This is a paper on the changing air pollutant levels over time and its health impacts. It is an important paper for countries yet having to work on reducing air pollutants to be able to see some quantified effects. However, some improvements and clarifications needs to be made.

My main comment is that the paper is very long and results and methods could benefit from being presented in a more concise manner. The same for the discussion parts which also could be richer in references and less on speculation on own results. Below is some additional comments:

Abbreviations should be spelled out first time used

However, tests have shown that the calculations in life expectancy give very similar results regardless of the year (1997–2015) in which the population structure and mortality statistics are based on. Reference is needed for this statement.

We have applied relative risks obtained from previous epidemiological studies, where the relationships between mortality and exposure to NO_x, NO_2, O_3, and PM_{10} have been analyzed.
A discussion of choosing this over HRAPIE could be extended.

We have done this for NO_x in Stockholm and Gothenburg, and for O_3 and PM_{10} in Stockholm. Why not for Malmö and why not for all places and not all places?

Spatially resolved O_3 concentrations in Stockholm are calculated from a combination of measurements and dispersion modelling of NO_x concentrations. This could be a problem since you use same input data.

Have the O3 model been validated by spatially distributed measurements?

Some models have been validated with measurement data but to my knowledge not so much on data from earlier period. Please state year.

It is quite unclear when measurements or modeling has been applied, please clarify.

Please move some results and tables to supplemental material.

The changes in life expectancy are calculated with 10 the mean values and the 95 % confidence intervals of the relative risks, while for the trends and the population-weighted exposure concentrations, only the median and the mean values, respectively, have been used, but without considering their confidence intervals. This belongs to methods

Additionally, the particulate filters used for diesel vehicles will also give rise to an increased NO_2/NO_x ratio, since some of these filters work by oxidizing NO to NO_2 (Grice et al., 2009; Wild et al., 2017).
The O_3 levels in Stockholm (Fig. 2 and 6) exhibit increasing trends during the period. More stringent emission standards with reduced emissions of NO mean that less O_3 is consumed, due to a reduction of the NO titration, and thereby arises an 25 increasing trend. PM_{10} exhibits decreasing trends in Stockholm. Unclear if these two sentences match.

O3 is also affected by the weather that year and this should be mentioned.