.89 -
Registered Nurses	$20.28 ↑
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	$7.27 ↑
Home Health and Personal Care Aides	-$2.81 ↓
Nursing Assistants	-$0.70 -
Mental Health and Substance Abuse Social Workers	$7.47 ↑
Customer Service Representatives	$1.73 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$3.16 ↑
Project Management Specialists and Business Operations Specialists, All Other	$20.41 ↑
First-Line Supervisors of Office and Administrative Support Workers	$12.26 ↑
Psychiatric Technicians	$1.28 -
Medical Assistants	$1.77 -
Teaching Assistants, Except Postsecondary	$1.27 -
Child, Family, and School Social Workers	$7.82 ↑
Correctional Officers and Jailers	$6.76 ↑
Educational, Guidance, and Career Counselors and Advisors	$12.46 ↑
Substitute Teachers, Short-Term	-$1.12 -
Chief Executives	$73.72 ↑
Computer User Support Specialists	$10.17 ↑
Security Guards	-$0.69 -



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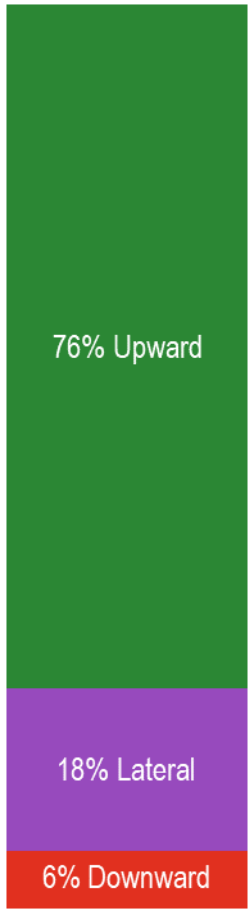
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

DIETETIC TECHNICIANS

The most common subsequent jobs for Dietetic Technicians are Dietitians and Nutritionists (where workers earn $15.80 more per hour) and Customer Service Representatives ($3.03 more per hour). About 76 percent of next occupations have higher median wages.

Exhibit HC-19. Dietetic Technicians Transitions

Destination Occupation	Change in Median Wage
Dietitians and Nutritionists	$15.80 ↑
Customer Service Representatives	$3.03 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$4.46 ↑
Food Service Managers	$12.94 ↑
Project Management Specialists and Business Operations Specialists, All Other	$21.71 ↑
Social and Human Service Assistants	$3.19 ↑
First-Line Supervisors of Office and Administrative Support Workers	$13.56 ↑
First-Line Supervisors of Food Preparation and Serving Workers	$2.40 ↑
Cashiers	-$2.29 ↓
Retail Salespersons	-$1.52 -
Nursing Assistants	$0.60 -
Food Preparation Workers	-$1.74 -
Waiters and Waitresses	-$2.66 ↓
Home Health and Personal Care Aides	-$1.51 -
Office Clerks, General	$2.71 ↑
Registered Nurses	$21.58 ↑
Teaching Assistants, Except Postsecondary	$2.57 ↑
Life, Physical, and Social Science Technicians, All Other	$10.64 ↑
Fast Food and Counter Workers	-$2.73 ↓
Computer User Support Specialists	$11.47 ↑



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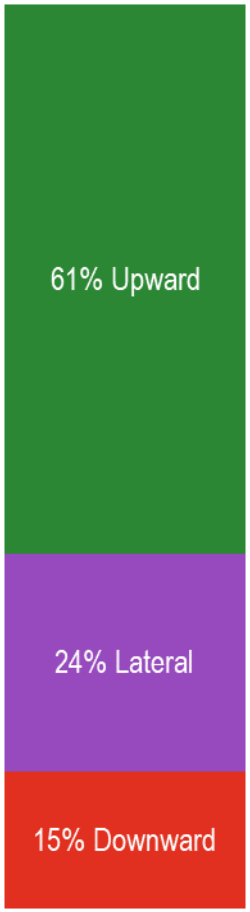
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PHARMACY TECHNICIANS

The most common subsequent jobs for Pharmacy Technicians are Customer Service Representatives (where workers earn $0.37 more per hour) and Pharmacists ($45.26 more per hour). About 61 percent of next occupations have higher median wages.

Exhibit HC-20. Pharmacy Technicians Transitions

Destination Occupation	Change in Median Wage
Customer Service Representatives	$0.37 -
Pharmacists	$45.26 ↑
Project Management Specialists and Business Operations Specialists, All Other	$19.05 ↑
First-Line Supervisors of Office and Administrative Support Workers	$10.90 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.80 -
Registered Nurses	$18.92 ↑
Retail Salespersons	-$4.18 ↓
Computer User Support Specialists	$8.81 ↑
Cashiers	-$4.95 ↓
Social and Human Service Assistants	$0.53 -
Medical Assistants	$0.41 -
Life, Physical, and Social Science Technicians, All Other	$7.98 ↑
Nursing Assistants	-$2.06 ↓
Receptionists and Information Clerks	-$1.87 -
General and Operations Managers	$32.13 ↑
Medical and Health Services Managers	$32.23 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	$4.18 ↑
Home Health and Personal Care Aides	-$4.17 ↓
Medical Secretaries and Administrative Assistants	$1.27 -
First-Line Supervisors of Production and Operating Workers	$13.16 ↑



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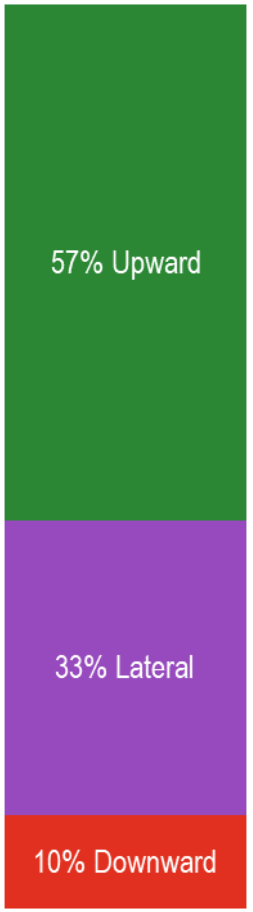
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PSYCHIATRIC TECHNICIANS

The most common subsequent jobs for Psychiatric Technicians are Registered Nurses (where workers earn $19.00 more per hour) and Social and Human Service Assistants ($0.61 more per hour). About 57 percent of next occupations have higher median wages.

Exhibit HC-21. Psychiatric Technicians Transitions

Destination Occupation	Change in Median Wage
Registered Nurses	$19.00 ↑
Social and Human Service Assistants	$0.61 -
Nursing Assistants	-$1.98 -
Customer Service Representatives	$0.45 -
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	$5.99 ↑
Medical Assistants	$0.49 -
Home Health and Personal Care Aides	-$4.09 ↓
Mental Health and Substance Abuse Social Workers	$6.19 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.88 -
Project Management Specialists and Business Operations Specialists, All Other	$19.13 ↑
First-Line Supervisors of Office and Administrative Support Workers	$10.98 ↑
Licensed Practical and Licensed Vocational Nurses	$6.59 ↑
Computer User Support Specialists	$8.89 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	$4.26 ↑
Teaching Assistants, Except Postsecondary	-$0.01 -
Medical Secretaries and Administrative Assistants	$1.35 -
Retail Salespersons	-$4.10 ↓
Child, Family, and School Social Workers	$6.54 ↑
Educational, Guidance, and Career Counselors and Advisors	$11.18 ↑
Emergency Medical Technicians and Paramedics	$0.78 -



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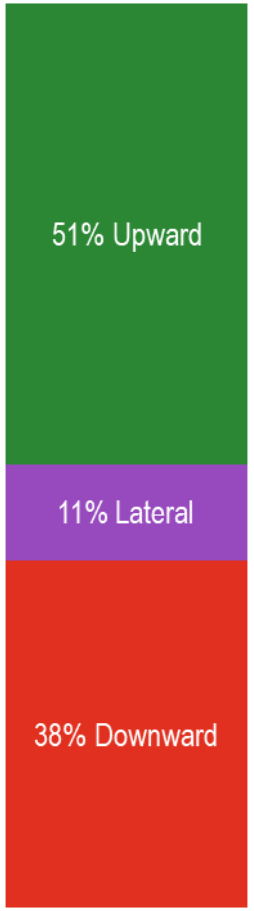
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

SURGICAL TECHNOLOGISTS

The most common subsequent jobs for Surgical Technologists are Registered Nurses (where workers earn $12.02 more per hour) and Medical Assistants ($6.49 less per hour). About 51 percent of next occupations have higher median wages.

Exhibit HC-22. Surgical Technologists Transitions

Destination Occupation	Change in Median Wage
Registered Nurses	$12.02 ↑
Medical Assistants	-$6.49 ↓
First-Line Supervisors of Office and Administrative Support Workers	$4.00 ↑
Project Management Specialists and Business Operations Specialists, All Other	$12.15 ↑
Medical Equipment Preparers	-$5.22 ↓
Health Information Technologists, Medical Registrars, Surgical Assistants, and Healthcare Practitioners and Technical Workers, All Other	$0.75 -
Customer Service Representatives	-$6.53 ↓
Computer User Support Specialists	$1.91 -
Nursing Assistants	-$8.96 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$5.10 ↓
Medical Secretaries and Administrative Assistants	-$5.63 ↓
Medical and Health Services Managers	$25.33 ↑
Career/Technical Education Teachers, Postsecondary	$3.04 ↑
Chief Executives	$65.46 ↑
Retail Salespersons	-$11.08 ↓
Licensed Practical and Licensed Vocational Nurses	-$0.39 -
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	$5.59 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	-$2.72 ↓
General and Operations Managers	$25.23 ↑
Social and Human Service Assistants	-$6.37 ↓



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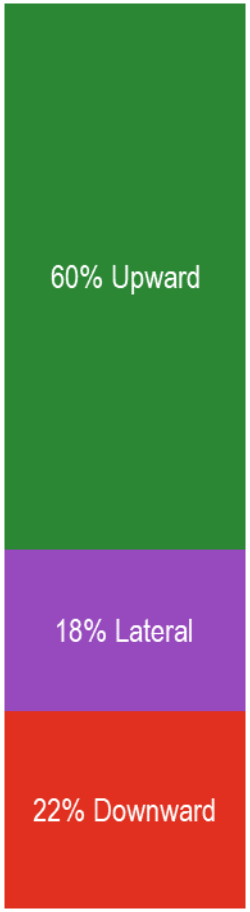
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

VETERINARY TECHNOLOGISTS AND TECHNICIANS

The most common subsequent jobs for Veterinary Technologists and Technicians are Veterinary Assistants and Laboratory Animal Caretakers (where workers earn $3.23 less per hour) and First-Line Supervisors of Office and Administrative Support Workers ($10.24 more per hour). About 60 percent of next occupations have higher median wages.

Exhibit HC-23. Veterinary Technologists and Technicians Transitions

Destination Occupation	Change in Median Wage
Veterinary Assistants and Laboratory Animal Caretakers	-$3.23 ↓
First-Line Supervisors of Office and Administrative Support Workers	$10.24 ↑
Customer Service Representatives	-$0.29 -
Project Management Specialists and Business Operations Specialists, All Other	$18.39 ↑
Veterinarians	$28.92 ↑
Registered Nurses	$18.26 ↑
Biological Technicians	$5.07 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.14 -
Animal Caretakers	-$5.07 ↓
Receptionists and Information Clerks	-$2.53 ↓
Clinical Laboratory Technologists and Technicians	$8.56 ↑
Retail Salespersons	-$4.84 ↓
Life, Physical, and Social Science Technicians, All Other	$7.32 ↑
Chief Executives	$71.70 ↑
Computer User Support Specialists	$8.15 ↑
Medical and Health Services Managers	$31.57 ↑
Social and Human Service Assistants	-$0.13 -
General and Operations Managers	$31.47 ↑
Cashiers	-$5.61 ↓
Waiters and Waitresses	-$5.98 ↓



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Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

OPHTHALMIC MEDICAL TECHNICIANS

The most common subsequent jobs for Ophthalmic Medical Technicians are Medical Assistants (where workers earn $1.03 less per hour) and First-Line Supervisors of Office and Administrative Support Workers ($9.46 more per hour). About 60 percent of next occupations have higher median wages.

Exhibit HC-24. Ophthalmic Medical Technicians Transitions

Destination Occupation	Change in Median Wage
Medical Assistants	-$1.03 -
First-Line Supervisors of Office and Administrative Support Workers	$9.46 ↑
Registered Nurses	$17.48 ↑
Opticians, Dispensing	$0.43 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$0.36 -
Customer Service Representatives	-$1.07 -
Project Management Specialists and Business Operations Specialists, All Other	$17.61 ↑
Optometrists	$37.65 ↑
Medical and Health Services Managers	$30.79 ↑
Physicians, All Other; and Ophthalmologists, Except Pediatric	$81.52 ↑
Receptionists and Information Clerks	-$3.31 ↓
Chief Executives	$70.92 ↑
Natural Sciences Managers	$44.31 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	$2.74 ↑
Medical Secretaries and Administrative Assistants	-$0.17 -
Retail Salespersons	-$5.62 ↓
Computer User Support Specialists	$7.37 ↑
Social and Human Service Assistants	-$0.91 -
Surgical Technologists	$5.46 ↑
General and Operations Managers	$30.69 ↑

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MEDICAL ASSISTANTS

The most common subsequent jobs for Medical Assistants are Medical Secretaries and Administrative Assistants (where workers earn $0.86 more per hour) and Customer Service Representatives ($0.04 less per hour). About 50 percent of next occupations have higher median wages.

Exhibit HC-25. Medical Assistants Transitions

Destination Occupation	Change in Median Wage
Medical Secretaries and Administrative Assistants	$0.86 -
Customer Service Representatives	-$0.04 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.39 -
Registered Nurses	$18.51 ↑
First-Line Supervisors of Office and Administrative Support Workers	$10.49 ↑
Nursing Assistants	-$2.47 ↓
Home Health and Personal Care Aides	-$4.58 ↓
Phlebotomists	$0.34 -
Project Management Specialists and Business Operations Specialists, All Other	$18.64 ↑
Receptionists and Information Clerks	-$2.28 ↓
Social and Human Service Assistants	$0.12 -
Retail Salespersons	-$4.59 ↓
Cashiers	-$5.36 ↓
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	$3.77 ↑
Clinical Laboratory Technologists and Technicians	$8.81 ↑
Office Clerks, General	-$0.36 -
Licensed Practical and Licensed Vocational Nurses	$6.10 ↑
Computer User Support Specialists	$8.40 ↑
Medical and Health Services Managers	$31.82 ↑
Life, Physical, and Social Science Technicians, All Other	$7.57 ↑

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MEDICAL EQUIPMENT PREPARERS

The most common subsequent jobs for Medical Equipment Preparers are Surgical Technologists (where workers earn $5.22 more per hour) and Customer Service Representatives ($1.31 less per hour). About 60 percent of next occupations have higher median wages.

Exhibit HC-26. Medical Equipment Preparers Transitions

Destination Occupation	Change in Median Wage
Surgical Technologists	$5.22 ↑
Customer Service Representatives	-$1.31 -
Project Management Specialists and Business Operations Specialists, All Other	$17.37 ↑
Computer User Support Specialists	$7.13 ↑
First-Line Supervisors of Office and Administrative Support Workers	$9.22 ↑
First-Line Supervisors of Production and Operating Workers	$11.48 ↑
Registered Nurses	$17.24 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$0.12 -
Retail Salespersons	-$5.86 ↓
Stockers and Order Fillers	-$4.84 ↓
Medical Assistants	-$1.27 -
Maintenance and Repair Workers, General	$0.79 -
General and Operations Managers	$30.45 ↑
Nursing Assistants	-$3.74 ↓
Chief Executives	$70.68 ↑
Electrical and Electronic Engineering Technologists and Technicians	$13.38 ↑
Heavy and Tractor-Trailer Truck Drivers	$3.76 ↑
Clinical Laboratory Technologists and Technicians	$7.54 ↑
Light Truck Drivers	-$1.30 -
Social and Human Service Assistants	-$1.15 -

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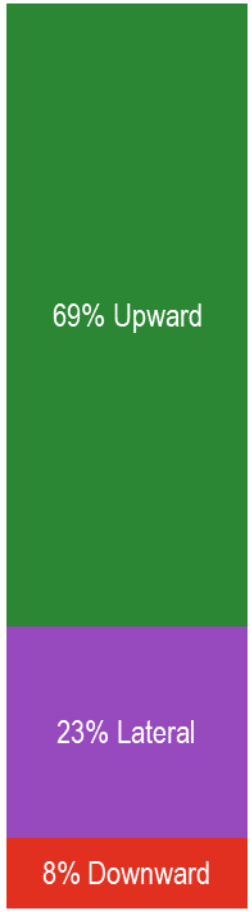
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MEDICAL TRANSCRIPTIONISTS

The most common subsequent jobs for Medical Transcriptionists are Secretaries and Administrative Assistants, Except Legal, Medical, and Executive (where workers earn $2.07 more per hour) and Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians ($4.45 more per hour). About 69 percent of next occupations have higher median wages.

Exhibit HC-27. Medical Transcriptionists Transitions

Destination Occupation	Change in Median Wage
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$2.07 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	$4.45 ↑
First-Line Supervisors of Office and Administrative Support Workers	$11.17 ↑
Medical Secretaries and Administrative Assistants	$1.54 -
Customer Service Representatives	$0.64 -
Project Management Specialists and Business Operations Specialists, All Other	$19.32 ↑
Executive Secretaries and Executive Administrative Assistants	$13.22 ↑
Registered Nurses	$19.19 ↑
Chief Executives	$72.63 ↑
Receptionists and Information Clerks	-$1.60 -
Medical Assistants	$0.68 -
Office Clerks, General	$0.32 -
Social and Human Service Assistants	$0.80 -
Editors	$13.45 ↑
Retail Salespersons	-$3.91 ↓
Legal Secretaries and Administrative Assistants	$6.69 ↑
Bookkeeping, Accounting, and Auditing Clerks	$3.77 ↑
Computer User Support Specialists	$9.08 ↑
Paralegals and Legal Assistants	$8.82 ↑
Data Entry Keyers	$0.05 -



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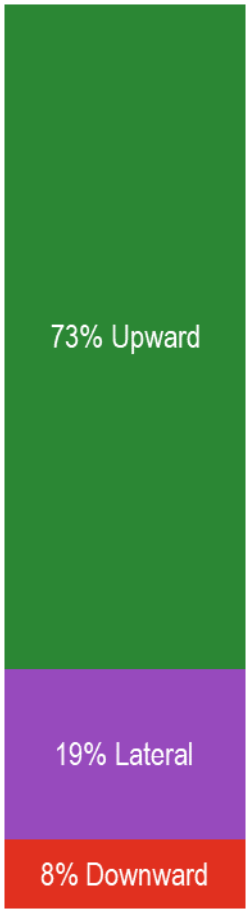
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PHARMACY AIDES

The most common subsequent jobs for Pharmacy Aides are Pharmacy Technicians (where workers earn $2.93 more per hour) and Customer Service Representatives ($3.30 more per hour). About 73 percent of next occupations have higher median wages.

Exhibit HC-28. Pharmacy Aides Transitions

Destination Occupation	Change in Median Wage
Pharmacy Technicians	$2.93 ↑
Customer Service Representatives	$3.30 ↑
Cashiers	-$2.02 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$4.73 ↑
Retail Salespersons	-$1.25 -
First-Line Supervisors of Office and Administrative Support Workers	$13.83 ↑
Project Management Specialists and Business Operations Specialists, All Other	$21.98 ↑
Receptionists and Information Clerks	$1.06 -
Office Clerks, General	$2.98 ↑
Pharmacists	$48.19 ↑
Medical Assistants	$3.34 ↑
Computer User Support Specialists	$11.74 ↑
Social and Human Service Assistants	$3.46 ↑
Stockers and Order Fillers	-$0.23 -
Bookkeeping, Accounting, and Auditing Clerks	$6.43 ↑
Home Health and Personal Care Aides	-$1.24 -
Nursing Assistants	$0.87 -
Tellers	$1.63 -
Waiters and Waitresses	-$2.39 ↓
Medical Secretaries and Administrative Assistants	$4.20 ↑



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Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PHLEBOTOMISTS

The most common subsequent jobs for Phlebotomists are Medical Assistants (where workers earn $0.34 less per hour) and Clinical Laboratory Technologists and Technicians ($8.47 more per hour). About 47 percent of next occupations have higher median wages.

Exhibit HC-29. Phlebotomists Transitions

Destination Occupation	Change in Median Wage
Medical Assistants	-$0.34 -
Clinical Laboratory Technologists and Technicians	$8.47 ↑
Customer Service Representatives	-$0.38 -
Registered Nurses	$18.17 ↑
Nursing Assistants	-$2.81 ↓
First-Line Supervisors of Office and Administrative Support Workers	$10.15 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.05 -
Home Health and Personal Care Aides	-$4.92 ↓
Project Management Specialists and Business Operations Specialists, All Other	$18.30 ↑
Medical Secretaries and Administrative Assistants	$0.52 -
Life, Physical, and Social Science Technicians, All Other	$7.23 ↑
Licensed Practical and Licensed Vocational Nurses	$5.76 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	$3.43 ↑
Social and Human Service Assistants	-$0.22 -
Cashiers	-$5.70 ↓
Computer User Support Specialists	$8.06 ↑
Healthcare Support Workers, All Other	$1.42 -
Retail Salespersons	-$4.93 ↓
Receptionists and Information Clerks	-$2.62 ↓
Emergency Medical Technicians and Paramedics	-$0.05 -

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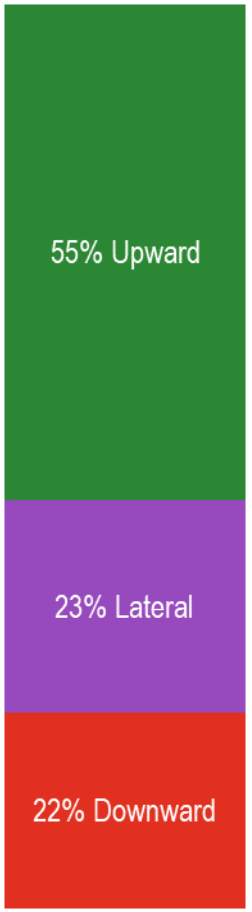
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

HEALTHCARE SUPPORT WORKERS, ALL OTHER

The most common subsequent jobs for Other Healthcare Support Workers are Customer Service Representatives (where workers earn $1.80 less per hour) and Project Management Specialists and Business Operations Specialists ($16.88 more per hour). About 55 percent of next occupations have higher median wages.

Exhibit HC-30. Other Healthcare Support Workers Transitions

Destination Occupation	Change in Median Wage
Customer Service Representatives	-$1.80 -
Project Management Specialists and Business Operations Specialists, All Other	$16.88 ↑
Social and Human Service Assistants	-$1.64 -
First-Line Supervisors of Office and Administrative Support Workers	$8.73 ↑
Registered Nurses	$16.75 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$0.37 -
Computer User Support Specialists	$6.64 ↑
Medical Assistants	-$1.76 -
Speech-Language Pathologists	$19.55 ↑
Retail Salespersons	-$6.35 ↓
Chief Executives	$70.19 ↑
Nursing Assistants	-$4.23 ↓
Phlebotomists	-$1.42 -
Home Health and Personal Care Aides	-$6.34 ↓
Cashiers	-$7.12 ↓
Bill and Account Collectors	-$0.70 -
Teaching Assistants, Except Postsecondary	-$2.26 ↓
General and Operations Managers	$29.96 ↑
Clinical Laboratory Technologists and Technicians	$7.05 ↑
Medical Secretaries and Administrative Assistants	-$0.90 -



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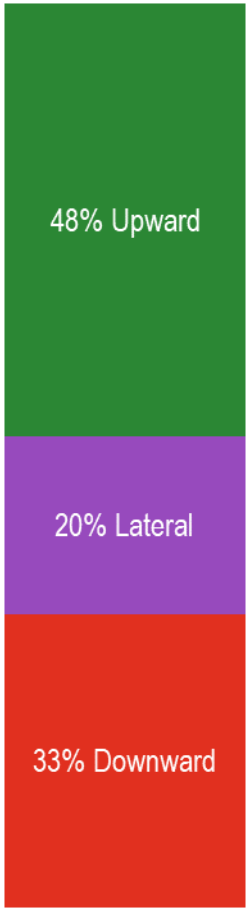
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

DENTAL ASSISTANTS

The most common subsequent jobs for Dental Assistants are First-Line Supervisors of Office and Administrative Support Workers ((where workers earn $7.95 more per hour) and Medical Secretaries and Administrative Assistants ($1.68 less per hour). About 48 percent of next occupations have higher median wages.

Exhibit HC-31. Dental Assistants Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Office and Administrative Support Workers	$7.95 ↑
Medical Secretaries and Administrative Assistants	-$1.68 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$1.15 -
Customer Service Representatives	-$2.58 ↓
Dental Hygienists	$17.38 ↑
Retail Salespersons	-$7.13 ↓
Project Management Specialists and Business Operations Specialists, All Other	$16.10 ↑
Receptionists and Information Clerks	-$4.82 ↓
Dentists, General	$55.54 ↑
Cashiers	-$7.90 ↓
Registered Nurses	$15.97 ↑
Social and Human Service Assistants	-$2.42 ↓
Chief Executives	$69.41 ↑
Medical Assistants	-$2.54 ↓
Waiters and Waitresses	-$8.27 ↓
General and Operations Managers	$29.18 ↑
Health Information Technologists, Medical Registrars, Surgical Assistants, and Healthcare Practitioners and Technical Workers, All Other	$4.70 ↑
Home Health and Personal Care Aides	-$7.12 ↓
Office Clerks, General	-$2.90 ↓
Medical and Health Services Managers	$29.28 ↑



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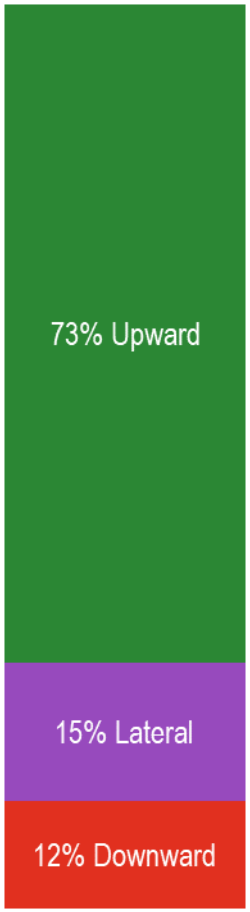
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

EMERGENCY MEDICAL TECHNICIANS AND PARAMEDICS

The most common subsequent jobs for Emergency Medical Technicians and Paramedics are Registered Nurses ((where workers earn $18.22 more per hour) and Firefighters ($7.43 more per hour). About 73 percent of next occupations have higher median wages.

Exhibit HC-32. Emergency Medical Technicians and Paramedics Transitions

Destination Occupation	Change in Median Wage
Registered Nurses	$18.22 ↑
Firefighters	$7.43 ↑
Project Management Specialists and Business Operations Specialists, All Other	$18.35 ↑
Chief Executives	$71.66 ↑
Medical Assistants	-$0.29 -
First-Line Supervisors of Office and Administrative Support Workers	$10.20 ↑
First-Line Supervisors of Police and Detectives	$26.77 ↑
Career/Technical Education Teachers, Postsecondary	$9.24 ↑
General and Operations Managers	$31.43 ↑
Nursing Assistants	-$2.76 ↓
Customer Service Representatives	-$0.33 -
Security Guards	-$2.75 ↓
Medical and Health Services Managers	$31.53 ↑
Social and Human Service Assistants	-$0.17 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.10 -
Computer User Support Specialists	$8.11 ↑
First-Line Supervisors of Production and Operating Workers	$12.46 ↑
Police and Sheriff's Patrol Officers	$13.34 ↑
Substitute Teachers, Short-Term	-$3.18 ↓
First-Line Supervisors of Firefighting and Prevention Workers	$20.38 ↑



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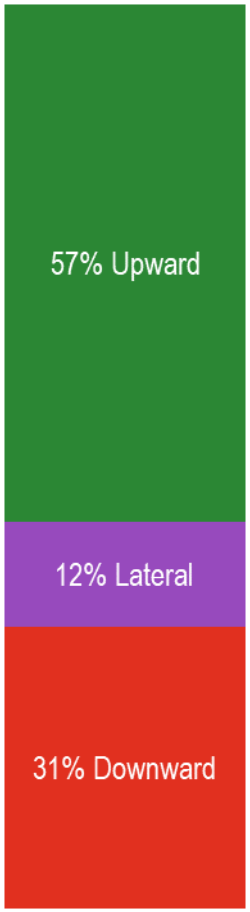
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

HEARING AID SPECIALISTS

The most common subsequent jobs for Hearing Aid Specialists are Audiologists (where workers earn $11.63 more per hour) and Chief Executives ($63.00 more per hour). About 57 percent of next occupations have higher median wages.

Exhibit HC-33. Home Health and Personal Care Aides Transitions

Destination Occupation	Change in Median Wage
Audiologists	$11.63 ↑
Chief Executives	$63.00 ↑
Sales Managers	$35.21 ↑
Project Management Specialists and Business Operations Specialists, All Other	$9.69 ↑
General and Operations Managers	$22.77 ↑
Customer Service Representatives	-$8.99 ↓
First-Line Supervisors of Office and Administrative Support Workers	$1.54 -
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	$3.13 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$7.56 ↓
Retail Salespersons	-$13.54 ↓
Computer User Support Specialists	-$0.55 -
Registered Nurses	$9.56 ↑
Marketing Managers	$40.11 ↑
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	$1.31 -
Medical and Health Services Managers	$22.87 ↑
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	$13.27 ↑
Social and Human Service Assistants	-$8.83 ↓
Home Health and Personal Care Aides	-$13.53 ↓
First-Line Supervisors of Production and Operating Workers	$3.80 ↑
Training and Development Specialists	$3.75 ↑



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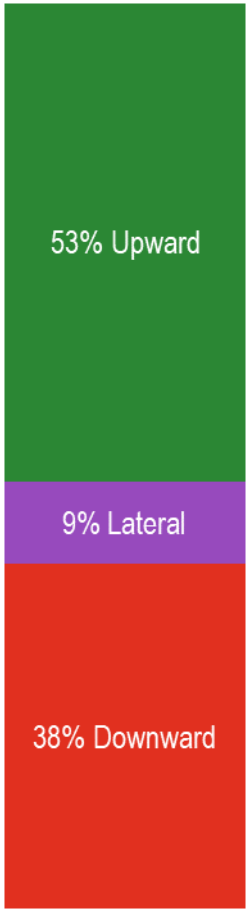
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MEDICAL DOSIMETRISTS, MEDICAL RECORDS SPECIALISTS, AND HEALTH TECHNOLOGISTS AND TECHNICIANS, ALL OTHER

The most common subsequent jobs for Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians are First-Line Supervisors of Office and Administrative Support Workers (where workers earn $6.72 more per hour) and Customer Service Representatives ($3.81 per hour). About 53 percent of next occupations have higher median wages.

Exhibit HC-34. Medical Dosimetrists, and Medical Records Specialists, and Health Technologists and Technicians Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Office and Administrative Support Workers	$6.72 ↑
Customer Service Representatives	-$3.81 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$2.38 ↓
Project Management Specialists and Business Operations Specialists, All Other	$14.87 ↑
Registered Nurses	$14.74 ↑
Medical Secretaries and Administrative Assistants	-$2.91 ↓
Computer User Support Specialists	$4.63 ↑
Medical and Health Services Managers	$28.05 ↑
Office Clerks, General	-$4.13 ↓
Billing and Posting Clerks	-$1.87 -
Social and Human Service Assistants	-$3.65 ↓
Receptionists and Information Clerks	-$6.05 ↓
Medical Assistants	-$3.77 ↓
Bookkeeping, Accounting, and Auditing Clerks	-$0.68 -
Retail Salespersons	-$8.36 ↓
Management Analysts	$20.49 ↑
Computer Systems Analysts	$23.21 ↑
Chief Executives	$68.18 ↑
Accountants and Auditors	$13.90 ↑
Executive Secretaries and Executive Administrative Assistants	$8.77 ↑



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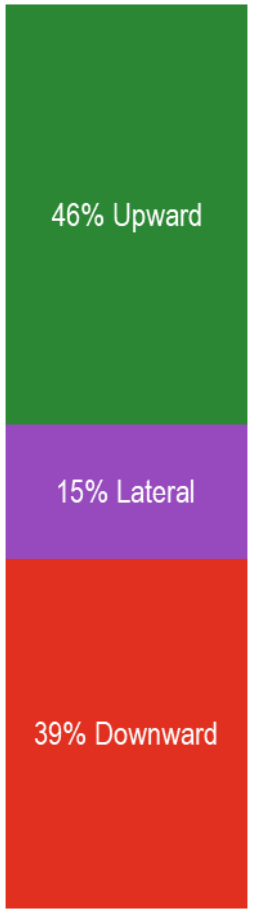
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

CLINICAL LABORATORY TECHNOLOGISTS AND TECHNICIANS

The most common subsequent jobs for Clinical Laboratory Technologists and Technicians are Life, Physical, and Social Science Technicians ((where workers earn $1.24 less per hour), and Natural Sciences Managers ($36.53 more per hour). About 46 percent of next occupations have higher median wages.

Exhibit HC-35. Clinical Laboratory Technologists and Technicians Transitions

Destination Occupation	Change in Median Wage
Life, Physical, and Social Science Technicians, All Other	-$1.24 -
Natural Sciences Managers	$36.53 ↑
Biological Technicians	-$3.49 ↓
Computer User Support Specialists	-$0.41 -
Medical Assistants	-$8.81 ↓
Medical Scientists, Except Epidemiologists	$17.15 ↑
Project Management Specialists and Business Operations Specialists, All Other	$9.83 ↑
First-Line Supervisors of Office and Administrative Support Workers	$1.68 -
First-Line Supervisors of Production and Operating Workers	$3.94 ↑
Customer Service Representatives	-$8.85 ↓
Registered Nurses	$9.70 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$7.42 ↓
Chemists	$11.78 ↑
Teaching Assistants, Postsecondary	-$6.89 ↓
Phlebotomists	-$8.47 ↓
Chemical Technicians	-$1.86 -
Software Developers and Software Quality Assurance Analysts and Testers	$26.15 ↑
Social and Human Service Assistants	-$8.69 ↓
Medical and Health Services Managers	$23.01 ↑
Chief Executives	$63.14 ↑



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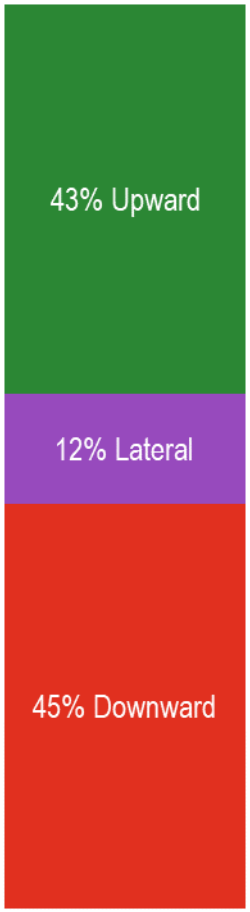
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

CARDIOVASCULAR TECHNOLOGISTS AND TECHNICIANS

The most common subsequent jobs for Cardiovascular Technologists and Technicians are Registered Nurses ((where workers earn $7.49 more per hour) and Diagnostic Medical Sonographers ($7.98 more per hour). About 43 percent of next occupations have higher median wages.

Exhibit HC-36. Cardiovascular Technologists and Technicians Transitions

Destination Occupation	Change in Median Wage
Registered Nurses	$7.49 ↑
Diagnostic Medical Sonographers	$7.98 ↑
Computer User Support Specialists	-$2.62 ↓
Medical Assistants	-$11.02 ↓
Radiologic Technologists and Technicians	$1.34 -
Project Management Specialists and Business Operations Specialists, All Other	$7.62 ↑
Customer Service Representatives	-$11.06 ↓
Medical and Health Services Managers	$20.80 ↑
First-Line Supervisors of Office and Administrative Support Workers	-$0.53 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$9.63 ↓
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	$11.20 ↑
Chief Executives	$60.93 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	-$7.25 ↓
Nursing Assistants	-$13.49 ↓
Medical Secretaries and Administrative Assistants	-$10.16 ↓
Sales Managers	$33.14 ↑
Social and Human Service Assistants	-$10.90 ↓
Physicians, All Other; and Ophthalmologists, Except Pediatric	$71.53 ↑
Emergency Medical Technicians and Paramedics	-$10.73 ↓
Clinical Laboratory Technologists and Technicians	-$2.21 ↓



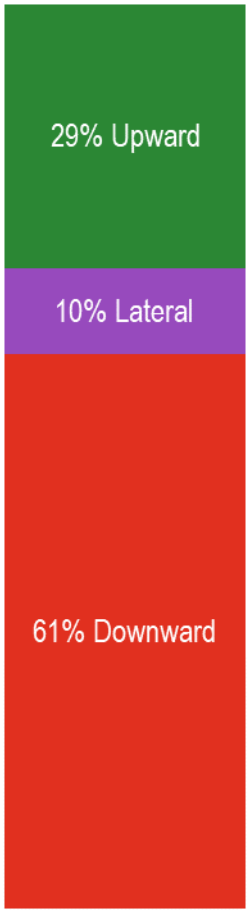
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

DIAGNOSTIC MEDICAL SONOGRAPHERS

The most common subsequent jobs for Diagnostic Medical Sonographers are Cardiovascular Technologists and Technicians ((where workers earn $7.98 less per hour) and Radiologic Technologists and Technicians ($6.64 less per hour). About 29 percent of next occupations have higher median wages.

Exhibit HC-37. Diagnostic Medical Sonographers Transitions

Destination Occupation	Change in Median Wage
Cardiovascular Technologists and Technicians	-$7.98 ↓
Radiologic Technologists and Technicians	-$6.64 ↓
Registered Nurses	-$0.49 -
Chief Executives	$52.95 ↑
Medical and Health Services Managers	$12.82 ↑
Project Management Specialists and Business Operations Specialists, All Other	-$0.36 -
Computer User Support Specialists	-$10.60 ↓
Obstetricians and Gynecologists	$55.80 ↑
First-Line Supervisors of Office and Administrative Support Workers	-$8.51 ↓
Medical Assistants	-$19.00 ↓
First-Line Supervisors of Production and Operating Workers	-$6.25 ↓
Computer Systems Analysts	$7.98 ↑
Customer Service Representatives	-$19.04 ↓
Health Specialties Teachers, Postsecondary	$20.85 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$17.61 ↓
General and Operations Managers	$12.72 ↑
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	$3.22↑
Career/Technical Education Teachers, Postsecondary	-$9.47 ↓
Retail Salespersons	-$23.59 ↓
Natural Sciences Managers	$26.34 ↑



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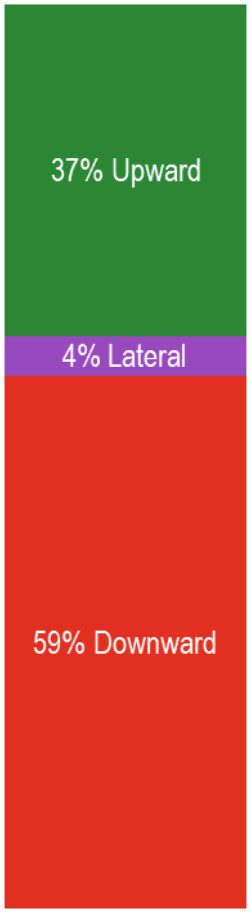
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

NUCLEAR MEDICINE TECHNOLOGISTS

The most common subsequent jobs for Nuclear Medicine Technologists are Radiologic Technologists and Technicians ((where workers earn $8.39 less per hour) and Medical and Health Services Managers ($11.07 less per hour). About 37 percent of next occupations have higher median wages.

Exhibit HC-38. Nuclear Medicine Technologists Transitions

Destination Occupation	Change in Median Wage
Radiologic Technologists and Technicians	-$8.39 ↓
Medical and Health Services Managers	$11.07 ↑
Chief Executives	$51.20 ↑
Project Management Specialists and Business Operations Specialists, All Other	-$2.11 ↓
Architectural and Engineering Managers	$32.15 ↑
Computer and Information Systems Managers	$32.89 ↑
Magnetic Resonance Imaging Technologists	-$2.18 ↓
Registered Nurses	-$2.24 ↓
General and Operations Managers	$10.97 ↑
First-Line Supervisors of Office and Administrative Support Workers	-$10.26 ↓
Software Developers and Software Quality Assurance Analysts and Testers	$14.21 ↑
Computer User Support Specialists	-$12.35 ↓
Computer Systems Analysts	$6.23 ↑
Cardiovascular Technologists and Technicians	-$9.73 ↓
Health Specialties Teachers, Postsecondary	$19.10 ↑
Clinical Laboratory Technologists and Technicians	-$11.94 ↓
Customer Service Representatives	-$20.79 ↓
Network and Computer Systems Administrators	$2.67 ↑
First-Line Supervisors of Production and Operating Workers	-$8.00 ↓
Natural Sciences Managers	$24.59 ↑



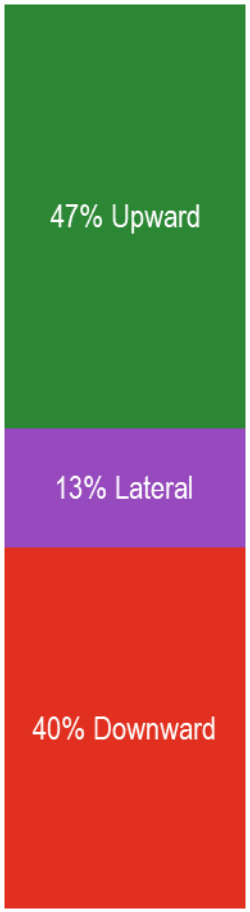
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

RADIOLOGIC TECHNOLOGISTS AND TECHNICIANS

The most common subsequent jobs for Radiologic Technologists and Technicians are Magnetic Resonance Imaging Technologists ((where workers earn $6.21 more per hour) and Medical and Health Services Managers ($19.46 more per hour). About 47 percent of next occupations have higher median wages.

Exhibit HC-39. Radiologic Technologists and Technicians Transitions

Destination Occupation	Change in Median Wage
Magnetic Resonance Imaging Technologists	$6.21 ↑
Medical and Health Services Managers	$19.46 ↑
Project Management Specialists and Business Operations Specialists, All Other	$6.28 ↑
Cardiovascular Technologists and Technicians	-$1.34 -
First-Line Supervisors of Office and Administrative Support Workers	-$1.87 -
Medical Assistants	-$12.36 ↓
Registered Nurses	$6.15 ↑
Computer User Support Specialists	-$3.96 ↓
Diagnostic Medical Sonographers	$6.64 ↑
Customer Service Representatives	-$12.40 ↓
Nuclear Medicine Technologists	$8.39 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$10.97 ↓
Chief Executives	$59.59 ↑
Health Specialties Teachers, Postsecondary	$27.49 ↑
Radiation Therapists	$12.05 ↑
General and Operations Managers	$19.36 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	-$8.59 ↓
First-Line Supervisors of Production and Operating Workers	$0.39 -
Computer Systems Analysts	$14.62 ↑
Network and Computer Systems Administrators	$11.06 ↑



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Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MAGNETIC RESONANCE IMAGING TECHNOLOGISTS

The most common subsequent jobs for Magnetic Resonance Imaging Technologists are Radiologic Technologists and Technicians ((where workers earn $6.21 less per hour) and Medical and Health Services Managers ($13.25 more per hour). About 30 percent of occupations have higher median wages.

Exhibit HC-40. Magnetic Resonance Imaging Technologists Transitions

Destination Occupation	Change in Median Wage
Radiologic Technologists and Technicians	-$6.21 ↓
Medical and Health Services Managers	$13.25 ↑
Project Management Specialists and Business Operations Specialists, All Other	$0.07 -
Computer Systems Analysts	$8.41 ↑
Computer User Support Specialists	-$10.17 ↓
General and Operations Managers	$13.15 ↑
Registered Nurses	-$0.06 -
Electrical and Electronic Engineering Technologists and Technicians	-$3.92 ↓
Chief Executives	$53.38 ↑
First-Line Supervisors of Office and Administrative Support Workers	-$8.08 ↓
Nuclear Medicine Technologists	$2.18 ↑
Health Specialties Teachers, Postsecondary	$21.28 ↑
Customer Service Representatives	-$18.61 ↓
Physicians, All Other; and Ophthalmologists, Except Pediatric	$63.98 ↑
Marketing Managers	$30.49 ↑
Network and Computer Systems Administrators	$4.85 ↑
Medical Assistants	-$18.57 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$17.18 ↓
Software Developers and Software Quality Assurance Analysts and Testers	$16.39 ↑
Medical Secretaries and Administrative Assistants	-$17.71 ↓

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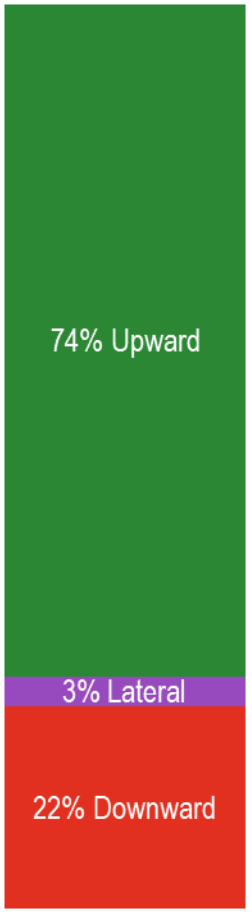
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

LICENSED PRACTICAL AND VOCATIONAL NURSES

The most common subsequent jobs for Licensed Practical and Vocational Nurses are Registered Nurses ((where workers earn $12.41 more per hour) and Medical and Health Services Managers ($25.72 more per hour). About 74 percent of next occupations have higher median wages.

Exhibit HC-41. Licenses Practical and Vocational Nurses Transitions

Destination Occupation	Change in Median Wage
All other occupations	N/A
Medical and Health Services Managers	$25.72 ↑
Nursing Assistants	-$8.57 ↓
Social and Human Service Assistants	-$5.98 ↓
First-Line Supervisors of Office and Administrative Support Workers	$4.39 ↑
Home Health and Personal Care Aides	-$10.68 ↓
Project Management Specialists and Business Operations Specialists, All Other	$12.54 ↑
Medical Assistants	-$6.10 ↓
Customer Service Representatives	-$6.14 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$4.71 ↓
Chief Executives	$65.85 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	-$2.33 ↓
General and Operations Managers	$25.62 ↑
Medical Secretaries and Administrative Assistants	-$5.24 ↓
Human Resources Specialists	$6.94 ↑
First-Line Supervisors of Production and Operating Workers	$6.65 ↑
Career/Technical Education Teachers, Postsecondary	$3.43 ↑
Retail Salespersons	-$10.69 ↓
Social and Community Service Managers	$9.45 ↑
Natural Sciences Managers	$39.24 ↑



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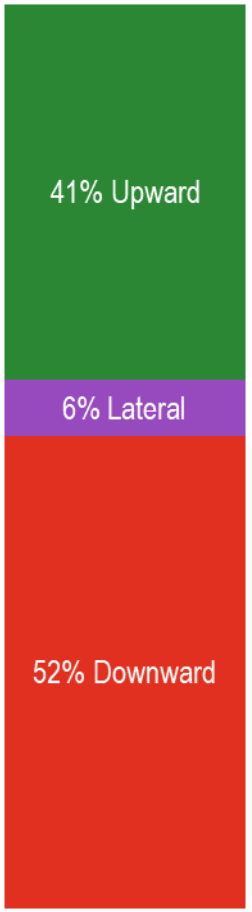
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

REGISTERED NURSES

The most common subsequent jobs for Registered Nurses are Medical and Health Services Managers ((where workers earn $13.31 more per hour) and Social and Human Service Assistants ($18.39 less per hour). About 41 percent of next occupations have higher median wages.

Exhibit HC-42. Registered Nurses Transitions

Destination Occupation	Change in Median Wage
Medical and Health Services Managers	$13.31 ↑
Social and Human Service Assistants	-$18.39 ↓
Nurse Practitioners	$17.56 ↑
Licensed Practical and Licensed Vocational Nurses	-$12.41 ↓
Project Management Specialists and Business Operations Specialists, All Other	$0.13 -
First-Line Supervisors of Office and Administrative Support Workers	-$8.02 ↓
Chief Executives	$53.44 ↑
Customer Service Representatives	-$18.55 ↓
Nursing Assistants	-$20.98 ↓
General and Operations Managers	$13.21 ↑
Nursing Instructors and Teachers, Postsecondary	$8.13 ↑
Natural Sciences Managers	$26.83 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$17.12 ↓
Computer Systems Analysts	$8.47 ↑
Health Specialties Teachers, Postsecondary	$21.34 ↑
Home Health and Personal Care Aides	-$23.09 ↓
Mental Health and Substance Abuse Social Workers	-$12.81 ↓
Medical Assistants	-$18.51 ↓
Postsecondary Teachers, All Other	$4.86 ↑
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	-$14.74 ↓



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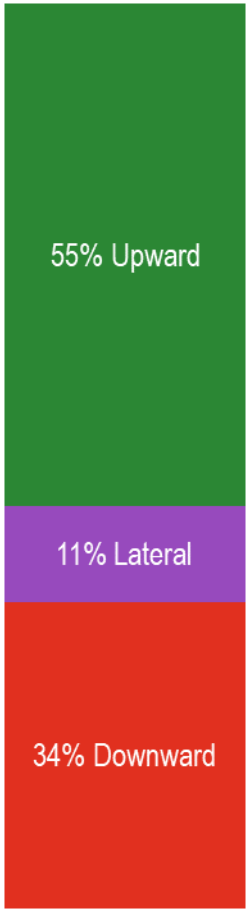
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MASSAGE THERAPISTS

The most common subsequent jobs for Massage Therapists are Chief Executives ((where workers earn $68.09 more per hour) and First-Line Supervisors of Office and Administrative Support Workers ($6.63 more per hour). About 55 percent of next occupations have higher median wages.

Exhibit HC-43. Massage Therapists Transitions

Destination Occupation	Change in Median Wage
Chief Executives	$68.09 ↑
First-Line Supervisors of Office and Administrative Support Workers	$6.63 ↑
Project Management Specialists and Business Operations Specialists, All Other	$14.78 ↑
Customer Service Representatives	-$3.90 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$2.47 ↓
General and Operations Managers	$27.86 ↑
Exercise Trainers and Group Fitness Instructors	-$1.17 -
Registered Nurses	$14.65 ↑
Physical Therapists	$22.41 ↑
Retail Salespersons	-$8.45 ↓
Health Specialties Teachers, Postsecondary	$35.99 ↑
Substitute Teachers, Short-Term	-$6.75 ↓
Social and Human Service Assistants	-$3.74 ↓
Receptionists and Information Clerks	-$6.14 ↓
Medical Assistants	-$3.86 ↓
Home Health and Personal Care Aides	-$8.44 ↓
Career/Technical Education Teachers, Postsecondary	$5.67 ↑
Mental Health and Substance Abuse Social Workers	$1.84 -
Medical Secretaries and Administrative Assistants	-$3.00 ↓
Computer User Support Specialists	$4.54 ↑



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Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

C. Spotlight: Early Care and Education Cluster

Early care and education (ECE) occupations are of particular interest in the career pathways field and occupational training programs generally. The field was identified as a potential area for career pathways efforts in Workforce Innovation and Opportunity Act legislation,[6] though a previous analysis noted that it was unclear whether there were promising pathways in the field (Cheng et al., 2018).

1. Cluster Overview and Summary of Results

Exhibit ECE-1 summarizes the mid-level healthcare occupations included in the trajectories analysis. It includes the occupations used in the trajectories analysis, common job titles, O*NET code, starting wage, and sample size for the 10-year follow-up period.

Exhibit ECE-1. Healthcare Occupations Included in This Analysis

Occupation Included in Trajectories Analyses (Broad Census Categories)	Common Job Titles	O*Net Job Zone	Starting Wage ($)	N at 10 Years
Library technicians	Bindery Library Technical Assistant; Book Shelver; Circulation Clerk; Classifier; Library Associate; Library Clerk; Library Information Technician; Library Media Technician; Media Specialist; Textbook Associate	3.0	9.53	44
Childcare workers	Baby Attendant; Boarding Mother; Children's Lunchroom Supervisor; Governess; Lunchroom Monitor; Nanny; Nursery Supervisor; Playground Attendant; School Bus Aide; Toddler Caregiver	2.0	9.91	782
Teacher assistants	Early Childhood Teacher Assistant; Educational Assistant Teacher; Exceptional Student Education Aide; Kindergarten Paraprofessional; Kindergartners Helper; Learning Support Aide; Paraprofessional Aide; Special Education Aide; Substitute Teacher; Teacher's Aide	3.0	12.18	310
Preschool and kindergarten teachers	Child Development Teacher; Group Teacher; Instructor; Kindergarten Teacher; Lead Teacher; Montessori Preschool Teacher; Physical Education Teacher; Preschool Teacher; Title One Kindergarten Teacher	3.5	13.43	228
Other teachers and instructors	Accounting/Finance Tutor; Children's Tutor; Grades 7-8 Tutor; In-classroom Tutor; Learning Services Coordinator; Literacy Tutor; Private Tutor; Spanish Tutor; Tutor; Tutoring Clinician	3.7	17.45	305

Notes: To determine the Job Zone we used the U.S. Bureau of Labor Statistics' O*NET Job Zone classifications to classify job levels. Because NLSY:97 and PSID use different systems to classify occupations, crosswalks are required. O*NET's occupational classifications are finer grained than Census classifications. As such, in some cases multiple O*NET codes correspond to a single Census code. In those cases, the Job Zone for the Census occupation is calculated as the simple average of the Job Zones for the set of corresponding O*NET codes. The study defined mid-level jobs as those with Job Zones of at least 2 but less than or equal to 3.8.
Sources: 2002 Census Occupations, O*NET Job Zones, NLSY:97 and Panel Study of Income Dynamics

As detailed below, the **key findings** for the early care and education occupational cluster are:

- Relative to mid-level occupations in other clusters, early care and education occupations have above average wage growth. Weighted median wage growth over 10 years across early care and education occupations is $8.73 per hour, compared to $7.36 per hour across all mid-level occupations.
- Most early care and education occupations offer a starting wage that is lower than the national average for mid-level

[6] Workforce Innovation and Opportunity Act, Pub. L. No. 113–128, 128 Stat. 1425 (2014). https://www.govinfo.gov/content/pkg/PLAW-113publ128/pdf/PLAW-113publ128.pdf

occupations, but workers in ECE occupations do see higher than average wage growth over 10 years.

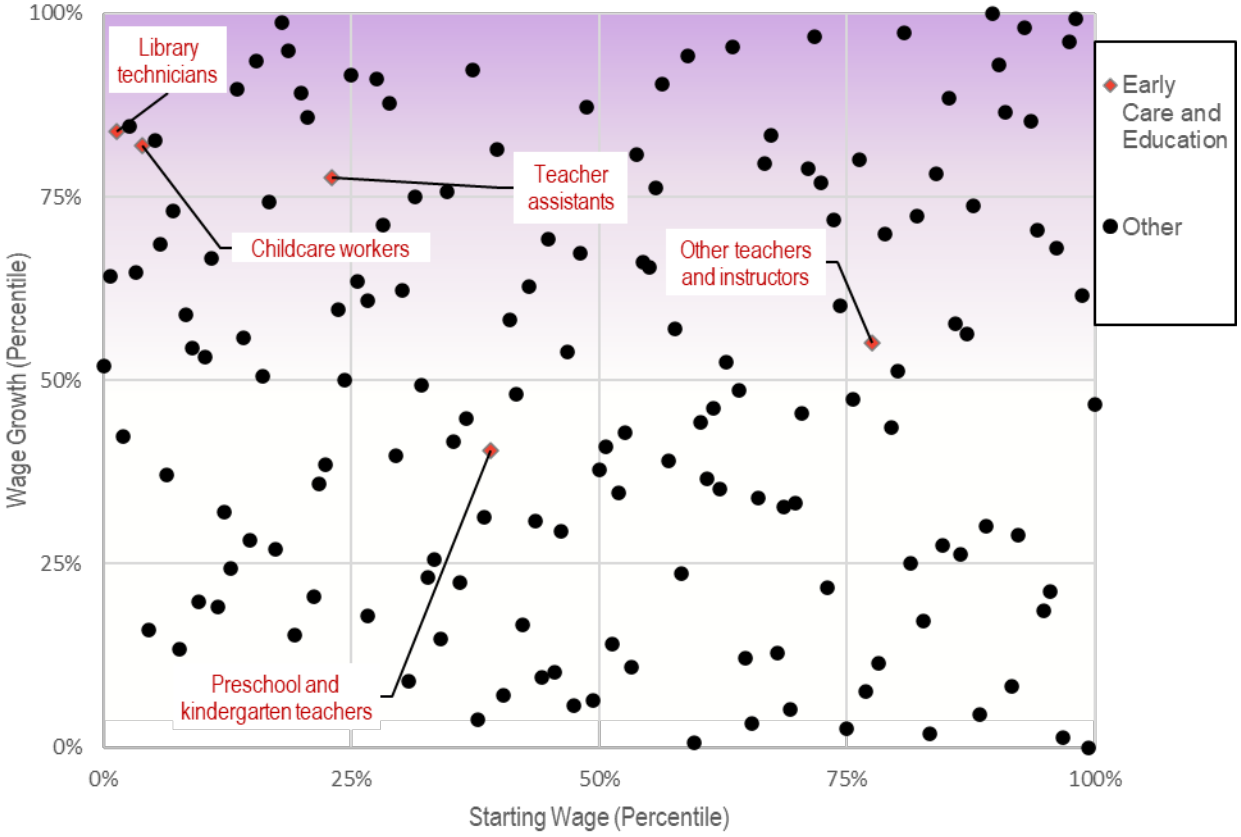
- There are no ECE occupations in which more than half of workers are earning $25 per hour or more five years later.
- There are no significant differences in wage growth based on workers' age, or socioeconomic status (as measured by parents' educational attainment). There is a difference by race/ethnicity; 10 years after starting in the same early care and education occupation, compared to non-Hispanic White workers, non-Hispanic Black workers earn $3.80 per hour less. There is also a difference by gender; 10 years after starting in the same early care and education occupation, compared to men, women earn $6.75 per hour less
- There is no significant difference in wage growth between workers who remain in the early care and education cluster for 10 years and those who transition to another occupational cluster.

2. Occupational Cluster Results

HOW DO CAREER TRAJECTORIES FOR WORKERS IN EARLY CARE AND EDUCATION JOBS COMPARE TO TRAJECTORIES FOR WORKERS OVERALL?

Most mid-level early care and education occupations offer lower than average starting wages, but are associated with higher than average subsequent wage growth. Exhibit ECE-2 shows starting wages and wage growth for mid-level early care and education occupations (indicated by red diamonds) in comparison to mid-level occupations overall (black dots). The occupations toward the right of the graph are those with the highest starting wages, and those at the top of the graph have higher wage growth. For example, Other Teachers and Instructors have higher than average starting wages and wage growth at five years, whereas Teacher Assistants, Library Technicians, and Childcare Workers have lower than average starting wages but higher than average five-year wage growth.

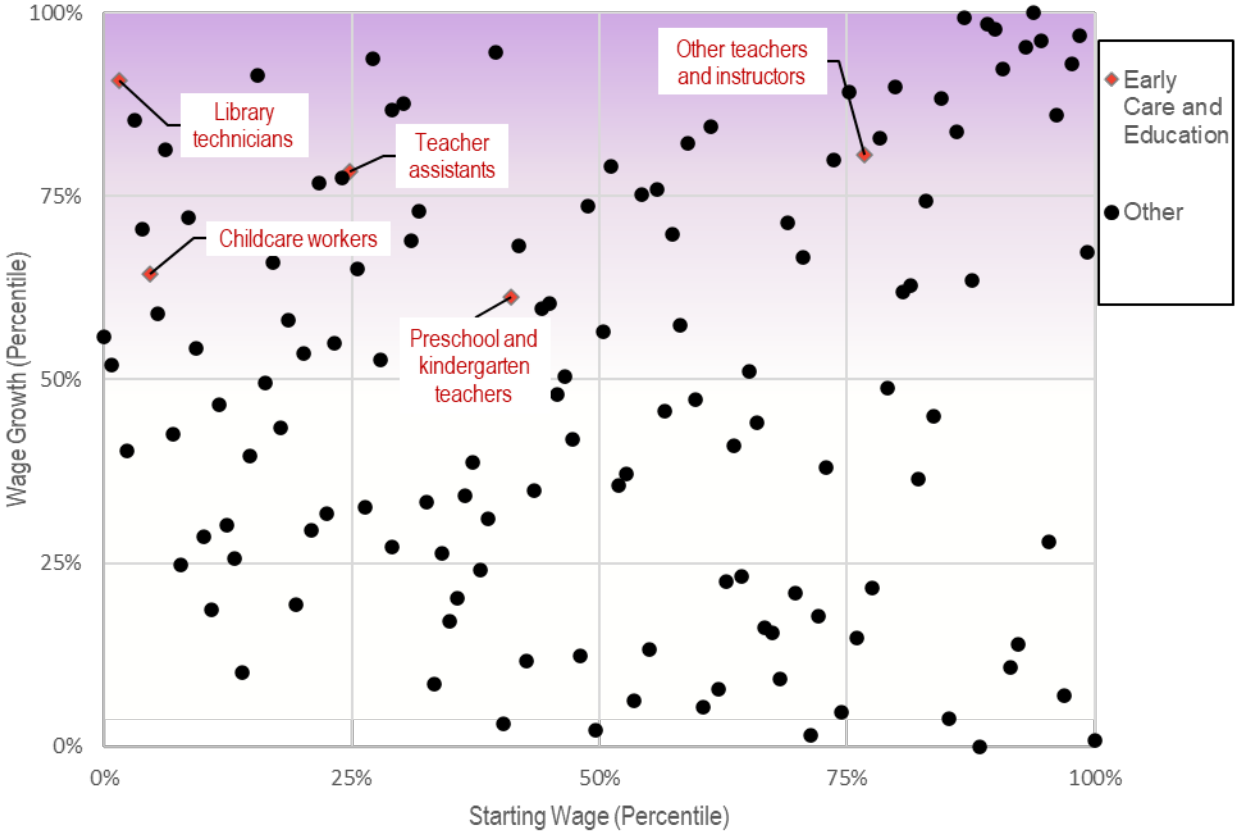
Exhibit ECE-2. Scatter Plot of Mid-Level Occupations' Starting Wages and Five-Year Wage Growth (in Dollars) Rank



Note: Analyses include only occupations with data for at least 40 new entrants.
Source: NLSY:97 and Panel Study of Income Dynamics

Ten years after starting a job, workers in all mid-level early care and education occupations shown see higher average wage growth than other mid-level jobs, but occupations vary in wage growth . At five years, Library Technicians, Child Care Workers, and Teacher Assistants are all similar in wage growth percentage. As shown on Exhibit ECE-3, however, at 10 years they diverge, with Library Technicians having a much higher ranking, followed by Teacher Assistants and then Childcare Workers.

Exhibit ECE-3. Scatter Plot of Mid-Level Occupations' Starting Wages and 10-Year Wage Growth (in Dollars) Rank

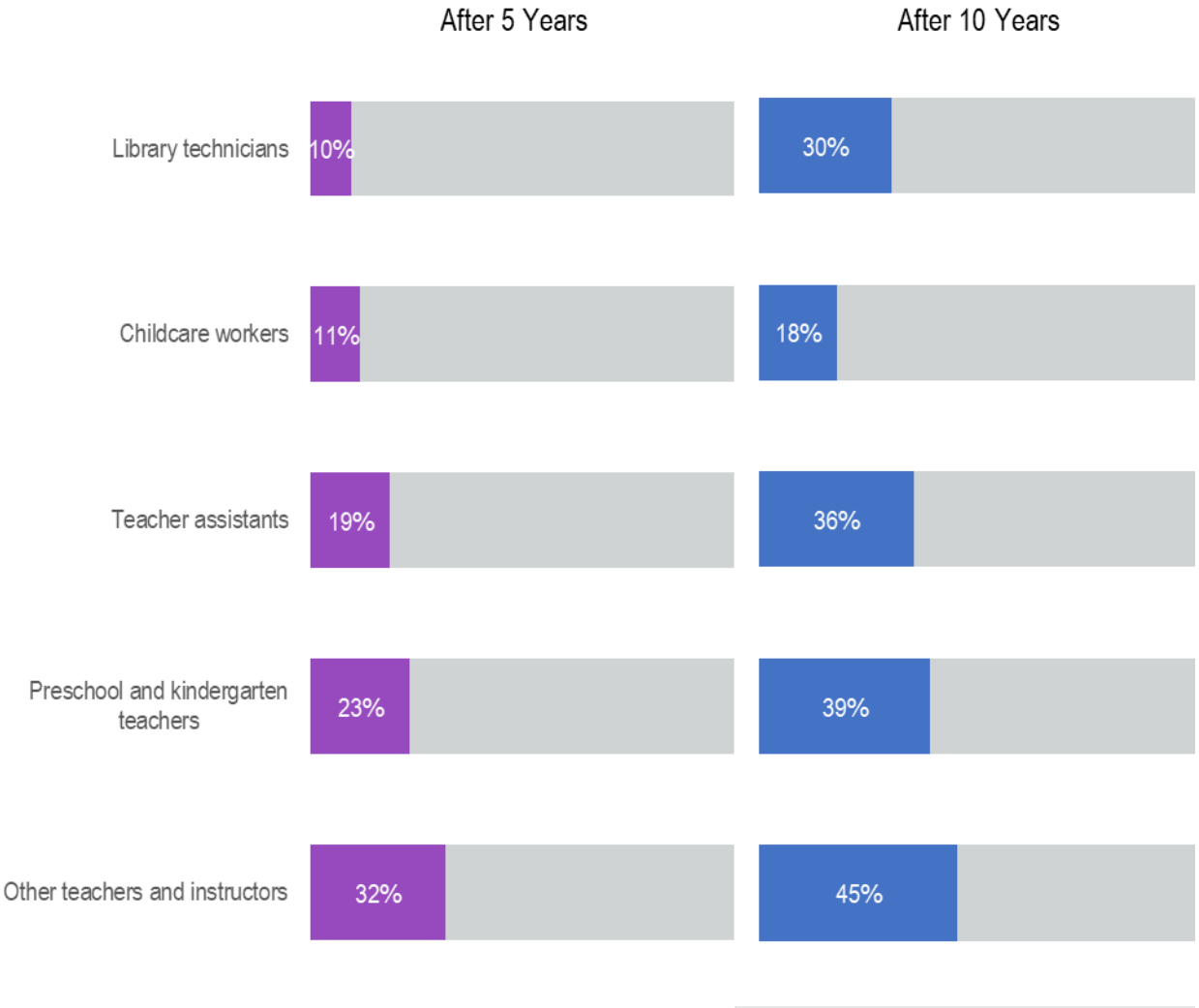


Note: Analyses include only occupations with data for at least 40 new entrants.
Source: NLSY:97 and Panel Study of Income Dynamics

FOR EACH OCCUPATION, HOW LIKELY IS IT THAT ENTRANTS WILL BE EARNING AT LEAST $25 PER HOUR FIVE OR 10 YEARS LATER?

Exhibit ECE-4 shows the percentage of workers starting in each occupation who are earning $25 per hour five and 10 years after starting in the occupation. At five years, around the same percentage of Library Technicians and Childcare Workers are earning $25 per hour or more, but at 10 years the percentage of Library Technicians earning $25 per hour or more is much higher. There are no early care and education occupations in which more than half of workers are earning $25 per hour or more 10 years later.

Exhibit ECE-4. Proportion of Workers Earning $25 per Hour or More, at Five and 10 Years

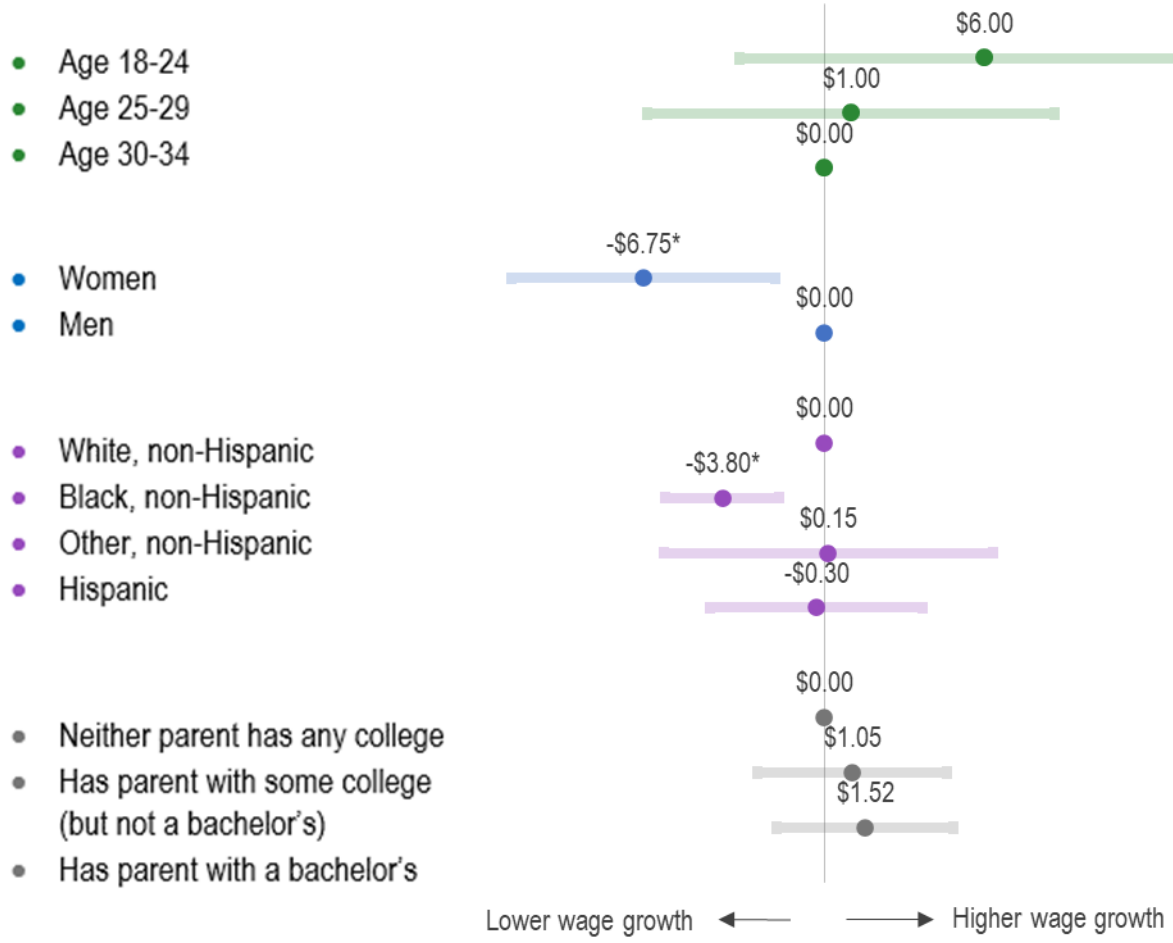


Note: *N*=2,218 after 5 years. *N*=1,669 after 10 years. The chart includes only occupations with data for at least 40 new entrants.
Source for all graphs on this page: NLSY:97 and Panel Study of Income Dynamics

TO WHAT EXTENT DOES WAGE GROWTH VARY BASED ON DEMOGRAPHIC CHARACTERISTICS?

Exhibit ECE-5 shows average difference in wages after 10 years of starting a job in early care and education for workers with different demographic characteristics, including age, gender, race/ethnicity, and family socioeconomic status (as indicated by parents' educational status). The differences in wages over this 10-year period vary by race/ethnicity and gender. As shown, compared to White non-Hispanic workers starting in the same occupation, non-Hispanic Black workers earn $3.80 less per hour 10 years later. Compared to men, women earn $6.75 less per hour 10 years later. There are no significant differences in wage growth based on workers' age or parents' educational attainment.

Exhibit ECE-5. Ten-Year Wage Growth Differences Among Entrants to the Same Starting Occupation, by Worker's Age, Gender, Race/Ethnicity, and Parents' Educational Attainment

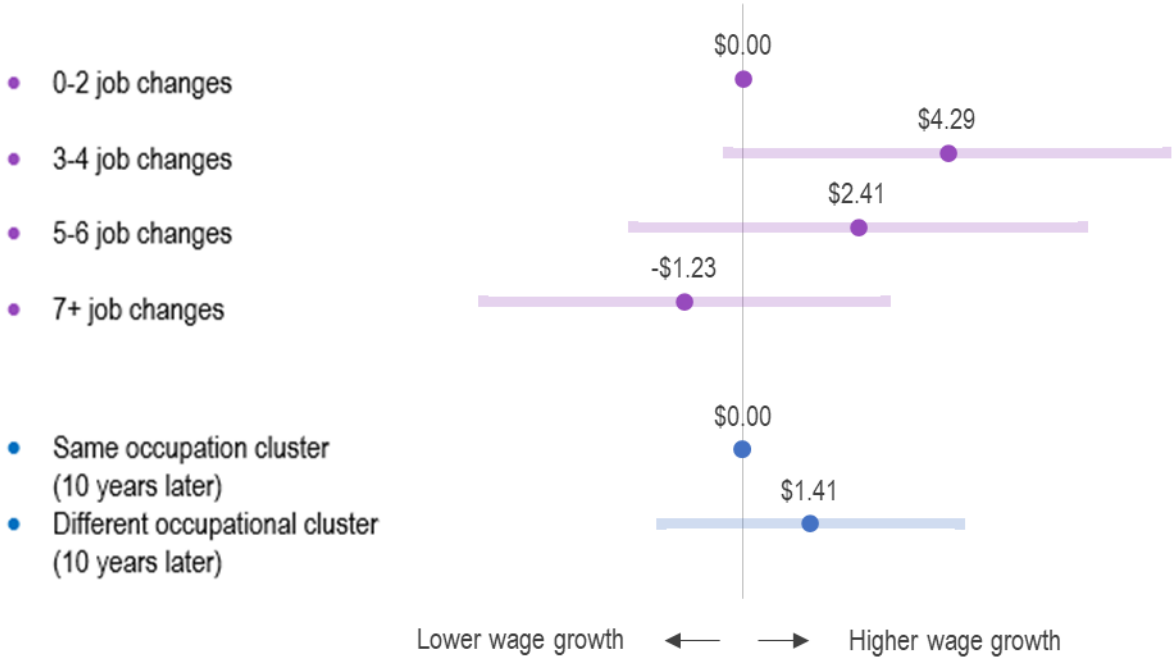


How to Read These Graphs: The dots represent the estimated difference in average wage growth for members of the given category, compared to members of the reference category who are otherwise similar (same starting occupation, starting wage, and demographic characteristics other than that one in question). Dots on the zero line are for the reference category itself (Age: 30-34; Gender: Men, Race/ethnicity: White non-Hispanic; Parental education: Neither parent has any college). Dots to the right indicate that, on average entrants from that demographic group experience more wage growth than do otherwise similar entrants from the reference category. For instance, 18-24-year-old entrants to an occupation see, on average, $6 per hour more in wage growth in the 10 years after entering the occupation compared to the otherwise similar 30-34-year-olds. The bars indicate how precise our estimates are (the 95 percent "confidence interval"); the actual wage difference could fall anywhere in that range, though they are more likely to fall toward the middle of the range than the ends.
Note: Estimates are drawn from OLS regressions that include occupation fixed effects and controls for the worker's starting wage in the occupation, data source, all of the individual-level characteristics above. Asterisks (*) indicate a statistically significant difference at the .05 level.
"Other, non-Hispanic" includes Asian Americans, Pacific Islanders, Native Americans, workers who report multiple racial identities, and workers who report no racial identity or Hispanic ethnicity. Those workers are grouped only because sample sizes are insufficient to consider each separately.
Source: NLSY97 and Panel Study of Income Dynamics

DO WORKERS WHO CHANGE JOBS WITHIN EARLY CARE AND EDUCATION OR LEAVE EARLY CARE AND EDUCATION EARN MORE OR LESS OVER 10 YEARS?

Exhibit ECE-6 shows average differences in wages 10 years after entering an early care and education occupation for workers with different numbers of job changes during this period. It shows the changes in wages for the number of job changes for those workers who stay in early care and education or those who change to a different occupation. As shown, no evidence of a difference in wage growth based on how frequently workers in early care and education change jobs is found. Some of the estimates indicate higher wage growth for those with three to four job changes (compared to two or fewer or five or more), but these estimates are imprecise, as indicated by the bars showing the confidence intervals. There is no significant difference in wage growth between those who continue to work in early care and education and those who move to another occupational cluster.

Exhibit ECE-6. Ten-Year Wage Growth Differences, by Job and Occupational Cluster Changes During the 10-Year Trajectory



How to Read This Graph: The purple dots on this graph indicate the estimated difference in hourly wage growth 10 years after entering an occupation experienced for workers who made the stated number change, in comparison to the reference category (entrants who made 2 or fewer subsequent job changes). For example, entrants who change jobs 7 or more times over 10 years' experience, on average, $1.23 per hour less in wage growth over that same period than do otherwise similar entrants who make 2 or fewer job changes. The blue dots indicate the average difference in 10- year hourly wage growth between those who are working in a different occupational cluster than the one they had entered 10 years prior, in comparison to those who were still working in the same occupational cluster. The bars indicate how precise our estimates are (the 95 percent "confidence interval"); the actual wage difference could fall anywhere in that range, though they are more likely to fall toward the middle of the range than the ends.
Note: Estimates are drawn from OLS regressions that include controls for starting wage, data source, age, gender, race/ethnicity, starting education, parent education, and starting occupation. Asterisks (*) indicate a statistically significant difference at the .05 level.
Source: NLSY97 and Panel Study of Income Dynamics

3. Individual Occupation Results

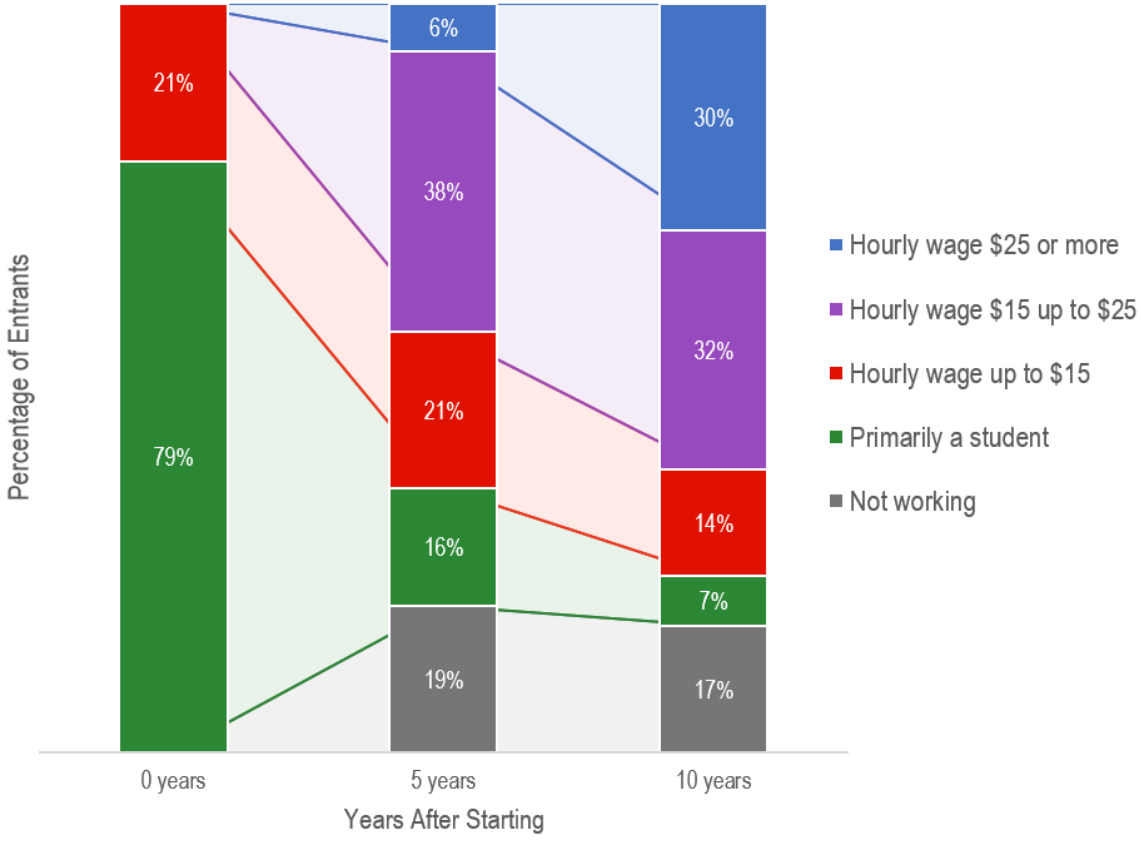
In this section, wage growth for specific early care and education occupations is presented. The first set of charts shows 10-year wage trajectories for all early care and education occupations. These charts show employment status at the start of the trajectory and five and 10 years later. They include time spent not working or primarily as a student.

All of the charts show relatively consistent wage growth over time, with the proportion of the chart that is purple or blue steadily increasing from the starting year to Year 5 and then from Year 5 to Year 10. However, the relative proportions of workers making higher wages varies. At the start of their trajectories, a majority of both *Childcare Workers* and *Teacher Assistants* are earning less than $15 per hour. Both groups see the proportions earning higher wages grow from the trajectory start to Year 5 and from Year 5 to Year 10, but the proportion grows much more for Teacher Assistants. At 10 years, 62 percent of those who start as *Teacher Assistants* are earning more than $15 per hour, whereas the proportion is only 44 percent for *Childcare Workers*.

LIBRARY TECHNICIANS

Workers who start as Library Technicians have an average starting wage of $9.53. Ten years later, 30 percent are earning at least $25 per hour (blue bar), as shown on Exhibit ECE-7.

Exhibit ECE-7. Library Technicians

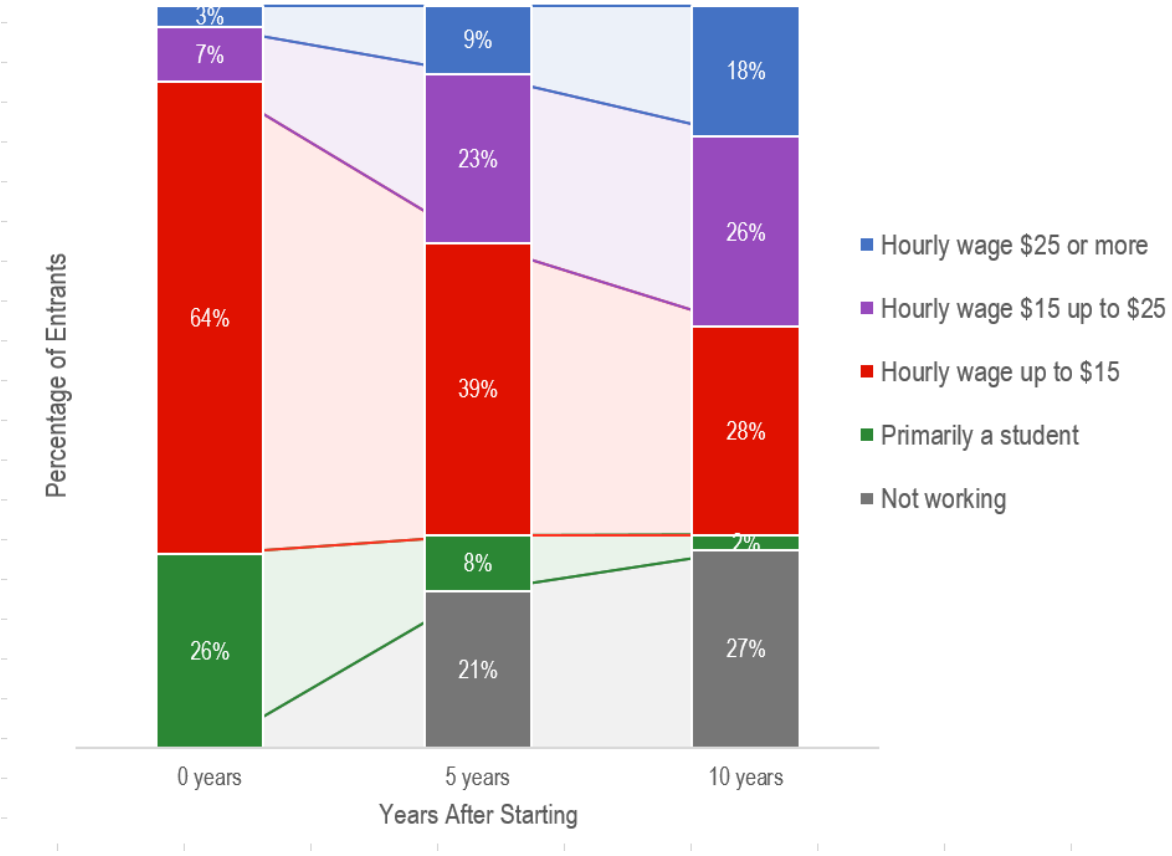


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 30 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

CHILDCARE WORKERS

Workers who start as Childcare Workers have an average starting wage of $9.91. Ten years later, 18 percent are earning at least $25 per hour (blue bar), as shown on Exhibit ECE-8.

Exhibit ECE-8. Childcare Workers

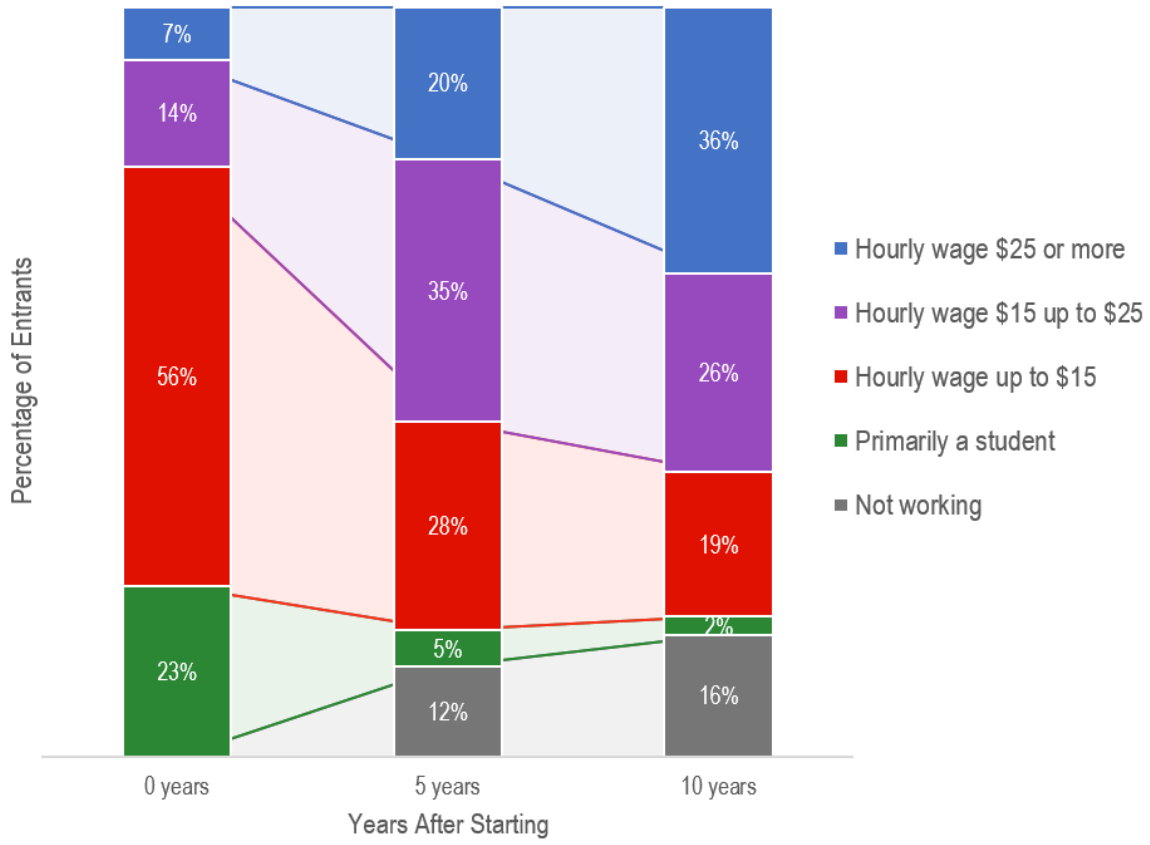


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 20 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

TEACHER ASSISTANTS

Workers who start as Teacher Assistants have an average starting wage of $12.18. Ten years later, 36 percent are earning at least $25 per hour (blue bar) as shown on Exhibit ECE-9.

Exhibit ECE-9. Teacher Assistants

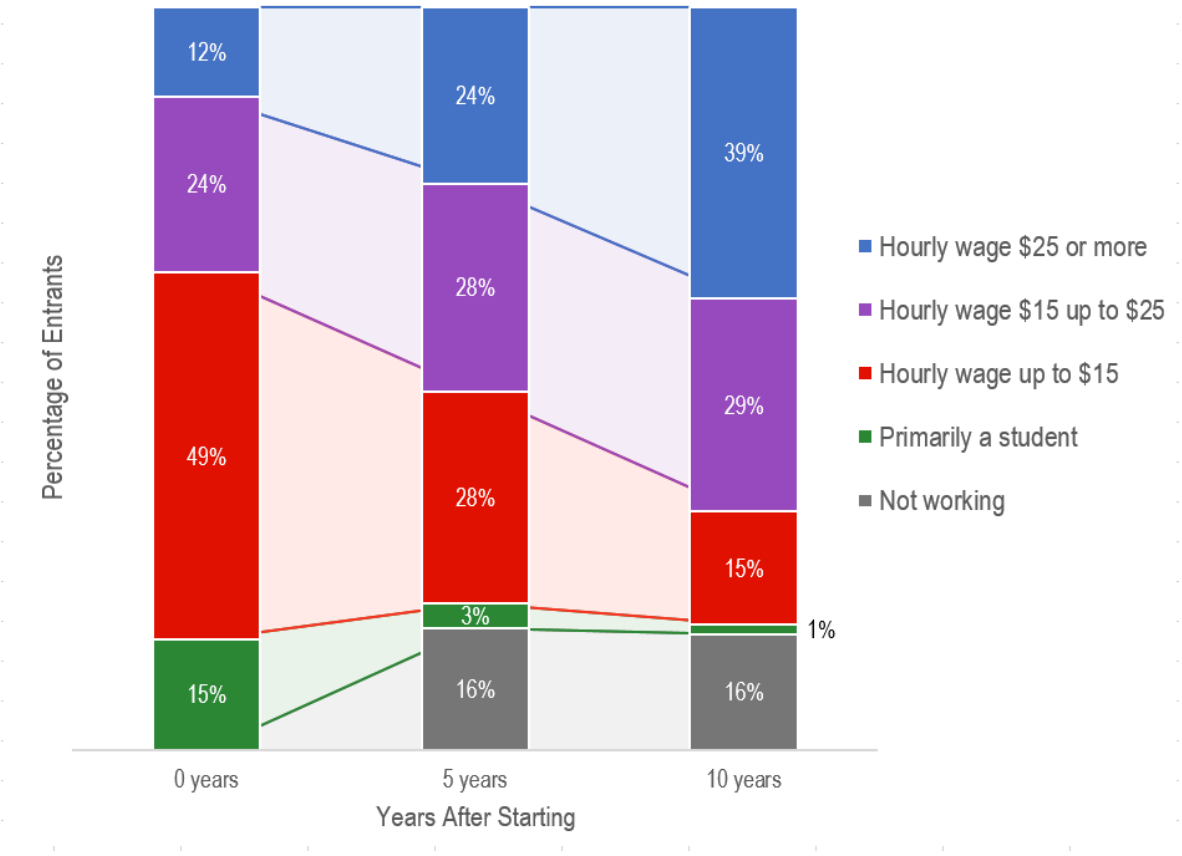


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 10 percent of workers are earning $25 per hour or more at entry, whereas around 35 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

PRESCHOOL AND KINDERGARTEN TEACHERS

Workers who start as Preschool and Kindergarten Teachers have an average starting wage of $13.43. Ten years later, 39 percent are earning at least $25 per hour (blue bar) as shown on Exhibit ECE-10.

Exhibit ECE-10. Preschool and Kindergarten Teachers

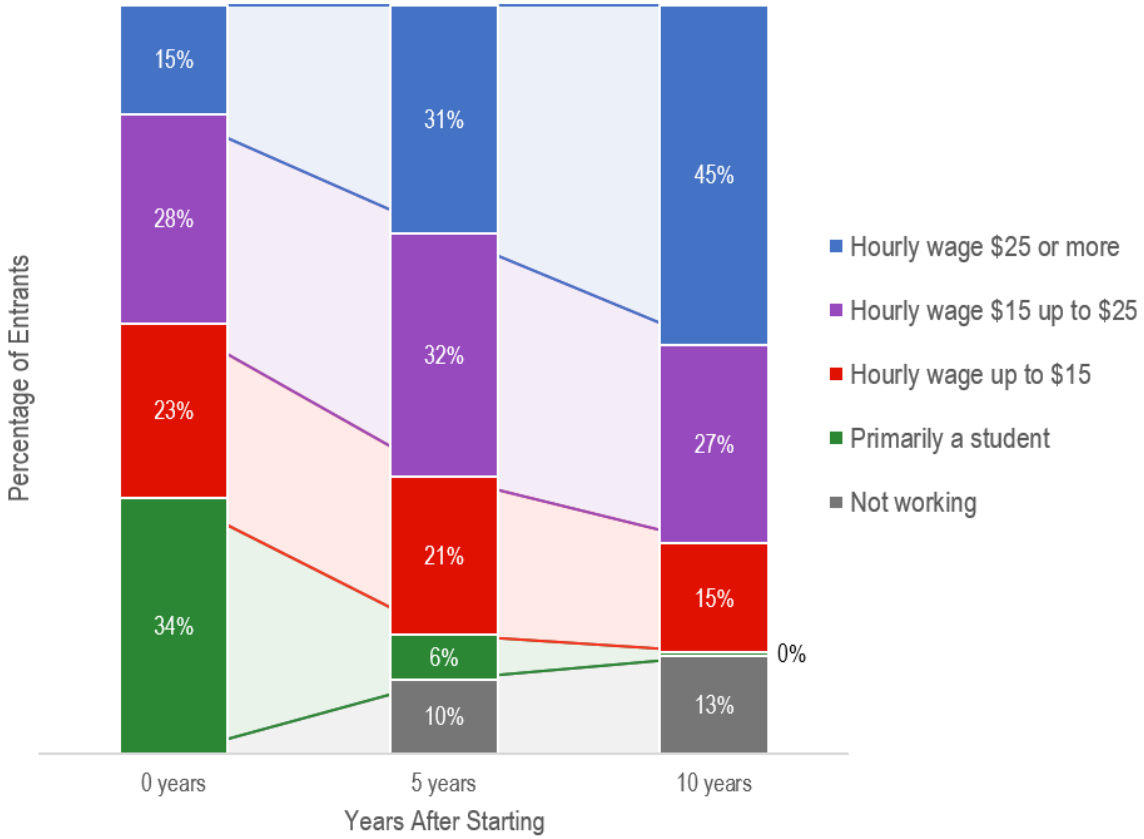


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 15 percent of workers are earning $25 per hour or more at entry, whereas around 40 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

OTHER TEACHERS AND INSTRUCTORS

Workers who start as Other Teachers and Instructors have an average starting wage of $17.45. Ten years later, 45 percent are earning at least $25 per hour (blue bar) as shown on Exhibit ECE-11.

Exhibit ECE-11. Other Teachers and Instructors



How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, 15 percent of workers are earning $25 per hour or more at entry, whereas around 45 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

4. Occupational Transitions Results

In identifying promising occupational transitions, the study considers two factors: (1) the feasibility of an individual making the transition, as indicated by the relative frequency of that transition; and (2) whether the destination occupation leads to a higher wage. Each is discussed in turn below.

Exhibits ECE-13 through ECE-16 show the most common transitions from each "source" occupation to other "destination" occupations. The tables are ordered with the most common destination occupations first, and are color coded to show how the median wages of the source and destination occupations compare: green to indicate upward transitions, purple to indicate lateral transitions, and red to indicate downward transitions.[7] The 20 most common transitions are shown. The bar charts to the right of each table show the total proportion of transitions that are upward, lateral, or downward.

As noted, the transitions analyses use a more detailed occupational classification system. Exhibit ECE-12 shows how the occupations included in the transitions analyses map to the occupations included in the earlier trajectories analyses.

Exhibit ECE-12. Trajectory Occupations vs. Transitions Titles

Occupations Included in Trajectories Analyses (Broad Census Categories)	Corresponding SOC Code Titles Included in Occupational Transitions Analyses
Library technicians	*Library Technicians*
Childcare workers	*Childcare Workers*
Teacher assistants	*Teacher Assistants (except Postsecondary)*
Preschool and kindergarten teachers	*Preschool Teachers (except Special Education)*

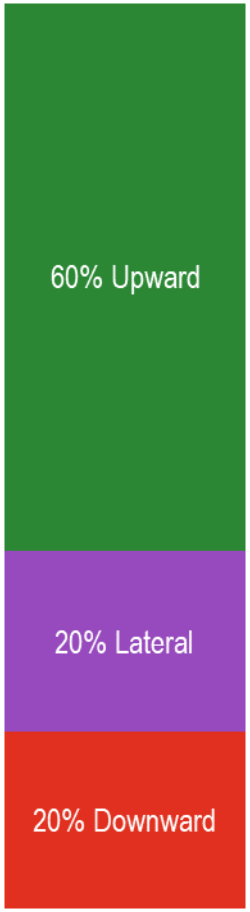
[7] Transitions are categorized as follows: upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

LIBRARY TECHNICIANS

The most common subsequent jobs for Library Technicians are Librarians and Media Collections Specialists (where workers earn $11.83 more per hour) and Secretaries and Administrative Assistants, Except Legal, Medical, and Executive ($1.34 more per hour). About 60 percent of next occupations have higher median wages.

Exhibit ECE-13. Library Technicians Transitions

Destination Occupation	Change in Median Wage
Librarians and Media Collections Specialists	$11.83 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.34 -
Library Assistants, Clerical	-$3.56 ↓
Computer User Support Specialists	$8.35 ↑
Project Management Specialists and Business Operations Specialists, All Other	$18.59 ↑
Customer Service Representatives	-$0.09 -
First-Line Supervisors of Office and Administrative Support Workers	$10.44 ↑
Retail Salespersons	-$4.64 ↓
Social and Human Service Assistants	$0.07 -
Cashiers	-$5.41 ↓
Office Clerks, General	-$0.41 -
Teaching Assistants, Except Postsecondary	-$0.55 -
Substitute Teachers, Short-Term	-$2.94 ↓
Chief Executives	$71.90 ↑
Teaching Assistants, Postsecondary	$1.87 -
Life, Physical, and Social Science Technicians, All Other	$7.52 ↑
Educational Instruction and Library Workers, All Other	$2.60 ↑
Public Relations Specialists	$12.62 ↑
Executive Secretaries and Executive Administrative Assistants	$12.49 ↑
Bookkeeping, Accounting, and Auditing Clerks	$3.04 ↑



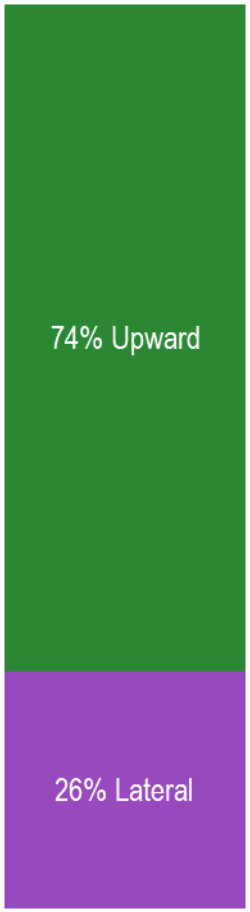
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

CHILDCARE WORKERS

The most common subsequent jobs for Childcare Workers are Retail Salespersons (where workers earn $0.49 more per hour) and Secretaries and Administrative Assistants, Except Legal, Medical, and Executive ($6.47 more per hour). About 74 percent of next occupations have higher median wages.

Exhibit ECE-14. Childcare Workers Transitions

Destination Occupation	Change in Median Wage
Retail Salespersons	$0.49 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$6.47↑
Cashiers	-$0.28 -
Customer Service Representatives	$5.04 ↑
Social and Human Service Assistants	$5.20 ↑
Teaching Assistants, Except Postsecondary	$4.58 ↑
Project Management Specialists and Business Operations Specialists, All Other	$23.72 ↑
Home Health and Personal Care Aides	$0.50 -
First-Line Supervisors of Office and Administrative Support Workers	$15.57 ↑
Waiters and Waitresses	-$0.65 -
Substitute Teachers, Short-Term	$2.19 ↑
Preschool Teachers, Except Special Education	$3.02 ↑
Receptionists and Information Clerks	$2.80 ↑
Fast Food and Counter Workers	-$0.72 -
Recreation Workers	$1.02 -
Office Clerks, General	$4.72 ↑
Nursing Assistants	$2.61 ↑
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	-$0.55 -
Registered Nurses	$23.59 ↑
Chief Executives	$77.03 ↑



How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

TEACHER ASSISTANTS, EXCEPT POSTSECONDARY

The most common subsequent jobs for Teacher Assistants, Except Postsecondary are Short-Term Substitute Teachers (where workers earn $2.39 less per hour) and Secretaries and Administrative Assistants, Except Legal, Medical, and Executive ($1.89 more per hour). About 61 percent of next occupations have higher median wages.

Exhibit ECE-15. Teacher Assistants, Except Postsecondary Transitions

Destination Occupation	Change in Median Wage
Substitute Teachers, Short-Term	-$2.39 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.89 -
Life, Physical, and Social Science Technicians, All Other	$8.07 ↑
Social and Human Service Assistants	$0.62 -
Customer Service Representatives	$0.46 -
Project Management Specialists and Business Operations Specialists, All Other	$19.14 ↑
Retail Salespersons	-$4.09 ↓
Preschool Teachers, Except Special Education	-$1.56 -
First-Line Supervisors of Office and Administrative Support Workers	$10.99 ↑
Teaching Assistants, Postsecondary	$2.42 ↑
Cashiers	-$4.86 ↓
Secondary School Teachers, Except Special and Career/Technical Education	$19.62 ↑
Software Developers and Software Quality Assurance Analysts and Testers	$35.46 ↑
Tutors and Teachers and Instructors, All Other	$6.65 ↑
Elementary School Teachers, Except Special Education	$18.46 ↑
Computer User Support Specialists	$8.90 ↑
Childcare Workers	-$4.58 ↓
Chief Executives	$72.45 ↑
Recreation Workers	-$3.56 ↓
Office Clerks, General	$0.14 -

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PRESCHOOL TEACHERS (EXCEPT SPECIAL EDUCATION)

The most common subsequent jobs for Preschool Teachers (except special education) are Short-Term Substitute Teachers (where workers earn $0.83 less per hour) and Teaching Assistants, Except Postsecondary ($1.56 more per hour). About 67 percent of next occupations have higher median wages.

Exhibit ECE-16. Preschool Teachers (except Special Education) Transitions

Destination Occupation	Change in Median Wage
Substitute Teachers, Short-Term	-$0.83 -
Teaching Assistants, Except Postsecondary	$1.56 -
Project Management Specialists and Business Operations Specialists, All Other	$20.70 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$3.45 ↑
Customer Service Representatives	$2.02 ↑
Social and Human Service Assistants	$2.18 ↑
Childcare Workers	-$3.02 ↓
Elementary School Teachers, Except Special Education	$20.02 ↑
First-Line Supervisors of Office and Administrative Support Workers	$12.55 ↑
Secondary School Teachers, Except Special and Career/Technical Education	$21.18 ↑
Retail Salespersons	-$2.53 ↓
Education and Childcare Administrators, Preschool and Daycare	$8.51 ↑
Cashiers	-$3.30 ↓
Chief Executives	$74.01 ↑
Kindergarten Teachers, Except Special Education	$18.38 ↑
Home Health and Personal Care Aides	-$2.52 ↓
Special Education Teachers, Kindergarten and Elementary School	$20.48 ↑
Receptionists and Information Clerks	-$0.22 -
Educational, Guidance, and Career Counselors and Advisors	$12.75 ↑
Computer User Support Specialists	$10.46 ↑

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

D. Spotlight: Information Technology

Information technology occupations are of interest in the career pathways field and for occupational training programs generally. In this project's meta-analysis of 46 career pathways programs, information technology is the third most commonly targeted occupational cluster, with 24 percent of programs including training in information technology (Peck et al., 2021).

1. Cluster Overview and Summary of Results

Exhibit IT-1 summarizes the mid-level information technology occupations included in the trajectories analysis. It includes the occupations used in the trajectories analysis, common job titles, O*NET code, starting wage, and sample size for the 10-year follow-up period.

Exhibit IT-1. Information Technology Occupations Included in This Analysis

Occupation Included in Trajectories Analyses (Broad Census Categories)	Common Job Titles	O*Net Job Zone	Starting Wage ($)	N at 10 Years
Computer support specialists	Computer Hardware Technician; Computer Technology Instructor; Customer Support Professional; Implementation Consultant; Information Systems Technician; Networking Specialist; Office Automation Technician; Software Installer; Technical Support Technician	3.5	20.48	115
Network systems and data communications analysts	Front End Engineer; Information Technology Analyst; Information Assurance Engineer; Network Architect; Network Operations Analyst; Registered Communications Distribution Designer; Telecommunication Systems Designer (Telecom Systems Designer); Telecommunications Consultant (Telecom Consultant); Web Page Developer; Web Software Engineer	3.5	20.91	104

Notes: To determine the Job Zone we used the U.S. Bureau of Labor Statistics' O*NET Job Zone classifications to classify job levels. Because NLSY:97 and PSID use different systems to classify occupations, crosswalks are required. O*NET's occupational classifications are finer grained than Census classifications. As such, in some cases multiple O*NET codes correspond to a single Census code. In those cases, the Job Zone for the Census occupation is calculated as the simple average of the Job Zones for the set of corresponding O*NET codes. The study defined mid-level jobs as those with Job Zones of at least 2 but less than or equal to 3.8.
Sources: 2002 Census Occupations, O*NET Job Zones, NLSY:97 and Panel Study of Income Dynamics

As detailed below, the **key findings** for the information technology occupational cluster are:

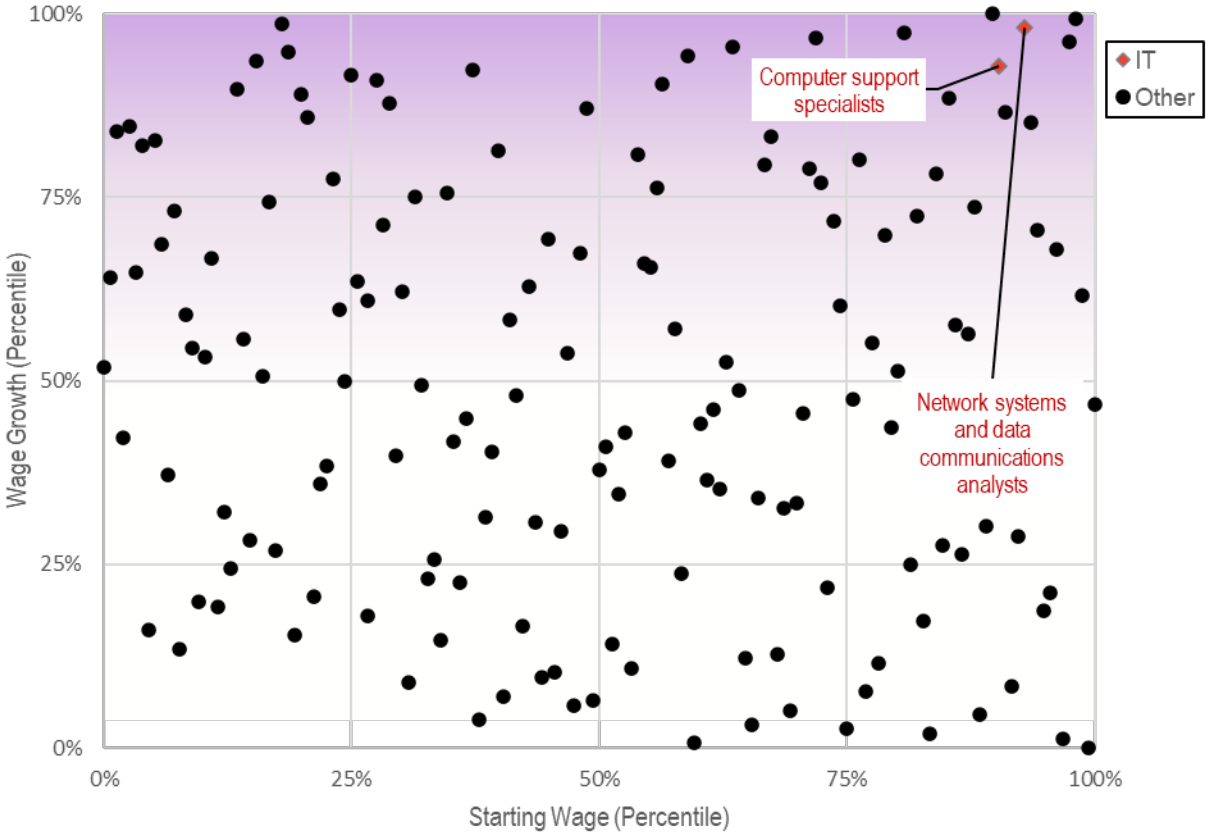
- Relative to mid-level occupations in other clusters, information technology occupations have above average wage growth. Weighted median wage growth over 10 years across information technology occupations is $16.08 per hour, compared to $7.36 per hour across all mid-level occupations.
- Both information technology occupations rank among the highest mid-level occupations for starting wage and for five- and 10-year wage growth.
- At five years, more than half of workers in both occupations are earning $25 per hour or more. A greater proportion (65% vs. 54%) of network systems and data communications analysts are earning $25 per hour or more at five years, but by 10 years the proportion is similar for both occupations.
- There is a disparity in wage growth between men and women, with women earning $10.40 less, on average, 10 years later. There are no significant differences based on age, race/ethnicity, or parents' educational attainment.
- Workers who leave information technology to work in a different field experience less wage growth than those who stay in the information technology cluster. This is in contrast to the study's finding that for mid-level occupations overall, leaving the entry cluster is associated with higher wage growth.

2. Occupational Cluster Results

HOW DO CAREER TRAJECTORIES FOR WORKERS IN INFORMATION TECHNOLOGY JOBS COMPARE TO TRAJECTORIES FOR WORKERS OVERALL?

Both mid-level information technology occupations offer among the highest starting wages and highest five- and 10-year wage growth. Exhibit IT-2 shows starting wages and wage growth for mid-level information technology occupations (indicated by red diamonds) in comparison to mid-level occupations overall (black dots). The occupations toward the right of the graph are those with the highest starting wages, and those at the top of the graph have higher wage growth. Both information technology occupations are in the very upper right quadrant at five years.

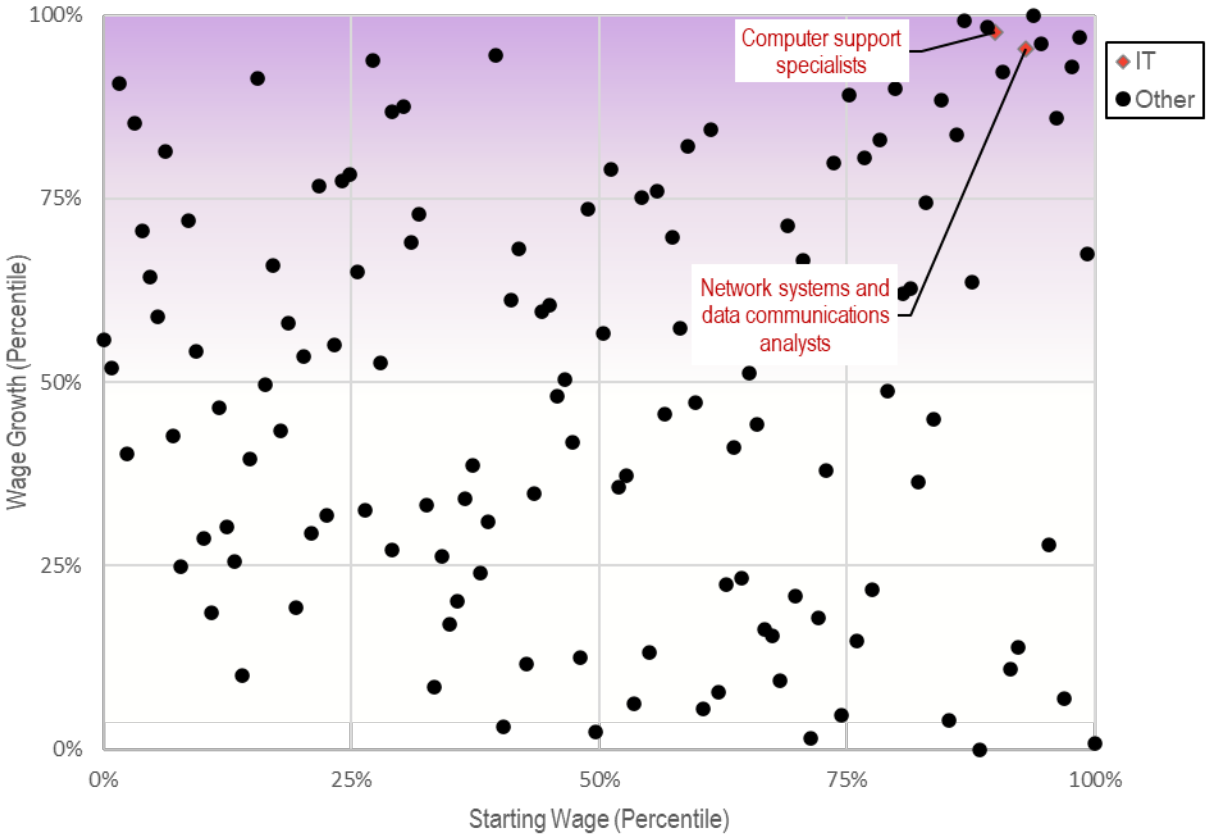
Exhibit IT-2. Scatter Plot of Mid-Level Occupations' Starting Wages and Five-Year Wage Growth (in Dollars) Rank



Note: Analyses include only occupations with data for at least 40 new entrants.
Source: NLSY:97 and Panel Study of Income Dynamics

Both information technology occupations remain in the very upper right quadrant at ten years, indicating that they are among the occupations with the highest starting wages and highest wage growth (see Exhibit IT-3).

Exhibit IT-3. Scatter Plot of Mid-Level Occupations' Starting Wages and 10-Year Wage Growth (in Dollars) Rank

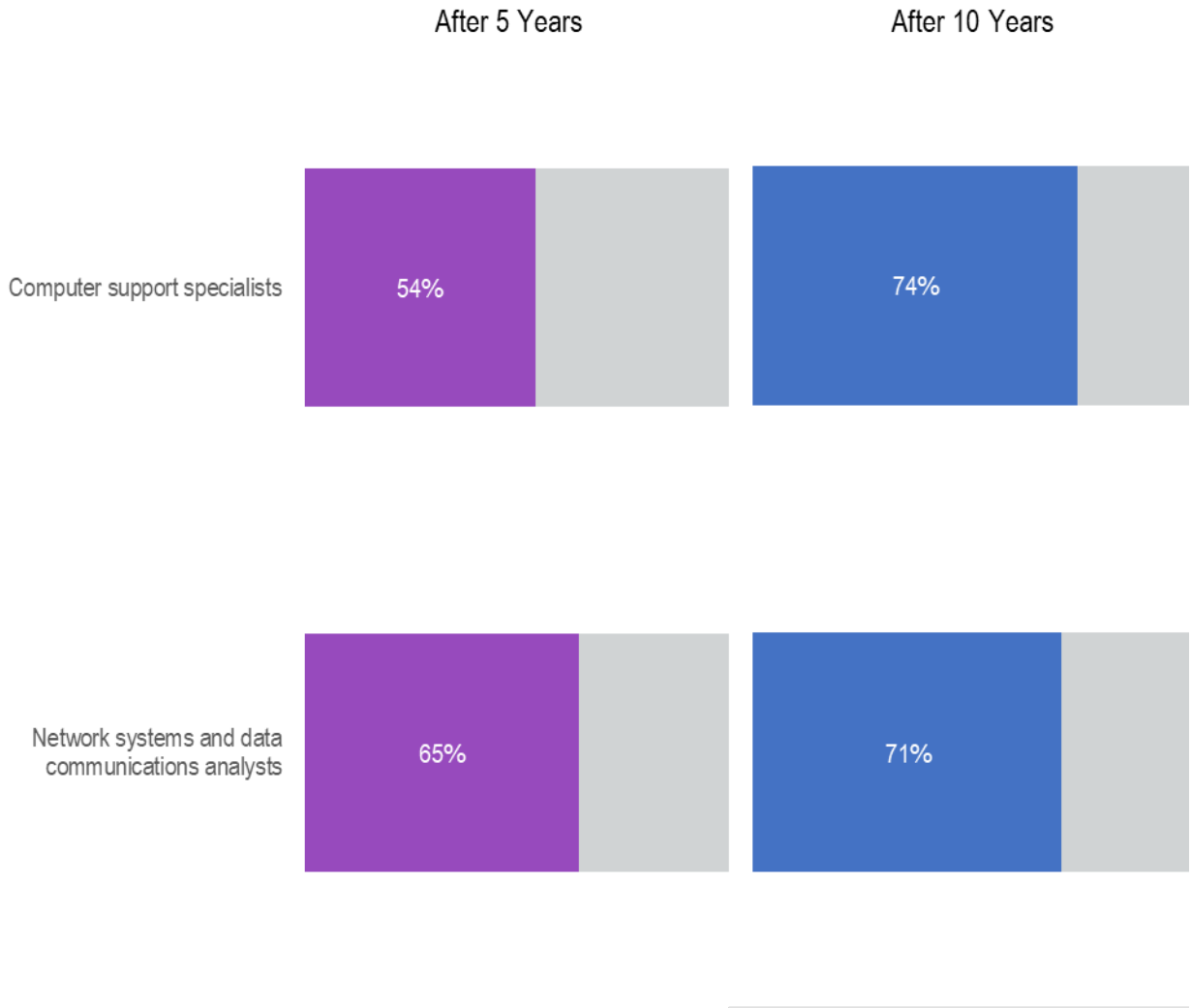


Note: Analyses include only occupations with data for at least 40 new entrants.
Source: NLSY:97 and Panel Study of Income Dynamics

FOR EACH OCCUPATION, HOW LIKELY IS IT THAT ENTRANTS WILL BE EARNING AT LEAST $25 PER HOUR FIVE OR 10 YEARS LATER?

Exhibit IT-4 shows the percentage of workers starting in each occupation who are earning $25 per hour or more five and 10 years after starting in the occupation. At five years, more than half of workers in both occupations are earning at least $25 per hour, but the proportion is higher for network systems and data communications analysts; by 10 years, more computer support specialists are earning at least $25 per hour, suggesting their wages continue to grow.

Exhibit IT-4. Proportion of Workers Earning $25 per Hour or More, at Five and 10 Years

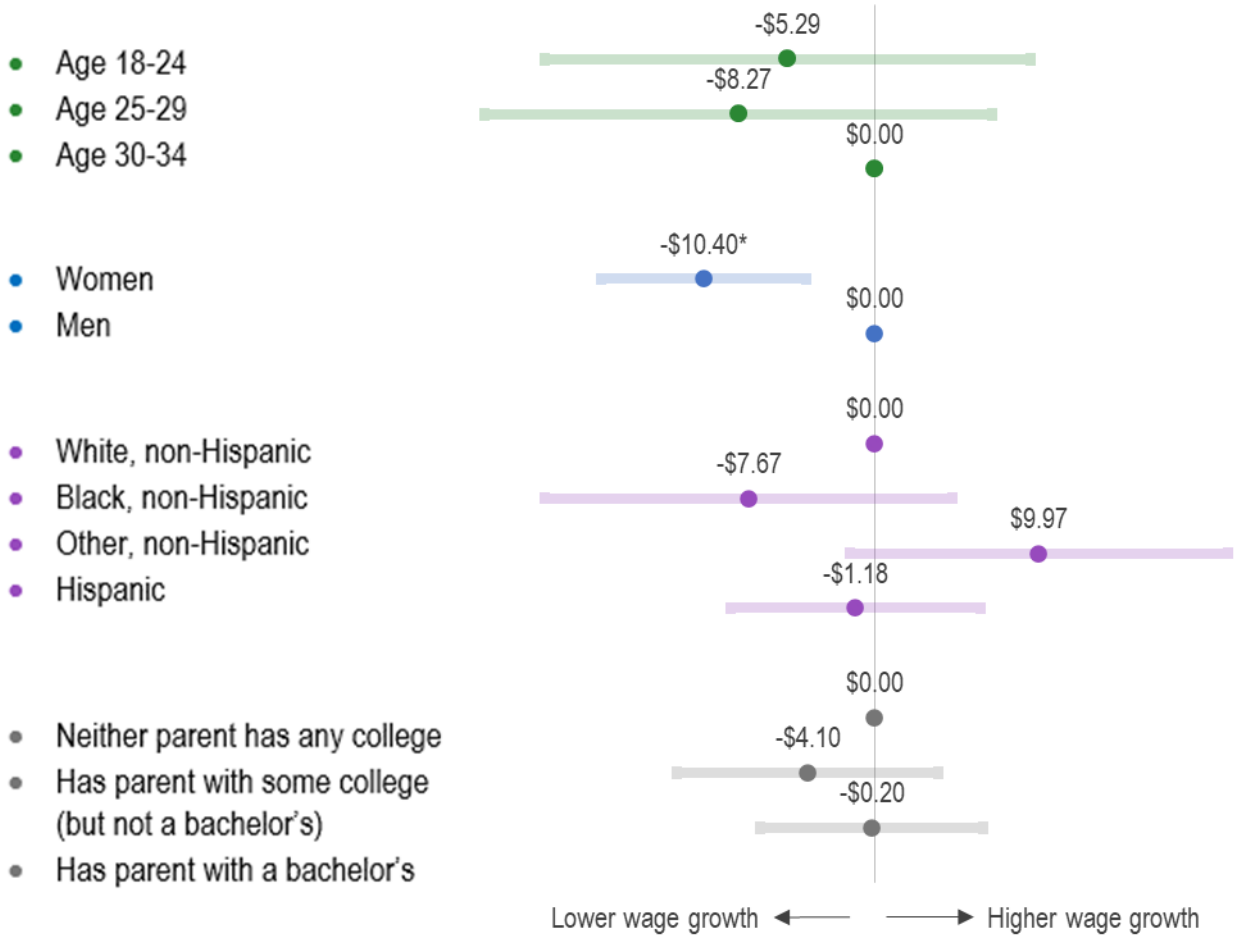


Note: *N*=353 after 5 years. *N*=219 after 10 years. The chart includes only occupations with data for at least 40 new entrants
Source for all graphs on this page: NLSY:97 and Panel Study of Income Dynamics

TO WHAT EXTENT DOES WAGE GROWTH VARY BASED ON DEMOGRAPHIC CHARACTERISTICS?

Exhibit IT-5 shows average differences in wages after 10 years of starting a job in information technology for workers with different demographic characteristics, including age, gender, race/ethnicity, and family socioeconomic status (as indicated by parents' educational status). The differences in wages over this 10-year period vary substantially by gender. As shown, compared to men, women entrants to information technology occupations are earning $10.40 less 10 years later. There are no significant differences in wage growth based on workers' age, race/ethnicity, or parents' educational attainment.

Exhibit IT-5. Ten-Year Wage Growth Differences Among Entrants to the Same Starting Occupation, by Worker's Age, Gender, Race/Ethnicity, and Parents' Educational Attainment

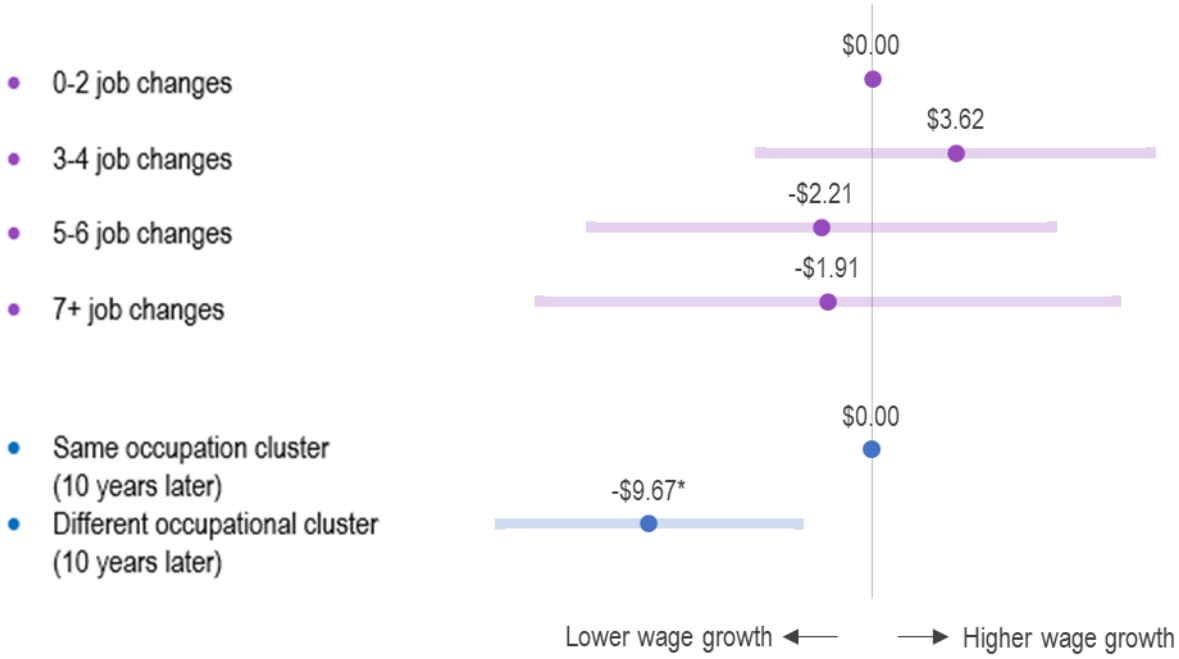


How to Read These Graphs: The dots represent the estimated difference in average wage growth for members of the given category, compared to members of the reference category who are otherwise similar (same starting occupation, starting wage, and demographic characteristics other than that one in question). Dots on the zero line are for the reference category itself (Age: 30-34; Gender: Men, Race/ethnicity: White non-Hispanic; Parental education: Neither parent has any college). Dots to the right indicate that, on average entrants from that demographic group experience more wage growth than do otherwise similar entrants from the reference category. For instance, 18-24-year-old entrants to an occupation see, on average, $5.29 per hour less in wage growth in the 10 years after entering the occupation compared to the otherwise similar 30-34-year-olds. The bars indicate how precise our estimates are (the 95 percent "confidence interval"); the actual wage difference could fall anywhere in that range, though they are more likely to fall toward the middle of the range than the ends.
Note: Estimates are drawn from OLS regressions that include occupation fixed effects and controls for the worker's starting wage in the occupation, data source, all of the individual-level characteristics above. Asterisks (*) indicate a statistically significant difference at the .05 level.
"Other, non-Hispanic" includes Asian Americans, Pacific Islanders, Native Americans, workers who report multiple racial identities, and workers who report no racial identity or Hispanic ethnicity. Those workers are grouped only because sample sizes are insufficient to consider each separately.
Source: NLSY97 and Panel Study of Income Dynamics

DO WORKERS WHO CHANGE JOBS WITHIN INFORMATION TECHNOLOGY OR LEAVE INFORMATION TECHNOLOGY EARN MORE OR LESS OVER 10 YEARS?

Exhibit IT-6 shows average differences in wages 10 years after entering an information technology occupation for workers with different numbers of job changes during this period. It shows the changes in wages for the number of job changes for those workers who stay in information technology or those who change to a different occupation. As shown, no evidence of a difference in wage growth based on how frequently workers in information technology change jobs is found. Some of the estimates indicate higher wage growth for those with three to four job changes (compared to two or fewer or five or more), but these estimates are imprecise, as indicated by the bars showing the confidence intervals. However, those who leave information technology occupations earn nearly $10 less per hour after 10 years compared to those who stay in information technology.

Exhibit IT-6. Ten-Year Wage Growth Differences, by Job and Occupational Cluster Changes During the 10-Year Trajectory



How to Read This Graph: The purple dots on this graph indicate the estimated difference in hourly wage growth 10 years after entering an occupation experienced for workers who made the stated number change, in comparison to the reference category (entrants who made 2 or fewer subsequent job changes). For example, entrants who change jobs 7 or more times over 10 years' experience, on average, $1.91 per hour less in wage growth over that same period than do otherwise similar entrants who make 2 or fewer job changes. The blue dots indicate the average difference in 10-year hourly wage growth between those who are working in a different occupational cluster than the one they had entered 10 years prior, in comparison to those who were still working in the same occupational cluster. The bars indicate how precise our estimates are (the 95 percent "confidence interval"); the actual wage difference could fall anywhere in that range, though they are more likely to fall toward the middle of the range than the ends.
Note: Estimates are drawn from OLS regressions that include controls for starting wage, data source, age, gender, race/ethnicity, starting education, parent education, and starting occupation. Asterisks (*) indicate a statistically significant difference at the .05 level.
Source: NLSY97 and Panel Study of Income Dynamics

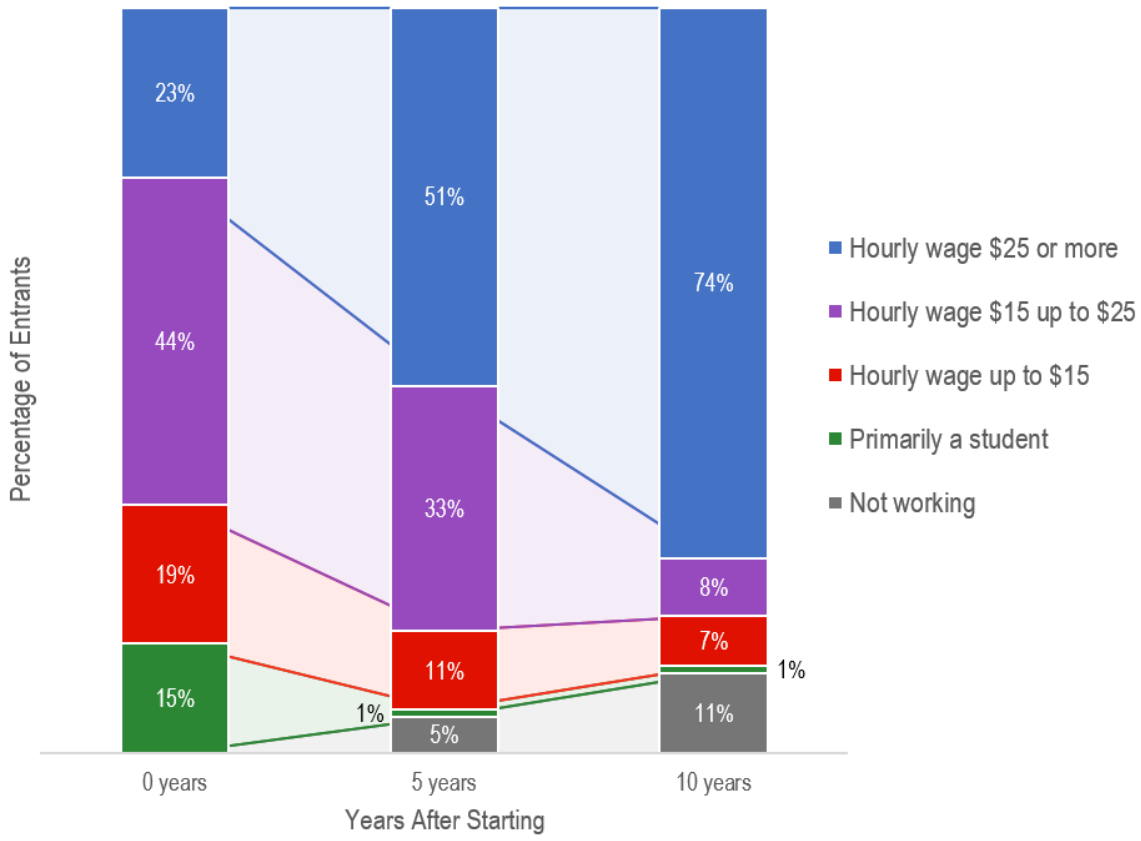
3. Individual Occupation Results

In this section, wage growth for specific information technology occupations is presented. The first set of charts shows 10-year wage trajectories for both mid-level Information technology occupations. These charts show employment status at the start of the trajectory and five and 10 years later. They include time spent not working or primarily as a student.

COMPUTER SUPPORT SPECIALISTS

Workers who start as Computer Support Specialists have an average starting wage of $20.48. Ten years later, 74 percent are earning at least $25 per hour (blue bar), as shown on Exhibit IT-7.

Exhibit IT-7. Computer Support Specialists

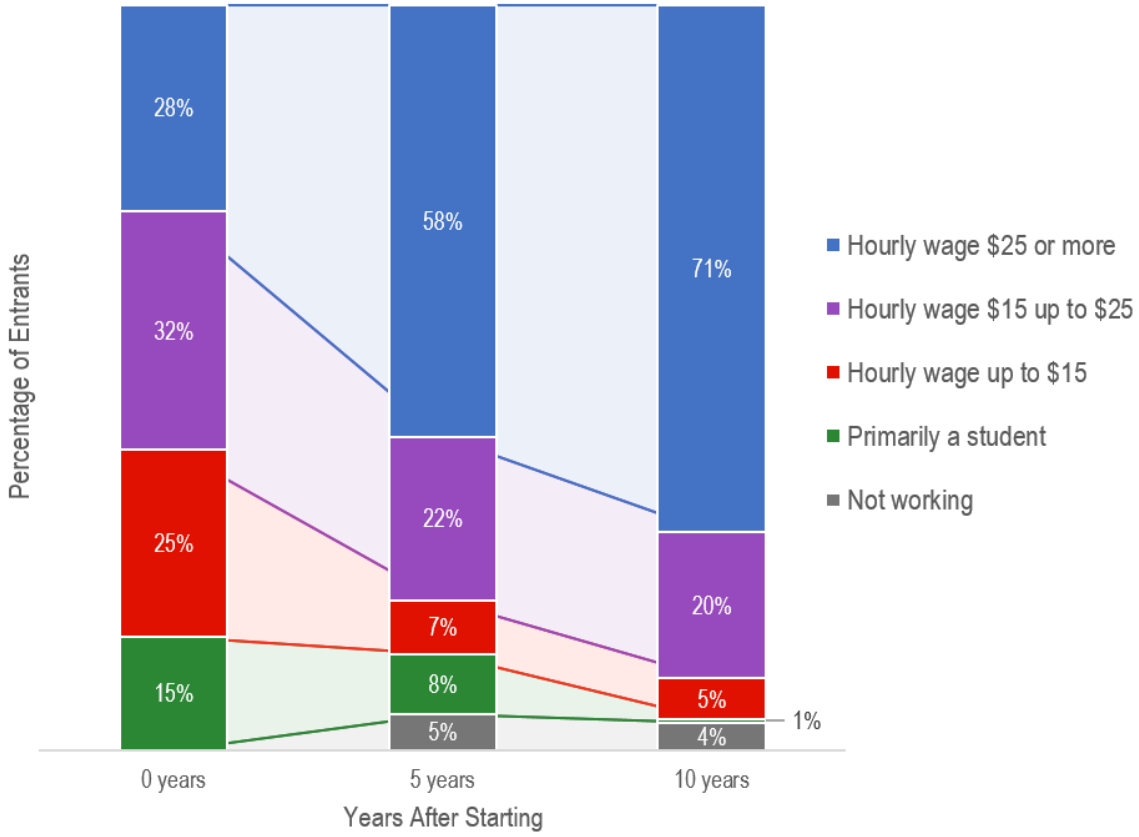


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, around 25 percent of workers are earning $25 per hour or more at entry, whereas around 75 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

NETWORK SYSTEMS AND DATA COMMUNICATIONS ANALYSTS

Workers who start as Network Systems and Data Communications Analysts have an average starting wage of $20.91. Ten years later, 71 percent are earning at least $25 per hour (blue bar), as shown on Exhibit IT-8.

Exhibit IT-8. Network Systems and Data Communications Analysts



How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, around 30 percent of workers are earning $25 per hour or more at entry, whereas around 70 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

4. Occupational Transitions Results

In identifying promising occupational transitions the study considers two factors: (1) the feasibility of an individual making the transition, as indicated by the relative frequency of that transition; and (2) whether the destination occupation leads to a higher wage. Each is discussed in turn below.

Exhibits IT-10 through IT-12 show the most common transitions from each "source" occupation to other "destination" occupations. The tables are ordered with the most common destination occupations first, and are color coded to show how the median wages of the source and destination occupations compare: green to indicate upward transitions, purple to indicate lateral transitions, and red to indicate downward transitions.[8] The 20 most common transitions are shown. The bar charts to the right of each table show the total proportion of transitions that are upward, lateral, or downward.

As noted, the transitions analyses use a more detailed occupational classification system. Exhibit IT-9 shows how the occupations included in the transitions analyses map to the occupations included in the earlier trajectories analyses.

Exhibit IT-9. Trajectory Occupations vs. Transitions Titles

Occupations Included in Trajectories Analyses (Broad Census Categories)	Corresponding SOC Code Titles Included in Occupational Transitions Analyses
Computer support specialists	*Computer User Support Specialists*
Network systems and data communications analysts	*Web Developers and Digital Interface Designers; Computer Network Architects*

[8] Transitions are categorized as follows: upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

COMPUTER USER SUPPORT SPECIALISTS

The most common subsequent jobs for Computer User Support Specialists are Network and Computer Systems Administrators (where workers earn $15.02 more per hour) and Project Management Specialists and Business Operations Specialists ($10.24 more per hour). About 68 percent of next occupations have higher median wages.

Exhibit IT-10. Computer User Support Specialists Transitions

Destination Occupation	Change in Median Wage
Network and Computer Systems Administrators	$15.02 ↑
Project Management Specialists and Business Operations Specialists, All Other	$10.24 ↑
Software Developers and Software Quality Assurance Analysts and Testers	$26.56 ↑
Customer Service Representatives	-$8.44 ↓
Computer Systems Analysts	$18.58 ↑
First-Line Supervisors of Office and Administrative Support Workers	$2.09 ↑
Management Analysts	$15.86 ↑
Computer Occupations, All Other	$17.44 ↑
Computer and Information Systems Managers	$45.24 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$7.01 ↓
Chief Executives	$63.55 ↑
General and Operations Managers	$23.32 ↑
Retail Salespersons	-$12.99 ↓
Web Developers and Digital Interface Designers	$10.33 ↑
Sales Managers	$35.76 ↑
Training and Development Specialists	$4.30 ↑
Information Security Analysts	$22.82 ↑
Social and Human Service Assistants	-$8.28 ↓
Marketing Managers	$40.66 ↑
First-Line Supervisors of Production and Operating Workers	$4.35 ↑

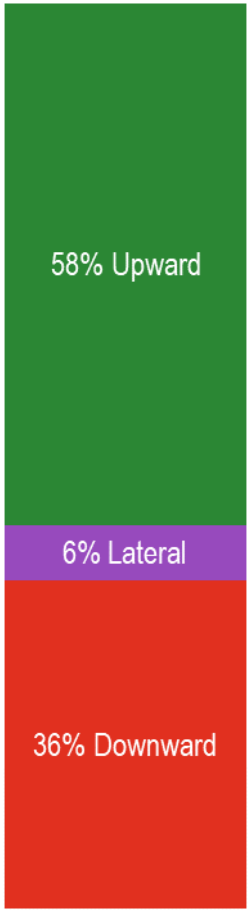
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

WEB DEVELOPERS AND DIGITAL INTERFACE DESIGNERS

The most common subsequent jobs for Web Developers and Digital Interface Designers are Software Developers and Software Quality Assurance Analysts and Testers (where workers earn $16.23 more per hour) and Computer Systems Analysts ($8.25 more per hour). About 58 percent of next occupations have higher median wages.

Exhibit IT-11. Web Developers and Digital Interface Designers Transitions

Destination Occupation	Change in Median Wage
Software Developers and Software Quality Assurance Analysts and Testers	$16.23 ↑
Computer Systems Analysts	$8.25 ↑
Graphic Designers	-$10.41 ↓
Marketing Managers	$30.33 ↑
Computer User Support Specialists	-$10.33 ↓
Chief Executives	$53.22 ↑
Project Management Specialists and Business Operations Specialists, All Other	-$0.09 -
Computer Programmers	$6.15 ↑
Computer Occupations, All Other	$7.11 ↑
Network and Computer Systems Administrators	$4.69 ↑
Market Research Analysts and Marketing Specialists	-$4.79 ↓
Computer and Information Systems Managers	$34.91 ↑
Management Analysts	$5.53 ↑
Public Relations Specialists	-$6.06 ↓
Industrial Engineers	$6.86 ↑
First-Line Supervisors of Office and Administrative Support Workers	-$8.24 ↓
General and Operations Managers	$12.99 ↑
Customer Service Representatives	-$18.77 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$17.34 ↓
Editors	-$5.96 ↓



How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

COMPUTER NETWORK ARCHITECTS

The most common subsequent jobs for Computer Network Architects are Network and Computer Systems Administrators (where workers earn $14.03 less per hour) and Computer User Support Specialists ($29.05 less per hour). About 13 percent of next occupations have higher median wages.

Exhibit IT-12. Computer Network Architects Transitions

Destination Occupation	Change in Median Wage
Network and Computer Systems Administrators	-$14.03 ↓
Computer User Support Specialists	-$29.05 ↓
Software Developers and Software Quality Assurance Analysts and Testers	-$2.49 ↓
Project Management Specialists and Business Operations Specialists, All Other	-$18.81 ↓
Computer and Information Systems Managers	$16.19 ↑
Computer Systems Analysts	-$10.47 ↓
Computer Occupations, All Other	-$11.61 ↓
First-Line Supervisors of Office and Administrative Support Workers	-$26.96 ↓
Management Analysts	-$13.19 ↓
Chief Executives	$34.50 ↑
Architectural and Engineering Managers	$15.45 ↑
Information Security Analysts	-$6.23 ↓
General and Operations Managers	-$5.73 ↓
Customer Service Representatives	-$37.49 ↓
Marketing Managers	$11.61 ↑
Electronics Engineers, Except Computer	-$3.42 ↓
Engineers, All Other	-$6.56 ↓
Sales Managers	$6.71 ↑
Mechanical Engineers	-$11.67 ↓
Industrial Engineers	-$11.86 ↓

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

E. Spotlight: Production/Manufacturing

Production/manufacturing occupations are of particular interest in the career pathways field and occupational training programs generally. Production/manufacturing is one of the most commonly targeted occupational clusters among career pathways programs. For example, in this project's meta-analysis of 46 career pathways programs, nearly half (48 percent) included training in production/manufacturing occupations (Peck et al., 2021).

1. Cluster Overview and Summary of Results

Exhibit P-1 summarizes the mid-level production/manufacturing occupations included in the trajectories analysis. It includes the occupations used in the trajectories analysis, common job titles, O*NET code, starting wage, and sample size for the 10-year follow-up period. Occupations for which there are fewer than 40 entrants with 10 years of follow-up data are italicized. These occupations in italics are *included* in analyses of the production/manufacturing cluster as a whole but are *excluded* from analyses presenting findings for individual occupations due to small sample sizes.

Exhibit P-1. Healthcare Occupations Included in this Analysis

Occupation Included in Trajectories Analyses (Broad Census Categories) (Shortened title)	Common Job Titles	O*Net Job Zone	Starting Wage ($)	N at 10 Years
Food batchmakers	*Blender Operator; Cocoa Powder Mixer Operator; Flavorings Compounder; Ice Cream Mixer; Mineral Mixer; Mixing Machine Operator; Processing Operator; Seasoning Mixer; Syrup Maker; Wine Blender*	*2.0*	*10.68*	*32*
Bakers	Baker; Dough Mixer; French Pastry Cook; Machine Operator; Pan Dumper; Pan Puller; Pastry Chef; Pie Baker; Processor; Sponge Maker	2.0	10.89	72
Photographic process workers and processing machine operators (Photographic workers)	*Drum Worker; Enlarger; Film Cleaner; Film Developer; Photo Lab Specialist; Photograph Mounter; Photograph Retoucher; Photographic Colorist; Reproduction Machine Loader; X-Ray Developer*	2.0	11.24	60
Packaging and filling machine operators and tenders (Packaging operators)	Ampoule Sealer; Bander; Bottle Labeler; Cylinder Filler; Filler Operator; Food Bagging Machine Operator; Machine Operator; Manufacturing Associate; Plug Overwrap Machine Tender; Tobacco Wrapping Machine Tender	2.0	11.30	167
Miscellaneous assemblers and fabricators (Assemblers)	Assembler; Chronometer Assembler; Dial Maker; Escapement Maker; Fiberglass Ski Maker; Hairspring Adjuster; Hairspring Setter; Manufacturing Associate; Respooler; Time Stamp Assembler	2.0	12.04	406
Printing machine operators	*Digital Press Operator; Electrotype Molder; Gravure Press Operator; Offset Lithographic Press Setter; Prepress Proofer; Press Operator; Roller Operator; Rotary Screen Printing Machine Operator; Tension Worker; Wallpaper Printer*	*2.0*	*12.83*	*38*
Electrical, electronics, and electromechanical assemblers(Electrical assemblers)	Breaker Unit Assembler; Cable Wirer; Cathode Ray Tube Assembler; Electrical Accessories Assembler; Factory Worker; Machine Assembler; Octave Board Assembler; Radio Assembler; Spider Assembler; Transformer Maker	2.0	12.90	67
Production workers, all other (Production workers)	Auto Dismantler; Dispatch, Machine Runner; Forklift Driver, Recycling and Waste Dock; Recovery Assistant; Recyclable Materials Sorter; Recycling Worker; Sort Line Worker; Sorter; Transfer Operator; Yard Assistant	2.0	12.92	406

Occupation Included in Trajectories Analyses (Broad Census Categories) (Shortened title)	Common Job Titles	O*Net Job Zone	Starting Wage ($)	N at 10 Years
Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic *(Grinding operators)*	*Abrasive Worker; Brush Polisher; Dry Sander; Gold-Nib Grinder; Grinder Setup Operator; Lapping Machine Set-Up Operator; Metal Furniture Polisher; Notch Grinder; Top Polisher; Valve Grinder*	*2.0*	*13.03*	*33*
Molders and molding machine setters, operators, and tenders, metal and plastic *(Molders)*	*Bench Molder; Core Machine Operator; Eight Arm Operator; Injection Molding Machine Tender; Injection Operator; Manufacturing Operator; Plastic Duplicator; Presser; Sand Slinger; Steel Molder*	*2.0*	*13.38*	*30*
Helpers–production workers (Helpers)	Booker; Cheesemaking Laborer; Chrome Plater Helper; Cleaner; Filler Room Attendant; Impregnator and Drier Helper; Liner Helper; Salvage Laborer; Shipfitter Helper; Tailings Dam Laborer	2.0	13.47	50
Cutting, punching, and press machine setters, operators, and tenders, metal and plastic (Cutting operators)	*Arbor Press Operator; Bliss Press Operator; Brake Machine Operator; Flying Shear Operator; Machining Associate; Metal Slitter; Setup Technician; Shear Operator; Sinter Press Operator; Zipper Trimmer*	2.0	13.97	44
Metalworkers and plastic workers, all other (Metalworkers)	*Electronic Equipment Set-Up Operator; Fence Machine Operator; Machine Coil Assembler; Nail-Making Machine Tender; Nozzle Tender; Rivet Catcher; Rivet Sticker; Rivet Tapping Machine Operator; Roper Operator; Spaghetti Machine Operator*	2.0	14.23	98
Inspectors, testers, sorters, samplers, and weighers (Inspectors)	*Box Inspector; Can Vacuum Tester; Clutch Inspector; Color Tester; Electrical Continuity Inspector; Hairspring Inspector; Live Ammunition Inspector; Roller Bearing Inspector; Test Driver; Towel Sorter*	2.0	14.42	234
Welding, soldering, and brazing workers (Welders)	*Acetylene Cutter; Die Welder; Electroslag Welding Machine Operator; Fabrication Welder; Flame Cutter; Gas Burner Operator; Lead Burner Apprentice; Machine Operator; Mechanic, Welder, Truck Driver; Scrap Burner*	2.3	15.75	119
Machinists	*Computer Numerically Controlled Machinist; Carbide Operator; Conventional Machinist; Experimental Mechanic; Geothermal Heat Pump Machinist; Jobber; Lathe Machinist; Machine Fitter; Maintenance Machinist; Mechanist*	*3.0*	*17.02*	*35*
First-line supervisors/managers of production and operating workers (Production supervisors)	*Candle Making Supervisor; Dry Paste Supervisor; Endless Belt Weaving Department Floor Supervisor; Glue Specialty Supervisor; Last Model Department Supervisor; Lubrication Supervisor; Maple Products Supervisor; Model and Pattern Supervisor; Receiving and Processing Supervisor; Tool Machine Shop Supervisor*	3.0	18.71	91

Notes: To determine the Job Zone we used the U.S. Bureau of Labor Statistics' O*NET Job Zone classifications to classify job levels. Because NLSY:97 and PSID use different systems to classify occupations, crosswalks are required. O*NET's occupational classifications are finer grained than Census classifications. As such, in some cases multiple O*NET codes correspond to a single Census code. In those cases, the Job Zone for the Census occupation is calculated as the simple average of the Job Zones for the set of corresponding O*NET codes. The study defined mid-level jobs as those with Job Zones of at least 2 but less than or equal to 3.8.
Sources: 2002 Census Occupations, O*NET Job Zones, NLSY:97 and Panel Study of Income Dynamics

As detailed below, the **key findings** for the production/manufacturing occupational cluster are:

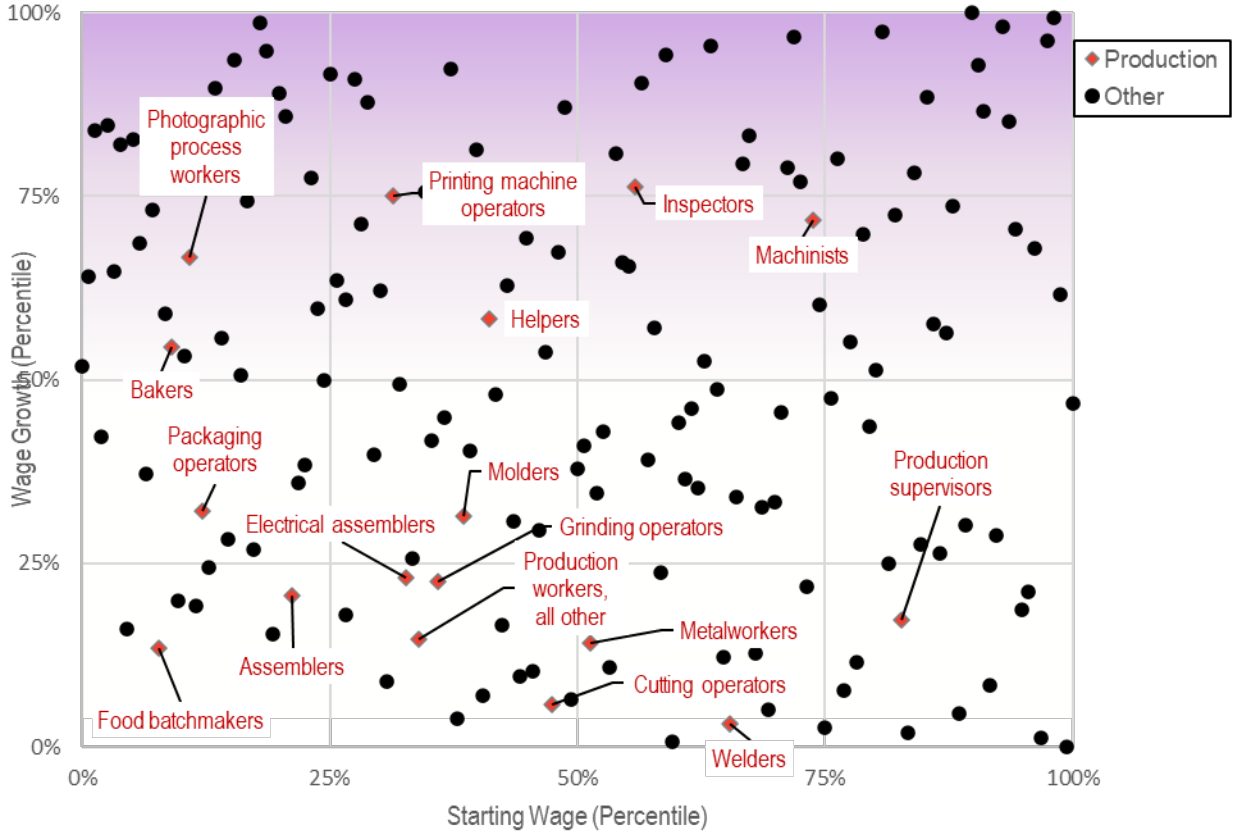
- Relative to mid-level occupations in other clusters, production/manufacturing occupations have below average wage growth. Weighted median wage growth over 10 years across production/manufacturing occupations is $5.28 per hour, compared to $7.36 per hour across all mid-level occupations.
- Production/manufacturing occupations vary widely in starting wages. At five years most occupations are below average in wage growth, but some are above average. By 10 years, nearly all occupations see below average wage growth.
- No occupations have a majority of workers making more than $25 per hour at 10 years; in general, there is not much of an increase in the percentage of workers making such family-sustaining wages from five to 10 years.
- There is a disparity in wage growth between men and women, with women earning $3.86 per hour less, on average, 10 years later. There are also disparities by race/ethnicity. Non-Hispanic Black workers are earning $4.29 less and Hispanic workers are earning $2.87 less per hour, on average, than non-Hispanic White workers 10 years later. Workers whose parents have a bachelor's degree are earning $4.97 more per hour, on average, 10 years later.
- There are no significant differences in wage growth based on the number of job changes or whether workers transition to jobs in another occupational cluster.

2. Occupational Cluster Results

HOW DO CAREER TRAJECTORIES FOR WORKERS IN PRODUCTION/MANUFACTURING JOBS COMPARE TO TRAJECTORIES FOR WORKERS OVERALL?

Mid-level production/manufacturing occupations vary in starting wages. Exhibit P-2 shows starting wages and wage growth for mid-level production/manufacturing occupations (indicated by red diamonds) in comparison to mid-level occupations overall (black dots). The occupations toward the right of the graph are those with the highest starting wages, and those at the top of the graph have higher wage growth. For example, printing machine operators have lower than average starting wages but see higher than average wage growth at five years. Welding, soldering, and brazing workers ("Welders" on the chart), on the other hand, have high starting wages but see lower than average wage growth.

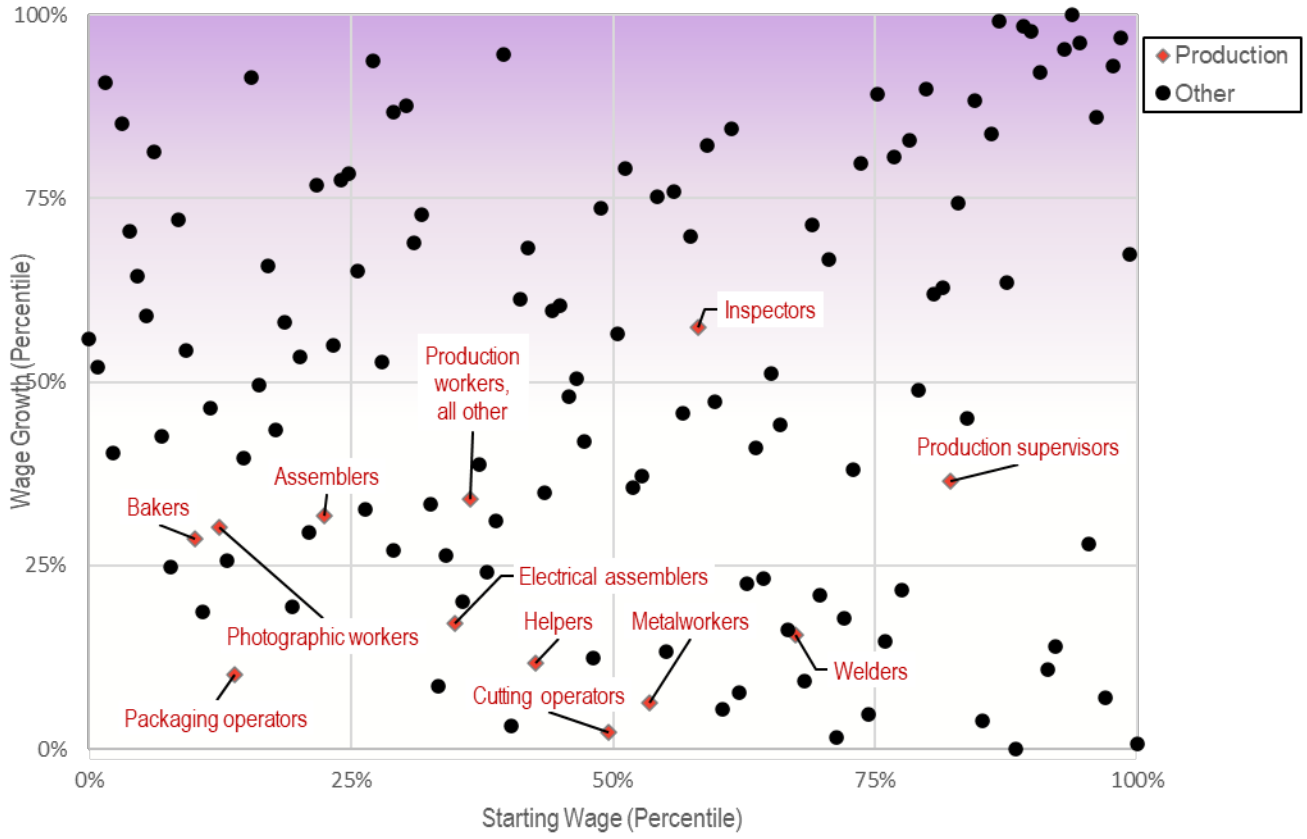
Exhibit P-2. Scatter Plot of Mid-Level Occupations' Starting Wages and Five-Year Wage Growth (in Dollars) Rank



Note: Analyses include only occupations with data for at least 40 new entrants.
Source: NLSY:97 and Panel Study of Income Dynamics

Ten years after starting a job, the only mid-level production/manufacturing occupation that sees higher than average wage growth is Inspectors, Testers, Sorters, Samplers and Weighers ("Inspectors" on the chart).

Exhibit P-3. Scatter Plot of Mid-Level Occupations' Starting Wages and 10-Year Wage Growth (in Dollars) Rank

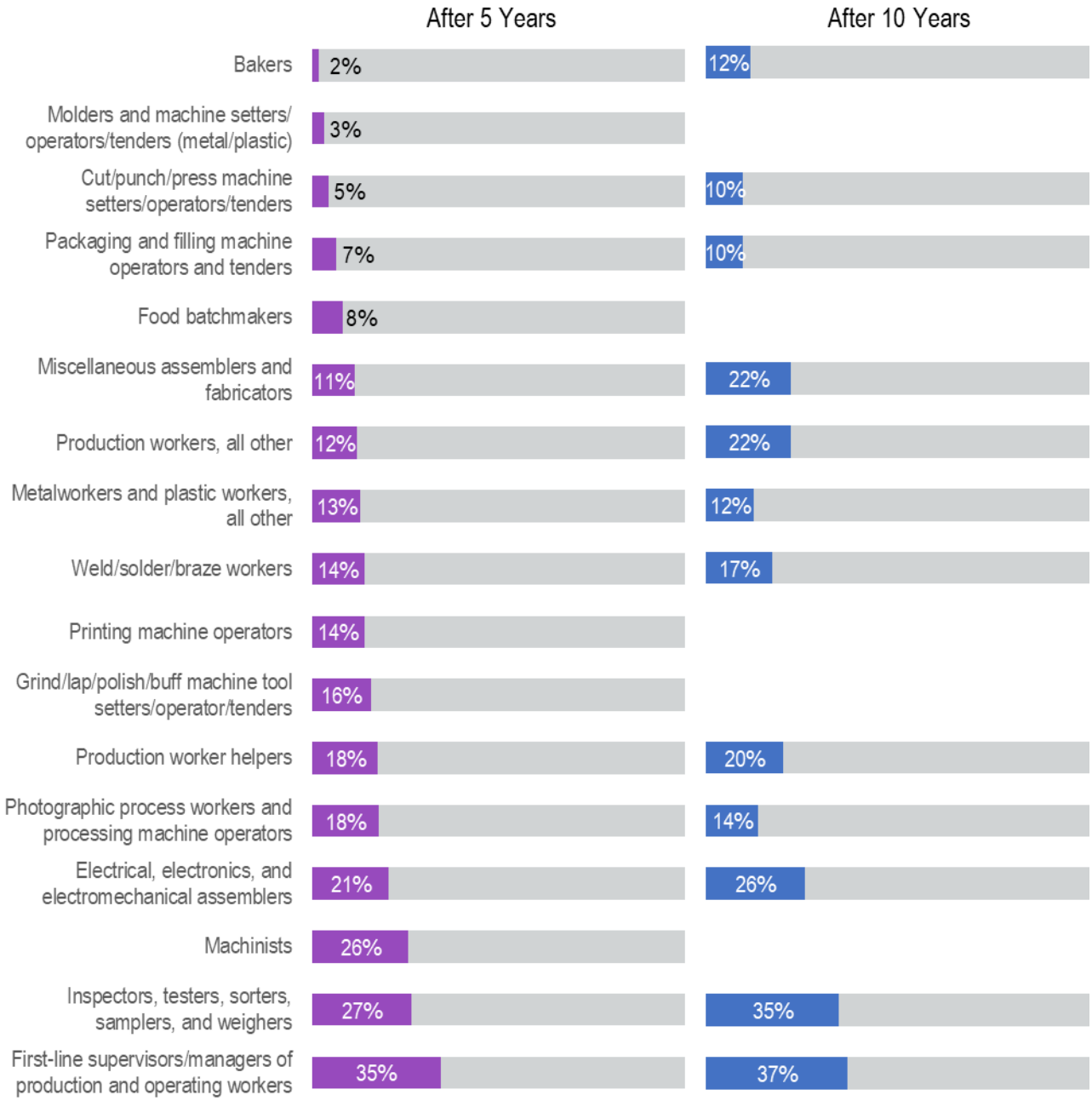


Note: Analyses include only occupations with data for at least 40 new entrants.
Source: NLSY:97 and Panel Study of Income Dynamics

FOR EACH OCCUPATION, HOW LIKELY IS IT THAT ENTRANTS WILL BE EARNING AT LEAST $25 PER HOUR FIVE OR 10 YEARS LATER?

Exhibit P-4 shows the percentage of workers starting in each occupation who are earning at least $25 per hour five and 10 years after starting in the occupation. The chart shows that generally there is not much wage growth between five and 10 years.

Exhibit P-4. Proportion of Workers Earning $25 per Hour or More, at Five and 10 Years

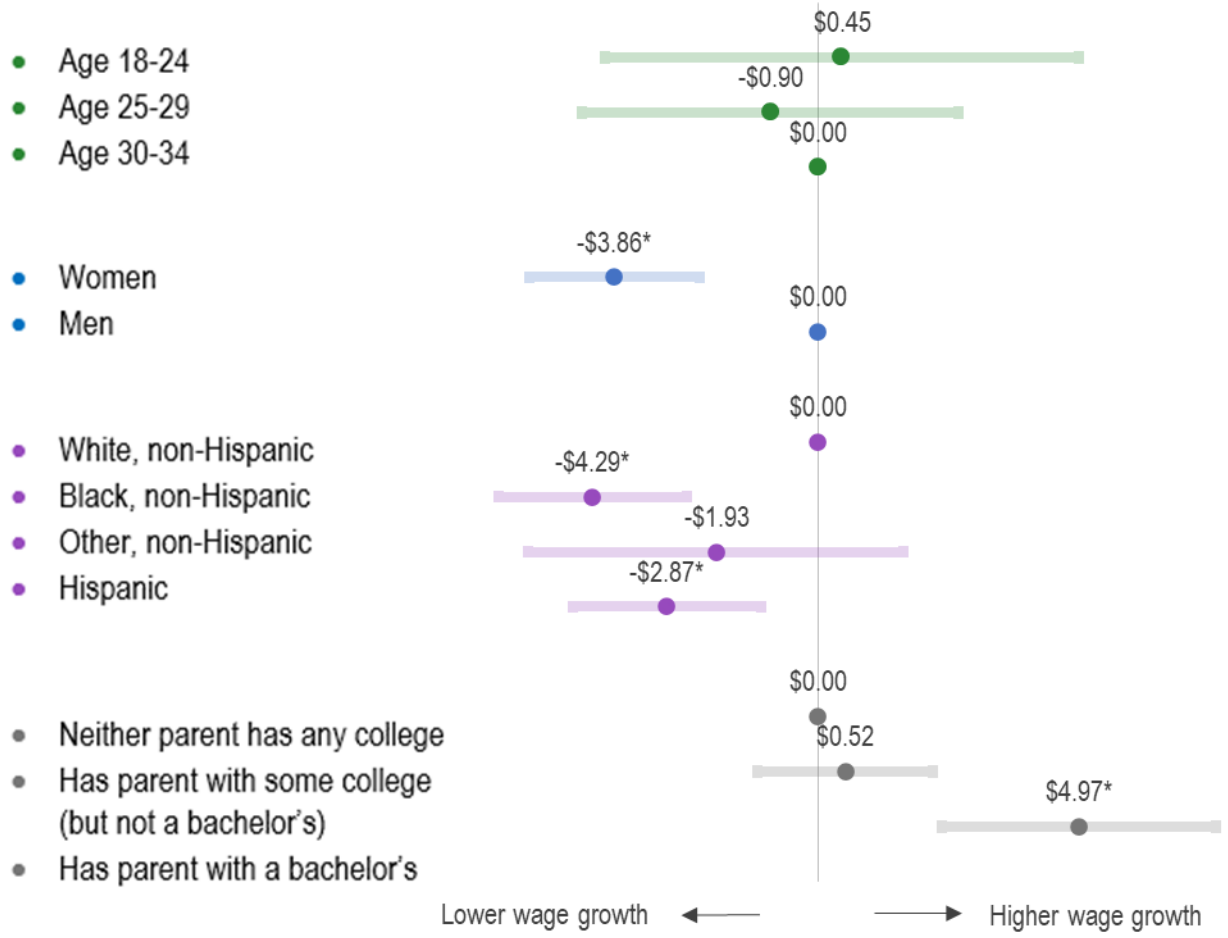


Note: *N*=2,752 after 5 years. *N*=1,814 after 10 years. The chart includes only occupations with data for at least 40 new entrants. Some occupations have a large enough sample observed for five years but the 10-year period sample is too small. Those occupations only have five-year findings shown.
Source for all graphs on this page: NLSY:97 and Panel Study of Income Dynamics

TO WHAT EXTENT DOES WAGE GROWTH VARY BASED ON DEMOGRAPHIC CHARACTERISTICS?

Exhibit P-5 shows average difference in wages after 10 years of starting a job in production/manufacturing for workers with different demographic characteristics, including age, gender, race/ethnicity, and family socioeconomic status (as indicated by parents' educational status). The differences in wages over this 10-year period vary substantially by race/ethnicity. As shown, compared to non-Hispanic White workers starting in the same occupation, non-Hispanic Black and Hispanic workers earn $4.29 less and $2.87 less per hour, respectively. Women earn $3.86 less per hour than men, and workers who have a parent with a bachelor's degree earn $4.97 more per hour. There are no significant differences in wage growth based on workers' age.

Exhibit P-5. Ten-Year Wage Growth Differences Among Entrants to the Same Starting Occupation, by Worker's Age, Gender, Race/Ethnicity, and Parents' Educational Attainment



How to Read These Graphs: The dots represent the estimated difference in average wage growth for members of the given category, compared to members of the reference category who are otherwise similar (same starting occupation, starting wage, and demographic characteristics other than that one in question). Dots on the zero line are for the reference category itself (Age: 30-34; Gender: Men, Race/ethnicity: White non-Hispanic; Parental education: Neither parent has any college). Dots to the right indicate that, on average entrants from that demographic group experience more wage growth than do otherwise similar entrants from the reference category. For instance, 18-24-year-old entrants to an occupation see, on average, $0.45 per hour more in wage growth in the 10 years after entering the occupation compared to the otherwise similar 30-34-year-olds. The bars indicate how precise our estimates are (the 95 percent "confidence interval"); the actual wage difference could fall anywhere in that range, though they are more likely to fall toward the middle of the range than the ends.

Note: Estimates are drawn from OLS regressions that include occupation fixed effects and controls for the worker's starting wage in the occupation, data source, all of the individual-level characteristics above. Asterisks (*) indicate a statistically significant difference at the .05 level.

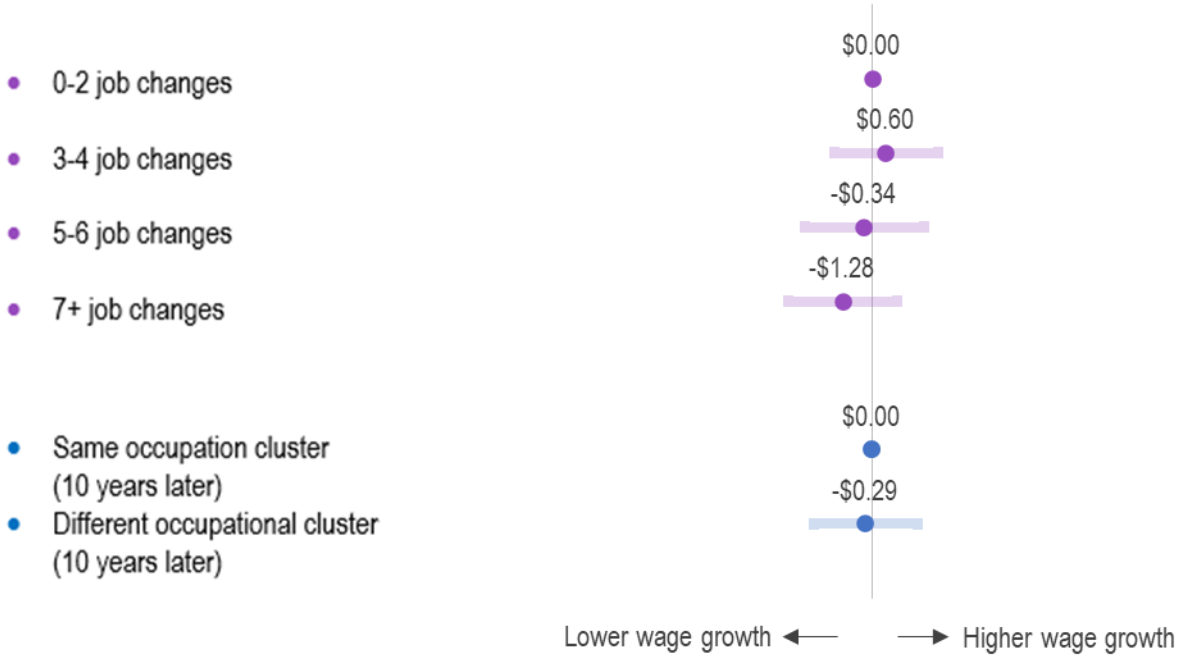
"Other, non-Hispanic" includes Asian Americans, Pacific Islanders, Native Americans, workers who report multiple racial identities, and workers who report no racial identity or Hispanic ethnicity. Those workers are grouped only because sample sizes are insufficient to consider each separately.

Source: NLSY97 and Panel Study of Income Dynamics

DO WORKERS WHO CHANGE JOBS WITHIN PRODUCTION/MANUFACTURING OR LEAVE PRODUCTION/MANUFACTURING EARN MORE OR LESS OVER 10 YEARS?

Exhibit P-6 shows average differences in wages 10 years after entering a production/manufacturing occupation for workers with different numbers of job changes during this period. It shows the changes in wages for the number of job changes for those workers who stay in production/manufacturing or those who change to a different occupation. As shown, no evidence of a difference in wage growth based on how frequently workers in production/manufacturing change jobs or on whether workers transition to jobs in a different field is found.

Exhibit P-6. Ten-Year Wage Growth Differences, by Job and Occupational Cluster Changes During the 10-Year Trajectory



How to Read This Graph: The purple dots on this graph indicate the estimated difference in hourly wage growth 10 years after entering an occupation experienced for workers who made the stated number change, in comparison to the reference category (entrants who made 2 or fewer subsequent job changes). For example, entrants who change jobs 7 or more times over 10 years' experience, on average, $1.28 per hour less in wage growth over that same period than do otherwise similar entrants who make 2 or fewer job changes. The blue dots indicate the average difference in 10- year hourly wage growth between those who are working in a different occupational cluster than the one they had entered 10 years prior, in comparison to those who were still working in the same occupational cluster. The bars indicate how precise our estimates are (the 95 percent "confidence interval"); the actual wage difference could fall anywhere in that range, though they are more likely to fall toward the middle of the range than the ends.
Note: Estimates are drawn from OLS regressions that include controls for starting wage, data source, age, gender, race/ethnicity, starting education, parent education, and starting occupation. Asterisks (*) indicate a statistically significant difference at the .05 level.
Source: NLSY97 and Panel Study of Income Dynamics

3. Individual Occupation Results

In this section, wage growth for specific production/manufacturing occupations is presented. The first set of charts shows 10-year wage trajectories for all production/manufacturing occupations. These charts show wage growth for different occupations at the start of the trajectory and at five and 10 years. They also show time spent not working or as a student.

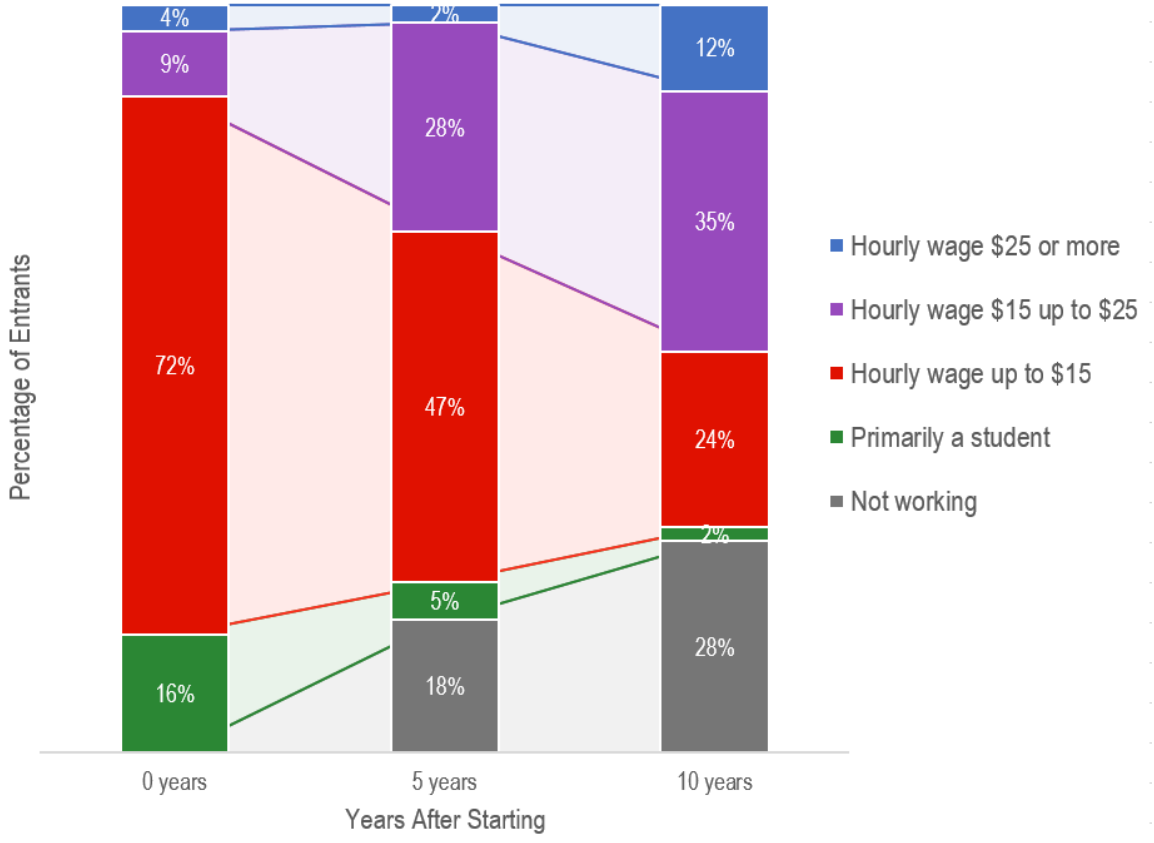
Electrical, Electronics, and Electromechanical Assemblers show relatively consistent wage growth over time, with the proportion of the chart that is purple or blue steadily increasing from the starting year to Year 5 and then from Year 5 to Year 10. In comparison, the chart for *Welding, Soldering, and Brazing Workers* shows a relatively stable proportion of workers earning more than $15 per hour from five to 10 years, suggesting wage growth may plateau over time.

The study also finds differences in educational patterns; for some occupations a portion of workers spend time primarily as a student (see *Photographic Process Workers and Processing Machine Operators*), whereas almost none do for other occupations (see *First-Line Supervisors/Managers of Production and Operating Workers* and *Electrical, Electronics, and Electromechanical Assemblers*).

BAKERS

Workers who start as Bakers have an average starting wage of $10.89 per hour. Ten years later, 12 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-7.

Exhibit P-7. Bakers

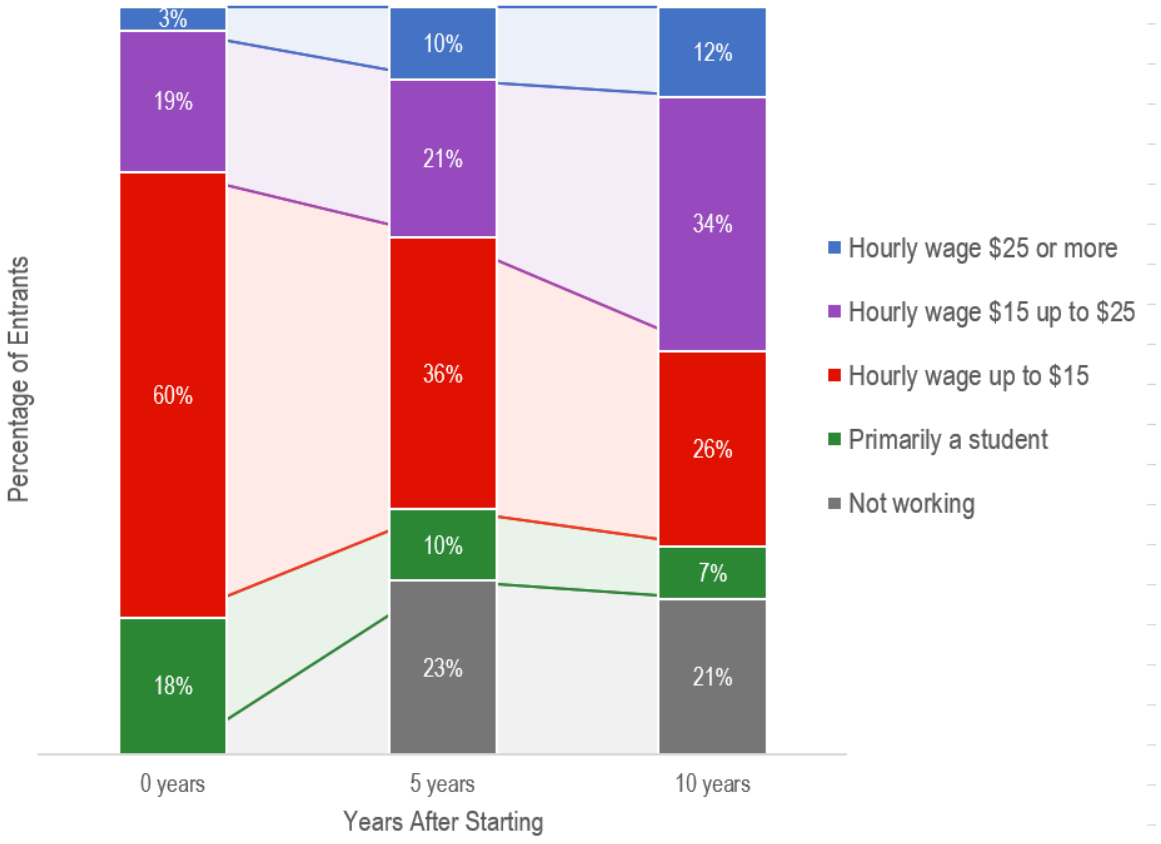


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 10 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

PHOTOGRAPHIC PROCESS WORKERS AND PROCESSING MACHINE OPERATORS

Workers who start as Photographic Process Workers and Processing Machine Operators have an average starting wage of $11.24 per hour. Ten years later, 12 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-8.

Exhibit P-8. Photographic Process Workers and Processing Machine Operators

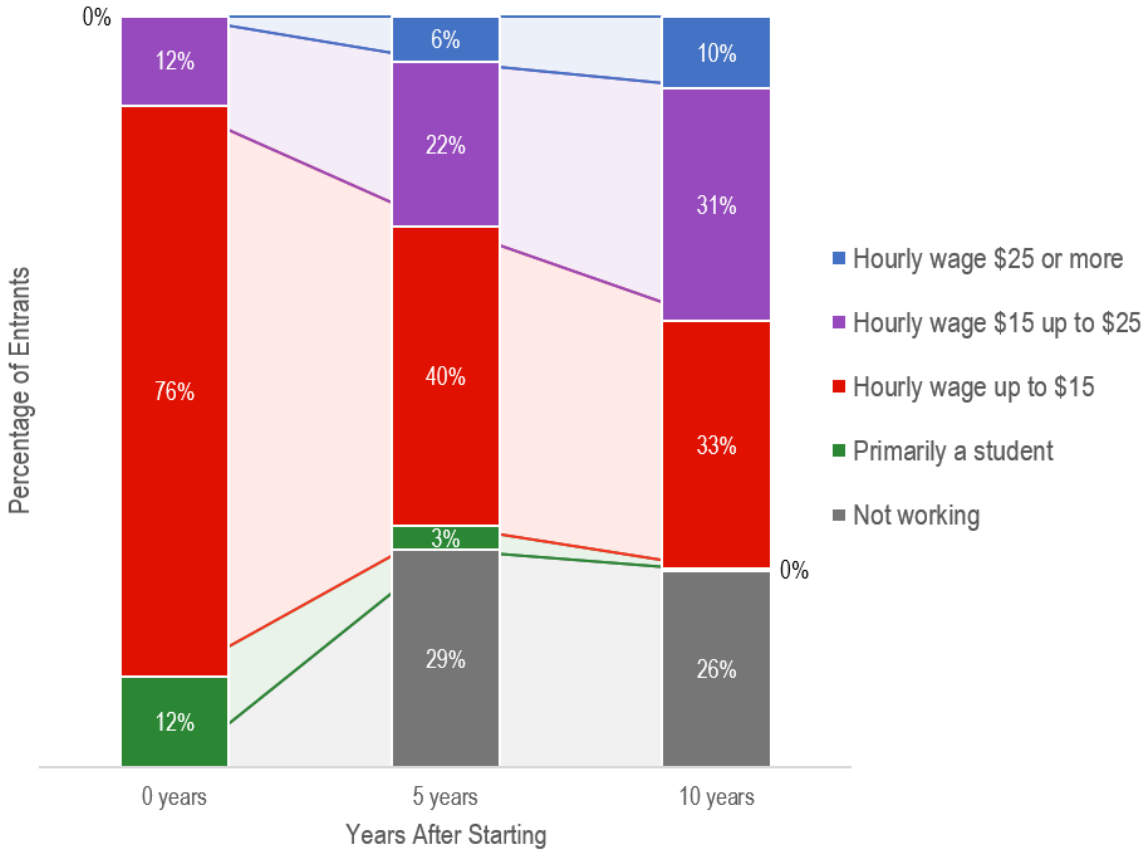


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 10 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

PACKAGING AND FILLING MACHINE OPERATORS AND TENDERS

Workers who start as Packaging and Filling Machine Operators and Tenders have an average starting wage of $11.30 per hour. Ten years later, 10 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-9.

Exhibit P-9. Packaging and Filling Machine Operators and Tenders

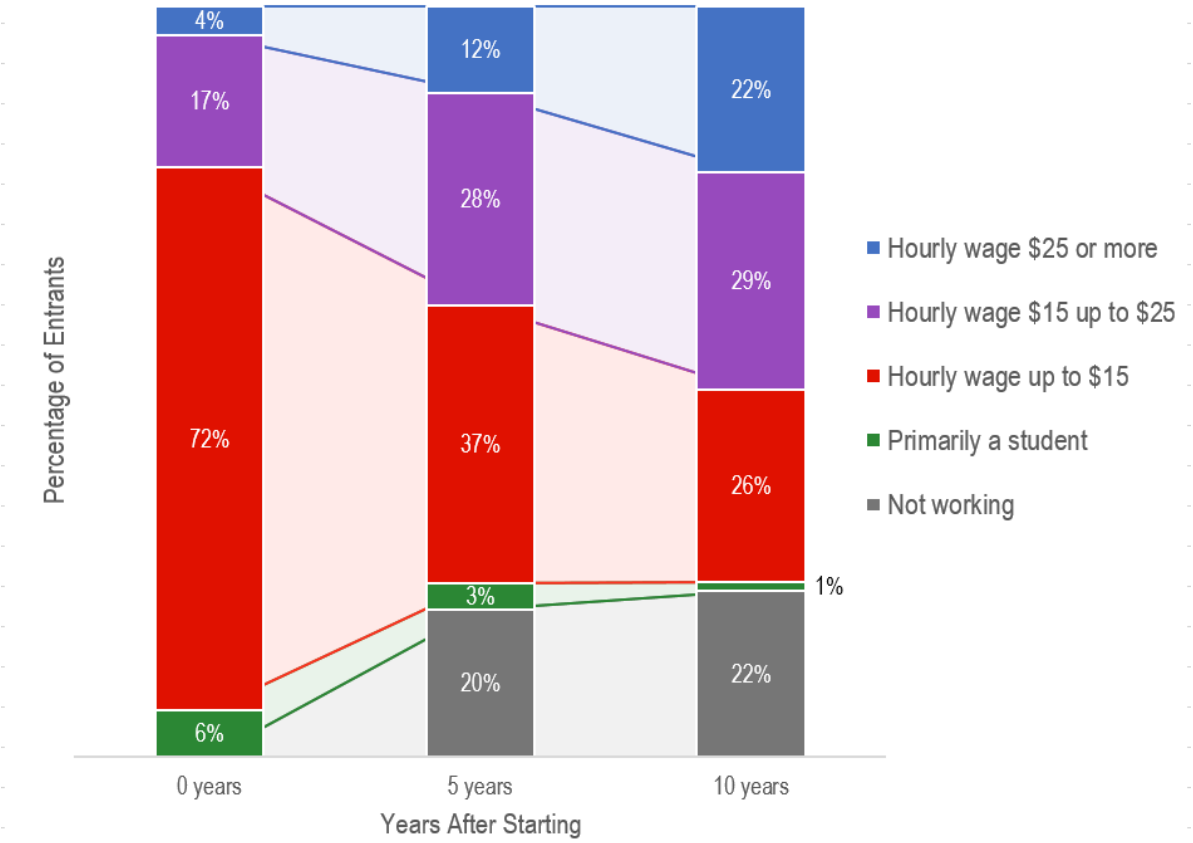


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 10 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

MISCELLANEOUS ASSEMBLERS AND FABRICATORS

Workers who start as Miscellaneous Assemblers and Fabricators have an average starting wage of $12.04 per hour. Ten years later, 22 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-10.

Exhibit P-10. Miscellaneous Assemblers and Fabricators

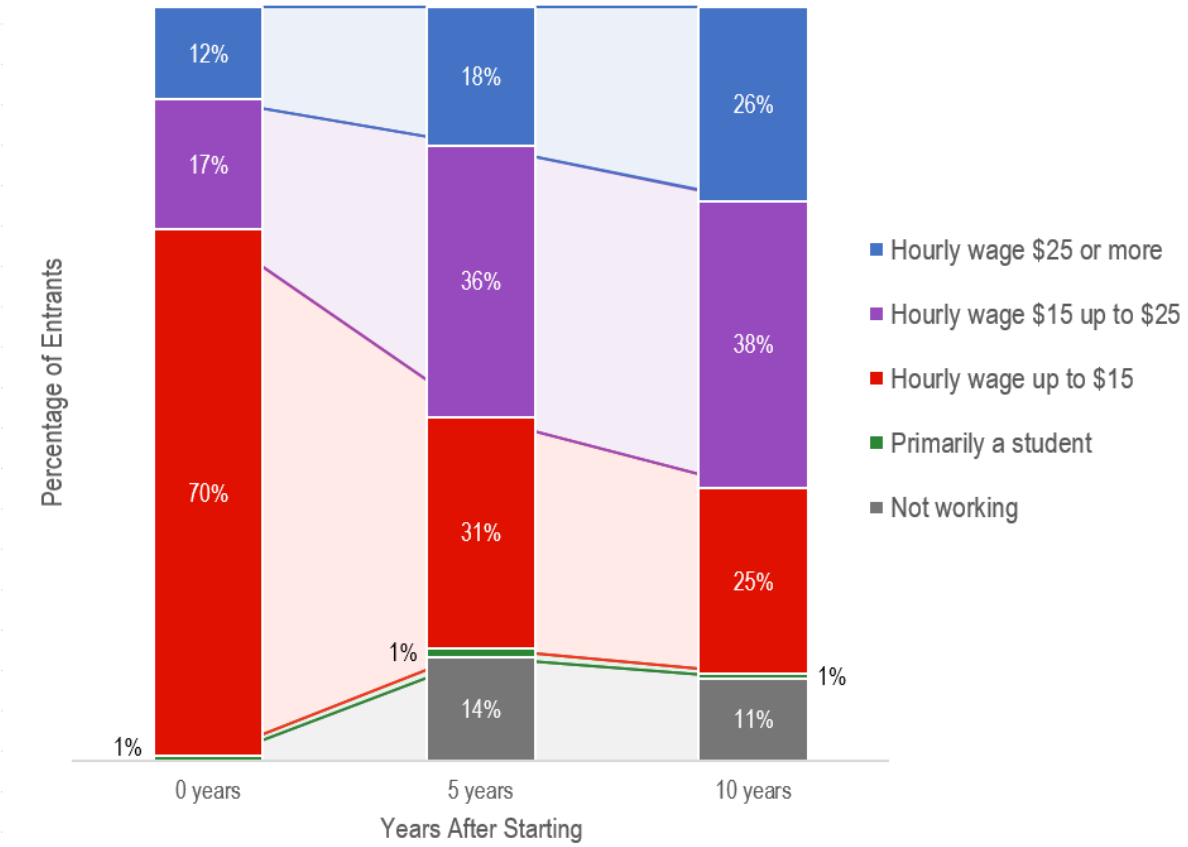


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 20 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

ELECTRICAL, ELECTRONICS, AND ELECTROMECHANICAL ASSEMBLERS

Workers who start as Electrical, Electronics, and Electromechanical Assemblers have an average starting wage of $12.90 per hour. Ten years later, 26 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-11.

Exhibit P-11. Electrical, Electronics, and Electromechanical Assemblers

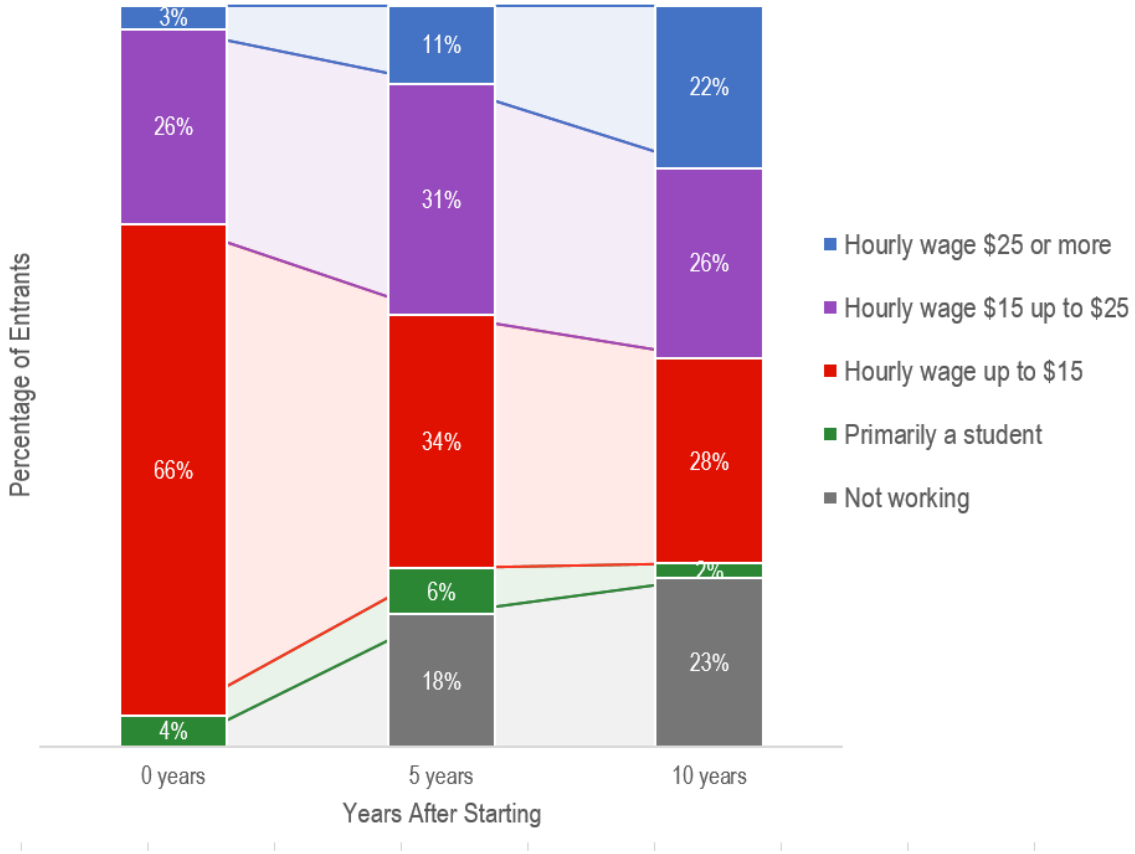


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 15 percent of workers are earning $25 per hour or more at entry, whereas around 25 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

ALL OTHER PRODUCTION WORKERS

Workers who start as All Other Production Workers have an average starting wage of $12.92 per hour. Ten years later, 22 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-12.

Exhibit P-12. All Other Production Workers

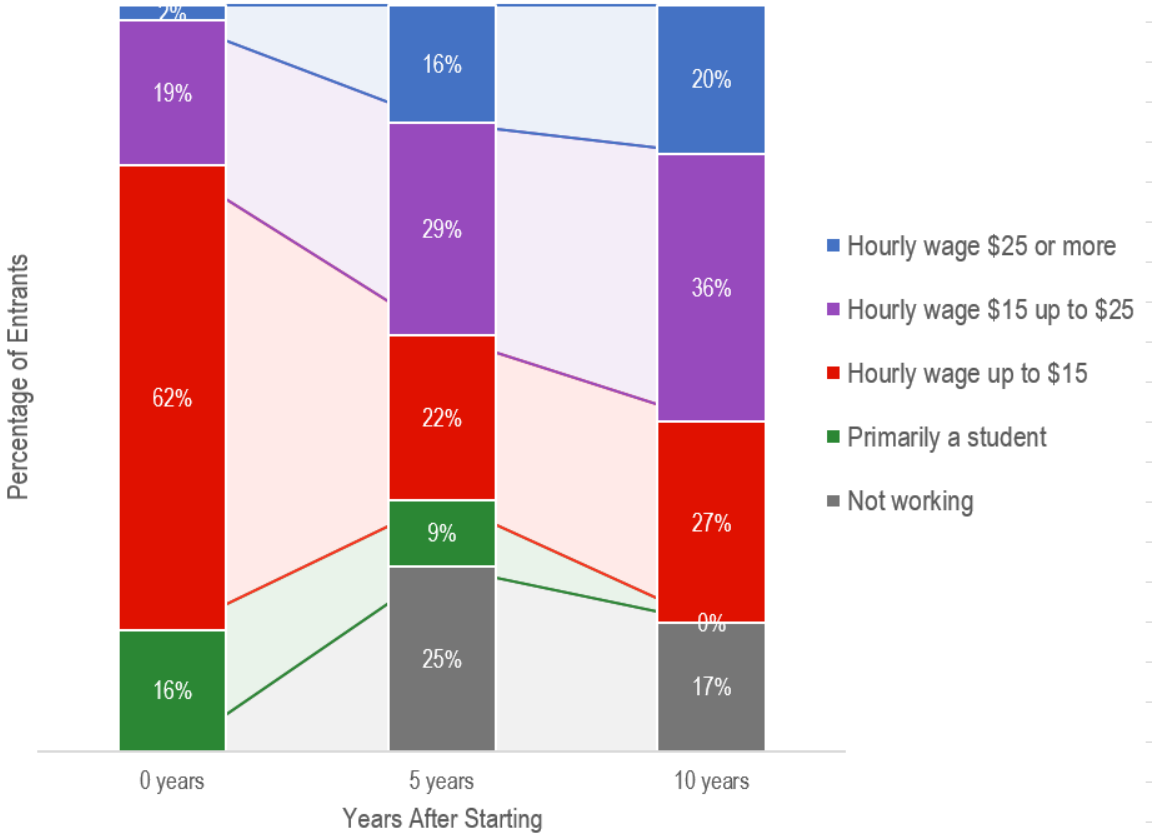


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 20 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

PRODUCTION WORKER HELPERS

Workers who start as Production Worker Helpers have an average starting wage of $13.47 per hour. Ten years later, 20 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-13.

Exhibit P-13. Production Worker Helpers

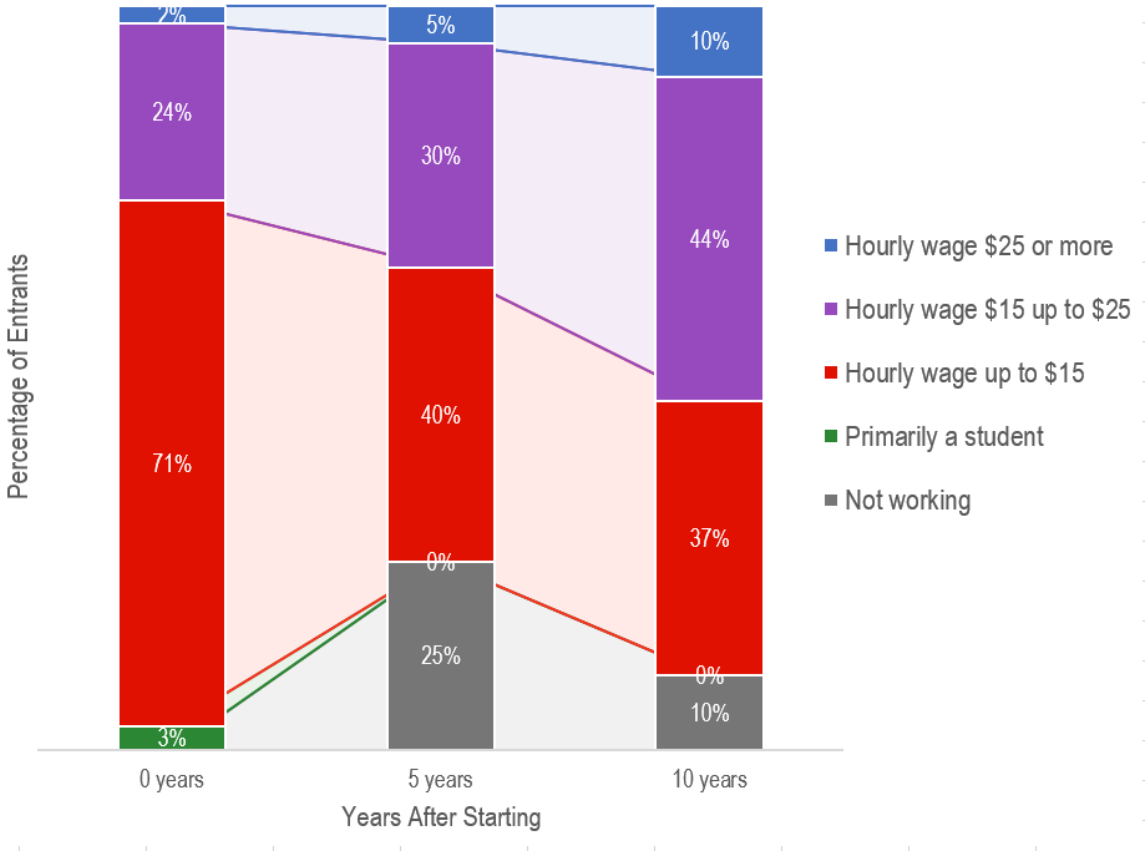


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 20 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

CUTTING, PUNCHING, AND PRESS MACHINE SETTERS, OPERATORS, AND TENDERS FOR METAL AND PLASTICS

Workers who start as Cutting, Punching, and Press Machine Setters, Operators, and Tenders for Metal and Plastics have an average starting wage of $13.97 per hour. Ten years later, 10 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-14.

Exhibit P-14. Cutting, Punching, and Press Machine Setters, Operators, and Tenders for Metal and Plastics

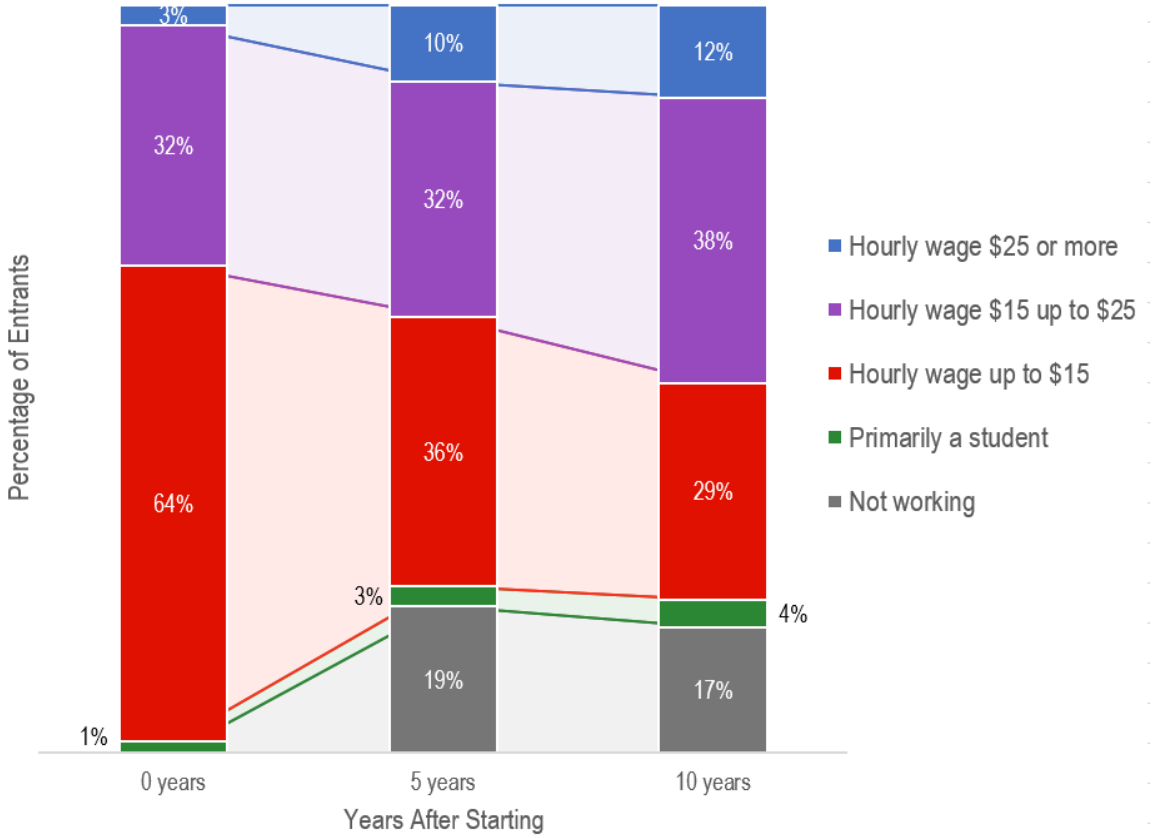


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 10 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

ALL OTHER METALWORKERS AND PLASTIC WORKERS

Workers who start as All Other Metalworkers and Plastic Workers have an average starting wage of $14.23 per hour. Ten years later, 12 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-15.

Exhibit P-15. All Other Metalworkers and Plastic Workers

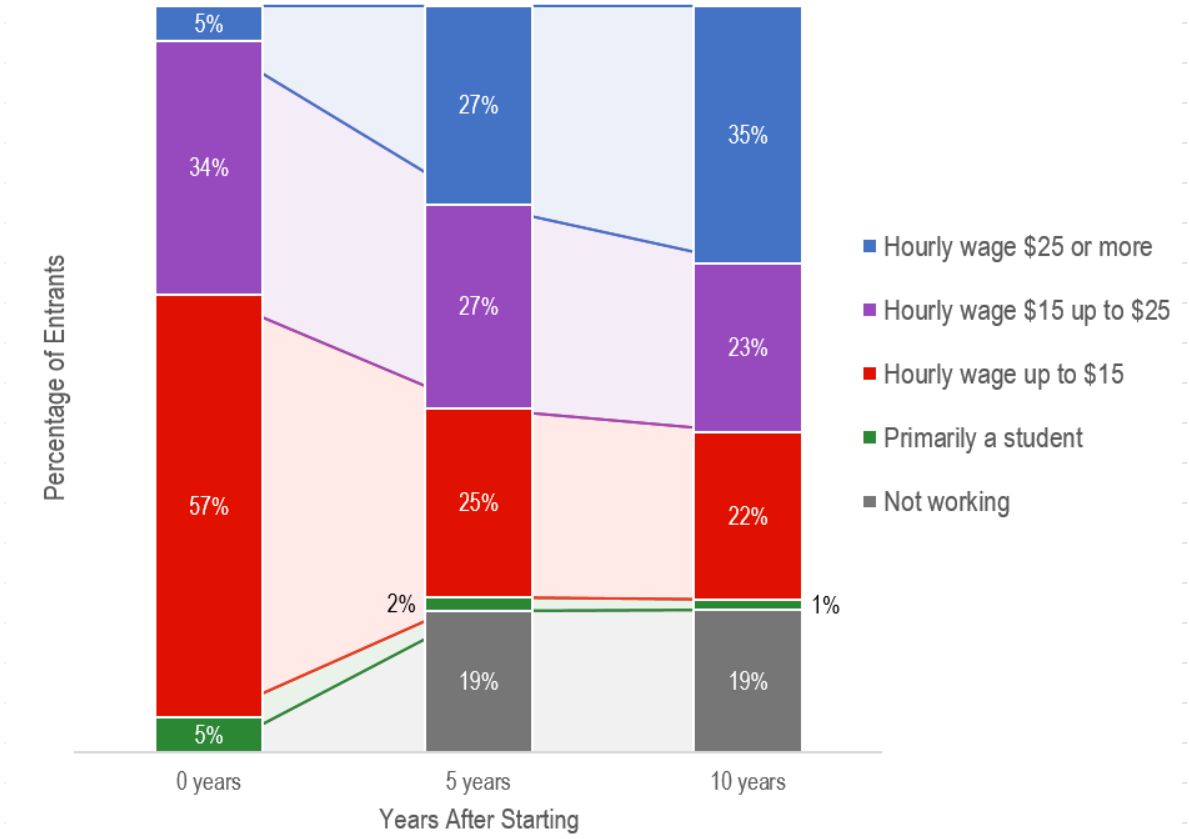


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 5 percent of workers are earning $25 per hour or more at entry, whereas around 10 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

INSPECTORS, TESTERS, SORTERS, SAMPLERS, AND WEIGHERS

Workers who start as Inspectors, Testers, Sorters, Samplers, and Weighers have an average starting wage of $14.42 per hour. Ten years later, 35 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-16.

Exhibit P-16. Inspectors, Testers, Sorters, Samplers, and Weighers

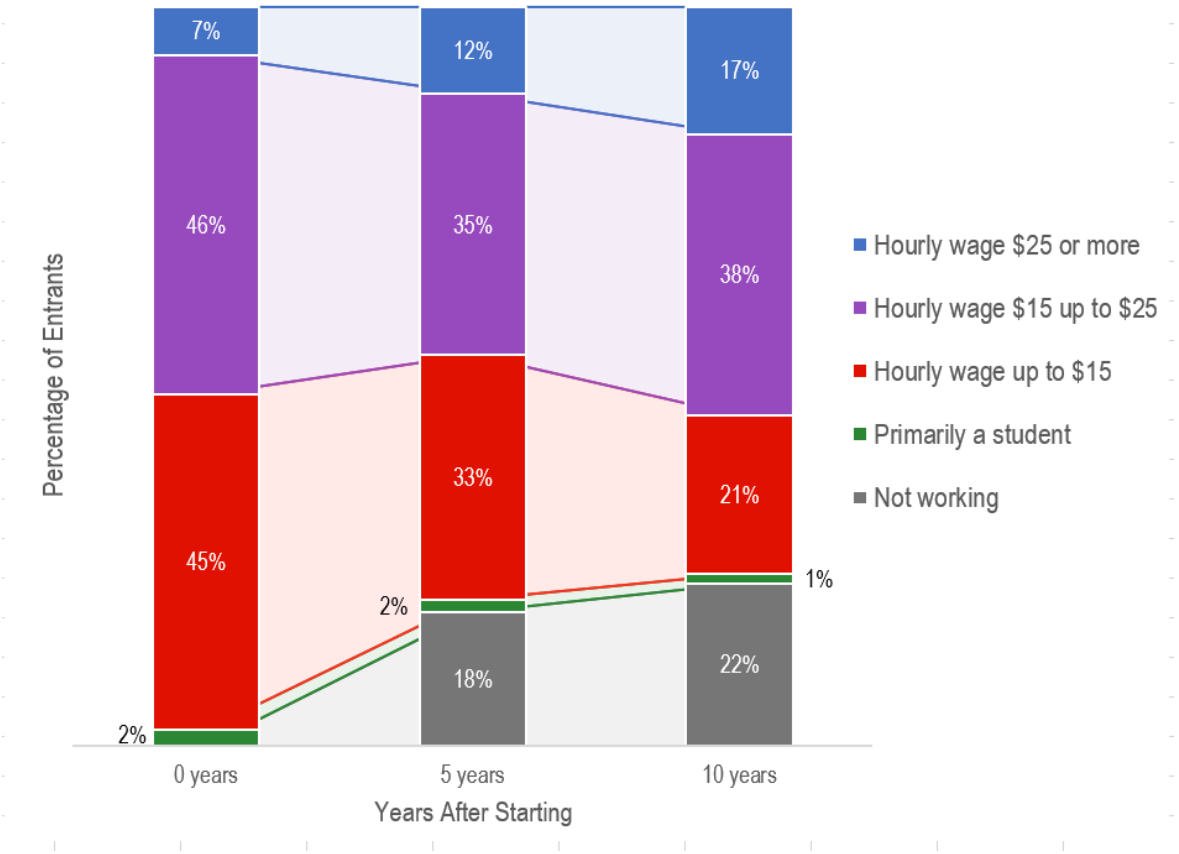


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, around 5 percent of workers are earning $25 per hour or more at entry, whereas around 35 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

WELDING, SOLDERING, AND BRAZING WORKERS

Workers who start as Welding, Soldering, and Brazing Workers have an average starting wage of $15.75 per hour. Ten years later, 17 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-17.

Exhibit P-17. Welding, Soldering, and Brazing Workers

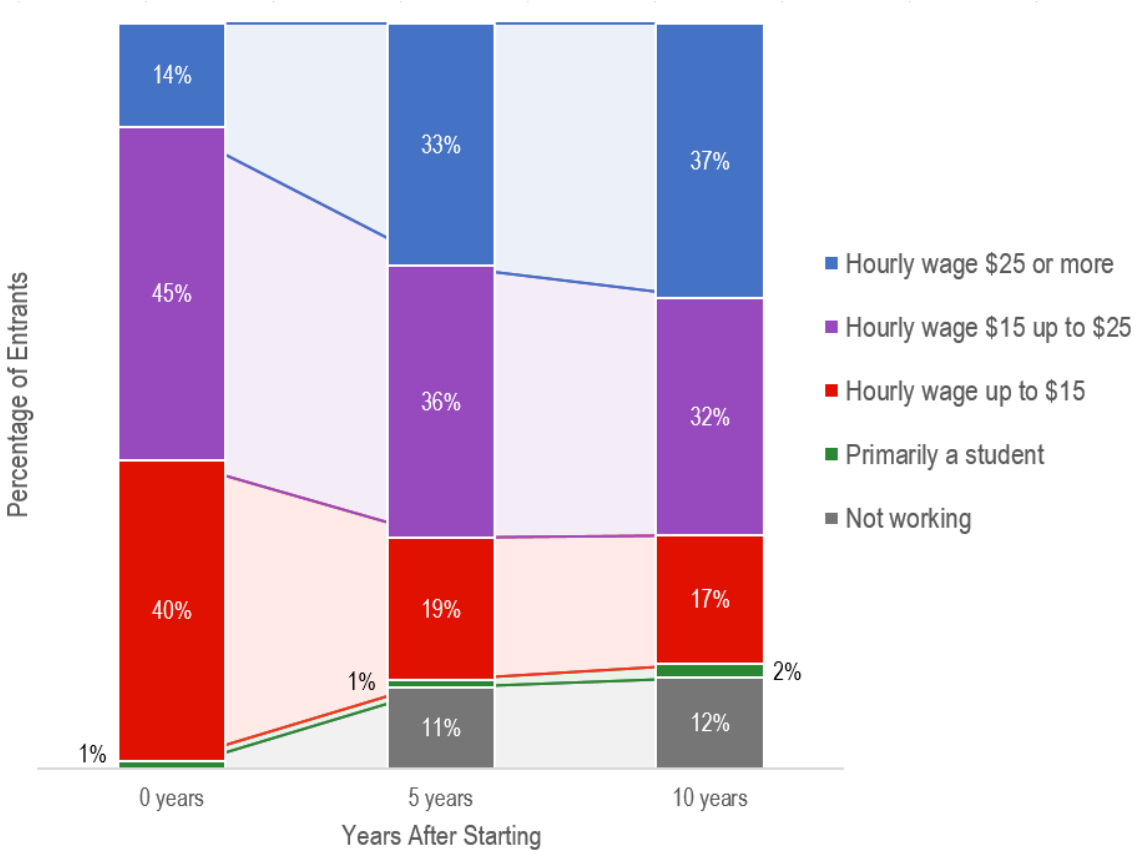


How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 10 percent of workers are earning $25 per hour or more at entry, whereas around 15 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

FIRST-LINE SUPERVISORS AND MANAGERS OF PRODUCTION AND OPERATING WORKERS

Workers who start as First-Line Supervisors/Managers of Production and Operating Workers have an average starting wage of $18.71 per hour. Ten years later, 37 percent are earning at least $25 per hour (blue bar), as shown on Exhibit P-18.

Exhibit P-18. First-Line Supervisors/Managers of Production and Operating Workers



How to Read This Graph: The bars in this graph show the status of workers at entry, 5 years, and 10 years after first starting in an occupation. The color blocks in each bar show the share of workers that fall into that category at that point in time. For example, less than 15 percent of workers are earning $25 per hour or more at entry, whereas around 40 percent are earning that much after 10 years.
Source: NLSY97 and Panel Study of Income Dynamics

4. Occupational Transitions Results

In identifying promising occupational transitions, the study considers two factors: (1) the feasibility of an individual making the transition, as indicated by the relative frequency of that transition; and (2) whether the destination occupation leads to a higher wage. Each is discussed in turn below.

Exhibits P-20 through P-40 show the most common transitions from each "source" occupation to other "destination" occupations. The tables are ordered with the most common destination occupations first, and are color coded to show how the median wages of the source and destination occupations compare: green to indicate upward transitions, purple to indicate lateral transitions, and red to indicate downward transitions.[9] The 20 most common transitions are shown. The bar charts to the right of each table show the total proportion of transitions that are upward, lateral, or downward.

As noted, the transitions analyses use a more detailed occupational classification system. Exhibit P-19 shows how the occupations included in the transitions analyses map to the occupations included in the earlier trajectories analyses.

Exhibit P-19. Trajectory Occupations vs. Transitions Titles

Occupations Included in Trajectories Analyses (Broad Census Categories)	Corresponding SOC Code Titles Included in Occupational Transitions Analyses
Food batchmakers	*Food Batchmakers*
Bakers	*Bakers*
Photographic process workers and processing machine operators	*Photographic Process Workers and Processing Machine Operators*
Packaging and filling machine operators and tenders	*Packaging and Filling Machine Operators and Tenders*
Miscellaneous assemblers and fabricators	*Miscellaneous Assemblers and Fabricators; Fiberglass Laminators and Fabricators; Timing Device Assemblers and Adjusters*
Printing machine operators	*Printing Press Operators*
Electrical, electronics, and electromechanical assemblers	*Electrical, Electronic, and Electromechanical Assemblers (except Coil Winders, Tapers, and Finishers);* *Coil Winders, Tapers, and Finishers*
Production workers, all other	*All Other Production Workers*
Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic	*Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders for Metal and Plastic*
Molders and molding machine setters, operators, and tenders, metal and plastic	*Foundry Mold and Coremakers;* *Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders for Metal and Plastic*
Helpers–production workers	*Production Worker Helpers*
Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	*Cutting, Punching, and Press Machine Setters, Operators, and Tenders for Metal and Plastic*
Inspectors, testers, sorters, samplers, and weighers	*Inspectors, Testers, Sorters, Samplers, and Weighers*
Welding, soldering, and brazing workers	*Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders; Welders, Cutters, Solderers, and Brazers*
Machinists	*Machinists*
First-line supervisors/managers of production and operating workers	*First-Line Supervisors of Production and Operating Workers*

[9] Transitions are categorized as follows: upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

FOOD BATCHMAKERS

The most common subsequent jobs for Food Batchmakers are Cashiers (where workers earn $3.43 less per hour) and Project Management Specialists and Business Operations Specialists ($20.57 more per hour). About 60 percent of next occupations have higher median wages.

Exhibit P-20. Food Batchmakers Transitions

Destination Occupation	Change in Median Wage
Cashiers	-$3.43 ↓
Project Management Specialists and Business Operations Specialists, All Other	$20.57 ↑
First-Line Supervisors of Production and Operating Workers	$14.68 ↑
Retail Salespersons	-$2.66 ↓
Customer Service Representatives	$1.89 -
Stockers and Order Fillers	-$1.64 -
First-Line Supervisors of Office and Administrative Support Workers	$12.42 ↑
Chief Executives	$73.88 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$3.32 ↑
Packaging and Filling Machine Operators and Tenders	$0.10 -
Laborers and Freight, Stock, and Material Movers, Hand	-$0.61 -
General and Operations Managers	$33.65 ↑
Fast Food and Counter Workers	-$3.87 ↓
Industrial Truck and Tractor Operators	$2.60 ↑
Waiters and Waitresses	-$3.80 ↓
Cooks, Restaurant	-$1.44 -
Computer User Support Specialists	$10.33 ↑
First-Line Supervisors of Food Preparation and Serving Workers	$1.26 -
Helpers--Production Workers	-$0.81 -
Production Workers, All Other	-$0.47 -

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

BAKERS

The most common subsequent jobs for Bakers are Chefs and Head Cooks (where workers earn $11.46 more per hour) and First-Line Supervisors of Food Preparation and Serving Workers ($2.74 more per hour). About 69 percent of next occupations have higher median wages.

Exhibit P-21. Bakers Transitions

Destination Occupation	Change in Median Wage
Chefs and Head Cooks	$11.46 ↑
First-Line Supervisors of Food Preparation and Serving Workers	$2.74 ↑
Cooks, Restaurant	$0.04 -
Project Management Specialists and Business Operations Specialists, All Other	$22.05 ↑
Customer Service Representatives	$3.37 ↑
Cashiers	-$1.95 -
Retail Salespersons	-$1.18 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$4.80 ↑
First-Line Supervisors of Office and Administrative Support Workers	$13.90 ↑
Fast Food and Counter Workers	-$2.39 ↓
First-Line Supervisors of Retail Sales Workers	$6.08 ↑
Waiters and Waitresses	-$2.32 ↓
Food Preparation Workers	-$1.40 -
Chief Executives	$75.36 ↑
General and Operations Managers	$35.13 ↑
Stockers and Order Fillers	-$0.16 -
First-Line Supervisors of Production and Operating Workers	$16.16 ↑
Painting, Coating, and Decorating Workers	$2.52 ↑
Computer User Support Specialists	$11.81 ↑
Laborers and Freight, Stock, and Material Movers, Hand	$0.87 -

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PHOTOGRAPHIC PROCESS WORKERS AND PROCESSING MACHINE OPERATORS

The most common subsequent jobs for Photographic Process Workers and Processing Machine Operators are Customer Service Representatives (where workers earn $1.17 more per hour) and Photographers ($1.92 more per hour). About 64 percent of next occupations have higher median wages.

Exhibit P-22. Photographic Process Workers and Processing Machine Operators Transitions

Destination Occupation	Change in Median Wage
Customer Service Representatives	$1.17 -
Photographers	$1.92 -
Project Management Specialists and Business Operations Specialists, All Other	$19.85 ↑
Graphic Designers	$9.53 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$2.60 ↑
Retail Salespersons	-$3.38 ↓
First-Line Supervisors of Office and Administrative Support Workers	$11.70 ↑
Computer User Support Specialists	$9.61 ↑
Cashiers	-$4.15 ↓
First-Line Supervisors of Production and Operating Workers	$13.96 ↑
Chief Executives	$73.16 ↑
Editors	$13.98 ↑
Loan Interviewers and Clerks	$4.02 ↑
Producers and Directors	$20.26 ↑
Bookkeeping, Accounting, and Auditing Clerks	$4.30 ↑
General and Operations Managers	$32.93 ↑
First-Line Supervisors of Retail Sales Workers	$3.88 ↑
Pharmacy Technicians	$0.80 -
Stockers and Order Fillers	-$2.36 ↓
Office Clerks, General	$0.85 -

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PACKAGING AND FILLING MACHINE OPERATORS AND TENDERS

The most common subsequent jobs for Packaging and Filling Machine Operators and Tenders are Laborers and Freight, Stock, and Material Movers (where workers earn $0.71 less per hour) and Stockers and Order Fillers ($1.74 less per hour). About 58 percent of next occupations have higher median wages.

Exhibit P-23. Packing and Filling Machine Operators and Tenders Transitions

Destination Occupation	Change in Median Wage
Laborers and Freight, Stock, and Material Movers, Hand	-$0.71 -
Stockers and Order Fillers	-$1.74 -
First-Line Supervisors of Production and Operating Workers	$14.58 ↑
Industrial Truck and Tractor Operators	$2.50 ↑
Customer Service Representatives	$1.79 -
Project Management Specialists and Business Operations Specialists, All Other	$20.47 ↑
Inspectors, Testers, Sorters, Samplers, and Weighers	$3.92 ↑
Production Workers, All Other	-$0.57 -
Cashiers	-$3.53 ↓
Miscellaneous Assemblers and Fabricators	$0.65 -
Maintenance and Repair Workers, General	$3.89 ↑
First-Line Supervisors of Office and Administrative Support Workers	$12.32 ↑
Retail Salespersons	-$2.76 ↓
Helpers--Production Workers	-$0.91 -
Heavy and Tractor-Trailer Truck Drivers	$6.86 ↑
Shipping, Receiving, and Inventory Clerks	$1.54 -
Computer User Support Specialists	$10.23 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$3.22 ↑
Machinists	$6.46 ↑
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	-$1.71 -

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MISCELLANEOUS ASSEMBLERS AND FABRICATORS

The most common subsequent jobs for Miscellaneous Assemblers and Fabricators are First-Line Supervisors of Production and Operating Workers (where workers earn $13.93 more per hour) and Customer Service Representatives ($1.14 more per hour). About 60 percent of next occupations have higher median wages.

Exhibit P-24. Miscellaneous Assemblers and Fabricators Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$13.93 ↑
Customer Service Representatives	$1.14 -
Project Management Specialists and Business Operations Specialists, All Other	$19.82 ↑
Stockers and Order Fillers	-$2.39 ↓
Inspectors, Testers, Sorters, Samplers, and Weighers	$3.27 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$1.36 -
Retail Salespersons	-$3.41 ↓
Packaging and Filling Machine Operators and Tenders	-$0.65 -
Cashiers	-$4.18 ↓
Maintenance and Repair Workers, General	$3.24 ↑
Computer User Support Specialists	$9.58 ↑
First-Line Supervisors of Office and Administrative Support Workers	$11.67 ↑
Chief Executives	$73.13 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$2.57 ↑
Helpers--Production Workers	-$1.56 -
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	$1.19 -
Production Workers, All Other	-$1.22 -
Industrial Truck and Tractor Operators	$1.85 -
Shipping, Receiving, and Inventory Clerks	$0.89 -
General and Operations Managers	$32.90 ↑

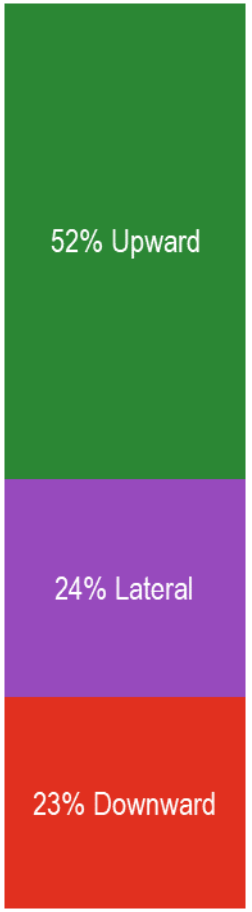
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

FIBERGLASS LAMINATORS AND FABRICATORS

The most common subsequent jobs for Fiberglass Laminators and Fabricators are First-Line Supervisors of Production and Operating Workers (where workers earn $12.42 more per hour) and Miscellaneous Assemblers and Fabricators ($1.51 less per hour). About 52 percent of next occupations have higher median wages.

Exhibit P-25. Fiberglass Laminators and Fabricators Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$12.42 ↑
Miscellaneous Assemblers and Fabricators	-$1.51 -
Laborers and Freight, Stock, and Material Movers, Hand	-$2.87 ↓
Project Management Specialists and Business Operations Specialists, All Other	$18.31 ↑
First-Line Supervisors of Police and Detectives	$26.73 ↑
Maintenance and Repair Workers, General	$1.73 -
Customer Service Representatives	-$0.37 -
Production Workers, All Other	-$2.73 ↓
Stockers and Order Fillers	-$3.90 ↓
Helpers--Production Workers	-$3.07 ↓
Industrial Truck and Tractor Operators	$0.34 -
First-Line Supervisors of Office and Administrative Support Workers	$10.16 ↑
Cashiers	-$5.69 ↓
Computer User Support Specialists	$8.07 ↑
Carpenters	$6.18 ↑
Packaging and Filling Machine Operators and Tenders	-$2.16 ↓
General and Operations Managers	$31.39 ↑
Chief Executives	$71.62 ↑
Inspectors, Testers, Sorters, Samplers, and Weighers	$1.76 -
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	-$1.61 -



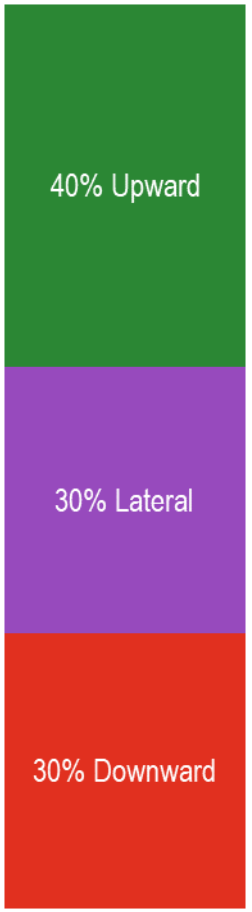
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

TIMING DEVICE ASSEMBLERS AND ADJUSTERS

The most common subsequent jobs for Timing Device Assemblers and Adjusters are Miscellaneous Assemblers and Fabricators (where workers earn $1.32 less per hour) and Stocking and Order Fillers ($3.71 less per hour). About 40 percent of next occupations have higher median wages.

Exhibit P-26. Timing Device Assemblers and Adjusters Transitions

Destination Occupation	Change in Median Wage
Miscellaneous Assemblers and Fabricators	-$1.32 -
Stockers and Order Fillers	-$3.71 ↓
Packaging and Filling Machine Operators and Tenders	-$1.97 -
Laborers and Freight, Stock, and Material Movers, Hand	-$2.68 ↓
Customer Service Representatives	-$0.18 -
Shipping, Receiving, and Inventory Clerks	-$0.43 -
Maintenance and Repair Workers, General	$1.92 -
Automotive Service Technicians and Mechanics	$3.37 ↑
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	-$3.68 ↓
Computer User Support Specialists	$8.26 ↑
First-Line Supervisors of Production and Operating Workers	$12.61 ↑
Production Workers, All Other	-$2.54 ↓
Packers and Packagers, Hand	-$4.41 ↓
Landscaping and Groundskeeping Workers	-$2.24 ↓
Installation, Maintenance, and Repair Workers, All Other	$2.28 ↑
Cleaners of Vehicles and Equipment	-$4.47 ↓
Construction Laborers	$0.85 -
Electrical Power-Line Installers and Repairers	$17.99 ↑
Merchandise Displayers and Window Trimmers	-$2.71 ↓
Computer Systems Analysts	$26.84 ↑



How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PRINTING PRESS OPERATORS

The most common subsequent jobs for Printing Press Operators are First-Line Supervisors of Production and Operating Workers (where workers earn $11.74 more per hour) and Graphic Designers ($7.31 more per hour). About 58 percent of next occupations have higher median wages.

Exhibit P-27. Printing Press Operators Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$11.74 ↑
Graphic Designers	$7.31 ↑
Project Management Specialists and Business Operations Specialists, All Other	$17.63 ↑
Customer Service Representatives	-$1.05 -
Computer User Support Specialists	$7.39 ↑
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	-$0.62 -
Chief Executives	$70.94 ↑
First-Line Supervisors of Office and Administrative Support Workers	$9.48 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$0.38 -
Retail Salespersons	-$5.60 ↓
Stockers and Order Fillers	-$4.58 ↓
Laborers and Freight, Stock, and Material Movers, Hand	-$3.55 ↓
Packaging and Filling Machine Operators and Tenders	-$2.84 ↓
General and Operations Managers	$30.71 ↑
Industrial Production Managers	$32.97 ↑
Maintenance and Repair Workers, General	$1.05 -
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	-$0.68 -
Public Relations Specialists	$11.66 ↑
Industrial Truck and Tractor Operators	-$0.34 -
Helpers--Production Workers	-$3.75 ↓

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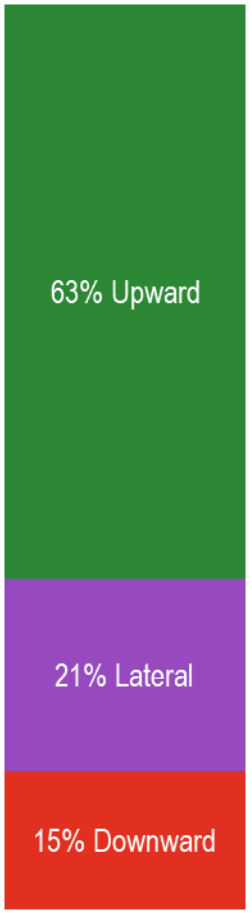
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

ELECTRICAL, ELECTRONIC, AND ELECTROMECHANICAL ASSEMBLERS, EXCEPT COIL WINDERS, TAPERS, AND FINISHERS

The most common subsequent jobs for Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers are Miscellaneous Assemblers and Fabricators (where workers earn $1.19 less per hour) and Electrical and Electronic Engineering Technologists and Technicians ($14.64 more per hour). About 63 percent of next occupations have higher median wages.

Exhibit P-28. Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers Transitions

Destination Occupation	Change in Median Wage
Miscellaneous Assemblers and Fabricators	-$1.19 -
Electrical and Electronic Engineering Technologists and Technicians	$14.64 ↑
Inspectors, Testers, Sorters, Samplers, and Weighers	$2.08 ↑
Computer User Support Specialists	$8.39 ↑
First-Line Supervisors of Production and Operating Workers	$12.74 ↑
Customer Service Representatives	-$0.05 -
Maintenance and Repair Workers, General	$2.05 ↑
Project Management Specialists and Business Operations Specialists, All Other	$18.63 ↑
Stockers and Order Fillers	-$3.58 ↓
Packaging and Filling Machine Operators and Tenders	-$1.84 -
Electricians	$10.27 ↑
First-Line Supervisors of Office and Administrative Support Workers	$10.48 ↑
Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other	$13.54 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$2.55 ↓
Retail Salespersons	-$4.60 ↓
Software Developers and Software Quality Assurance Analysts and Testers	$34.95 ↑
First-Line Supervisors of Mechanics, Installers, and Repairers	$15.70 ↑
Production Workers, All Other	-$2.41 ↓
Cashiers	-$5.37 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$1.38 -



How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).

Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

COIL WINDERS, TAPERS, AND FINISHERS

The most common subsequent jobs for Coil Winders, Tapers, and Finishers are First-Line Supervisors of Production and Operating Workers (where workers earn $11.92 more per hour) and Project Management Specialists and Business Operations Specialists ($17.81 more per hour). About 55 percent of next occupations have higher median wages.

Exhibit P-29. Coil Winders, Tapers, and Finishers Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$11.92 ↑
Project Management Specialists and Business Operations Specialists, All Other	$17.81 ↑
Customer Service Representatives	-$0.87 -
First-Line Supervisors of Office and Administrative Support Workers	$9.66 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$3.37 ↓
Stockers and Order Fillers	-$4.40 ↓
Service Unit Operators, Oil and Gas	$4.91 ↑
Miscellaneous Assemblers and Fabricators	-$2.01 ↓
Maintenance and Repair Workers, General	$1.23 -
Computer User Support Specialists	$7.57 ↑
Heavy and Tractor-Trailer Truck Drivers	$4.20 ↑
Cashiers	-$6.19 ↓
Inspectors, Testers, Sorters, Samplers, and Weighers	$1.26 -
Machinists	$3.80 ↑
Packaging and Filling Machine Operators and Tenders	-$2.66 ↓
Retail Salespersons	-$5.42 ↓
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	-$0.82 -
General and Operations Managers	$30.89 ↑
Production Workers, All Other	-$3.23 ↓
First-Line Supervisors of Mechanics, Installers, and Repairers	$14.88 ↑

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

ALL OTHER PRODUCTION WORKERS

The most common subsequent jobs for All Other Production Workers are First-Line Supervisors of Production and Operating Workers (where workers earn $15.15 more per hour) and Customer Service Representatives ($2.36 more per hour). About 66 percent of next occupations have higher median wages.

Exhibit P-30. All Other Production Workers Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$15.15 ↑
Customer Service Representatives	$2.36 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$0.14 -
Stockers and Order Fillers	-$1.17 -
Project Management Specialists and Business Operations Specialists, All Other	$21.04 ↑
Packaging and Filling Machine Operators and Tenders	$0.57 -
Helpers--Production Workers	-$0.34 -
Cashiers	-$2.96 ↓
Industrial Truck and Tractor Operators	$3.07 ↑
Retail Salespersons	-$2.19 ↓
Inspectors, Testers, Sorters, Samplers, and Weighers	$4.49 ↑
First-Line Supervisors of Office and Administrative Support Workers	$12.89 ↑
Maintenance and Repair Workers, General	$4.46 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$3.79 ↑
Miscellaneous Assemblers and Fabricators	$1.22 -
Computer User Support Specialists	$10.80 ↑
Heavy and Tractor-Trailer Truck Drivers	$7.43 ↑
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	-$1.14 -
Shipping, Receiving, and Inventory Clerks	$2.11 ↑
Chief Executives	$74.35 ↑

How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

GRINDING, LAPPING, POLISHING, AND BUFFING MACHINE TOOL SETTERS, OPERATORS, AND TENDERS FOR METAL AND PLASTIC

The most common subsequent jobs for Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders for Metal and Plastic are Machinists (where workers earn $4.00 more per hour) and First-Line Supervisors of Production and Operating Workers ($12.12 more per hour). About 56 percent of next occupations have higher median wages.

Exhibit P-31. Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders for Metal and Plastic Transitions

Destination Occupation	Change in Median Wage
Machinists	$4.00 ↑
First-Line Supervisors of Production and Operating Workers	$12.12 ↑
Packaging and Filling Machine Operators and Tenders	-$2.46 ↓
Project Management Specialists and Business Operations Specialists, All Other	$18.01 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$3.17 ↓
Computer Numerically Controlled Tool Operators	$2.45 ↑
Customer Service Representatives	-$0.67 -
Chief Executives	$71.32 ↑
Inspectors, Testers, Sorters, Samplers, and Weighers	$1.46 -
First-Line Supervisors of Office and Administrative Support Workers	$9.86 ↑
Industrial Truck and Tractor Operators	$0.04 -
Stockers and Order Fillers	-$4.20 ↓
Maintenance and Repair Workers, General	$1.43 -
Computer User Support Specialists	$7.77 ↑
Helpers--Production Workers	-$3.37 ↓
Miscellaneous Assemblers and Fabricators	-$1.81 -
Production Workers, All Other	-$3.03 ↓
Broadcast Announcers and Radio Disc Jockeys	-$0.71 -
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$0.76 -
News Analysts, Reporters, and Journalists	$4.89 ↑

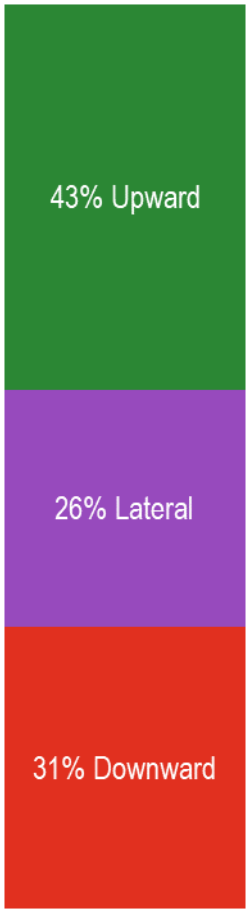
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

FOUNDRY MOLD AND COREMAKERS

The most common subsequent jobs for Foundry Mold and Coremakers are Laborers and Freight, Stock, and Material Movers (where workers earn $2.92 less per hour) and First-Line Supervisors of Production and Operating Workers ($12.37 more per hour). About 43 percent of next occupations have higher median wages.

Exhibit P-32. Foundry Mold and Coremakers Transitions

Destination Occupation	Change in Median Wage
Laborers and Freight, Stock, and Material Movers, Hand	-$2.92 ↓
First-Line Supervisors of Production and Operating Workers	$12.37 ↑
Packaging and Filling Machine Operators and Tenders	-$2.21 ↓
Stockers and Order Fillers	-$3.95 ↓
Project Management Specialists and Business Operations Specialists, All Other	$18.26 ↑
Industrial Truck and Tractor Operators	$0.29 -
Miscellaneous Assemblers and Fabricators	-$1.56 -
Inspectors, Testers, Sorters, Samplers, and Weighers	$1.71 -
Customer Service Representatives	-$0.42 -
Helpers--Production Workers	-$3.12 ↓
Heavy and Tractor-Trailer Truck Drivers	$4.65 ↑
Maintenance and Repair Workers, General	$1.68 -
Production Workers, All Other	-$2.78 ↓
Cooks, Restaurant	-$3.75 ↓
Retail Salespersons	-$4.97 ↓
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	-$3.92 ↓
Shipping, Receiving, and Inventory Clerks	-$0.67 -
First-Line Supervisors of Office and Administrative Support Workers	$10.11 ↑
Cashiers	-$5.74 ↓
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	-$1.66 -



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Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MOLDING, COREMAKING, AND CASTING MACHINE SETTERS, OPERATORS, AND TENDERS FOR METAL AND PLASTIC

The most common subsequent jobs for Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders for Metal and Plastic are First-Line Supervisors of Production and Operating Workers (where workers earn $14.03 more per hour) and Packaging and Filling Machine Operators and Tenders ($0.55 less per hour). About 66 percent of next occupations have higher median wages.

Exhibit P-33. Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders for Metal and Plastic Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$14.03 ↑
Packaging and Filling Machine Operators and Tenders	-$0.55 -
Project Management Specialists and Business Operations Specialists, All Other	$19.92 ↑
Producers and Directors	$20.33 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$1.26 -
Maintenance and Repair Workers, General	$3.34 ↑
Stockers and Order Fillers	-$2.29 ↓
Inspectors, Testers, Sorters, Samplers, and Weighers	$3.37 ↑
Helpers--Production Workers	-$1.46 -
Industrial Engineering Technologists and Technicians	$11.74 ↑
Industrial Truck and Tractor Operators	$1.95 -
Computer User Support Specialists	$9.68 ↑
Customer Service Representatives	$1.24 -
Miscellaneous Assemblers and Fabricators	$0.10 -
First-Line Supervisors of Office and Administrative Support Workers	$11.77 ↑
Production Workers, All Other	-$1.12 -
Industrial Engineers	$26.87 ↑
Machinists	$5.91 ↑
Chief Executives	$73.23 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$2.67 ↑

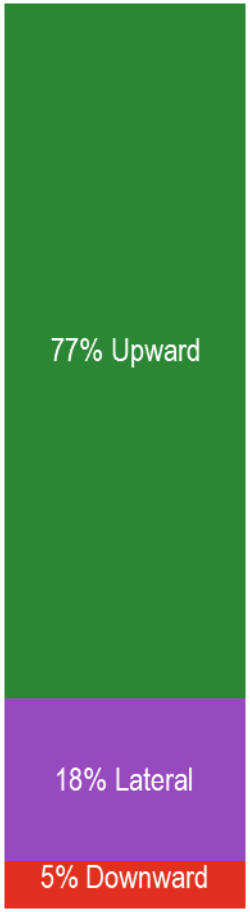
How to Read This Graph: Each row represents a common next step job for entrants in the source occupation, ordered by most common to least common. Only the top 20 most common transitions are shown here. The Change in Median Wage column shows the change in median wages from the original "source" occupation to the new "destination" occupation. Green indicates transitions in which the next step job has a median wage that is at least $2 per hour higher than that of the original job; purple indicates transitions in which the next step job has a median wage that is between $2 per hour lower and $2 per hour higher than that of the original job; red indicates transitions in which the next step job has a median wage that is at least $2 per hour lower than the that of the original job. The bar on the right shows the percentage of all transitions that are upward (at least $2 per hour higher), lateral (between $2 per hour lower and $2 per hour higher), and downward (at least $2 per hour lower).
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

PRODUCTION WORKER HELPERS

The most common subsequent jobs for Production Worker Helpers are Project Management Specialists and Business Operations Specialists (where workers earn $21.38 more per hour) and First-Line Supervisors of Production and Operating Workers ($15.49 more per hour). About 77 percent of next occupations have higher median wages.

Exhibit P-34. Production Worker Helpers Transitions

Destination Occupation	Change in Median Wage
Project Management Specialists and Business Operations Specialists, All Other	$21.38 ↑
First-Line Supervisors of Production and Operating Workers	$15.49 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$4.13 ↑
Producers and Directors	$21.79 ↑
Customer Service Representatives	$2.70 ↑
First-Line Supervisors of Office and Administrative Support Workers	$13.23 ↑
Retail Salespersons	-$1.85 -
Laborers and Freight, Stock, and Material Movers, Hand	$0.20 -
Stockers and Order Fillers	-$0.83 -
Cashiers	-$2.62 ↓
Graphic Designers	$11.06 ↑
Computer User Support Specialists	$11.14 ↑
Editors	$15.51 ↑
Chief Executives	$74.69 ↑
Public Relations Specialists	$15.41 ↑
Executive Secretaries and Executive Administrative Assistants	$15.28 ↑
General and Operations Managers	$34.46 ↑
Production Workers, All Other	$0.34 -
Maintenance and Repair Workers, General	$4.80 ↑
Packaging and Filling Machine Operators and Tenders	$0.91 -



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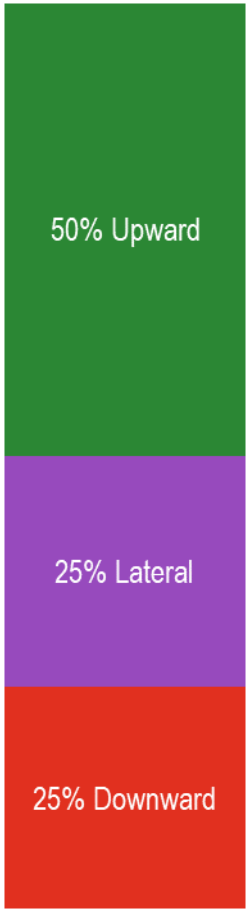
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

CUTTING, PUNCHING, AND PRESS MACHINE SETTERS, OPERATORS, AND TENDERS FOR METAL AND PLASTIC

The most common subsequent jobs for Cutting, Punching, and Press Machine Setters, Operators, and Tenders for Metal and Plastic are First-Line Supervisors of Production and Operating Workers (where workers earn $12.36 more per hour) and Packaging and Filling Machine Operators and Tenders ($2.22 less per hour). About 50 percent of next occupations have higher median wages.

Exhibit P-35. Cutting, Punching, and Press Machine Setters, Operators, and Tenders for Metal and Plastic Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$12.36 ↑
Packaging and Filling Machine Operators and Tenders	-$2.22 ↓
Project Management Specialists and Business Operations Specialists, All Other	$18.25 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$2.93 ↓
Industrial Truck and Tractor Operators	$0.28 -
Printing Press Operators	$0.62 -
Customer Service Representatives	-$0.43 -
Stockers and Order Fillers	-$3.96 ↓
Inspectors, Testers, Sorters, Samplers, and Weighers	$1.70 -
Maintenance and Repair Workers, General	$1.67 -
First-Line Supervisors of Office and Administrative Support Workers	$10.10 ↑
Production Workers, All Other	-$2.79 ↓
Heavy and Tractor-Trailer Truck Drivers	$4.64 ↑
Miscellaneous Assemblers and Fabricators	-$1.57 -
Computer User Support Specialists	$8.01 ↑
Helpers--Production Workers	-$3.13 ↓
Machinists	$4.24 ↑
Computer Numerically Controlled Tool Operators	$2.69 ↑
Shipping, Receiving, and Inventory Clerks	-$0.68 -
Welders, Cutters, Solderers, and Brazers	$3.31 ↑



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Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

INSPECTORS, TESTERS, SORTERS, SAMPLERS, AND WEIGHERS

The most common subsequent jobs for Inspectors, Testers, Sorters, Samplers, and Weighers are First-Line Supervisors of Production and Operating Workers (where workers earn $10.66 more per hour) and Project Management Specialists and Business Operations Specialists ($16.55 more per hour). About 63 percent of next occupations have higher median wages.

Exhibit P-36. Inspectors, Testers, Sorters, Samplers, and Weighers Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$10.66 ↑
Project Management Specialists and Business Operations Specialists, All Other	$16.55 ↑
Customer Service Representatives	-$2.13 ↓
Software Developers and Software Quality Assurance Analysts and Testers	$32.87 ↑
Industrial Engineers	$23.50 ↑
First-Line Supervisors of Office and Administrative Support Workers	$8.40 ↑
Computer User Support Specialists	$6.31 ↑
Stockers and Order Fillers	-$5.66 ↓
Industrial Production Managers	$31.89 ↑
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$0.70 -
Industrial Engineering Technologists and Technicians	$8.37 ↑
Chief Executives	$69.86 ↑
Retail Salespersons	-$6.68 ↓
General and Operations Managers	$29.63 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$4.63 ↓
First-Line Supervisors of Mechanics, Installers, and Repairers	$13.62 ↑
Life, Physical, and Social Science Technicians, All Other	$5.48 ↑
Packaging and Filling Machine Operators and Tenders	-$3.92 ↓
Cashiers	-$7.45 ↓
Maintenance and Repair Workers, General	-$0.03 -

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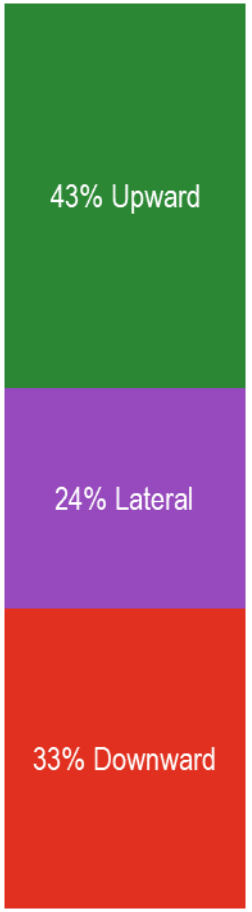
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

WELDING, SOLDERING, AND BRAZING MACHINE SETTERS, OPERATORS, AND TENDERS

The most common subsequent jobs for Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders are Packaging and Filling Machine Operators and Tenders (where workers earn $3.52 less per hour) and Welders, Cutters, Solderers, and Brazers ($2.01 more per hour). About 43 percent of next occupations have higher median wages.

Exhibit P-37. Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders Transitions

Destination Occupation	Change in Median Wage
Packaging and Filling Machine Operators and Tenders	-$3.52 ↓
Welders, Cutters, Solderers, and Brazers	$2.01 ↑
First-Line Supervisors of Production and Operating Workers	$11.06 ↑
Industrial Truck and Tractor Operators	-$1.02 -
Miscellaneous Assemblers and Fabricators	-$2.87 ↓
Laborers and Freight, Stock, and Material Movers, Hand	-$4.23 ↓
Stockers and Order Fillers	-$5.26 ↓
Customer Service Representatives	-$1.73 -
Project Management Specialists and Business Operations Specialists, All Other	$16.95 ↑
Inspectors, Testers, Sorters, Samplers, and Weighers	$0.40 -
Maintenance and Repair Workers, General	$0.37 -
Production Workers, All Other	-$4.09 ↓
Computer Numerically Controlled Tool Operators	$1.39 -
Computer User Support Specialists	$6.71 ↑
First-Line Supervisors of Office and Administrative Support Workers	$8.80 ↑
Heavy and Tractor-Trailer Truck Drivers	$3.34 ↑
Machinists	$2.94 ↑
Helpers--Production Workers	-$4.43 ↓
Shipping, Receiving, and Inventory Clerks	-$1.98 -
Cashiers	-$7.05 ↓



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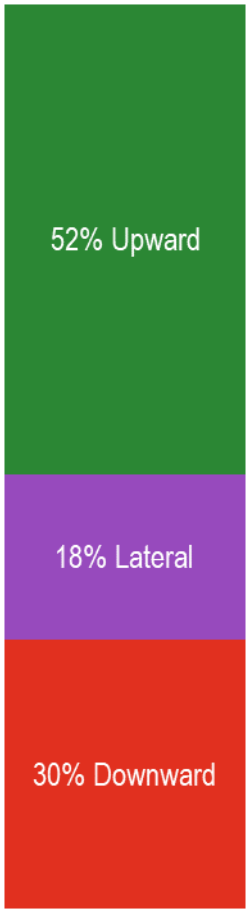
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

WELDERS, CUTTERS, SOLDERERS, AND BRAZERS

The most common subsequent jobs for Welders, Cutters, Solderers, and Brazers are First-Line Supervisors of Production and Operating Workers (where workers earn $9.05 more per hour) and Maintenance and Repair Workers ($1.64 less per hour). About 52 percent of next occupations have higher median wages.

Exhibit P-38. Welders, Cutters, Solderers, and Brazers Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$9.05 ↑
Maintenance and Repair Workers, General	-$1.64 -
First-Line Supervisors of Mechanics, Installers, and Repairers	$12.01 ↑
Project Management Specialists and Business Operations Specialists, All Other	$14.94 ↑
Plumbers, Pipefitters, and Steamfitters	$6.09 ↑
First-Line Supervisors of Construction Trades and Extraction Workers	$11.40 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$6.24 ↓
Heavy and Tractor-Trailer Truck Drivers	$1.33 -
Inspectors, Testers, Sorters, Samplers, and Weighers	-$1.61 -
Miscellaneous Assemblers and Fabricators	-$4.88 ↓
Chief Executives	$68.25 ↑
Industrial Truck and Tractor Operators	-$3.03 ↓
Industrial Machinery Mechanics	$5.34 ↑
Machinists	$0.93 -
Stockers and Order Fillers	-$7.27 ↓
Structural Iron and Steel Workers	$6.03 ↑
Packaging and Filling Machine Operators and Tenders	-$5.53 ↓
Customer Service Representatives	-$3.74 ↓
Carpenters	$2.81 ↑
Computer User Support Specialists	$4.70 ↑



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Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

MACHINISTS

The most common subsequent jobs for Machinists are First-Line Supervisors of Production and Operating Workers (where workers earn $8.12 more per hour) and Maintenance and Repair Workers ($2.57 less per hour). About 60 percent of next occupations have higher median wages.

Exhibit P-39. Machinists Transitions

Destination Occupation	Change in Median Wage
First-Line Supervisors of Production and Operating Workers	$8.12 ↑
Maintenance and Repair Workers, General	-$2.57 ↓
Computer Numerically Controlled Tool Operators	-$1.55 -
Project Management Specialists and Business Operations Specialists, All Other	$14.01 ↑
Mechanical Engineers	$21.15 ↑
First-Line Supervisors of Mechanics, Installers, and Repairers	$11.08 ↑
Tool and Die Makers	$4.56 ↑
Industrial Engineers	$20.96 ↑
Chief Executives	$67.32 ↑
Computer Numerically Controlled Tool Programmers	$5.78 ↑
Inspectors, Testers, Sorters, Samplers, and Weighers	-$2.54 ↓
Computer User Support Specialists	$3.77 ↑
Packaging and Filling Machine Operators and Tenders	-$6.46 ↓
General and Operations Managers	$27.09 ↑
Industrial Machinery Mechanics	$4.41 ↑
Engineers, All Other	$26.26 ↑
Miscellaneous Assemblers and Fabricators	-$5.81 ↓
First-Line Supervisors of Office and Administrative Support Workers	$5.86 ↑
Laborers and Freight, Stock, and Material Movers, Hand	-$7.17 ↓
Customer Service Representatives	-$4.67 ↓

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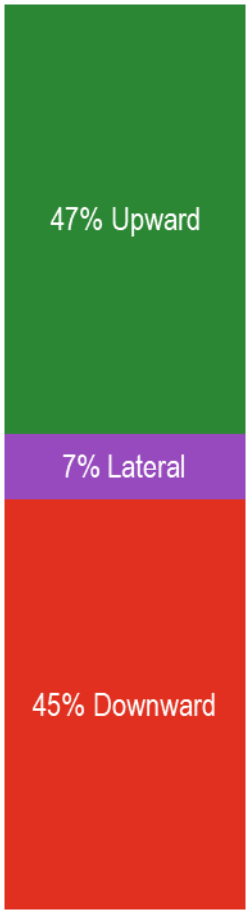
Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

FIRST-LINE SUPERVISORS OF PRODUCTION AND OPERATING WORKERS

The most common subsequent jobs for First-Line Supervisors of Production and Operating Workers are Project Management Specialists and Business Operations Specialists (where workers earn $5.89 more per hour) and General and Operations Managers ($18.97 more per hour). About 47 percent of next occupations have higher median wages.

Exhibit P-40. First-Line Supervisors of Production and Operating Workers Transitions

Destination Occupation	Change in Median Wage
Project Management Specialists and Business Operations Specialists, All Other	$5.89 ↑
General and Operations Managers	$18.97 ↑
Industrial Production Managers	$21.23 ↑
First-Line Supervisors of Office and Administrative Support Workers	-$2.26 ↓
Customer Service Representatives	-$12.79 ↓
Industrial Engineers	$12.84 ↑
First-Line Supervisors of Mechanics, Installers, and Repairers	$2.96 ↑
Chief Executives	$59.20 ↑
Computer User Support Specialists	-$4.35 ↓
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-$11.36 ↓
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	-$3.01 ↓
Retail Salespersons	-$17.34 ↓
Sales Managers	$31.41 ↑
Marketing Managers	$36.31 ↑
First-Line Supervisors of Retail Sales Workers	-$10.08 ↓
Transportation, Storage, and Distribution Managers	$15.98 ↑
Software Developers and Software Quality Assurance Analysts and Testers	$22.21 ↑
Financial Managers	$32.97 ↑
Inspectors, Testers, Sorters, Samplers, and Weighers	-$10.66 ↓
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	-$0.67 -



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Source: Occupational transitions matrix from Emsi and median wages from the Occupational Employment and Wage Statistics (OEWS) program.

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