

### Environment

*People are still exposed to unsafe levels of air pollution in 60% of OECD regions. While air quality has improved across OECD countries since 2000s, PM 2.5 has started to grow again in recent years, particularly in Italy, Japan, Korea and Slovenia.*

The exposure to air pollution in regions and cities is greatly associated with the industry located in the territory, its level of urbanisation and its transportation system. Fine particulate matters (PM<sub>2.5</sub>) are generally emitted from the combustion of liquid and solid fuels for industrial and housing energy production, vehicles and biomass burning in agriculture.

In 2015, in 60% of the OECD regions, people were on average exposed to levels of air pollution that were higher than those recommended by the World Health Organization (pollution concentration level of 10 µg/m<sup>3</sup>), although this was down from 74% in 2000. Italy and Korea were the countries where the highest regional concentrations of air pollution were observed in OECD countries. In the regions of Lombardy (Italy) and the Capital Region (Korea), pollution levels were above 30 PM<sub>2.5</sub> per person (Figure 2.18). In contrast, people in all regions in Canada, Australia, New Zealand, Estonia, Norway, Ireland and Finland were exposed to low levels of air pollution (below 10 µg/m<sup>3</sup>).

Air pollution levels varied greatly from region to region. The largest differences are observed in Italy, Chile and Mexico.

#### Definition

Particulate matter (PM), refers to a complex mixture of sulphates, nitrates, ammonia, sodium chloride, carbon, mineral dust and water suspended in the air. Particles can be classified in two categories according to their origin (WHO, 2013). On the one hand, primary PM is emitted from the combustion of liquid and solid fuels for industrial and housing energy production as well as from the erosion of the pavement of roads. On the other hand, secondary PM is the result of chemical reactions between gaseous pollutants.

PM<sub>2.5</sub> air pollution data does not differentiate between manmade dust (anthropogenic) and non-anthropogenic dust; however, evidence indicates that dust is as hazardous as anthropogenic sources, and as such there are plausibly relevant policy responses such as warning systems that advise vulnerable people to stay indoors when levels are high.

On the flipside, countries such as Finland, Ireland and Belgium present the smallest differences across regions (Figure 2.18).

While a general improvement in air quality across the OECD areas has occurred since 2000, in a few countries air quality actually deteriorated. This happened in Israel, Turkey, Korea, Greece and Italy, with average increases above 5%. In these countries, air pollution increased in the regions with relatively higher exposure to PM<sub>2.5</sub>, such as Lombardy (Italy), South Aegean (Greece), South Sweden, Southern Eastern Anatolia - East (Turkey), where air pollution increased by more than 10% with respect to their national average over the period 2000-16 (Figure 2.19).

#### Source

Data collected from OECD (2017) "Exposure to Air Pollution", OECD Environment Statistics (database), <https://doi.org/10.1787/96171c76-en>.

See Annex B for data sources, methodology and country-related metadata.

#### Reference years and territorial level

2015 (three year average 2013-15); TL2

#### Further information

Mackie, A., I. Haščič and M. Cárdenas Rodríguez (2016), "Population Exposure to Fine Particles: Methodology and Results for OECD and G20 Countries", OECD Green Growth Papers, No. 2016/02, OECD Publishing, Paris, <https://doi.org/10.1787/5jlsqs8g1t9r-en>.

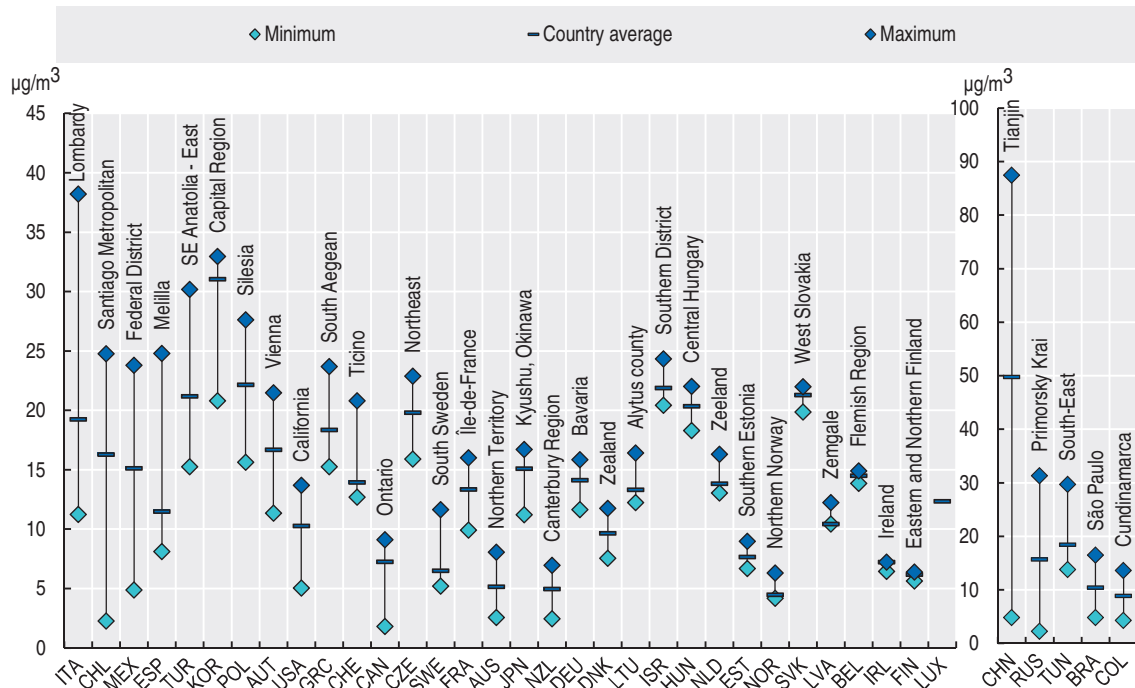
Brezzi, M. and D. Sanchez-Serra (2014), "Breathing the Same Air? Measuring Air Pollution in Cities and Regions", OECD Regional Development Working Papers, No. 2014/11, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5jxrb7rkxf21-en>.

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WHO (2013), Health Effects of Particulate Matter: Policy implications for countries in Eastern Europe, Caucasus and Central Asia, [www.euro.who.int/\\_\\_data/assets/pdf\\_file/0006/189051/Health-effects-of-particulate-matter-final-Eng.pdf](http://www.euro.who.int/__data/assets/pdf_file/0006/189051/Health-effects-of-particulate-matter-final-Eng.pdf).

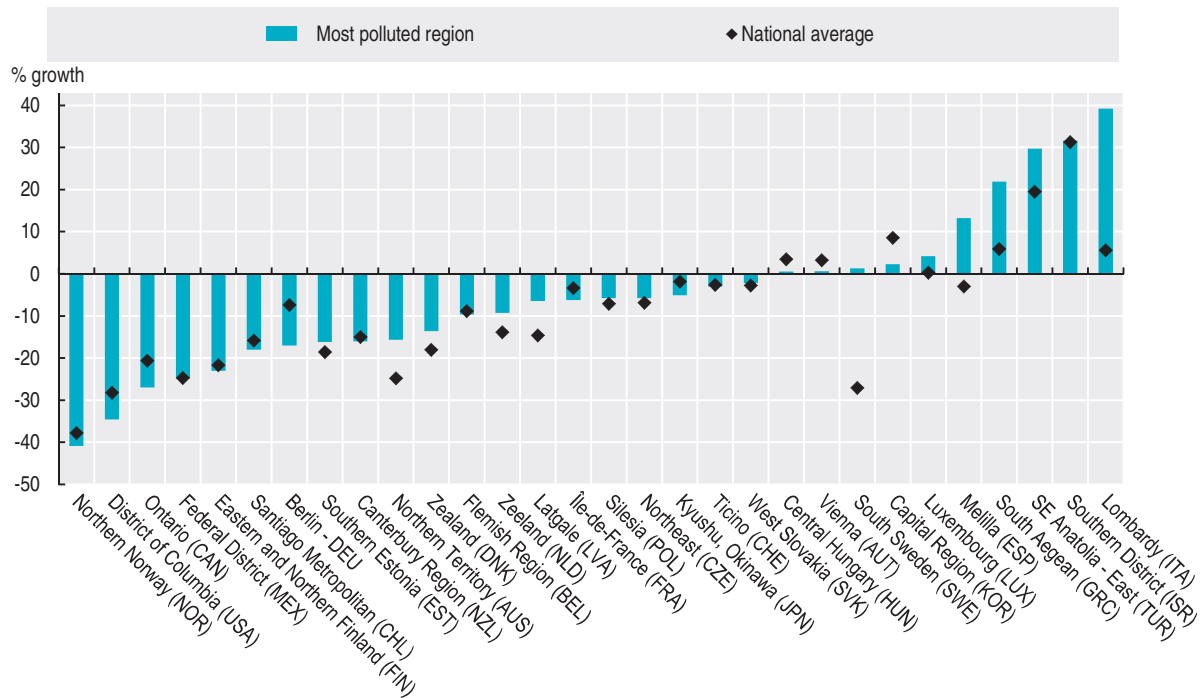
## 2.18. Regional differences of annual exposure to air pollution, 2015

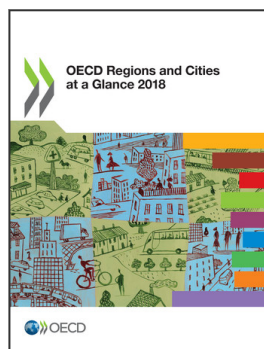
Large regions (TL2)

StatLink <http://dx.doi.org/10.1787/888933817314>

## 2.19. Air pollution growth for the highest polluted region 2000-15

Three year averages, large regions (TL2)

StatLink <http://dx.doi.org/10.1787/888933817333>



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