



Monash University and Canberra's Light Rail
Network Information Exchange

Thursday 23rd August 2018

ACT Government, 496 Northbourne Avenue
Dickson, GPO Box 158 Canberra ACT 2601

Public Transport Research Group – Light Rail Research

Prof Graham Currie FTSE, Director SEPT-GRIP
Public Transport Research Group (PTRG)
Monash University, Australia



Professor Graham Currie FTSE – Light Rail Background

**Professor Graham Currie
FTSE**

Director, SEPT-GRIP, PTRG



Connect with us on



www.ptrg.info

graham.currie@monash.edu

Light Rail Experience

- Planned/development of over 30 light rail systems internationally
- Chair of the US Transportation Research Board Light Rail Transit Systems Committee in Washington DC
- Led numerous research projects on innovation in light rail transit and streetcar system design and planning
- Specializes in demand forecasting and factors influencing light rail ridership.
- Based in Melbourne, Australia which is the largest in the world.
- In 2012 Professor Currie - lead author on a research paper on light rail which won the Inaugrial William M Millar award for best paper in public transportation at the annual meeting of the Transportation Research Board the largest transport research conference in the world.



**PUBLIC TRANSPORT
RESEARCH GROUP**



MONASH University

CONNECTING CITIES

PTRG is the name for researchers at Monash University who are engaged in research on public transport systems, users, planning and policy.

DISCOVER MORE

A Scientometric Analysis of Public Transport Research

Leonard Heilig, University of Hamburg, Germany
Stefan Voß, University of Hamburg and PUCV, Valparaíso, Chile

Abstract

Public transport research involves a lot of disciplinary and interdisciplinary research applying methods, techniques, and technologies to investigate, regulate, and advance public transport. The importance of research in this area has led to a huge amount of publications in recent years. In this study, we conducted a comprehensive scientometric analysis of related literature published in 2009–2013 to empirically explore the consistency, focus areas, and key contributors of public transport research from a meta-perspective, providing novel insights into publication patterns, major topics, research impact, and productivity by focusing on short-term developments. As such, the results of this study provide a novel perspective on public transport research and may help achieving an overview on important characteristics.

Keywords: Public transport, public transport research, scientometric analysis, scientometrics, keyword cluster analysis.

Introduction

Public transport, as a mode of transportation moving people from one place to another, is a publicly-used form of conveyance (Levinson et al. 2015), plays an essential role not only for providing sustainable transport forms (Krygsman et al. 2004) and serving the needs of those who are dependent on efficient transport systems, but also for supporting social equity principles (Webster and Bly 1982). The perception of local public transport in terms of accessibility, safety, and efficiency not only influences the destination satisfaction of visitors (Thompson and Schofield 2007). Further, the quality of public transport as well as the interplay between inter-urban and urban transport systems, including car and bike sharing systems, become increasingly important in our modern society, but also in developing countries (Sohal et al. 2015). Public transport demand is stimulated by social and economic conditions (e.g., city income, car ownership, land use) as well as by direct demand factors such as service quality (Webster and Bly 1982). Against this backdrop, public transport

Journal of Public Transportation, Vol. 18, No. 2, 2015 111

World Review of Public Transport Research (2009–2013)

Heilig L and Vos S (2015) 'A Scientometric Analysis of Public Transport Research' *Journal of Public Transportation* Vol 18 No 2

Top 3 world Universities in Public Transport Research

- Uni of Toronto, UCal Berkeley, MONASH UNIVERSITY

Most Productive Authors (World Ranking)

- PTRG Staff - Graham Currie 2nd, Alexa Delbosc 11th
- PTRG Associates – Avi Ceder 3rd, John Nelson 10th

Most Cited World Authors

- Graham Currie 5th

International Awards

TRB Largest Transport Conference in the World (13,000 delegates)

- Best Paper in Public Transport (William M Millar Award)
 - 2012
 - 2017

World Conference on Transport Research

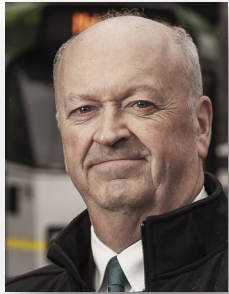
- Best research paper in Transport Policy 2016

ARRB Transport Research

- Research Impact Award 2017



Key PTRG staff, the associate team & students



Prof Graham Currie
Chair of Public
Transport



Nicholas Fournier
Research Fellow



Dr Alexa Delbosc
Senior Lecturer
DECRA Fellow



James Reynolds
Research Fellow



Katerina Pavkova
Research Fellow



Wendy Walker
Website
Manager



Dr Farhana Naznin
Research Fellow

- 27 PhD students
- 52 Research associates across Monash University (e.g. ITS, MADA, MUARC), International Universities, and external experts
- 48 Masters Students; most in China
- 10+ final year civil engineering undergraduate research students per year

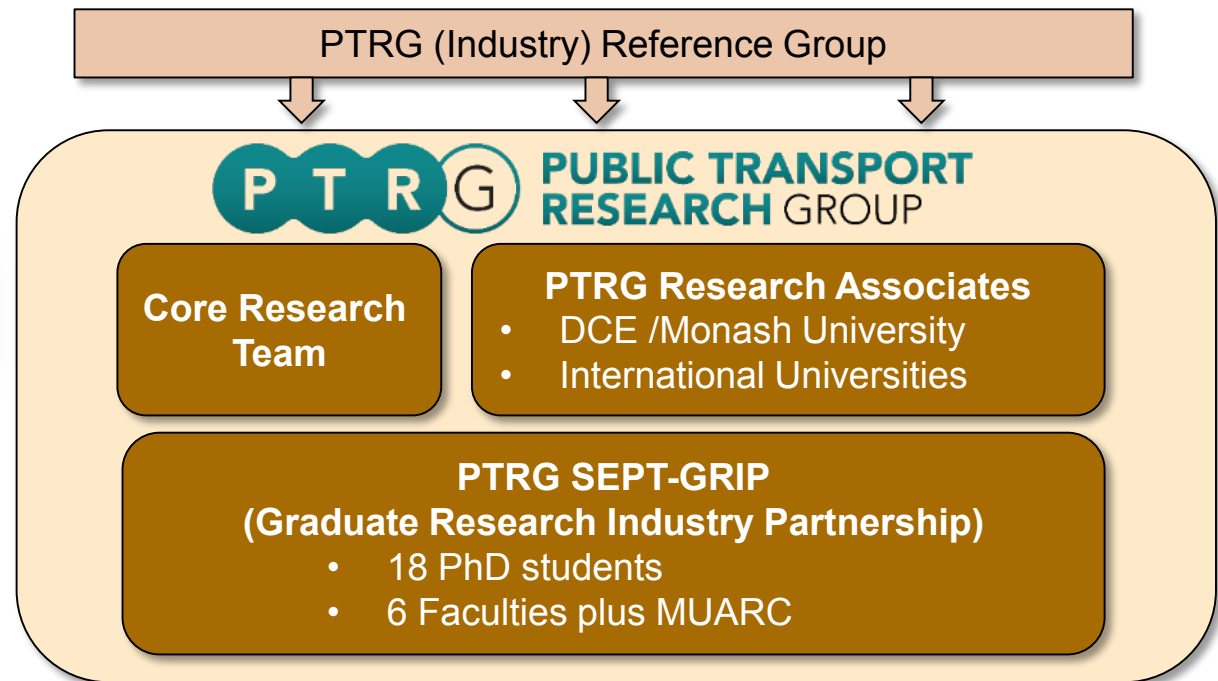


Laura McCarthy
Research Fellow



Dr Kun An
Lecturer

SEPT-GRIP is an initiative of the Public Transport Research Group (PTRG) at Monash...



Sustainable and Effective Public Transport - Graduate Research Industry Partnership

There are 18 PhD researchers and topics...

1. TOD & Transit

Laura Aston



2. Big Data & Visualisation

Homayoun Rafati



3. Network Synchronisation

Rejitha Ravindra



4. Shared Mobility

Taru Jain



5. Changing Travel Behaviour

Laura McCarthy



6. Tourism & Public Transport

Victoria Radnell



7. Reliability Engineering Approaches in Best Practice Railways

Maryam Nawaz



8. Improving Gender Diversity in the Public Transport Workforce

Rachel Mence



9. Future Train

Lisa Fu



10. Designing Urban Rail to Reduce Vandalism

Amy Killen



11. Bus & Tram Priority Implementation

James Reynolds



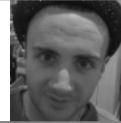
12. Simulating Bus & Tram Priority

Samithree Rajapaksha



13. Placemaking & Street Redesign

Matthew Diemer



14. Passenger Falls in Trams

Luke Valenza



15. Transit Network Design

Nora Estgfäller



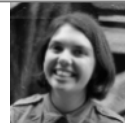
16. Future Bus

Sarah Roberts



17. The New Bus Rider

Prudence Blake



18. Road Safety Impacts of Bus Safety Inspections

Jianrong Qiu



...with 6 industry partners...

1. TOD & Transit
Laura Aston



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Homayoun Rafati



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Rejitha Ravindra



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Maryam Nawaz



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TRANSPORT FOR VICTORIA

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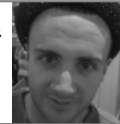
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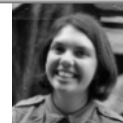
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Matt Diemer – Placemaking and Trams

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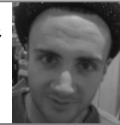
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Laura Aston Topic 1 – The Transit Orientation of Urban Development

1. TOD & Transit

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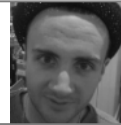
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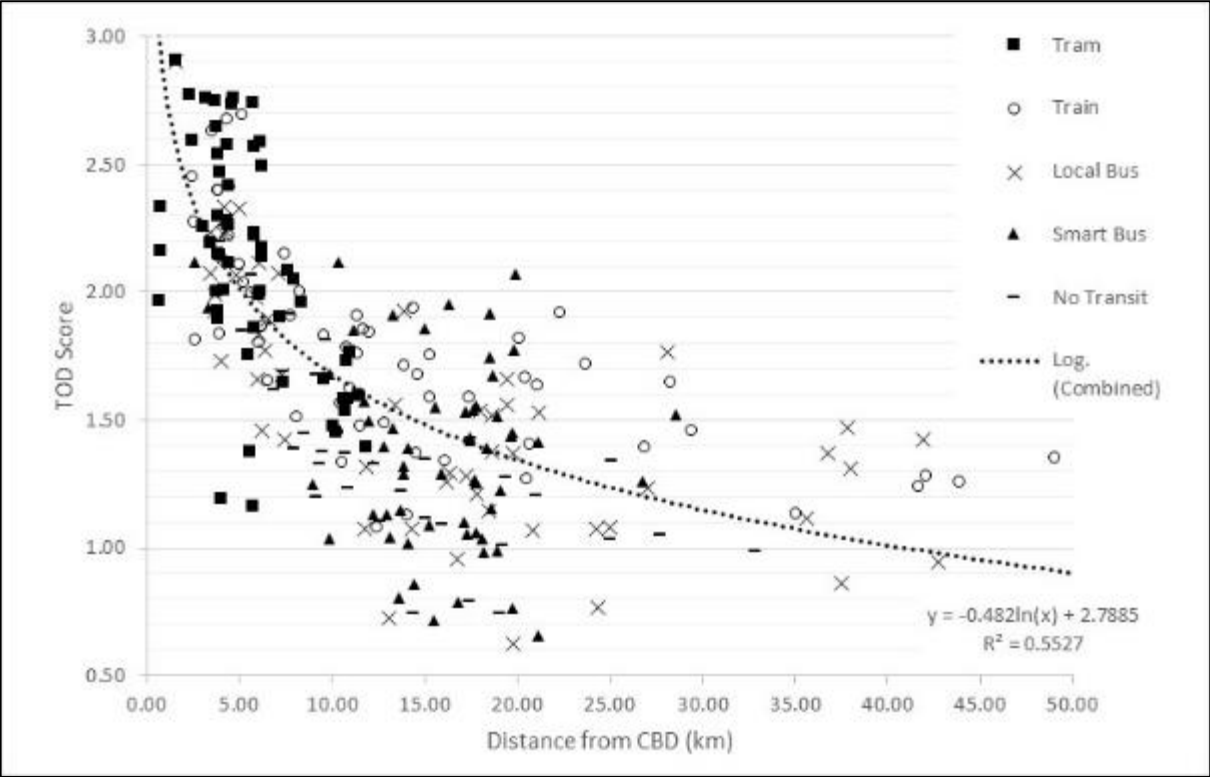


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New Metrics to Understand Land Use Quality for Transit Performance

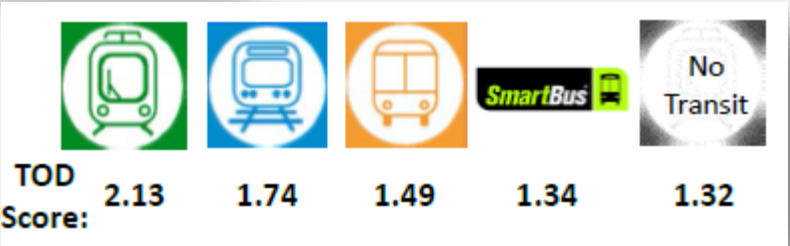


TOD Score

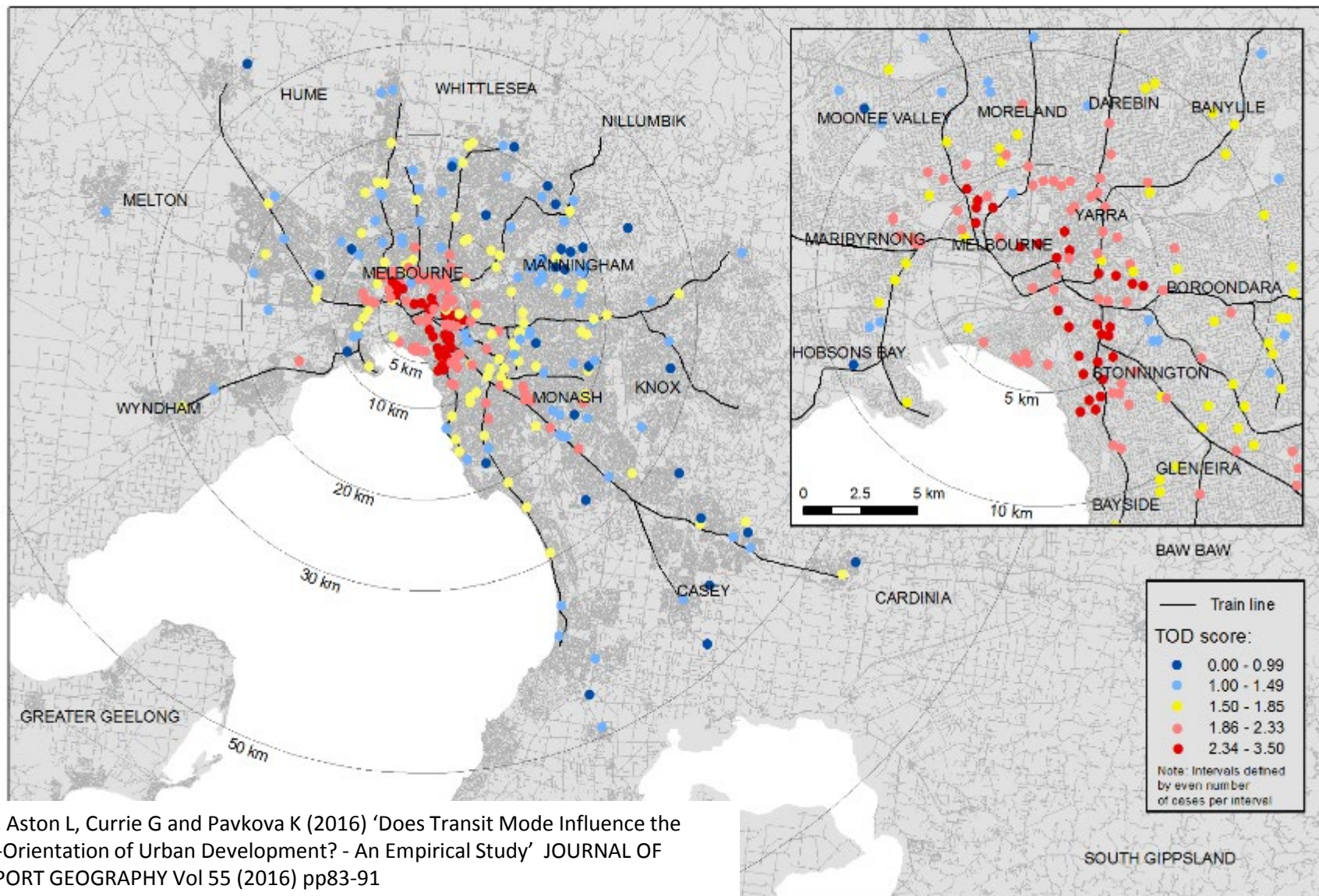
Population **density**
Land use **entropy** - Diversity
Walk score - **Design**

Relationship Between TOD Score and Distance from the CBD

Source: Aston L, Currie G and Pavkova K (2016) 'Does Transit Mode Influence the Transit-Orientedness of Urban Development? - An Empirical Study' JOURNAL OF TRANSPORT GEOGRAPHY Vol 55 (2016) pp83-91



TOD score and Location



Source: Aston L, Currie G and Pavkova K (2016) 'Does Transit Mode Influence the Transit-Orientedness of Urban Development? - An Empirical Study' JOURNAL OF TRANSPORT GEOGRAPHY Vol 55 (2016) pp83-91

Topic 11. James Reynolds – Pragmatic Transit Priority

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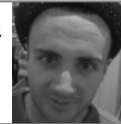
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Exploring the political Legitimacy of transit priority



Cars slowing me down

More traffic congestion?

Where would I park?



1977 plebiscite **51% Vote** for surface transit priority

Melbourne

Zurich

Toronto

'War on the car is over': Ford moves transit underground

Case for transit priority
Weak → Strong

Weak

Developing Pragmatic strategies for cities with weak political support

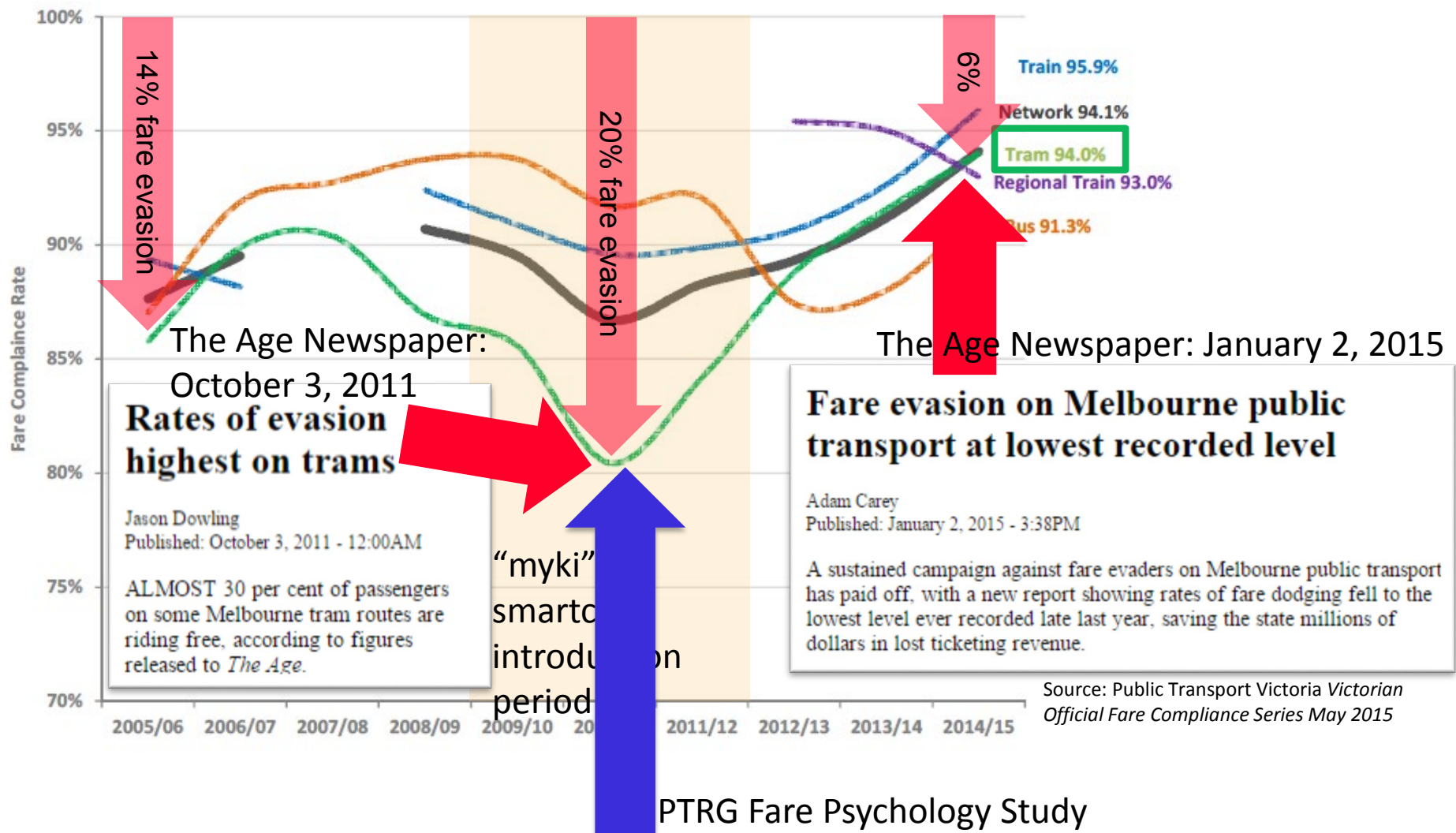
1. Subservient transit priority
2. Grade separation
3. Incremental and bottom-up approaches
4. Trials and pop-ups
eg.
Boston Tests Faster Bus Service Simply By Laying Out Orange Cones
5. Building legitimacy through public enquiries



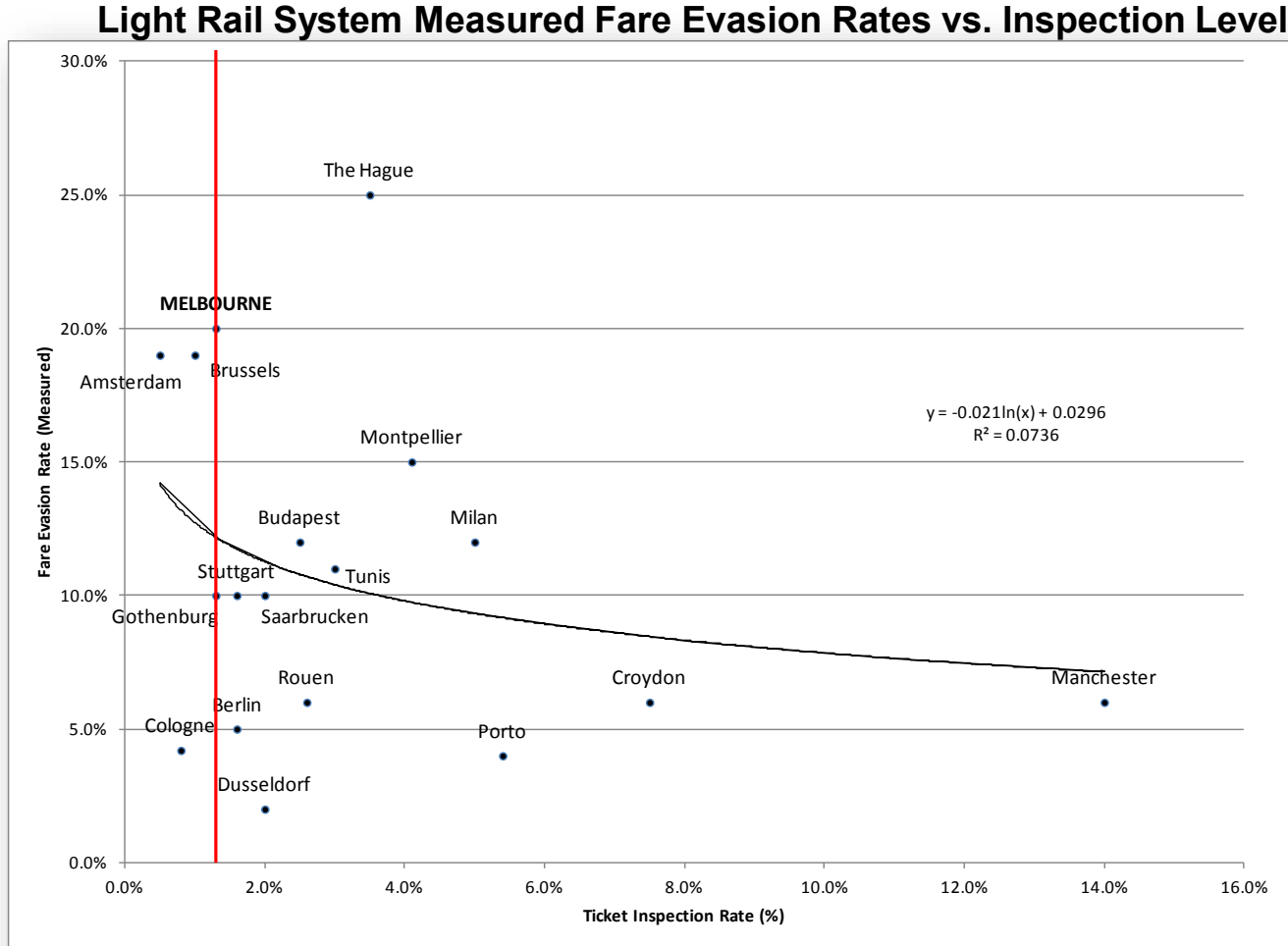
Canberra LRT needs Open Access Ticketing



Victorian Fare Compliance Rate



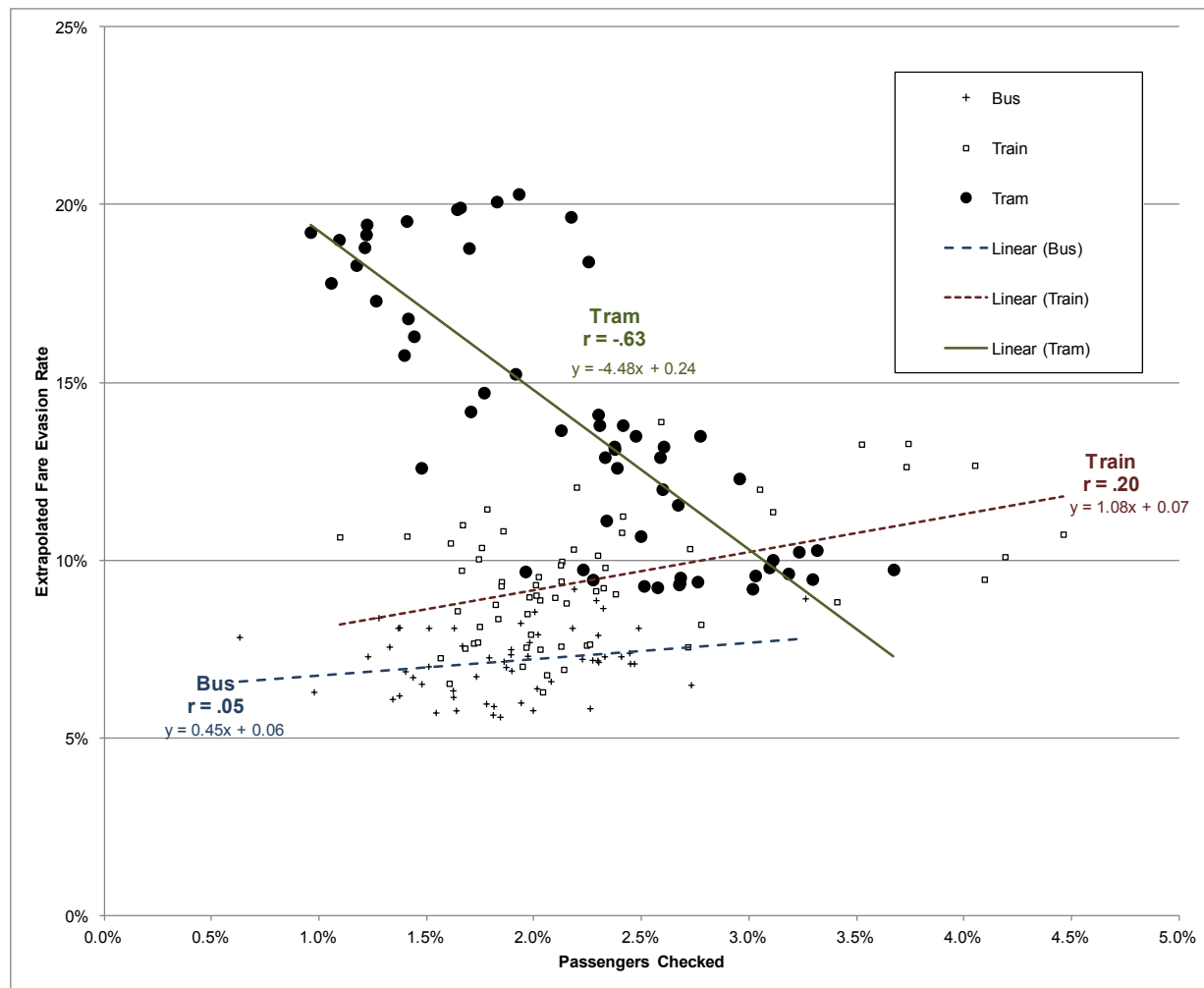
Key Finding – Ticket Checking Rates and Open Access LRT



Source: [PTRG analysis of Dauby and Kovacs 2006 data and Melbourne data from Tables 3.1 and 3.2](#)

Note: Mid range of data points used where a range is shown

Key Finding – Ticket Checking Rates and Open Access LRT



Key Points

- Doubling ticket inspection rate from 1.31% (average rate in 2011) to 2.62% would act to reduce fare evasion on trams from 18.13% to 12.26%.
- doubling rates acts to reduce fare evasion rates by about a third.
- Implies an elasticity of about -0.32

A disturbing video: New Light Railway in a city that hasn't ever had one in Suzhou China



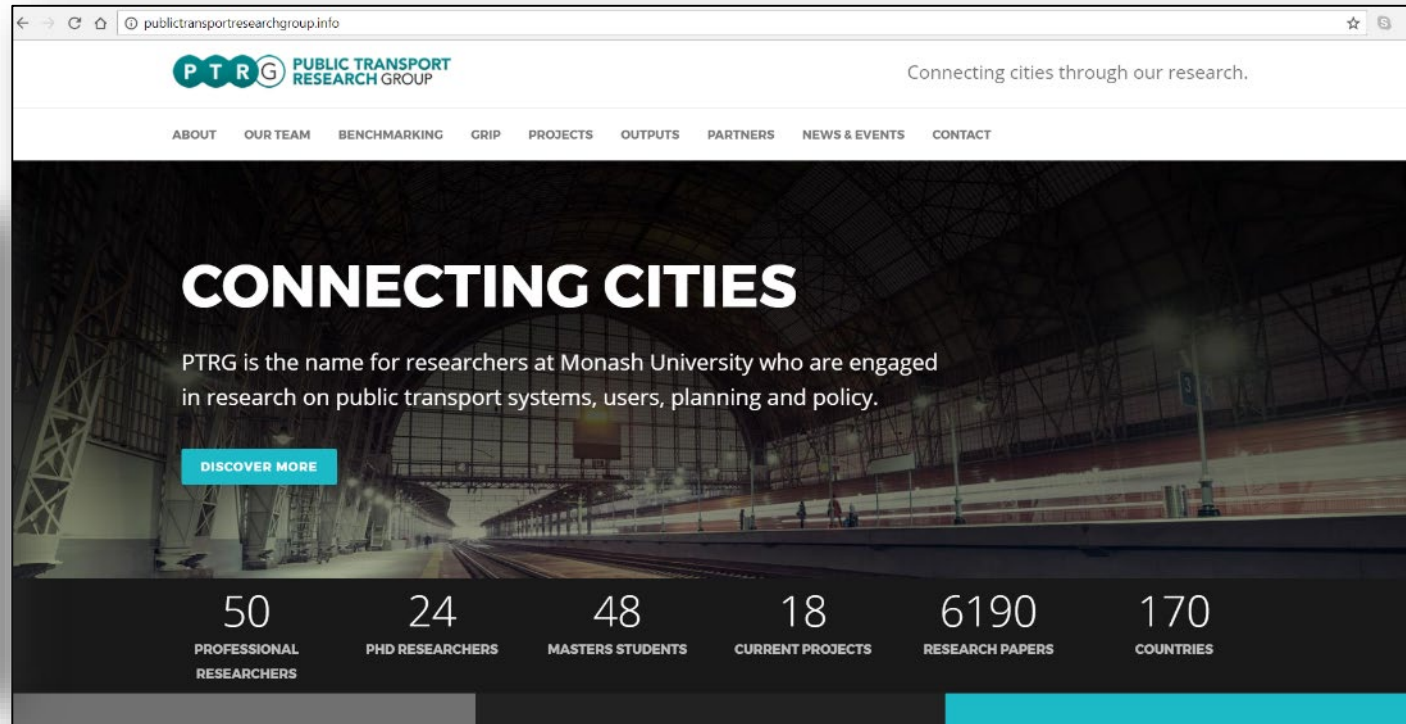
Contact us via our website PTRG.INFO, LinkedIn or Twitter

Professor Graham Currie
FTSE

Director, SEPT-GRIP, PTRG



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