**Santiago, Chile**

Self-Paced Exercise

**Questions for Students – Answer Key**

**What data are required to create a new setup and run an analysis?**

If the goal of your analysis is to examine only health impacts, you must load grid definitions, pollutants, air quality data (in either monitor or model form), incidence/prevalence rates, a population dataset, and at least one health impact function. If you would also like to examine economic impacts, you must load a variable dataset and a valuation function.

**What is the relationship between the BenMAP data inputs and the grid definitions column/row index?**

All incidence rates and population data must be linked to a grid definition which matches the spatial scale of the data collected. Moreover, the column/row index links the specific input value to the polygon within the grid definition assigned to the incidence or population dataset.

**What is the difference between a pollutant and a metric?**

A pollutant is the air-contaminating substance of interest in your analysis. In this case, the pollutant is PM2.5. A metric expresses the time period over which air quality values are modeled or observed and how the value is calculated (e.g., mean, maximum, minimum). In BenMAP-CE, the Metric field refers specifically to daily values calculated directly from daily observations, or through various mathematical calculations of hourly observations.

**What is the air quality metric for the Santiago PM2.5 monitor data?**

The air quality metric for Santiago PM2.5 monitor data is a “D24HourMean”.

**What races are included in the Santiago Population data?**

The 2005 Santiago population data used in this analysis is not broken down by race. All races are included. However, the population is broken down by sex.

**What health endpoints are included in the Santiago Incidence Rates?**

The endpoints included in the Santiago Incidence Rates from Sanhueza et al. fall into two categories: hospital admissions and mortality. Both of these categories have two endpoints, respiratory and cardiovascular, for a total of four Sanhueza et al. health endpoints.

**What are the health endpoints of the Krewski et al. health impact functions?**

The Krewski et al. function that was manually imported has one health endpoint- Mortality, All-Cause.

**What are the sources for the valuation estimates? Why is it necessary to adjust these estimates for use in Chile?**

The first valuation function converts the U.S. EPA default mean VSL. The second valuation function converts a VSL estimate from the World Bank. We adjust these estimates for three reasons. First, we convert the VSL to be expressed in pesos rather than U.S. dollars. Second, the conversion accounts for inflation, or the general upward trend in prices over time. Finally, the VSL is converted to account for differences in income levels across countries and over time. Income has been shown to affect the value individuals place on mortality risk reductions (i.e., the VSL).

**What is the economic value for the benefits of the cap and trade program the Chilean government is considering? Should the government implement the program (remember the cost of the program is going to be 10 billion Chilean Pesos)?**

The point estimate for your pooled valuation results should be about 4 trillion Chilean pesos. The government should implement the program as these benefits outweight the cost of 10 billion Chilean Pesos.

**Based on the analysis you performed, what would your final policy recommendation be to the Santiago government as to whether they should implement the cap and trade policy? What information makes you support this recommendation?**

The final policy recommendation would be, yes, the Santiago government should implement a program to reduce PM2.5 concentrations by 50% throughout the country. Since the monetary benefits of the rollback outweigh the cost of the program, Santiago will gain economically from passing this legislation.