

---

# CONTENTS

INTRODUCTION	2
PARKING DEMAND	4
Effectiveness of downsizing	4
Factors affecting parking demand	7
Predicting parking space occupancy	8
Social costs of on-street parking	10
Optimising revenues of airports	11
PARKING CHOICE BEHAVIOUR	13
Influence parking choice behaviour	14
Effects of AVs on parking choice	15
Parking choice and social influence	26
PARKING AS MOBILITY TOOL	28
The effect of parking measures	28
Lessons from policy implementation	31
Smart mobility: a strategic solution	32
PARKING AND ELECTRIC VEHICLES	34
Car Park Power Plant	34
Charging EVs at the workplace	38

# SOCIAL COSTS OF ON-STREET PARKING

Student information

Author: Michael McIvor

Institution: Free University of Amsterdam

Graduation year: 2017

## The social costs of on-street parking: searching, policy and unpriced externalities

We introduce a methodology to estimate the marginal external costs of parking by extending the theoretical model introduced by Zakharenko (2016), which allows for endogenous parking durations.

### External parking costs

External parking costs encompass both additional in-vehicle search and walking time costs incurred by arriving motorists.

We show that the unpriced marginal externality is the key metric that parking authorities should use to inform their parking policies. We apply this methodology to the city centre of Melbourne, where strict time limits are combined with on-street parking prices that are below short-term off-street parking prices.

### Using parking externalities for parking policies

We demonstrate that generally parking externalities are low and far below their optimum, so relaxing many of the current parking time limits will increase welfare.

Alternatively, on Sundays in many areas parking externalities are high while parking is free, so introducing paid parking will also increase welfare.

Similarly on weekdays and Saturdays late in the evening just before restrictions end parking externalities are high, and so extending their hours of operation will also improve welfare.

