Now we have the most recent census data by age group and subarea for the New York City in 2010, and total population projection by age group in New York City for 2000-2014, we try to predict the population by age and subarea for 2000-2014.

The method we use is based on Bayes method. According to the distribution of age and subarea in 2010, we predict the distribution of age and subarea in other years. Denote: = Initial population for subarea s, age group x, year t.

To estimate , the population of a district within year groups x in year t, we applied some Bayesian perspectives.

Since we can find estimated population for year t and age groups, which is , thus we can calculate = we set as a initial value, where is the year of census which we have the data, then we have. Now we update through (2) by using we already know and , then we use equation (1) which is to again update . We do it until the algorithm converge.

We set the matric to be the absolute differences between independent totals by age group for each subarea and predicted population of the corresponding subarea. . is the total population projection by age group in New York City for year t. We repeat the process until the metric is less than 1 or just iterates 100 times.