SCAG Methodology for Growth Factor Calculation

SCAG is responsible for producing the growth factors based on the SCAG Growth Forecast. The growth factors serve as input to the SCAQMD stationary source emission inventory and forms the basis for developing control measures aimed at reducing a certain number of tons of criteria pollutants. It is an important component of the Urban Airshed Model which contains data on stationary source, mobile source and area source emissions.

A major assumption of the growth factor analysis is that the growth in emissions is a function of growth in output. The SCAG forecasted employment growth is translated into output growth based on changes in productivity. The growth factor contains the analysis that was done using the SCAG adopted RTP Forecast benchmarked to 1997. These forecasts then need to be split into the various air basins (SCAB, MDAB). SCAG intends to do this work utilizing the 2001 RTP forecast and our small area disaggregation methodology. CCSCE assisted SCAG in reviewing the employment forecasts for the individual sectors (especially manufacturing) and also in reviewing and updating the labor productivity factors.

SCAG delivered growth factors between 1997 and 2025 based on 2001RTP growth forecast. The 2030 data were then developed based on extrapolation technique. The detailed procedures are as follows:

1. **Growth Factors (GF) Calculation:**

$$GF_{(y,e,d)} = \frac{OUTPUT_{(y,e,a)}}{OUTPUT_{(base-y,e,a)}}$$

where

$OUTPUT_{(y,e,d)}$ = Total output in year y, economic sector e, and district d

$OUTPUT_{(base-y,e,d)}$ = Total output in base year base-y, economic sector e, and district d

y = Forecast years, 2000-2030 with 5 year increment
base-y = Base years, 1997
e = Economic sectors to 3-digit SIC, totally 56 sectors
a = Air Basin, including SCAB (LA, OR, RV, SB), MDAB (LA, SB), and Salton Sea AB

2. **OUTPUT Calculation**

$$OUTPUT_{(y,e,a)} = EMP_{(y,e,a)} \times PROD_{(y,e,a)}$$

where

$EMP_{(y,e,d)}$ = Total employment (wage & salary) in year y, economic sector e, and district d

$PROD_{(y,e,d)}$ = Productivity in year y, economic sector e, and district d

2.1   Employment Projection

SCAG project future employment at regional and county level, and then disaggregate to local jurisdiction and smaller geographic areas. The air basin employment is processed based SCAG's growth forecast and Dunn & Bradstreet database which provide detailed employment data to 4-digit SIC. Since SCAG project future employment to year 2025, 2030 employment are extrapolated based on the growth rate between 2020 to 2025.

2.2   Productivity Projection

Since the productivity data are not available for SCAG region, the productivity at national level is created based on BLS (Bureau of Labor Statistics) data. SCAG staff calculates U.S. productivity for 1998 and 2008. The future productivity is projected based on the growth rate between 1998 and 2008. The final productivity is projected from 2000 to 2025 with five-year increment. The 2030 productivity is projected based on the 50% of growth rate between 2020 and 2025. The 50% is an adjustmet based on recent economic slow down.