

Skills Gap Analysis

Machinist,
SOC 51-4041

Computer Numerically Controlled (CNC)
Machine Tool Programmer,
SOC 51-4012

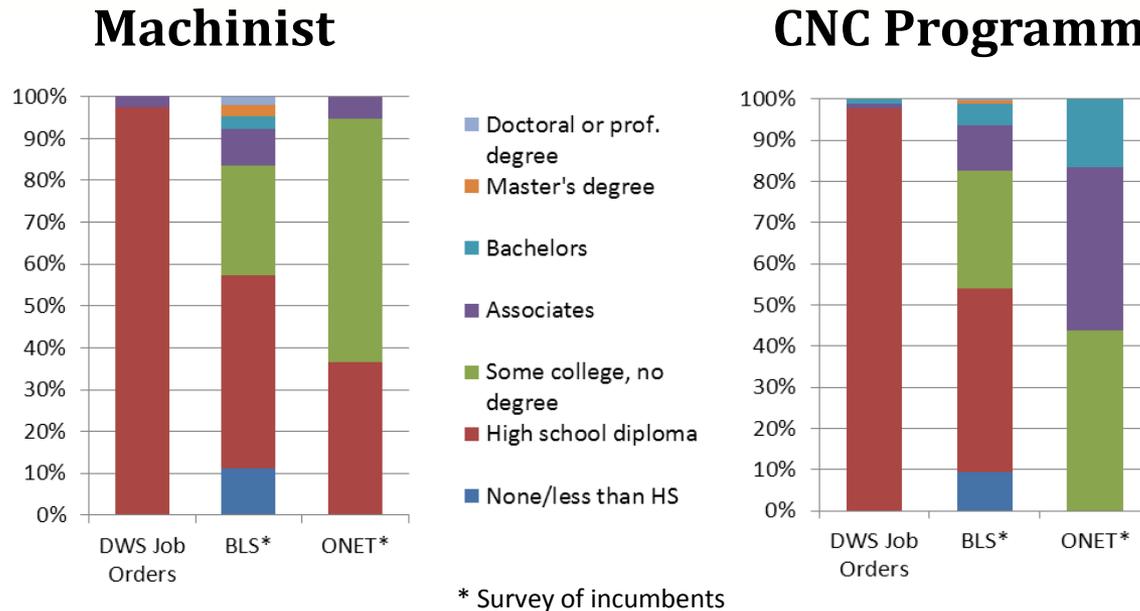


Economic Research and Analysis
Utah Department of Workforce Services

Education and Experience Distribution



Education Distribution



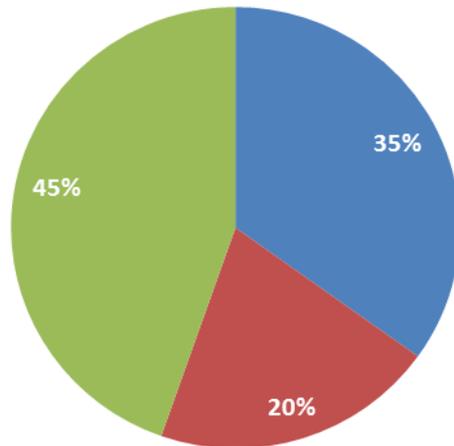
Comparing education levels between:

- Utah DWS Job Orders Education Requirement, 2011
- US Bureau of Labor Statistics Distribution of Educational Attainment in US, 2009
- ONET Occupational Report

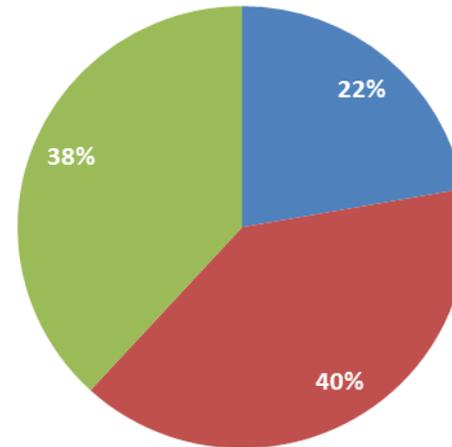
The last two come from a national survey of incumbents, while DWS job orders reflect employer-designated education requirement for positions in Utah. Job orders include only those that had specified a requisite education level.

Experience from DWS Job Orders

Machinist



CNC Programmer



- 1-12 months
- 13-24 months
- 25+ months

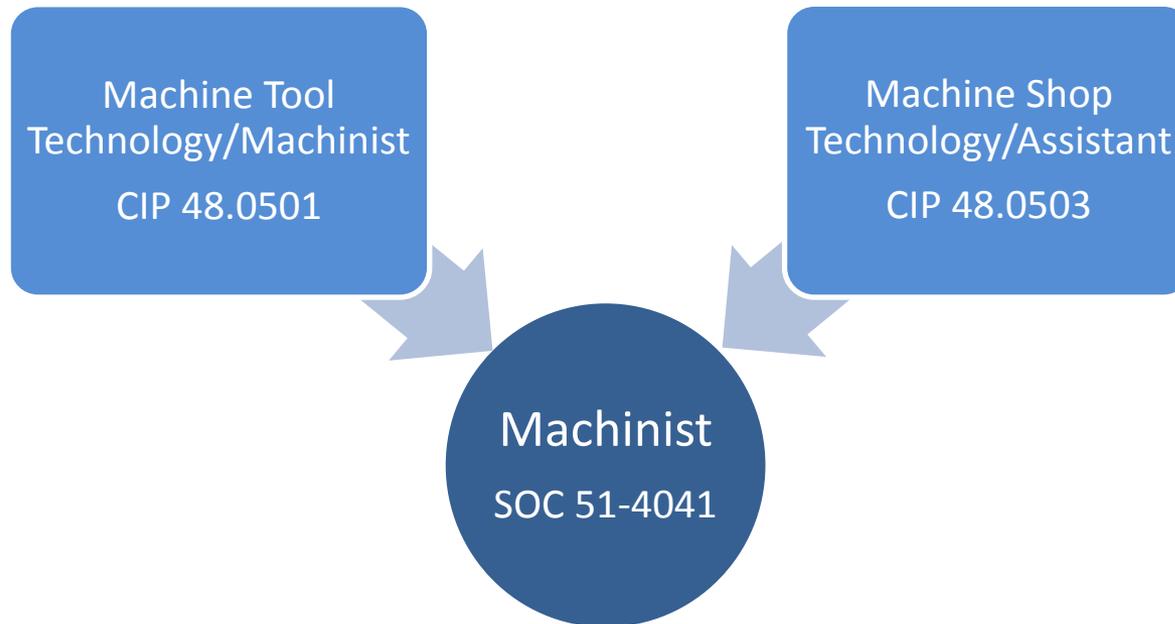
The above graphs display the months of required experience from DWS job orders for each occupation. Job orders include only those that had specified a requisite experience level.

Educational Programs



Educational Programs

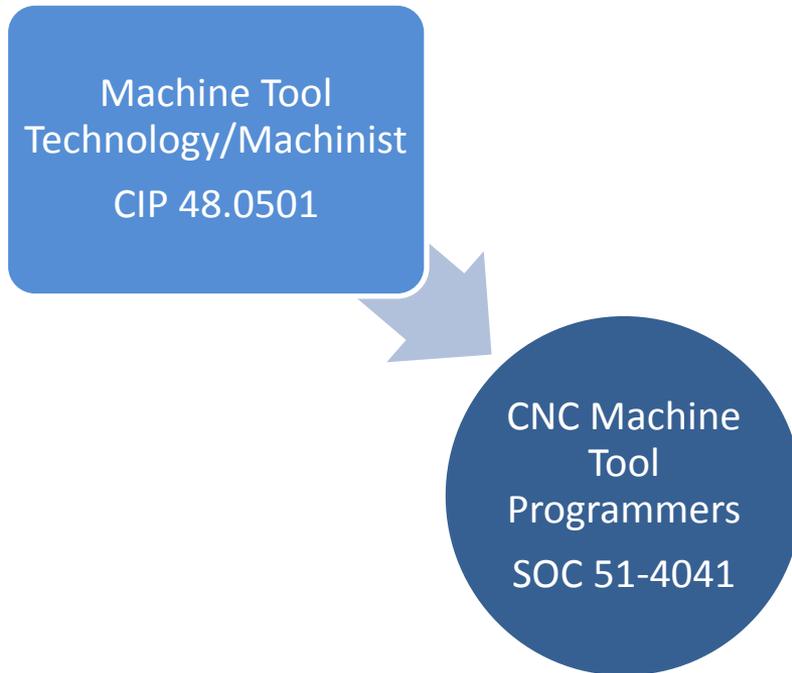
Machinist



Two Classification of Instructional Programs (CIP) are related to the machinist occupation. A total of 110 individuals completed programs of study from these instructional programs the 2009–2010 school year in Utah.

Educational Programs

CNC Programmer



One Classification of Instructional Programs (CIP) is related to the CNC programmer occupation. Data on program completion from instructional programs that train for CNC programmers are not available for Utah.

Supply and Demand Analysis



Stock Analysis and DWS Projections

Most recent characteristics of employment in these occupations for the state with employment projections for 2020.

Occupation	2010 Unemployment Rate	2011 Average Wage	2011 Employment	2013 Projected Employment
Machinist	6.5%	\$21.49	4,040	4,310
CNC Programmer	Unavailable	\$26.09	70	80

Flow Analysis

Occupation	2011 Job Orders	2010 Graduates
Machinist	512	110
CNC Programmer	260*	Unavailable

*These job orders include 246 posted for machinist (SOC 514041) but titled CNC programmer.

Most employers who submitted a job order for a CNC programmer classified them as general machinists. This error is evident in the discrepancy between SOC (Standard Occupational Classification) codes and job titles.

Seekers in DWS Labor Exchange

Active Job Seekers in DWS Labor Exchange by Experience in 2011

	Machinist	CNC Programmer
Number of job seekers	2,716	116
Average months of experience	63	81
Percent with no experience	14%	16%
Percent with greater than average months of experience	35%	42%

Source: Utah Department of Workforce Services

Occupations by Industry

Machinist

Percent of Employment by Industries

	Percent of Total Employment
Transportation equipment manufacturing	44.3
Fabricated metal product manufacturing	21.4
Machinery manufacturing	13.7
Miscellaneous manufacturing	10.1
Public administration	5.1
Administrative and support services	2.4
Computer and electronic product manufacturing	1.9
Primary metal manufacturing	0.6
Educational services	0.4

Occupations by Industry

CNC Programmer

Percent of Employment by Industries

	Percent of Total Employment
Fabricated metal product manufacturing	57.1
Computer and electronic product manufacturing	14.2
All others	28.7

Job Vacancy Study

The length of openings from the Job Vacancy Study (JVS), capturing vacancies from second quarter of 2012.

Length of Opening				
Occupation	Less than 30 Days	30–59 Days	60 or More	Constantly/ Always
Machinist	1.3%	7.4%	25.6%	65.7%

The number of vacancies in the study was approximately 143 for the machinist occupation. Vacancies that are constantly or always open most often represent high turnover and not necessarily perpetually open positions. The category “60 or more days” is more likely to capture job openings that are hard-to-fill.

The sample of vacancies for the CNC programmer occupation was not statistically valid.

The average offered wage for machinists in the JVS was \$19.80, lower than the statewide average of \$21.49. If new machinist positions are offering lower-than-average wages, high turnover can be expected as workers migrate to positions with higher wages.

Conclusion and Commentary



Conclusion



Analysis of the labor supply and demand data for manual machinists and CNC programmers does not support the conclusion that there is a skills gap for these occupations. When considering the number of job orders for manual machinists (512) and CNC programmers (260) compared to the number of job seekers in the DWS labor exchange system (2,716 and 116, respectively) in 2011, there does not appear to be a shortage of laborers.

While the number of CNC programmer job seekers is ostensibly lower than the job orders for this occupation, this is most likely due to some CNC programmer positions being mislabeled as general machinist positions. This conclusion stems from observations of job orders which had classified positions as machinists when they were actually for CNC programmers, as evident by job titles or descriptions. As such, there are likely to be more CNC programmer job seekers than the data suggests, which refutes the hypothesis of a skills gap.

Wages from the JVS also contradict the existence of a skills gap with the machinist occupation. If a true skills gap existed, with a greater need for laborers than is readily available, wages for new machinist positions would likely be higher than the market average. But, JVS wages are actually lower, challenging claims of a skills gap.

Commentary



Interpretation of the available data that has been presented here leads to a conclusion that no skills gap exists in either the manual machinist or CNC programmer occupations. However, caution needs to be exercised by recognizing the limitations of the data.

The first two caveats are related to job orders and job seekers data and were mentioned in the previous slide: job orders for CNC programmers were frequently misclassified as machinist positions, implying a similar tendency with job seekers data. The potential for this error was taken into consideration in the assessment of a skills gap.

There may also be a discrepancy with the 2011 employment figures in the stock analysis. Since that data is derived from employer response, it might be at risk of the same kind of misidentification that occurred with job orders. Employers might be using the term “machinist” to represent a whole host of occupations that are similar to machinist, including CNC programmer.