

# Economic and health impacts of Clean Air Zones

CBI Economics analysis commissioned by the Clean Air Fund

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# Benefits of improving air quality in the UK

## Improving air quality in the UK

- Clean air matters because it contributes towards people's health and the natural environment.

However...

- The WHO has recently set more ambitious guidelines than the UK on what clean air limits should be; and
- The UK is meeting its legal limits for all pollutants except nitrogen dioxide

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### Breathing life into the UK economy

Quantifying the economic benefits of meeting WHO air quality guidelines in the UK



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### Breathing life into UK cities

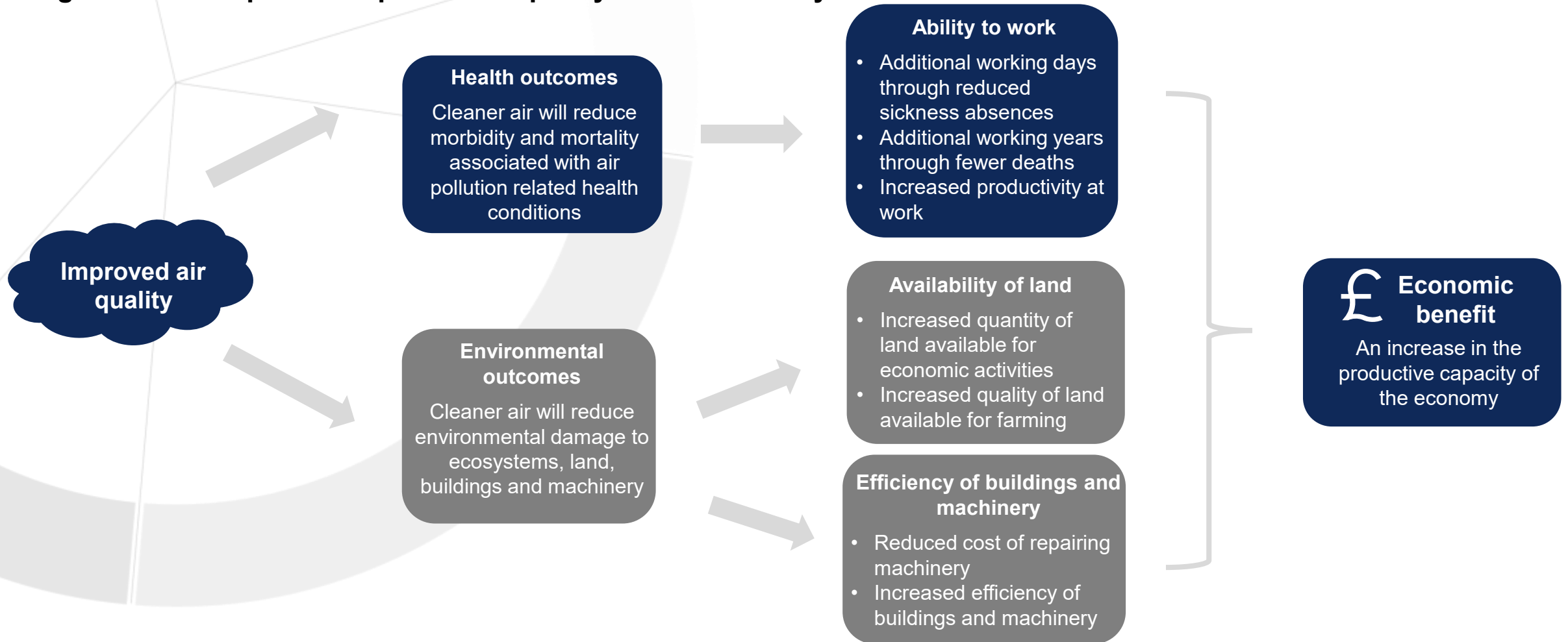
Quantifying the economic benefit of reducing nitrogen dioxide in eight cities



# How does cleaner air impact the economy?

Air quality affects our health and the environment, which impacts the ability of businesses to operate and as a result the productive capacity of the economy.

**Figure 1: The impact of improved air quality on the economy**



# The economic and health benefits of meeting WHO targets

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In 2018, the UK was not meeting the more ambitious air quality guidelines set by the WHO, except for ozone.

Figure 2: UK compliance assessment

Pollutant	UK	WHO	
PM <sub>10</sub>	24 hour mean	✓	✗
	Annual mean	✓	✗
PM <sub>2.5</sub>	24 hour mean	NA	✗
	Annual mean	✓	✗
O <sub>3</sub>	Annual mean of daily max 8 hour	✓	✓
NO <sub>2</sub>	1 hour mean	✗	✗
	Annual mean	✗	✗
SO <sub>2</sub>	24 hour mean	✓	✗

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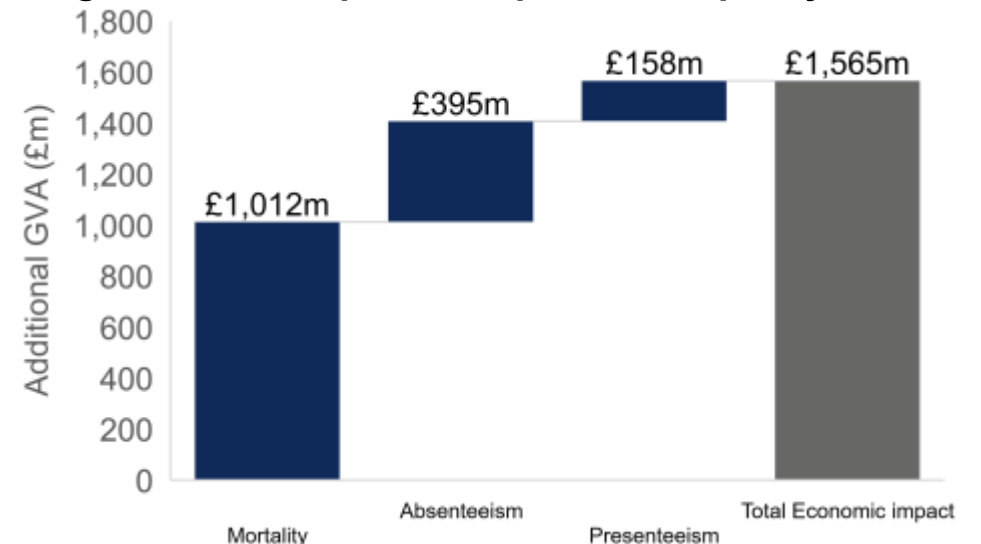


More ambitious targets, in line with the WHO could deliver benefits to the health of the workforce by preventing deaths and adding working days by reducing sickness.

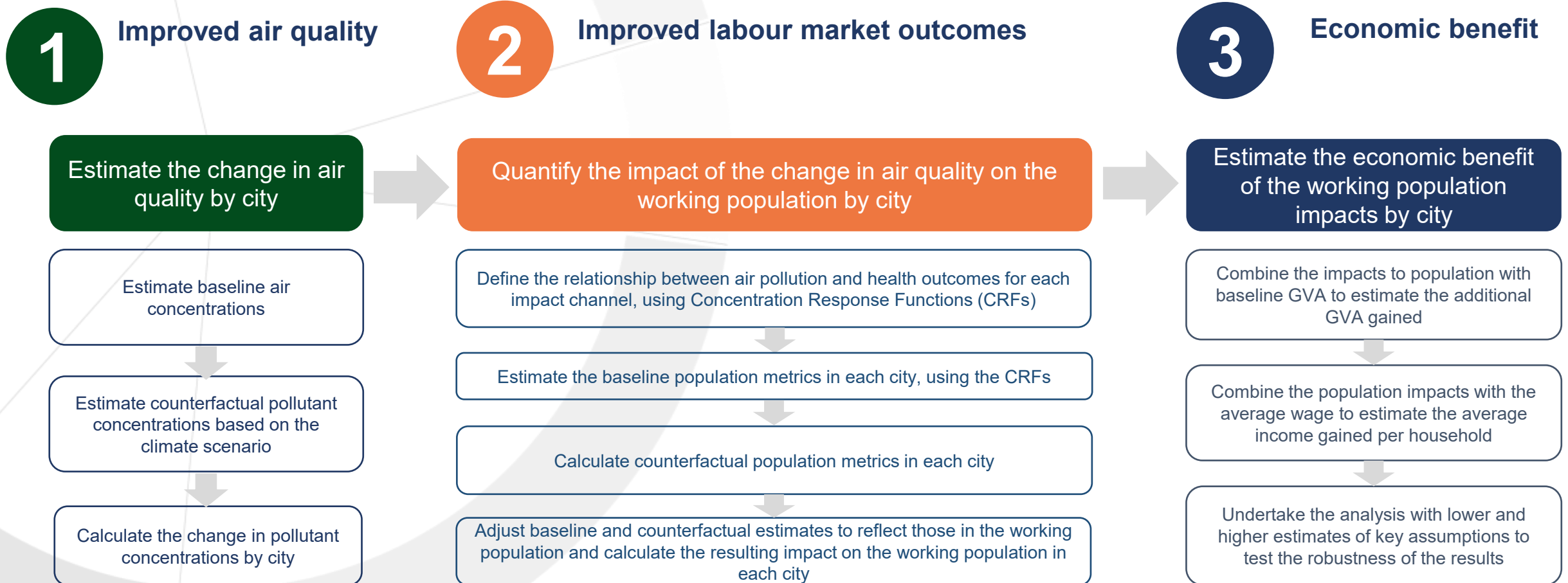
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By preventing deaths and sickness, clean air in line with WHO guidelines could deliver a **£1.6bn boost** to the UK economy each year.

Figure 2: GVA impact of improved air quality



# Methodology



# City spotlight: Introducing a CAZ in Birmingham

Several cities have been mandated to introduce CAZs, including Birmingham, with the Council introducing a CAZ on 14 June 2021.

**Figure 3: Birmingham Clean Air Zone**



	UK limit value	Average NO <sub>2</sub>	Maximum NO <sub>2</sub>	Compliance assessment
NO <sub>2</sub> annual mean	40 µg/m <sup>3</sup>	31 µg/m <sup>3</sup>	55 µg/m <sup>3</sup>	Non-compliant
NO <sub>2</sub> 1-hour mean	200 µg/m <sup>3</sup>	N/A	133 µg/m <sup>3</sup>	Compliant

# City spotlight: Economic benefits of tackling NO<sub>2</sub> in Birmingham

The impacts of the Clean Air Zone can be large. A 5 µg/m<sup>3</sup> reduction in NO<sub>2</sub> brings with it health and economic benefits.

**Figure 4: Economic and health benefits of reducing NO<sub>2</sub>**



# The impact across other UK cities were substantial

Figure 5: UK map with eight city analysis

Manchester  
598,000 working hours saved  
£7.1mn economic benefit

Liverpool  
113,000 working hours saved  
£1.5mn economic benefit

Bristol  
82,000 working hours saved  
£1mn economic benefit

Newcastle  
54,000 working hours saved  
£0.6mn economic benefit

Sheffield  
97,000 working hours saved  
£1mn economic benefit

Birmingham  
216,000 working hours saved  
£2.7mn economic benefit

London  
2.5 million working hours saved  
£48mn economic benefit

Portsmouth  
43,000 working hours saved  
£0.5mn economic benefit





# The final benefits of reducing NO<sub>2</sub> are likely to be greater

In this analysis, we did not consider all impact channels and so the health and economic benefits of cleaner air are likely to be great. Taking Birmingham as an example, in terms of health benefits:

- A larger share of the UK's population will be exposed to cleaner air than just those living inside Birmingham's Ring Road
- Improving air quality will reduce a host of primary health conditions associated with air pollution
- Improving air quality will reduce health conditions where air pollution is a secondary factor
- Reducing emissions from vehicles is expected to lead to a reduction in other pollutants

In terms of economic benefits:

- The resulting days lost from work in the event of a hospital admission will be higher than just the days spent in hospital
- The value of unpaid work not carried out as a result of conditions related to NO<sub>2</sub> emissions cannot be estimated

# What next?

Our analysis covered seven other cities, some of which have implemented a Clean Air Zone – such as Birmingham – and others like Greater Manchester that have reviewing the implementation of their CAZ.

Several interesting areas to explore in related to this policy change:

**The role of electric vehicles**



**Distributional impacts**



**Wellbeing improvements**



**Impact on buildings and machinery**



# Thank you

Please do get in touch with any questions:

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