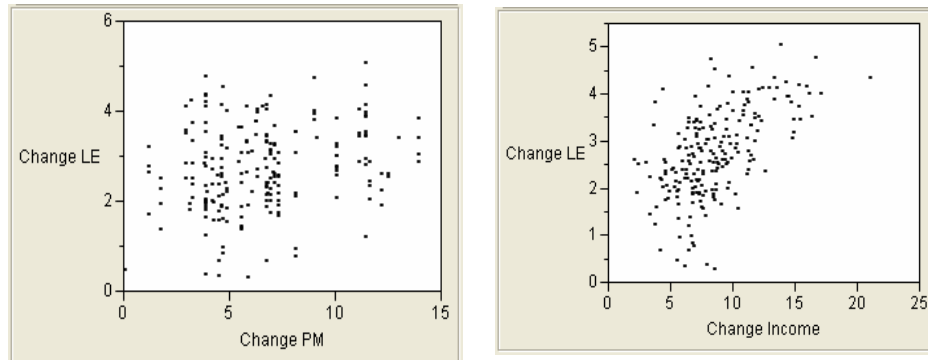


Mortality Associations with PM2.5 and Income



Data from Pope CA, Ezzati M, Dockery DW. (2009)
Fine-particulate air pollution and life expectancy in the United States.
New England Journal of Medicine 360, 376-386.

So, would you rather be rich or have longer life through improved air quality? Is there a tradeoff? Pope, Ezzati and Dockery, 2009, reported on the change in air quality and the change in life expectancy in the NEJM earlier this year. They made the claim that life expectancy increased with improved air quality. The effect was modest at best. Here is a re-plot of metropolitan county data, 211 sites, their Figure 4.

They plot the change in life expectancy, Change LE, against the Change in PM2.5 (particles/aerosols less than 2.5 microns). Visually there is an ever so slight increase in change in life expectancy with change in air quality. Well, that might impress a statistician. The effect, if it is real at all, is quite modest. Also, for any particular improvement in particle size the variation in life expectancy is quite large.

Now let's take a look at change in life expectancy as a function of change in income, figure on the right. Pope provided some of the data they used. Look at change in life expectancy against change in income. This plot was not given by Pope et al. One could speculate why.

Very clearly as income improves, so does life expectancy. The effect is much more pronounced than any affect of PM2.5. It makes sense that income matters. If you have more money, you can eat better, get better health care, drive a safer car, drink more red wine, etc. Life can be good, and longer, with more income. It is well-known that people's health will be adversely affected by loss of income. The cost of improving air quality is high and the money has to come from somewhere. If there is a policy choice, it should be tilted toward higher income; let individuals figure out how to lead the good and long life. One lesson from ecology is that things are related. Health and the economy are related. With a vibrant economy there are resources to deal with many problems. A healthy economy makes possible healthy people. To focus entirely on air quality will likely cause more health problems than it solves.