Setting the Stage

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Low Emission Zones

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Outline

• Why do we have LEZs?

• How are LEZs defined?

• What are other related traffic policies?

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1. Why do we have LEZs?

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Particulate Matter



Particulate Matter



Health Cost of Air Pollution well documented

Air pollution accounts for 7 million deaths worldwide annually (WHO, 2014)

• In Europe alone, the health costs are estimated at Euro 330-940 billion (European Commission, 2014): 3-9% of EU GDP

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• Definition: Low Emission Zones are areas in which access is allowed only to vehicles that are low in pollution.

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In order to reduce noise pollution and air pollution, Julius Cesar banned horse carriages from entering Rome between 6am to 4pm

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Three Types of LEZs

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Three Types of LEZs

- Complete Ban of Dirty vehicles: Germany (based on PM₁₀ Emission)
- Pollution Charge: Dirty transport vehicles pay £100 to £1000 per day: London
- Congestion Charge for most vehicles: Milano (Euro 5/day), presented by Federico Parolotto

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Germany

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LEZ and Vehicles



LEZ and Vehicles





LEZ and Vehicles







Heterogeneity in Size of over 40 LEZs

• Smallest LEZ: Dortmund: 300 meter long stretch, started in 2008

• Today: this same LEZ is embedded in the 880 square kilometer LEZ of Rhineland (largest in Germany)

Structure of LEZs: Example Reutlingen



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LEZ of Stuttgart (277 sq km) includes rural areas



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London Low Emission Zone: Timeline



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London Low Emission Zone: Timeline



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 - Advantage: Easy to implement and monitor
 - Disadvantage: Empirically no significant improvements in air quality
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- Bicycle Lanes, bicycle share programs
 - Turn polluting commute into a healthy, space saving commute \rightarrow Future for densely populated areas

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Bicycle Lanes -- Bicycle share programs



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Thank you!

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