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# The gateway to carbon pricing? Air pollution policy

- **Buying carbon is too cheap and easy.**
- **'Gateway tax', focussing on air pollution, could be initial step.**
- **Outdoor air pollution causes 4 million deaths a year.**

When it comes to climate policies, of [those available](#), the economist's preferred tool tends to be the elusive carbon tax'. Despite notable [successes](#), the implementation of carbon taxes is rare or insufficient, as the recent struggles to find a [consensus](#) around the COP25 highlight, despite climate change reaching emergency status.

In particular, challenges raised by the ecological transition inhibit change. Firstly, because putting a price on carbon is a hard task: it requires the precise evaluation of consequences to climate disasters in the case of inaction, which is fraught with uncertainty. Secondly, when it comes to measuring the value of access to clean air, economic tools might be inadequate, and the real cost of irreversible change to the environment tricky to assign value.

Despite these limitations, however, there is best practice: [IMF calculations](#) and the [Stiglitz-Stern Commission](#) suggest that to maintain global warming under the 2°C target, associated global carbon prices should be at US\$75 to US\$100 per carbon ton by 2030. Yet, global averages are currently at [US\\$2](#).

The ink on the 2015 Paris agreement has led to too little action as 80% of global emissions are still not covered by carbon pricing. Even those countries that initially progressed have hit stumbling blocks. For example, in France, equity concerns on the [redistribution](#) of gasoline related carbon tax revenues to the economy inhibit progress.

Therefore, while a price on carbon may be the designated first-best solution, in many places, this may not be the right time to implement it. A 'gateway tax' as a precursor to a carbon tax, which focuses on air pollution, could be an intermediate pro-productivity, pro-equity alternative – lowering emissions while increasing livelihoods.

## The gateway: air pollution and its allocation

Globally air pollution is concentrated in cities, yet both central and municipal government policymakers should care about this as air pollution can drive three significant losses: The loss of health, productivity and equity.

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When it comes to the effects of air pollution on health, the effects are stark: worldwide, there are [4 million deaths](#) every year due to exposure to outdoor air pollution. At a city level, it affects all income levels, but with varying magnitudes. For example, there are [five deaths](#) a week in Bristol, UK compared to over [500](#) in Delhi, India.

Air pollution also reduces economic productivity, as it lessens worker's ability to turn up and function at peak levels. In Mexico City, Mexico, for example, a 20% drop in sulphur dioxide levels saw workers increase their time worked by [3.5%](#) – equivalent to a per worker gain of US\$126 from reduced absenteeism. Workers in China saw a [6%](#) increase in value add to their desk-based work when air pollution in the city was low compared to suffocating. Air pollution can also induce forced migration, [driving citizens](#), particularly the young and educated away, who may prefer a loss in income rather than a loss in health.

These adverse effects are felt very unequally hurting the poorest most. For example, 91% of premature deaths occurred in [low and middle-income countries](#), which are also the countries where the intensity of air pollution is highest. Within countries, outdoor pollution is concentrated in cities, which account for [75%](#) of greenhouse gas emissions. The opening image map for example highlights particular urban air pollution peaks – notably around Dhaka, Bangladesh as well as China's industrial cities of Taiyuan, Linfen, or to a lesser extent Seoul, South Korea. Furthermore, although this is also a problem in wealthier cities, the problem is comparatively small: the first OECD city to enter the worst offenders list, in terms of air pollution, is [Batman, Turkey](#). But it does not even make the top 100.

Even within cities, air pollution is not felt equally. Within European cities, [ethnically diverse](#) and deprived areas have higher air pollution levels. Half of London's deprived lower income and education areas break the [legal limits](#) of air pollution compared to just 2% of wealthy areas. Cities can respond to this and are beginning to. However, economic policy response needs to be matched to local context.

### **Economic options and successful cases of air pollution change in cities**

One such response is through market-based policies, such as pollution taxes and tradable permits. These are in theory the most cost-effective – dynamics should ensure producers with the lowest costs of reducing pollution make the largest cuts. However efficiency of such schemes are highly dependent on the quantity of permits supplied and the [allocation rule](#). The particulate trading programme piloted in Surat, India is one example, where current projections expect a [reduction in emissions](#) of 29% while simultaneously increasing firm profits. Elsewhere clean air zones (CAZs) are taking hold, intending to discourage most polluting vehicles from entering parts of cities. This reduction can be achieved either [with low cost](#) labour intensive or [higher cost](#) automated systems.

Alternative control-based policies are typically a less complex way to combat air pollution. Quantity restrictions on use such as in [Delhi, Mexico City, and Quito, Ecuador](#) have reduced air pollution by 10%. Similarly, information-based policies, both at the firm level and citizen level, [can be effective](#). The former, as with India's continuous emissions monitoring system (CEMS) where providing enhanced [information](#) on polluters dramatically reduced pollution. The latter in communicating real health losses to city residents in order to change behaviour.

Highlighting successful policy in a city is one thing. Having necessary data to underpin its implementation is another. Dakar, Senegal, is one of the [only cities in Africa](#) measuring daily pollution levels. Accountability must be the precursor of action.

### **Air pollution taxes – a gateway tax**

The three losses; in health, productivity and equity, require public policy response. As they have shown, air pollution taxes and caps in cities are arguably more straightforward to implement than carbon taxes. They are more easily linked to a geographical space with a direct mechanism of change through cleaner air. Furthermore, citizens in cities feel the effects of air pollution changes quickly.

In their implementation, they could help enhance life expectancy, economic productivity and equity – all while critically lowering emissions. Revenues from taxation can be either returned to citizens as a dividend (similar to British Columbia in Canada's [carbon tax](#)), making it a [pro-poor](#) revenue-neutral policy. Alternatively, they can fund pollution-mitigating projects such as public transport (similar to [London's Toxicity Charge](#)). Climate change may be [won or lost in cities](#), and air pollution taxes are one way the fightback can be made by urban policymakers, making them a useful gateway for carbon taxes to come.