This describes the methodology used to produce statewide labor force participation projections for the State of Minnesota by age cohort and by gender for each five-year interval from 2015 to 2050. Each year in the timeline indicates either the projected number or rate of persons considered to be 'in the labor force' as of 1 July of that year.

DATA AND TIME WINDOW:

Statewide labor force participation rate data from the Decennial Census from 1980-2010, as well as statewide labor force participation rate estimates from the American Community Survey (ACS) 1-year data from 2011-2015 were used to forecast total labor force participation for the next three decades. Historical data was limited to a time window from 1980-2015, although alternatives were calculated limiting the historical data to either 2000 or 2010.

Age cohorts for each gender were projected individually and are parsed as follows: age 16-19, 20-21, 22-24, 25-29, 30-34, 35-44, 45-54, 55-59, 60-61, 62-64, 65-69, 70-74, 75+.

FORECAST METHODS:

Trend-lines of Decennial Census counts and ACS estimates for labor force participation rates by age cohort and gender were first analyzed. Analysis was conducted using the statistical program Stata. Three basic regression models were used to project the labor force participation rate of Minnesota. Analysis of the historical trend, in conjunction with larger regional trends and professional intuition, served to guide the choice between different models for each age cohort by gender. The models are: 1) linear regression of statewide participation rate on year, 2) linear regression of statewide participation rate on year and year-squared, 3) linear regression of log on statewide participation rate on year.

Model choices were decided upon for each age cohort and gender, and labor force participation rates were calculated. These rates were applied to the previously calculated Minnesota age and sex population projections in order to attain whole numbers for male and female labor force participation. The methodology for this dataset can be found here: https://mn.gov/admin/assets/methodology-2016-2070-mn-statewide-age-sex-projections-dec2016-msdc_tcm36-269565.pdf
Each age cohort’s whole numbers created for male and female labor force participation were summed together to form a total labor force participation number for each age cohort. Each age cohort’s summed labor force participation number was then divided by the corresponding age cohort’s total population from the same dataset mentioned above to generate a total labor force participation rate for each age cohort. Because of the process of rounding during calculation, numbers for the total labor force participation will not equal the sum of numbers for male and female labor force participation.

**POTENTIAL SOURCES OF ERROR IN LABOR FORCE PARTICIPATION PROJECTIONS:**

There exist potential sources of error in labor force participation projections. These include:

1. The statewide population projections by age and gender could change in an unexpected direction.
2. The historical data chosen could prove to be an inaccurate representation of future trends. The further estimates are from the Census year, the less accurate they are likely to be.

For more information regarding the methodology described here, please contact Megan Dayton at megan.dayton@state.mn.us (preferred) or 651.201.2461.