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JANUARY 2019

Occupational Employment Projections Through The Perspective Of Education And Training

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The U.S. Bureau of Labor Statistics prepares projections of employment for over 800 occupations, and the latest projections cover the 2016-26 decade. BLS also identifies the typical education, work experience, and on-the-job training that individuals need to enter and become competent in occupations. The requirements information is useful not only for people seeking information about careers, but also for businesses, educators, researchers, and policy makers to understand long-term trends in occupational demand and to help make decisions on investments in education and training programs. This Spotlight on Statistics looks at employment, projected employment growth, and wages for occupations with different education and training requirements.

Assigning typical entry-level education, work experience, and training

Each occupation receives an assignment for typical entry-level education, work experience in a related occupation, and on-the-job training. Education categories range from a doctoral or professional degree to no formal education. If occupations need work experience in a related occupation, that is also indicated. Occupations may also require on-the-job training to become competent in performing the occupation. On-the-job training is occupation-specific training; not job-specific. These requirements are for the base year of the projections; BLS does not project education and training requirements.

While education and training assignments reflect the typical path to entry and competency, some occupations have multiple paths. See the "How to Become One" sections of Occupational Outlook Handbook profiles for more information.

Typical entry-level education, work experience, and training

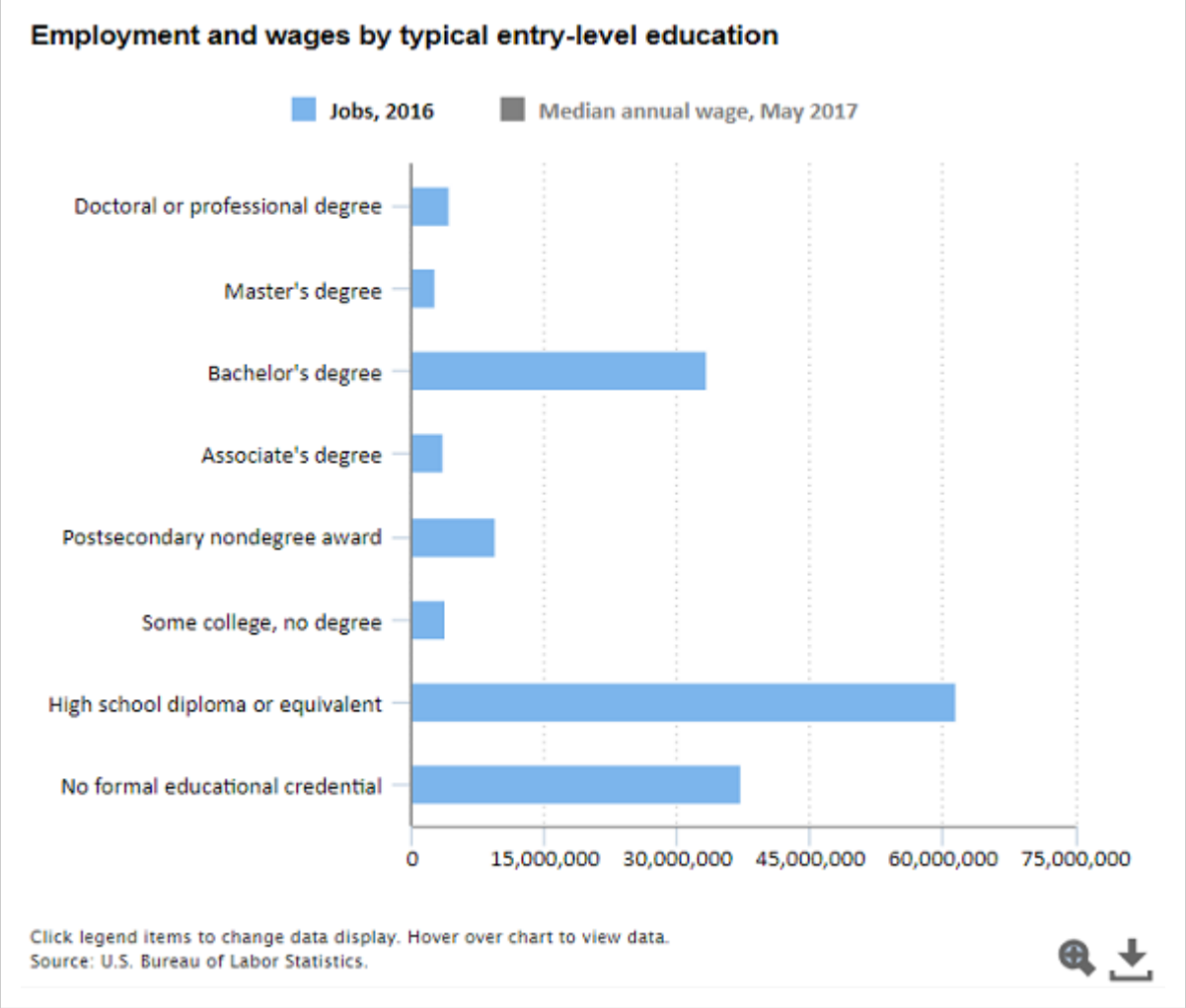
Typical education needed for entry	Work experience in a related occupation	Typical on-the-job training
Doctoral or professional degree	5 years or more	Internship/residency
Master's degree		Apprenticeship
Bachelor's degree		
Associate's degree	Less than 5 years	Long-term on-the-job training: more than 12 months
Postsecondary nondegree award		Moderate-term on-the-job training: more than 1 month and up to 12 months
Some college, no degree	None	Short-term on-the-job training: 1 month or less
High school diploma or equivalent		
No formal educational credential		None

Employment opportunities exist for job seekers with a variety of levels of educational preparation

In 2016, about one-third of employment was in occupations that typically need postsecondary education for entry. Of those, most employment was in occupations that typically require a bachelor's degree.

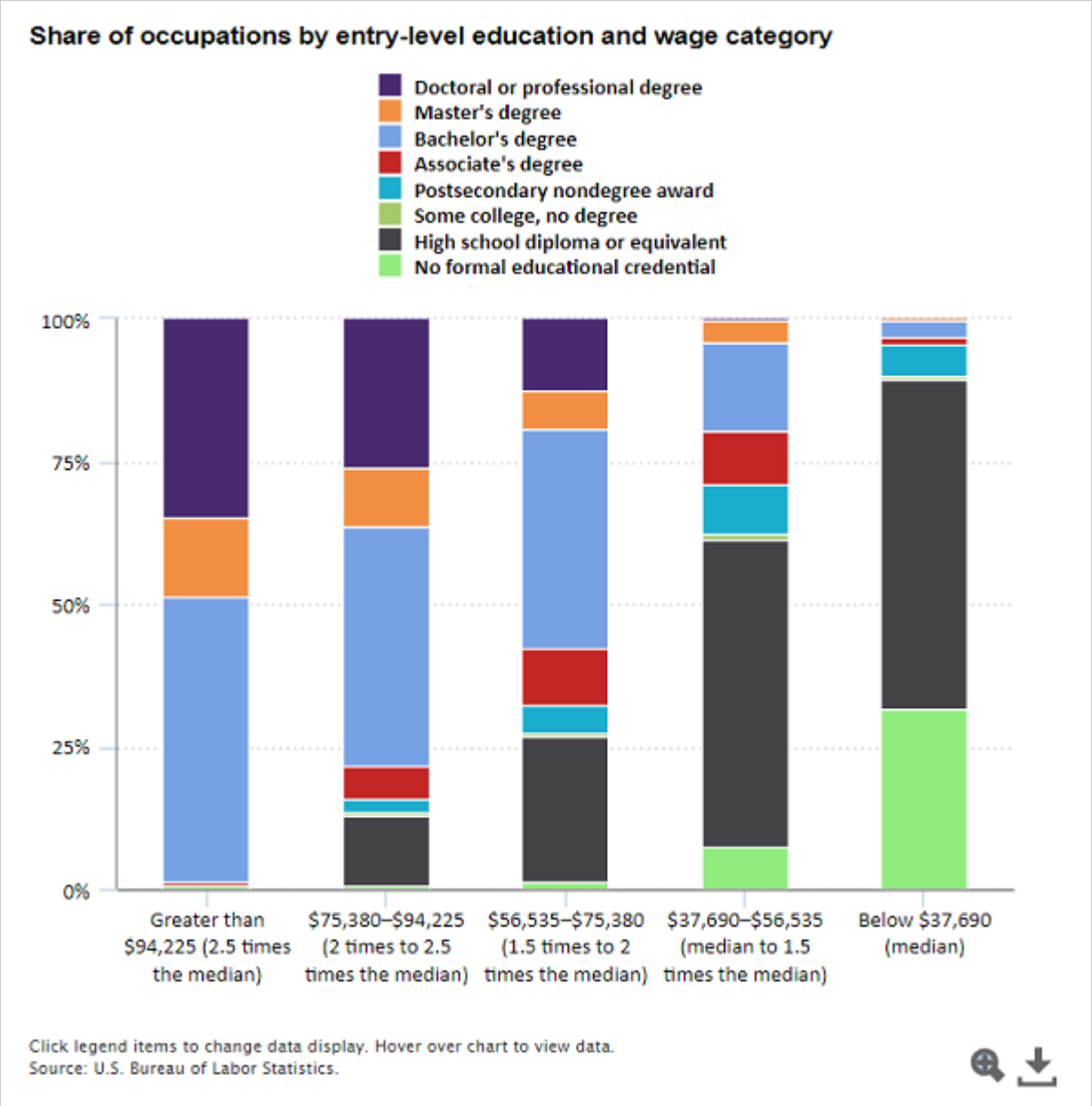
Occupations that typically require a high school diploma or less include those with large numbers of workers, such as retail salespersons (4.6 million), cashiers (3.6 million), and fast food preparation workers (3.5 million). Virtually all occupations with lower education requirements need additional preparation via on-the-job training, previous work experience, or both.

The median annual wages for occupations that typically require associate's degree or above were more than the overall median annual wage of $37,690 in May 2017. Wages for occupations that typically require a high school diploma or less were below the overall median.



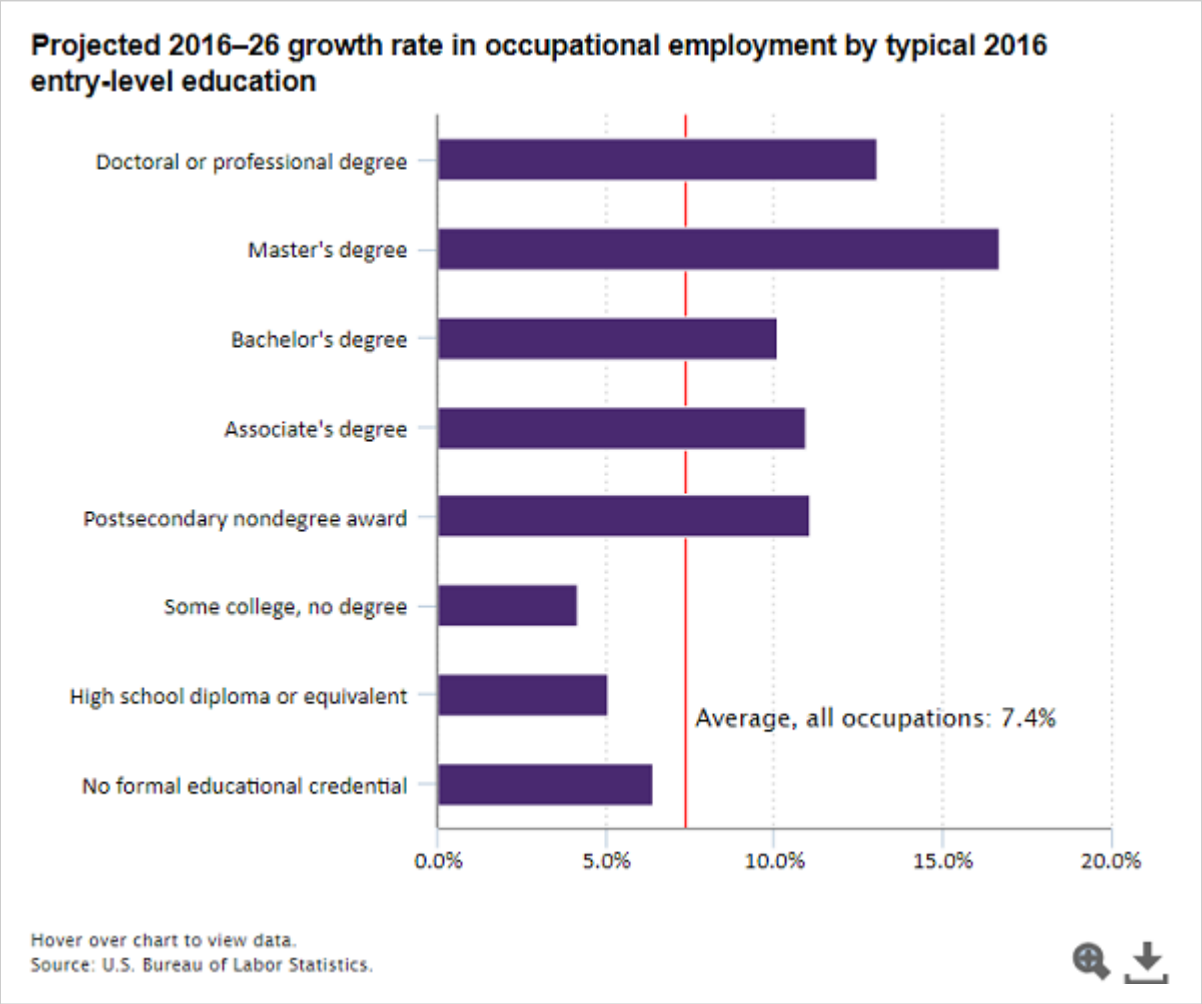
Most occupations earning two or more times the median wage typically need postsecondary education

The highest-earning occupations often require postsecondary education for entry. About half of occupations that had annual median wages of $94,225 or more in May 2017 (two and a half times the overall median) typically require a doctoral or professional degree or a master's degree for entry. Many of the bachelor's degree occupations with median annual wages of $75,380 or more (twice the overall median) are in management (and require related work experience) or in STEM (science, technology, engineering, and math). Nearly half of occupations that typically require a high school diploma for entry had wages below the overall median, but there are high-paying occupations in this group. About four out of five occupations with no formal educational requirements had wages below the overall median.



Occupations that need more education for entry are projected to grow fast

Occupations that require a postsecondary credential are projected to grow faster than occupations that do not require postsecondary education for entry. Occupations that typically require a master's degree, the smallest group in terms of base-year employment in 2016, are projected to grow at a rate of 16.7 percent through 2026. That's more than twice the rate of growth projected for all occupations, 7.4 percent. The second-fastest growing group of occupations is those that typically require a doctoral or professional degree for entry.



Most occupational groups with above average growth earn more than the overall median annual wage

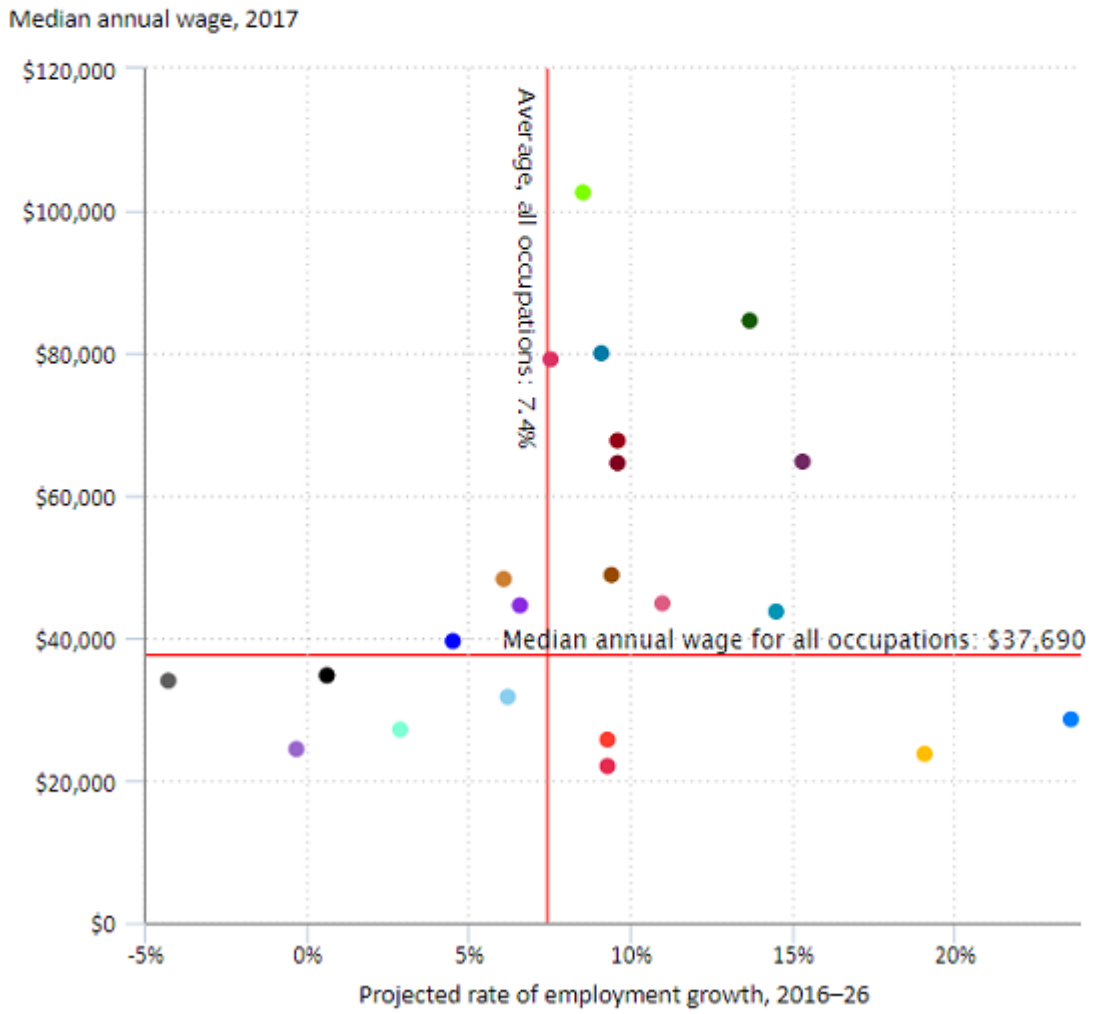
Management occupations had a median annual wage of $102,590 in May 2017—the highest among the occupational groups. Most management occupations require postsecondary education for entry; nearly all need related work experience.

The next three highest-paying occupational groups – computer and math, legal, and architecture and engineering – had wages more than twice the median for all occupations, which was $37,690. About two-thirds of the occupations in these groups typically require a bachelor's degree or higher for entry.

The two occupational groups that are projected to grow the fastest over the 2016-26 decade – healthcare support occupations and personal care and service occupations – had wages below the median for all occupations. Most of the occupations in these groups typically do not require postsecondary education for entry.

Projected rate of employment growth and median annual wages, by major occupational group

- Food preparation and serving related
- Farming, fishing, and forestry
- Sales and related
- Transportation and material moving
- Office and administrative support
- Community and social service
- Construction and extraction
- Education, training, and library
- Healthcare practitioners and technical
- Architecture and engineering
- Computer and mathematical
- Personal care and service
- Building and grounds cleaning and maintenance
- Healthcare support
- Production
- Protective service
- Installation, maintenance, and repair
- Arts, design, entertainment, sports, and media
- Life, physical, and social science
- Business and financial operations
- Legal
- Management



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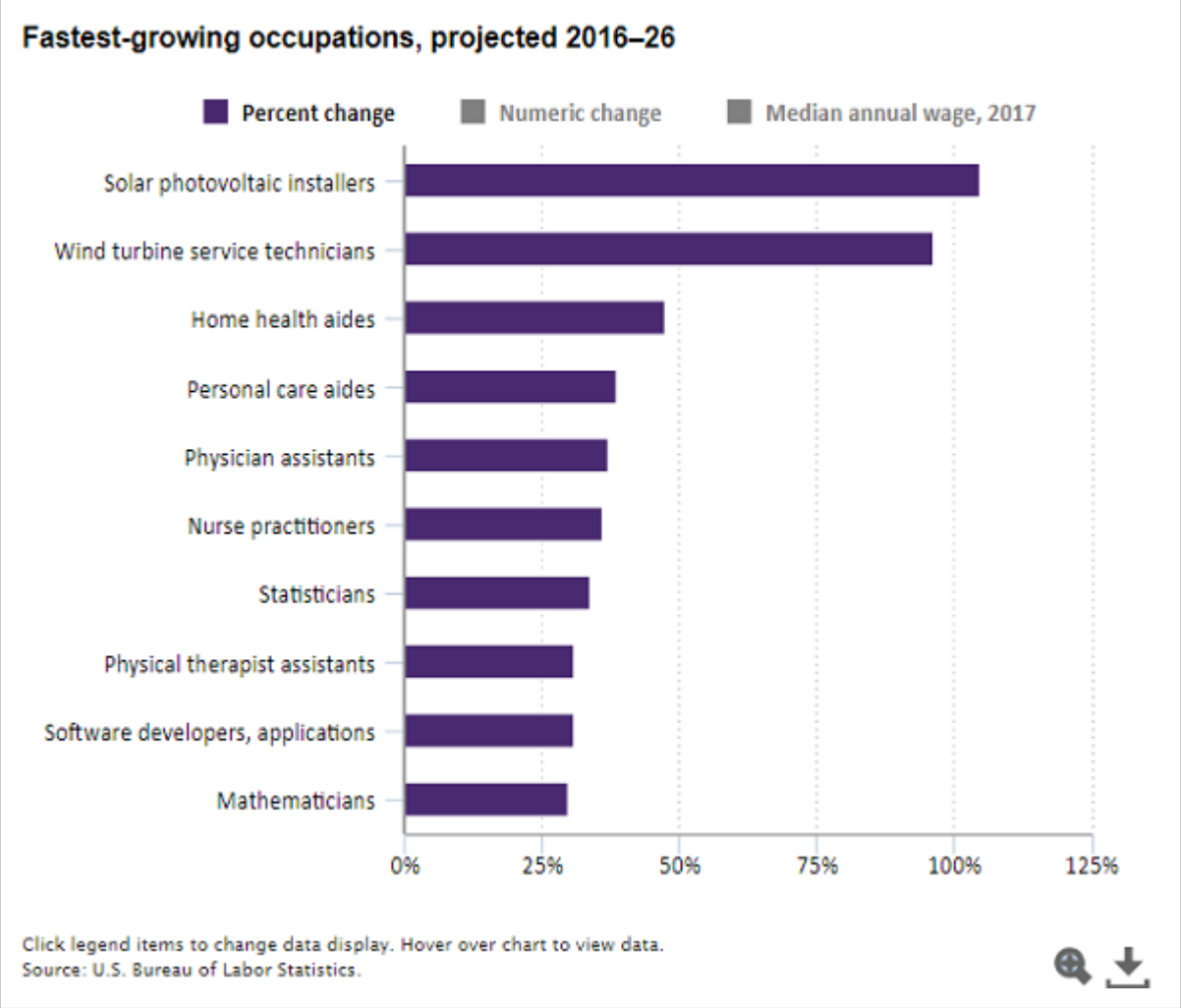
Source: U.S. Bureau of Labor Statistics.

Most of the fastest-growing occupations typically need postsecondary education for entry

Most of the ten occupations that are projected to grow the fastest over the 2016–26 decade need postsecondary education for entry, but there are opportunities for job seekers with less education. The fastest-growing occupation, solar photovoltaic installers, typically requires a high school diploma or equivalent for entry. All of the occupations on this list that require a high school diploma also require on-the-job training.

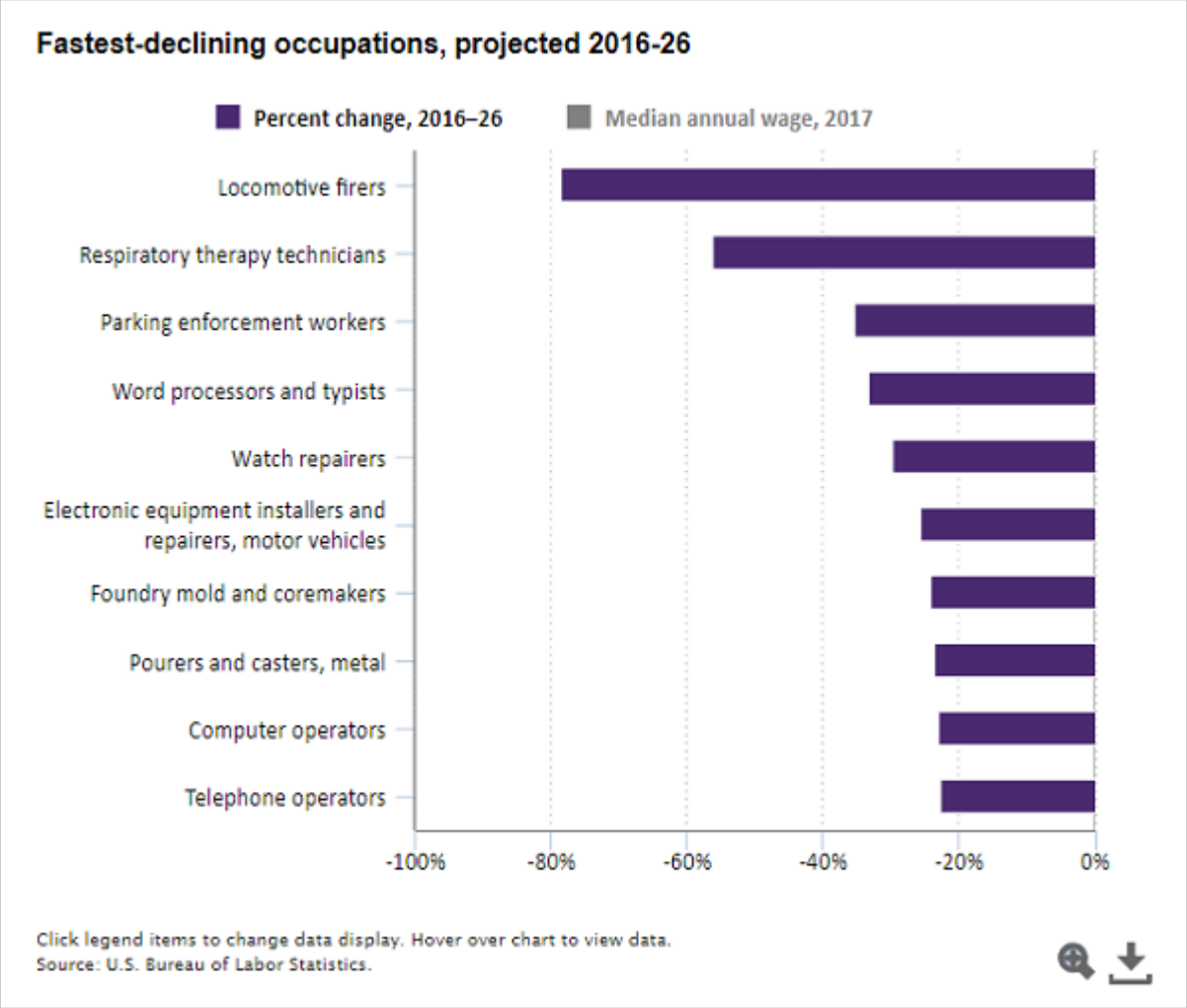
Four of the occupations on this list typically require a master's degree for entry, helping to drive the overall fast employment growth for master's degree occupations. Half of the fastest-growing occupations are related to healthcare, reflecting the increasing demand for healthcare services as a result of the aging population and growing rates of chronic disease.

The highest-paid occupations on this list are those that typically require postsecondary education for entry.



Most of the fastest-declining occupations do not require postsecondary education for entry

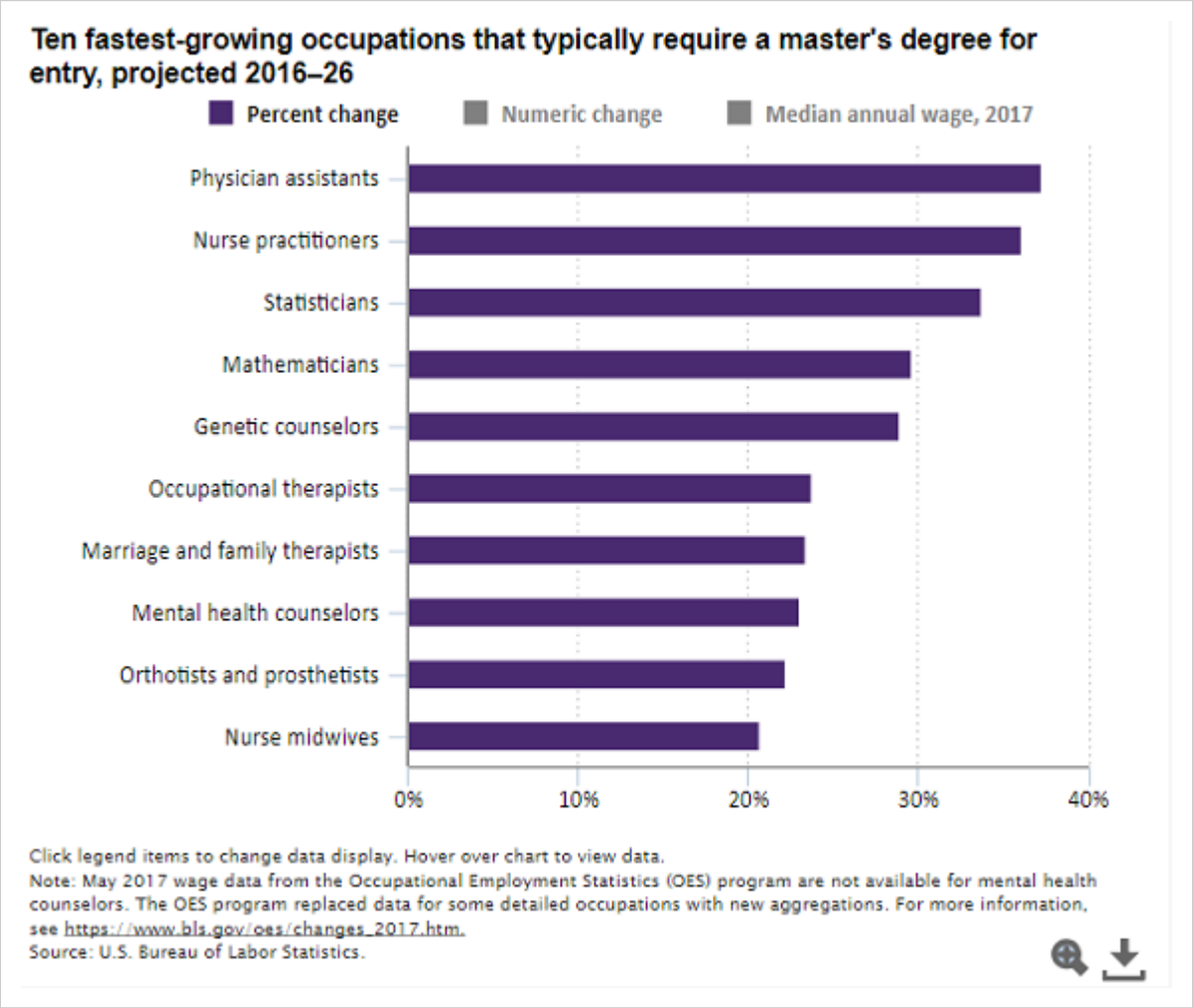
Most of the ten fastest-declining occupations have minimal entry-level education requirements, and most had median wages close to the overall median of $37,690. The fastest-declining occupations include those impacted by technological advances, including automation, and the resulting increases in productivity.



Fast growth is projected among occupations that typically require a master's degree for entry

Occupations that typically require a master's degree for entry are the smallest group in terms of base-year employment in 2016. At the same time, occupations that typically require a master's degree are, as a group, projected to grow faster than any other education category, although the projected numeric growth for several of these is small. Thirty-eight occupations typically require a master's degree to obtain competency in the occupation. Of the ten fastest-growing master's degree occupations, six are in healthcare.

The median annual wage for occupations that typically require a master's degree for entry was $68,090 in May 2017, and many of the fastest-growing master's degree occupations earned significantly more. Several of the master's degree occupations with lower wages are in counseling and social work fields, while those with higher wages are in healthcare and STEM fields.

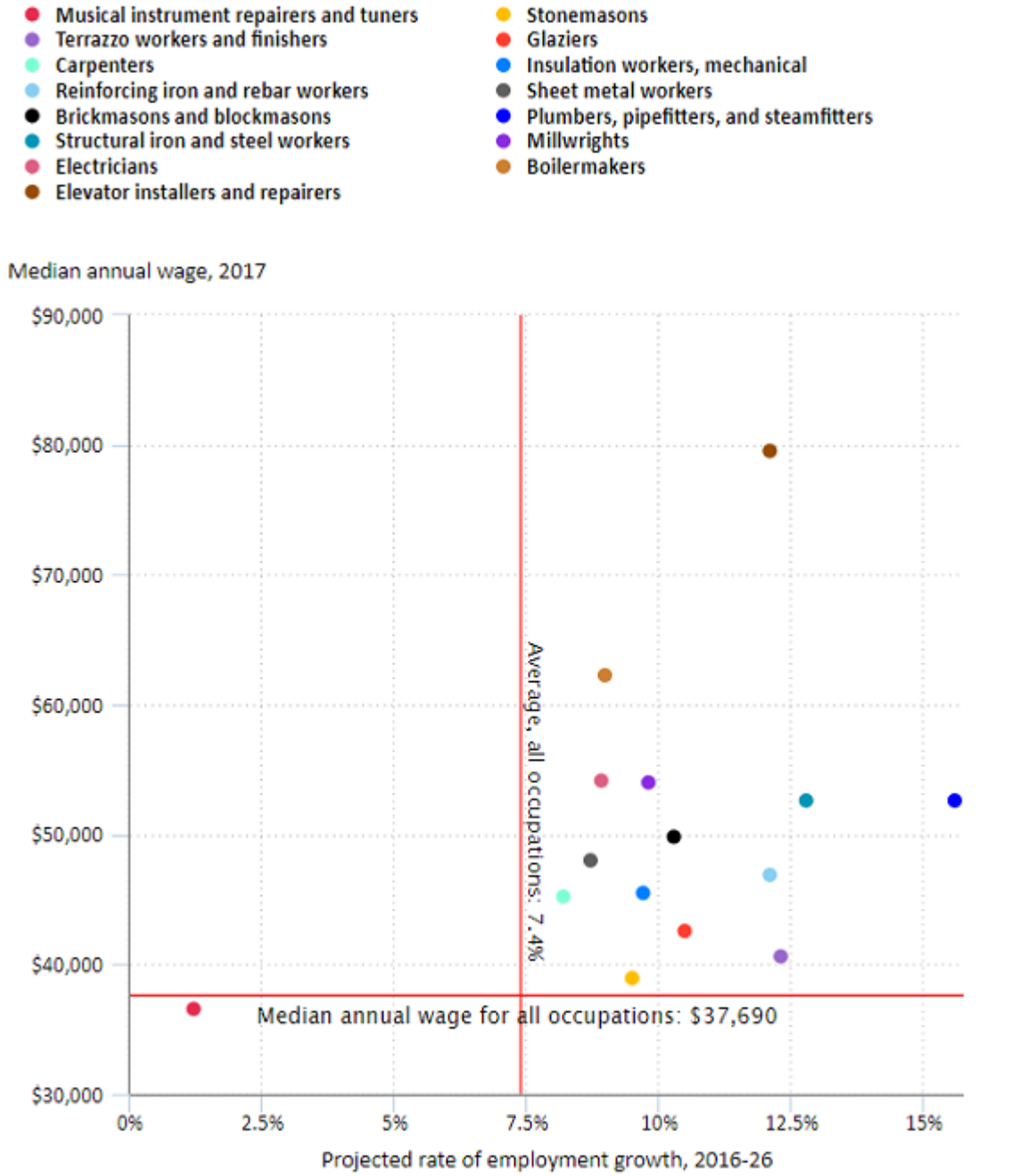


Most apprenticeship occupations earn more than the median

Apprenticeship programs are a combination of on-the-job training and related occupation-specific technical instruction that typically lasts 3 to 5 years. The occupations that typically require an apprenticeship according to BLS education and training categories fall within two major groups: construction and extraction occupations and installation, maintenance, and repair occupations. These occupations also typically require a high school diploma or equivalent for entry.

Most of the apprenticeship occupations are projected to have employment growth that is faster than the average for all occupations (7.4 percent). Among apprenticeship occupations, elevator installers and repairers earned the highest median annual wage ($79,480), more than twice the median wage for all occupations in May 2017.

Projected percent growth (2016–26) and median annual wages for occupations that typically require an apprenticeship



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Source: U.S. Bureau of Labor Statistics.

More information

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This Spotlight on Statistics presents 2016-26 projections data from the Employment Projections program. For additional information about the 2016-26 projections, see "Projections overview and highlights, 2016-26." The projections, along with information about the tasks workers perform, the industries in which they work, wages, and the typical pathway for entry are detailed in the *Occupational Outlook Handbook*. The *Career Outlook* contains articles about a variety of topics, including occupations and education level.

The education and training information is based on analyses of qualitative and quantitative information by BLS economists.

May 2017 wage data are from the Occupational Employment Statistics program.