

# Wealth and Health – Less Wealth Means Less Health

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- Many studies link lower income, lower GDP, job losses, unemployment, etc. to shorter lives and more health-related problems
  - These adverse health impacts must be considered for health-based NAAQS
  - See references provided later
  
- EPA fails to recognize reductions in income and growth and economic dislocations from proposed tighter NAAQS. NAM study estimates economic impacts for 65 ppb NAAQS as:
  - GDP reduced by \$140 billion/yr
  - 1.4 million fewer job-equivalents average across the study period
  - \$840/yr in reduced consumption expenditures by average U.S. household
  
- **These economic impacts will cause adverse health impacts larger than the (overstated) health benefits that EPA claims from a NAAQS at 65 ppb**
  - Calculations follow for mortality impacts (> 95% of EPA's claimed benefits)

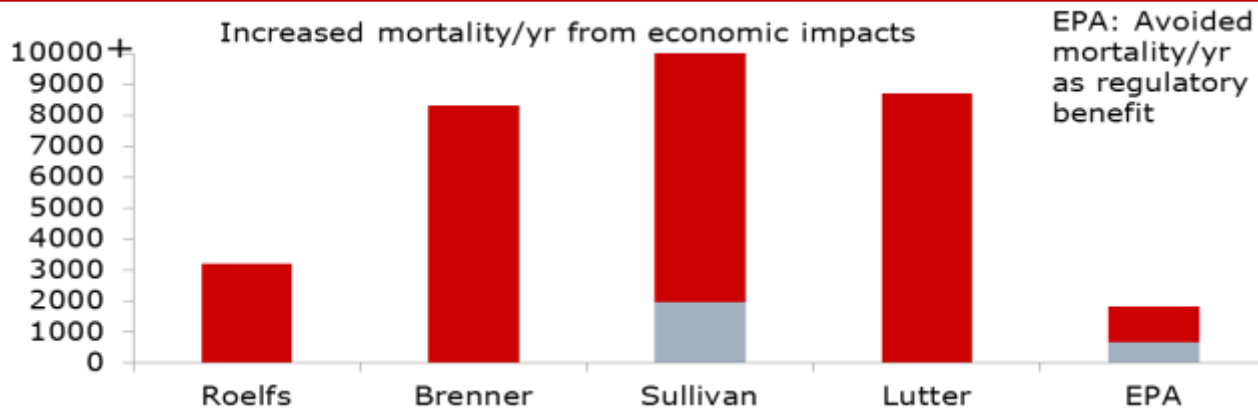
# Negative Economic Impacts of NAAQS at 65 ppb Would Increase Mortality by More than EPA's Claimed Mortality Benefits – Examples

EPA estimates 680 - 1,840 premature deaths from ozone prevented per year (CA + remainder of U.S.)

- Also EPA inappropriately claims 1,490 – 3,300/yr from PM<sub>2.5</sub>

## Increased Premature Mortality from 65 ppb NAAQS -- 4 Estimates

From unemployment -- Roelfs, et al, 2011	3,220 deaths/yr
From GDP loss -- Brenner, 2005	8,320 deaths/yr
From job displacement -- Sullivan & von Wachter, 2009	1,970 - 39,500 deaths/yr
From loss in household consumption -- Lutter, et al, 1999	8,710 deaths/yr
EPA estimate: premature deaths prevented (ozone)	680 - 1,840 deaths/yr



# Detail on Sources of Estimates for Mortality Impacts from Adverse Economic Impacts of NAAQS at 65

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- Unemployment → accelerated mortality. Roelfs, et al (2011) meta analysis of 235 mortality risk estimates from 42 studies finds median hazard ratio of 1.24 for all-cause mortality for unemployed vs. general population
- GDP loss → accelerated mortality. Brenner (2005): "Economic growth is the basis of mortality rate decline in the 20<sup>th</sup> century – experience of the U.S. 1901-2000." Regression equation relating real GDP per capita and other variables to age-adjusted U.S. death rates
- Job displacement → accelerated mortality. Sullivan & von Wachter (2009) estimate annual excess mortality over 20 years for displaced vs. non-displaced workers
- Loss in household consumption → accelerated mortality. Lutter, Morrall & Viscusi (1999) estimate that \$15 million loss in income results in 1 excess statistical death

# References: Wealth and Health – Less Wealth Means Less Health

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Steven H. Woolf et al. How are Income and Wealth Linked to Health and Longevity? Urban Institute Income and Health Initiative: Brief One. April, 2015.

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Jennifer B. Dowd et al. Income and Mortality in the USA Over Three Decades. *Int J Epidemiol* 2011;40(1); 183-188.

See also the many references listed on page ES-4 in American Petroleum Institute. "Comments on the National Ambient Air Quality Standards for Ozone Proposed Rule." March 17, 2015. In Docket ID No. EPA-HQ-OAR-2008-0699.