GROWING UP IN A STEEL TOWN: EARLY-LIFE POLLUTION EXPOSURE AND LATER-LIFE MORTALITY

SARAH TAYLOR

ABSTRACT: An important hypothesis about the detrimental consequences of air pollution is that high levels of exposure in childhood can result in a lifetime of health problems, leading to increased mortality rates at older ages. I evaluate this hypothesis using a unique proprietary dataset—Medicare records matched to Social Security records that identify birthplace. I evaluate old-age mortality among 390,000 individuals born in small cities and towns in Pennsylvania during the years 1916 through 1927. Some of these individuals were born in places with steel production, and thus likely had exposure to high levels of air pollution in childhood. These individuals have significantly higher rates of mortality post-age 65 than those born in comparable towns that did not have steel production facilities.

There are three notable features of the excess mortality among those born in steel towns: (1) the relationship holds for comparisons within counties, (2) the excess mortality is higher in towns that had relatively higher levels of steel production, and (3) old-age mortality is especially high for individuals born in locations with relatively high levels of steel production and relatively low elevation—a finding consistent with the possibility that low-elevation locations were subject to atmospheric inversions that trapped air pollution. By matching my data with publicly available death certificate data, I am also able to evaluate cause of death. It appears that the excess mortality associated with childhood exposure to air pollution is due primarily to elevated levels of cancer.