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## Natural Experiments in Environmental and Transport Economics

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Joris Klingen

## Natural Experiments in Environmental and Transport Economics

This thesis provides a collection of five natural experiments in environmental and transport economics. Chapter 1 introduces the topics and offers the methodological context. Chapter 2 tests the hypothesis that particulate matter has a direct effect on human decision-making. It uses chess games as a natural experiment and demonstrates that air pollution causes individuals to take less risk. Chapter 3 assesses whether ozone air pollution affects human physical activity. Findings show that ozone reduces cycling speed, even for concentrations below current air quality standards. Chapter 4 finds that public rental bicycles are a local net substitute for metro service and that these bicycles can alleviate time losses stemming from interruptions in public transport. Chapter 5 focuses on New York City and estimates the causal effect of protected bike lanes on traffic speed, flow, and road safety. Bike lanes seem to improve cyclists' safety both on streets and at junctions, while having no statistically significant effect on traffic speed and traffic flow. Chapter 6 investigates to what extent smartphones play a role in the number of road accidents. The results indicate that smartphone distraction can explain 10% of accidents and that phone-related accidents mainly happen on local urban roads.

Joris Klingen (1989) completed Future Planet Studies at the University of Amsterdam in 2012, Spatial Transport and Environmental Economics at the Vrije Universiteit Amsterdam in 2014, and Economics at the Tinbergen Institute in 2017. Furthermore, he worked as a junior lecturer at the Institute of Interdisciplinary Studies of the University of Amsterdam, and as PhD researcher at Vrije Universiteit. He currently works as a data scientist for the City of Amsterdam.

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