

SECTION ONE

Projecting Occupational Supply and Demand – Methodology

The ultimate objective of this analysis is to compare the supply of graduating seniors from high school vocational technical programs to the “demand” for employment — job openings — by occupation and educational attainment.

This report provides occupational demand estimates for two geographic levels. The first is for Massachusetts as a whole and the second is for each of the state’s sixteen (16) Workforce Investment Areas which correspond to geographically-defined labor markets.

Occupational supply is available for ninety-six (96) schools including twenty-six (26) regional vocational schools and seventy (70) comprehensive schools that offer vocational courses. These schools can be aggregated to the Workforce Investment Areas or generated statewide.

Altogether, forecasts for net job growth, replacement jobs, and total job openings have been prepared for 675 specific occupations based on U.S. Bureau of Labor Statistics data. These are also aggregated into 22 broad occupation categories.

The distribution of educational attainment for job openings by occupation represents the current distribution of educational attainment by occupation as estimated from the American Community Survey for Massachusetts from 2010-2013. The assumption here is that the educational requirements for specific occupations will remain more or less the same as current requirements.

Educational levels required for each of the specific occupations range from less than high school to post-graduate degrees. In particular, we have developed estimates for the number of jobs in each specific job and broad occupation category for:

- Less than High School
- High School Degree or GED
- Some College
- Associates Degree
- B.A. or equivalent
- M.A. or equivalent
- Professional degree
- Ph.D.

For the sake of ease of presentation, many tables provide aggregated data on High School or Less; Some College or Associates Degree; and B.A. or more.

Programs are aligned to occupations using the U.S. Department of Labor’s O*NET to match program titles to occupations.

The distribution of education for specific occupations is based on an analysis of the American Community Survey (ACS) for Massachusetts for the years 2009 through 2013. Hence, the distribution of education by school year completed is based on the actual schooling completed of existing job holders for each specific occupation.

SECTION 1

To assess the alignment between vocational technical school curricula and projected demand for specific occupations, data were gathered on the specific programs of seniors in the state's regional vocational schools and in vocational programs in comprehensive high schools. The distribution of the supply of these vocational technical seniors by vocational program is then compared to the projected distribution of demand by specific occupation. This is done in the following steps:

1. Within each vocational tech program, seniors are assigned to the O*NET-aligned detailed occupations in proportion to projected openings in the statewide or WIA market.
2. For each school, seniors are assigned to educational attainment levels using the school district's higher education attendance rates and the 6-year completion rates. The 6-year completion rates are increased by 10 percentage points to reflect ultimate educational attainment levels. For academic regional school districts the higher education attendance rates reflect the whole district — not just vocational technical students — so for academic districts the average higher education attendance rates of vocational technical districts was used instead.
3. For each level of educational attainment, the school's seniors are allocated to occupations to match as closely as possible the distribution of that level of educational attainment across occupations in projected openings, subject to the number of seniors in each occupation from step 1 and the numbers of seniors with each level of educational attainment from step 2.

DATA SOURCES

- Projections of employment and job openings, 2012-2022, statewide and by Workforce Investment Area (U.S. Bureau of Labor Statistics) (675 detailed occupations, 16 WIA's)
- Educational attainment by occupation, 2010-2013 (American Community Survey, U.S. Census Bureau) (479 occupations)
- Senior enrollment by school and vocational education program (2013-14) (Massachusetts Department of Elementary and Secondary Education)
- The search tool of O*NET (onetonline.org) to build the alignment of vocational education programs to occupations. (U.S. Department of Labor, Employment & Training Administration)
- Higher education attendance of seniors, by school district (2011-2012) (Massachusetts Department of Elementary and Secondary Education)
- 6-year completion rates for Massachusetts community and 4-year colleges (Massachusetts Board of Higher Education)