

Roads

Good roads, canals, and navigable rivers, by diminishing the expense of carriage, put the remote parts of the country more nearly upon a level with those in the neighboring town. They are upon that account the greatest of all improvements.

ADAM SMITH, *The Wealth of Nations* (1776)

An efficient road system gives a country a competitive edge in moving goods economically. Conversely, lack of accessibility or poor road conditions are barriers to agriculture, industry and trade, and may hinder the entire development effort. Nevertheless, the contributions of transport to national development may be difficult to quantify in economic terms.(Queiroz, 1992)



Funding for Roads in South Africa:

Understanding the principles of fair and efficient road user charges

Research funded by SABITA and the South African Road Federation (SARF)



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2017

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Some background ...

- ❑ Purpose of the project was to identify sustainable sources of road funding...
- ❑ In South Africa, there is a dearth of
 - Policy, Research
 - Facts, figures, data and
 - Understanding of *road funding*
- ❑ *There is not one credible policy on road funding ...*
 - Few in the country that that understand the concept
- ❑ But we are full of it ... on all sides...!
 - Unilateral Opinions
 - Emotional Statements
 - Malevolent Statements
- ❑ The result is:
 - A policy void, distrust, ignorance, myths, and simply an unpleasant environment



As a result ...

- ❑ The four stakeholders are at odds;
 1. **Government** ... seems to support a '*user pay*' concept
 2. **Road user** ... Government should pay ... fuel levy
 3. **NGO / Civil Society Action Groups** ... tax abuse / fuel levy
 4. **Infrastructure 'providers'** ... they want clarity on policy and minimum risk...

- ❑ New Title:

Funding for Roads in South Africa:
A Collection of Myths, Untruths and Ignorance

- ❑ No one can answer the basic questions:
 - Why should we pay, who should pay, how much should they pay and how should they pay...?
 - **PS: What is the meaning of user pay...?**



Just some of those myths

- Business as *usual* is ok...
- The *user pay* principle will make everything OK if implemented...
- The fuel levy should be *ring-fenced* / is enough...
- Roads *pay*, or should pay, for themselves...
- Our roads are *under-funded* ...



Business as usual is not possible...

The end of the road for the internal combustion engines in Europe

France and the U.K. have committed to banning sales of new diesel and gas-powered vehicles by 2040. Other countries are discussing implementing similar deadlines.

- **Deadline set**
- **Deadline proposed**

- 2025 ● Norway
- 2030 ● Germany
- 2035 ● Netherland
- 2040 ○ U.K. and France

Source: Staff reports
THE WASHINGTON POST



An abandoned Volvo car is pictured at a field in Marjayoun village, southern Lebanon. / REUTERS/Jazz Taher
The decision is 'one of the most significant moves by any car maker', the company said

Oil
The oil price is living on borrowed time
Emerging market demand for oil in vehicles will dissipate faster than many expect
Markets Insight

3 HOURS AGO by: Min Zhu

Most experts agree that the future of oil is uncertain. Just before prices fell from their highs at over \$100 a barrel, the wisdom among the same experts was that prices would rise. But almost three years later, they are still in the \$50s per barrel. They may remain low for a considerable time in a low-growth environment. Even though prices could rally again as early as the late-2020s, oil will stay low for a long time. This last age of oil will come as the transportation, especially in motor vehicles, shifts to electric. An energy revolution is unfolding right in front of us, with a large decline in the global use of coal and oil and a rise in renewables.

Wonkblog • Analysis

Toyota and Mazda join forces on electric vehicles. Is this the end of the road for gas cars?

By Sinitia Radu August 4



WHAT IF All new cars were electric?



By 2040, electric cars would make up 90% of the world's 2 billion cars

Saving*
11 billion barrels of oil a year or almost half of annual global production
and
4.7 billion tonnes of CO₂



Sources: ACEA; AFDC; Bernstein; BP; EPA; IEA; OICA

*Excludes emissions and oil used to make electric cars

Importance of roads to the economy ...

□ *Why should roads be funded ...?*

PS. Existing policies keep on telling us there is a backlog, our 'road charges' are not sufficient, we are not paying enough ... they tell us nothing more ...



Really very, very simple ...

- ❑ Roads support **economic growth** ...
- ❑ Good roads lowers cost of transport ...
 - **Direct Effects** – VOC and travel time
 - Thus time and money is available to produce / spend on goods and services ...
 - Leads to increase in output or *Productivity*
 - **Indirect Effects - Wider Economic benefits**
 - Employment, spatial agglomeration benefits / innovation, etc.
 - *Poor roads has the opposite effect!*
- ❑ All of this combine to increase productivity ... called **economic growth**



Really very, very simple ...

- But it is very difficult to measure ...!
 - Output 'elasticities' vary widely:
 - For 1% increase in roads (capital stock) ... 0.04 – 0.15 % output increase
 - For every R1000 investment in roads, GDP expand (maybe) with R15 ...
 - Rural:
 - a 20% reduction in transport cost, fully passed on to farmers, will raise the agricultural output by 6%,
 - A 20% increase in distance farmers transport their crops for selling will increase crop by 3%



A Big But ...

- While road investment *may* in fact support economic development, there are some important qualifications for development to occur:

1. Positive economic externalities should be present which include agglomeration and labour market economies and the availability of a well trained workforce, among other, X✓

2. Investment factors are present which relate to the availability of funds for investment, the scale of investment and location, etc. ✓

3. Political factors are conducive to support economic development which includes sources of finance, the level of investment and supporting legal, organisational and institutional policies and processes. X✓



For growth to take place from transport investment ...

□ Two funding important provisos...

1. Transport infrastructure investments must address growth impeding infrastructure

□ Not spending for the sake of spending

2. The second caveat relates to funding:

a. If roads are financed by *public borrowing*, the impact of debt servicing will be felt by other investments, including education and social services

- Given South Africa's current fiscal position, public borrowing may not be feasible or desirable

b. Funding from the fuel levy, as a *partial substitute for a road user charge*, may lead to one of two outcomes:

- Unconstrained spending* from a well-stocked fuel fund, especially spending that is not related to *actual road use*, would lead to inflationary pressure
- By contrast, *insufficient spending* on the network, including on the necessary maintenance and upkeep, would lead to a rapidly deteriorating road network, increasing transport costs and placing time and financial pressure on businesses and citizens



For growth to take place from transport investment ...

- So *how* we fund roads, and *how much* we pay is extremely important for economic growth and all our Government's objectives, i.e.
 - infrastructure led growth,
 - export led growth,
 - mitigating foreign direct investment risk factors, etc.
 - user pay principle,
- So road funding received a lot of attention?



Roads to riches

Better transport investment

Marion Terrill



GOVERNMENT POLICY STATEMENT ON LAND TRANSPORT FUNDING 2012/13–2021/22 JULY 2011

newzealand.govt.nz

Report of the National Surface Transportation Infrastructure Financing Commission

PAYING OUR WAY

A New Framework
for Transportation Finance



EXECUTIVE SUMMARY



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 22.07.1998
COM(1998) 466 final

Fair Payment for Infrastructure Use:

A phased approach to a common transport infrastructure charging framework in the EU

White Paper

(presented by the Commission)

NATIONAL SURFACE TRANSPORTATION INFRASTRUCTURE FINANCING COMMISSION



AUTHORIZING
LEGISLATION

COMMISSIONERS

MEETINGS &
HEARINGS

BACKGROUND
DOCUMENTS

Final Report

On Thursday, February 26, 2009, the National Surface Transportation Infrastructure Financing Commission released its Final Report. A copy of the full report can be downloaded by [clicking here](#). The Press Release can be downloaded by [clicking here](#), and the Executive Summary, which summarizes the report's conclusions and recommendations, can be downloaded by [clicking here](#). Printed bound copies of the Final Report can be ordered by e-mailing financecommissionreport@dot.gov. A copy of the Commission's Options Evaluation Tool, which they used to evaluate the different funding and financing options, is available at the [link below](#).

The Financing Commission offers a roadmap for sweeping reform of the nation's transportation infrastructure funding and finance framework. The Commission offers specific recommendations for increasing investment in transportation infrastructure while at the same time moving the Federal Government away from reliance on motor fuel taxes toward more direct fees charged to transportation infrastructure users.

The Financing Commission's recommendations are timely and provocative, as the nation grapples with staggering shortfalls in infrastructure funding and the new administration turns its attention to building what President Obama calls "the roads and bridges...necessary to make this country great again."

ADB

Financing Road Construction and Maintenance after the Fuel Tax Reform

Asian Development Bank



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Who Pays for Roads?

How the “Users Pay” Myth Gets in the Way
of Solving America’s Transportation Problems

U.S. PIRG
Education Fund

FRONTIER GROUP

Who Pays for Roads? How the “Users Pay” Myth Gets in the Way of Solving America’s Transportation Problems

Frontier Group
U.S. PIRG Education Fund

Tony Dutzik and Gideon Weissman,
Frontier Group
Phineas Baxandall, Ph.D.,
U.S. PIRG Education Fund

Spring 2015



Search



9 News Perth

24 Nov at 11:06 · 🌐



PAY BY TRAVEL

Drivers could eventually pay for each kilometre they travel. Fuel excise and registration fees might be scrapped, and replaced with a system charging drivers for how much they use the roads. What are your thoughts?



79,373 views

👍 🤔 😬 10

13 Comments

👍 Like

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And in Africa ...

- ❑ Focus much more on establishing Road Funds
 - Low 'user' base ...
 - Most has established so-called '*second generation*' road funds
 - Arrangements to diversify road user charges, with the possibility of introducing direct charges for road use

III. INSTITUTIONAL AND MANAGEMENT STRUCTURE

d Fund Board

Parliament of the United Republic of Tanzania enacted the Roads Toll Act (Amendment 2) in December 1998, establishing the RF and the RFB, with the following provisions:

- a) all monies collected as road tolls imposed on diesel and petrol, transit fees, heavy vehicle licences, vehicle overloading fees or from other sources at the rates to be determined by the Parliament from time to time shall be paid into the Fund;
- b) all monies collected as roads tolls shall be deposited in the account of the Fund;
- c) at least 90 percent of the money deposited in the Fund shall be used for maintenance and emergency repair of classified roads and related administrative costs in Mainland Tanzania in accordance with approved operational plans made by TanRoads and local authorities; and
- d) a maximum of 10 percent of the money deposited in the Fund may be used for road development and related administration costs in accordance with plans and budgets approved by the Parliament.

rd Composition

RFB is to consist of nine members:

- one chairperson, appointed by the President;
- three Permanent Secretaries of the ministries responsible for roads, finance and local government;
- one senior civil servant not below the rank of director from any ministry; and
- four road user representatives from the private sector (current members represent: Tanzania Truck Owner Association, Tour Operator Association, Tanzania Federation of Cooperatives and Tanzania Roads Association)

RFB also is to serve as a Ministerial Advisory Board for the National Roads Agency Roads). The Board is to put in place a Secretariat to manage the day-to-day activities. The Secretariat is composed of a RF manager, two planning and monitoring engineers, one accountant and five support staff. The manager is appointed through a competitive process for a period of five years at a time.



An example of good approach...





Presentation on the RFA to the WBCG's 8th Annual Logistics and Transport Workshop – Swakopmund 28 September 2016



Mass Distance Charges Travelling Distance Charges for Foreign-registered Vehicles



In effect from 1 June 2016

Charge Level	Vehicle Type	Vehicle Description	Not equipped to draw	Equipped to draw	MDC NS per 100 km
1	Bus	Minibus, designed for 17 to 35 persons, including the driver	V value: More than 3,500 kg & less than or equal to 7,000 kg	D value: More than 3,500 kg & less or equal to 7,000 kg	5.90
1	Goods vehicle	Single-unit Truck	V value: More than 3,500 kg & less than or equal to 7,000 kg	D value: More than 3,500 kg & less or equal to 7,000 kg	5.90
2	Bus	Minibus, designed for 17 to 35 persons, including the driver	V value: More than 7,000 kg & less than or equal to 16,000 kg	D value: More than 7,000 kg & less or equal to 16,000 kg	7.10
2	Goods vehicle	Truck	V value: More than 7,000 kg & less than or equal to 16,000 kg	D value: More than 7,000 kg & less or equal to 16,000 kg	7.10
3	Bus	Bus, or bus-train designed for 35, persons including the driver	V value: More than 16,000 kg	D value: More than 16,000 kg	12.90
3	Goods vehicle	Truck	V value: More than 16,000 kg & less than or equal to 34,000 kg	V value: More than 16,000 kg & less than or equal to 34,000 kg	12.90
3	Goods vehicle	Truck-tractor	n.a.	D value: More than 16,000 kg & less than or equal to 34,000 kg	12.90
4	Goods vehicle	Truck-tractor	n.a.	D value: More than 34,000 kg & less than or equal to 44,000 kg	25.90
4	Goods vehicle	Truck-tractor	n.a.	D value: More than 34,000 kg & less than or equal to 44,000 kg	25.90
5	Goods vehicle	Truck-tractor	n.a.	D value: More than 44,000 kg	38.80

MANDATE

- Manage the RUCS
- Manage the Road Fund
- Secure and allocate sufficient funding for payment of expenditure – section 17(1)
- Monitor utilisation of funds
- Manage the Road Fund and Road User Charging System
- Therefore RFA's basic role – road fund regulator
 - meet economically justified funding requirements of RA and AAs
 - acts as trustee on behalf of the road users to ensure value

CONCLUSION

- Value-for-money strategy: consumer / road user
 - Technical audits
 - Robust project management techniques & tools
 - Road user feedback / forums
- Sustainable funding:
 - Sourcing of alternative funding
 - Vigorous marketing strategies
 - Socio-political involvement
- Interest of RFA – larger extend road subsector
 - Policy reform
 - Legal instrument review
- Integrated planning for road / transport infrastructure
 - MWT / RA / NPC / MVA / NRSC
 - Road users / forum



Namibian RFA Perspective

2nd IRF AFRICA CONGRESS 2017

WINDHOEK NAMIBIA

Ali Ipinge, RFA CEO

12 July 2017



Road Sector Reform Policy (cont'd..)

COUNTRY	ROAD FUND	AUTHORITY	COUNTRY (cont.)	ROAD FUND (cont.)	AUTHORITY (cont.)
Benin	Yellow	Grey	Madagascar	Yellow	Blue
Burkina Faso	Yellow	Blue	Malawi	Yellow	Blue
Burundi	Yellow	Grey	Mali	Yellow	Blue
Cameroon	Yellow	Grey	Mozambique	Yellow	Blue
Cape Verde	Yellow	Grey	Namibia	Yellow	Blue
CAR	Yellow	Grey	Niger	Yellow	Grey
Comoros	Yellow	Grey	Rwanda	Yellow	Blue
Chad	Yellow	Grey	Senegal	Yellow	Blue
DRC	Yellow	Blue	Sierra Leone	Yellow	Blue
Cote d'Ivoire	Yellow	Blue	South Africa	Grey	Blue
Djibouti	Yellow	Grey	South Sudan	Yellow	Blue
Ethiopia	Yellow	Blue	Tanzania	Yellow	Blue
Gabon	Yellow	Grey	Togo	Yellow	Grey
Ghana	Yellow	Blue	Uganda	Yellow	Blue
Guinea-Bissau	Yellow	Grey	Zambia	Yellow	Blue
Guinea	Yellow	Grey	Zanzibar	Yellow	Grey
Kenya	Yellow	Blue	Zimbabwe	Yellow	Blue
Lesotho	Yellow	Grey	TOTAL:	34	20

And now in South Africa

- ❑ 1981 – Peter Freeman
- ❑ (some Academic work by Mirrilees, Naudé and others)
- ❑
- ❑ 1996 White Paper on Transport Policy
- ❑
- ❑
- ❑
- ❑ NATMAP ...

Nothing on Funding / Financing

Other than the statement that we are going to use the *user pay* principle

SA documents focus on the *backlog* and seemingly *too little* money for roads

Leap from there to saying we should pay more ... and how we are going to pay more

That is not good enough ...

What about: What is user pay? How much, How, etc.?



This raises six interesting questions:

1. How does our budget process work ...?
2. What is the user paying now...?
3. How do we compare internationally?
4. What is the status of our roads from an economic / logistics perspective?
 5. How much should we pay?
 6. How should we pay?





Question 1:

The South African Budgeting process



The SA budgeting process ...

□ *How does it work...?*

- National Government collect all taxes in SA
 - Some exceptions...
- In terms of *Public Finance Management Act* all revenue revert to *National Revenue Fund*
- The Fuel Levy forms part of general revenue and the annual budget process allocates all revenue in terms of the fiscal framework tabled in Parliament.
- **National Treasury** is responsible for coordinating the budget process.
 - During this process, the **Department of Transport** actively participates in various forums which results in *recommendations* made to the Minister's Committee on the Budget.
 - *Roads compete with all the other funding priorities and demands imposed on the National Revenue Fund.*
 - The *policy on the financing of roads*, however, is also primarily the responsibility of the Department of Transport.
 - National Treasury acts on the signals and request from the Department of Transport.



And this is how much is collected ...

Road Infrastructure and Road Use Generated Revenue (R thousand)							
#	Road user revenue paid via:	2010	2011	2012	2013	2014	Collected by
1	Fuel levy	34,417,577	36,602,263	40,410,389	43,300,000	47,516,564	National government
2	Road Accident Fund	14,474,058	16,989,071	17,380,217	20,352,981	22,457,948	SOC
3	Custom and excise levy	817,000	847,000	875,000	922,000	981,000	National government
4	Demand Side Management Levy	51,000	53,000	152,000	140,000	170,000	National government
5	IP Marker levy	1,000	1,000	1,000	1,000	1,000	National government
6	Petroleum Products Levy (Pipeline)	31,000	32,000	33,000	35,000	37,000	National government
7	VAT on vehicle sales	28,197,380	31,099,740	34,993,000	37,154,040	37,893,660	National government
8	VAT on vehicle part sales / car repair services	3,909,640	4,126,080	4,496,380	4,788,700	5,009,760	National government
9	Import duties on vehicle / parts	10,442,000	14,348,000	18,702,000	21,635,000	22,567,000	National government
10	License fees	5,057,977	5,953,006	6,530,434	6,765,016	7,349,077	Provincial government
12	Fines / fees and permits	9,011,537	10,988,624	12,933,722	10,853,033	10,678,864	SOC and municipalities
13	Toll fees	2,073,060	1,987,379	2,199,090	2,759,839	4,221,433	SOC
14	Toll fees concessions - minimum income*	3,987,937	4,605,700	5,029,190	5,420,129	5,846,819	SOC
15	Co2 emissions	625,891	1,617,353	1,567,382	1,636,848	1,684,160	National government
	TOTAL REVENUE	113,097,057	129,250,216	145,302,804	155,763,586	166,414,285	
	<i>* This is an estimate based on AADT and tariff</i>						
	Direct Road User Generated income	69,731,037	78,829,396	86,236,424	91,263,846	99,962,865	
	Indirect Road User Generated Income	43,366,020	50,420,820	59,066,380	64,499,740	66,451,420	

□ Of the total Revenue (2014):

- 70% collected at National level (of which the fuel levy is 29%)
- 4% Provincial
- 6% Local
- 20% SOE

- Fuel levy is only 29% of what we collect ...
 - Even if the fuel levy completely disappears tomorrow, we will still have the **71% income** ...



Question 2

How much do we pay for fuel ...?

and

What is the user paying now...?



What do users pay in South Africa ... (1)

□ Treasury consolidated expenditure (2014)

○ Users of the road are paying:

▪ **Direct cost** (fuel tax, toll fees, license, permits etc.):

- Average 'fuel-using' motorist = $R0.62 / km$ **
- Average electric-based motorist = $R 0.17 / km$

▪ **Indirect cost:** (VAT, Import duties, etc.)

- Average 'fuel-using' motorist = $R 0.41 / km$
- Average electric-based motorist = $R 0.41 / km$

▪ **Total:** This is what the user is paying

- Average 'fuel-using' motorist[^] = **$R1,02 / km$**
- Average electric-based motorist = **$R 0.58 / km$**

○ [^] = 'average' car driver

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4	Demand Side Management Levy	51,000	53,000	152,000	140,000	170,000
5	IP Marker levy	1,000	1,000	1,000	1,000	1,000
6	Petroleum Products Levy (Pipeline)	31,000	32,000	33,000	35,000	37,000
7	VAT on vehicle sales	28,197,380	31,099,740	34,993,000	37,154,040	37,893,660
8	VAT on vehicle part sales / car repair services	3,909,640	4,126,080	4,496,380	4,788,700	5,009,760
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13	Toll fees	2,073,060	1,987,379	2,199,090	2,759,839	4,221,433
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15	GoZ emmisions	625,891	1,617,353	1,567,382	1,686,848	1,684,160
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	Indirect Road User Generated Income	43,366,020	50,420,820	59,066,380	64,499,740	66,451,420

What can we take from this?

So in 2014

The *road users* were paying ...

29c per/km with the Fuel levy
Resulting in Income = R 47 516 564 000

62c per/km = Direct charges and levies
Resulting in Income = R 99 962 865 000

R1,02 per/km = Direct & Indirect taxes
Resulting in Income = R166 414 285 000

But what was the Government spending ... ?



Government's expenditure ... (1)

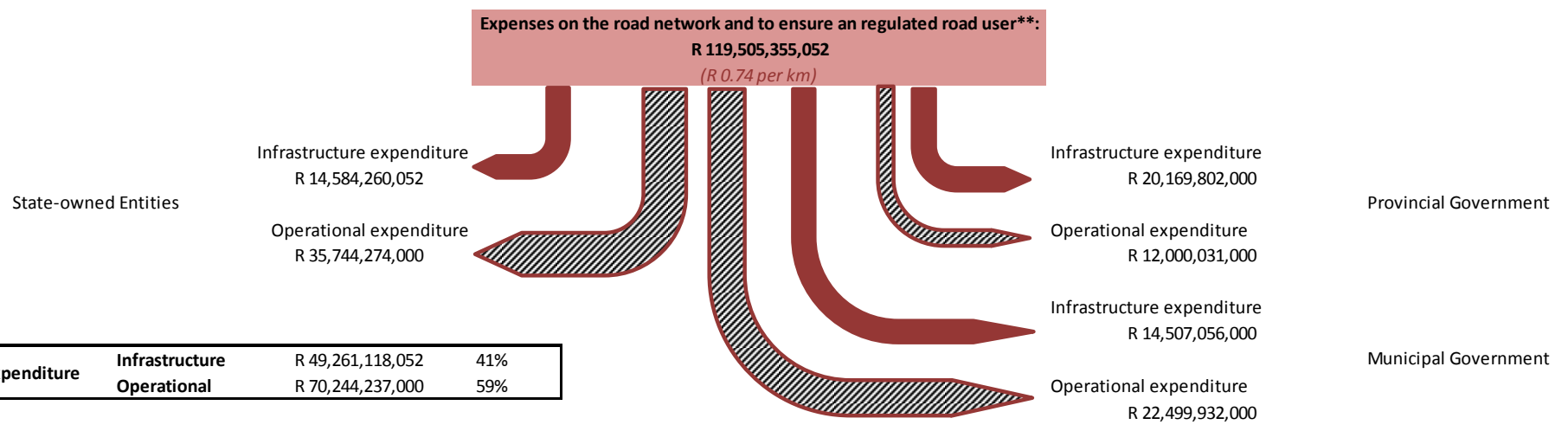
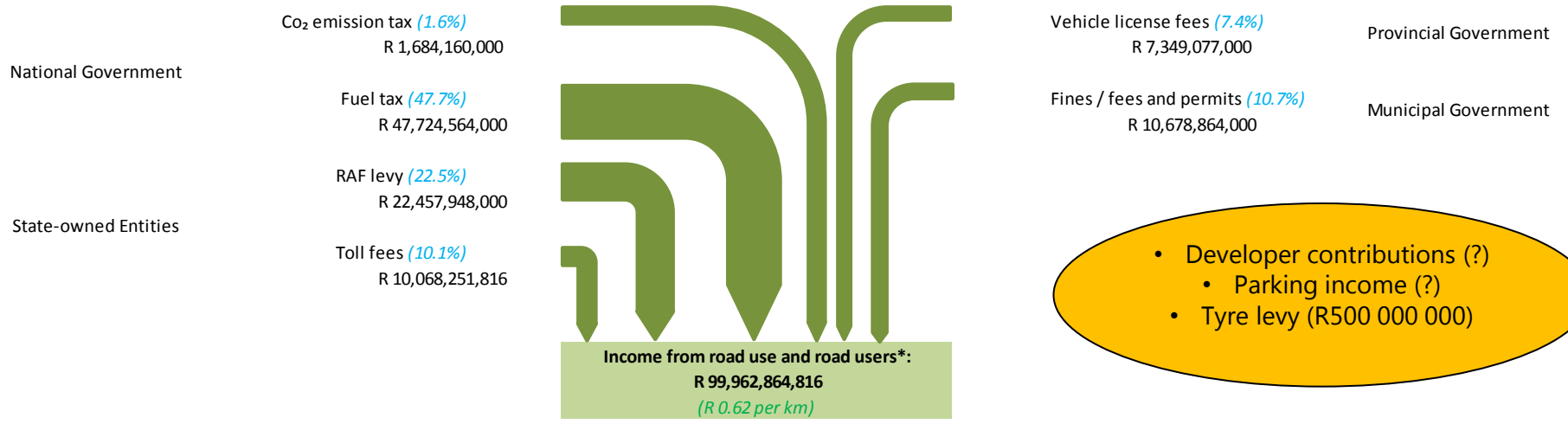
R thousand	2010	2011	2012	2013	2014
<i>Road generated revenue</i>	69 731 037	78 829 396	86 236 424	91 263 846	99 962 865
<i>Road generated revenue %</i>	80%	72%	84%	88%	83%
<i>Road infrastructure, operation and regulation expenditure</i>	86 799 421	109 971 154	103 114 433	104 276 215	119 947 366
<i>Non-road revenue</i>	17 068 384	31 141 758	16 878 009	13 012 369	19 984 501
<i>Non-road revenue %</i>	20%	28%	16%	12%	17%

Income and Expenditure per km (cents per km)					
<i>Road Generated Revenue</i>	0.50	0.54	0.57	0.58	0.62
<i>Allocated Road Revenue: infrastructure</i>	0.11	0.17	0.15	0.15	0.16
<i>Road expenditure: infrastructure</i>	0.31	0.30	0.30	0.30	0.30
<i>Road operation and regulation expenditure</i>	0.32	0.45	0.38	0.36	0.44
Total	0.63	0.76	0.68	0.66	0.74

Road Infrastructure, operation and regulation expenditure: All cost involved in the physical construction and maintenance of road infrastructure coupled with administrating the operational and regulatory systems for a functional road sector

So Government already spends roughly *12c more per km than what we collect ... this is non-user pay ...!*

THE FUNDING OF SOUTH AFRICAN ROADS UNPACKED (2014)



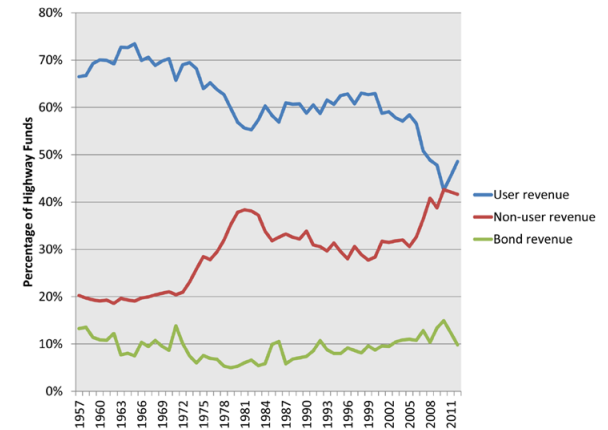
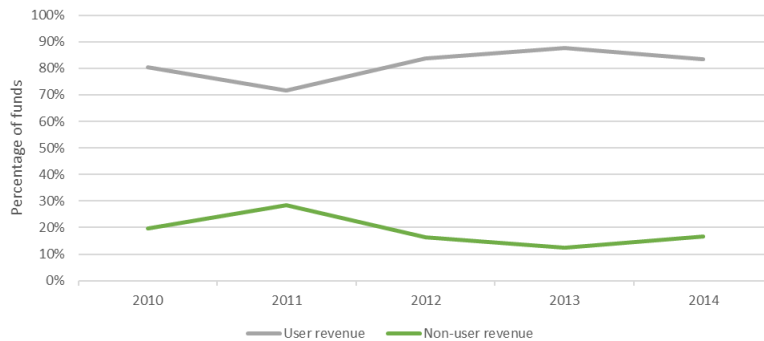
* Income collected on 746 835 kms of roads by a vehicle fleet of 10 350 835 travelling a distance of 162 405 499 396 kms in 2014
 ** R 0.30 spend on road infrastructure per vehicle km
 R 0.44 spend on road operations per vehicle km

SO: We ALL pay for roads...

□ Road users and Non-users

- Funding gap between users and non-users are narrowing internationally
- Reliance on non-users (general tax) is increasing

R thousand	2010	2011	2012	2013	2014
Road generated revenue	69 731 037	78 829 396	86 236 424	91 263 846	99 962 865
Road generated revenue %	80%	72%	84%	88%	83%
Road infrastructure, operation and regulation expenditure	86 799 421	109 971 154	103 114 433	104 276 215	119 947 366
Non-road revenue	17 068 384	31 141 758	16 878 009	13 012 369	19 984 501
Non-road revenue %	20%	28%	16%	12%	17%



- Following trend observed in America?

- This is of course the problem with ring-fencing



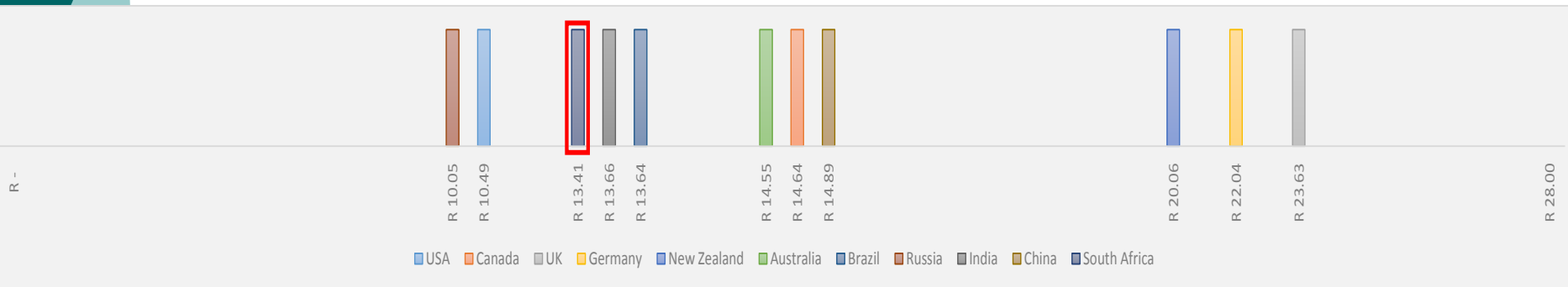
Question 3:

How do we compare internationally?



How does South Africa *compare* internationally?

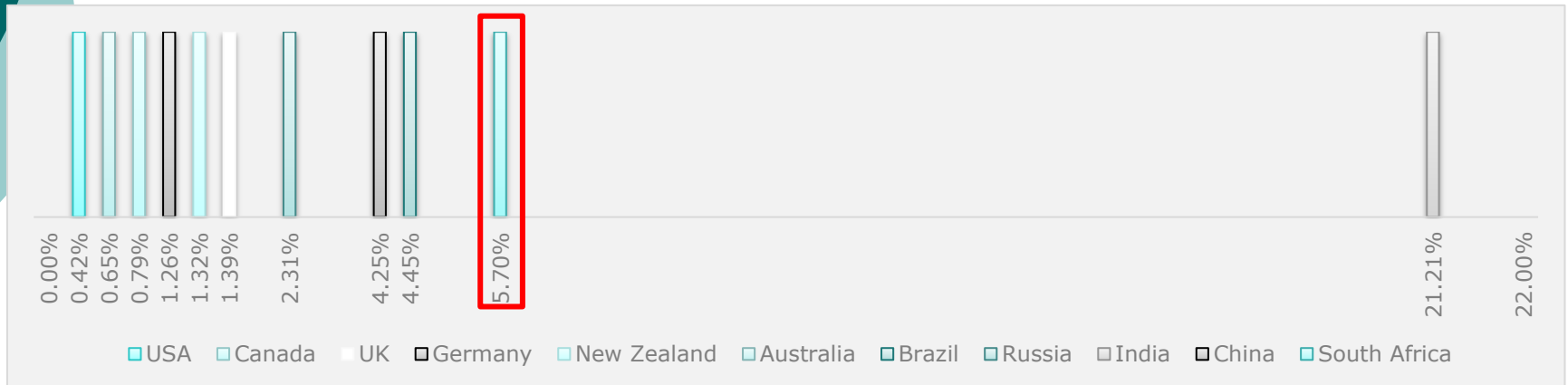
- Price of fuel in South Africa (paying at the pump)
 - Compared to other countries...



- The average price of a litre of fuel in South Africa in 2014 was R 13.41
- Ranked *16th cheapest* of the *61 countries*
- Price relatively low compared to the BRICS and OECD nations
 - *5th cheapest fuel* of selected BRICS and OECD nations

How does South Africa compare internationally?

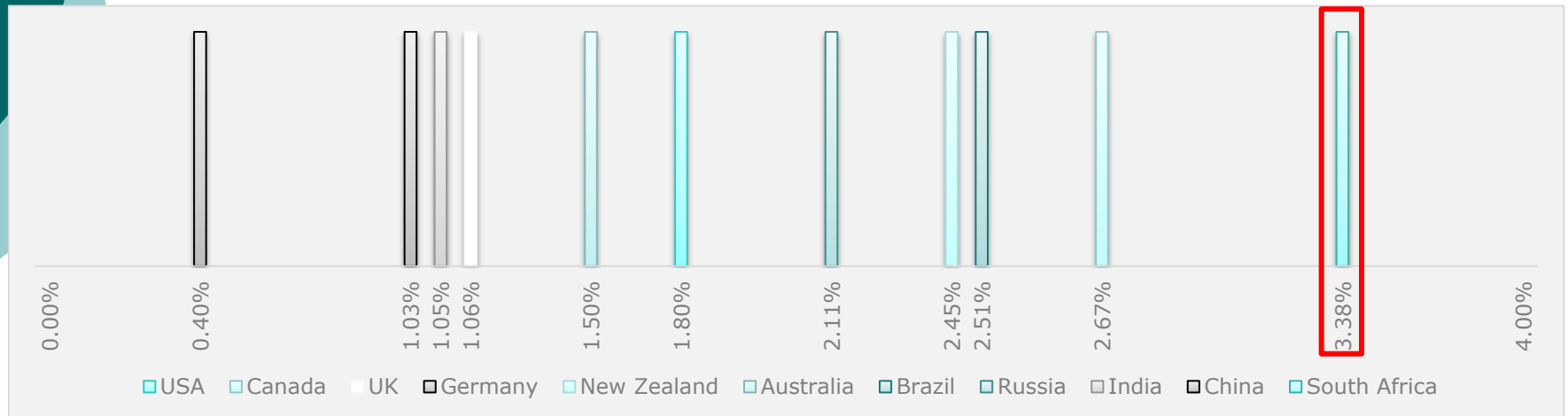
- How much does it cost per person?
 - **Affordability**



- The average daily income in South Africa was R209.29 in 2014
 - Would take 5.7.% of a day's income to afford a litre of fuel
- **52nd in terms of affordability (only out of 61 countries)**

How does South Africa compare internationally?

- How much does it cost per person?
 - **% of Income spent**



- The average driver in South Africa uses 216.6 litres of fuel a year
- Eats up **3.38% of the typical salary**
- South Africa is ranked **61st out of all the countries and worst of the BRICS and OECD nations.**

Question 4:

What is the status of our roads from an economic / financial perspective?



Global Competitiveness Index

- Where does South Africa fit in ...?
 - Overall: 47 - 55 (out of 144)
 - Roads: 29 - 37
 - *Best of all our transport infrastructure*

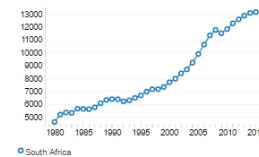
South Africa

Key Indicators:

Population (millions)	55.0
GDP (US\$ billions)	313.0
GDP per capita (US\$)	5694.57
GDP (PPP) per capita (US\$)	13165.16
GDP (PPP) as share (%) of world total	0.4

GDP (PPP) per capita, current international dollars
current international dollars, 1980-2015

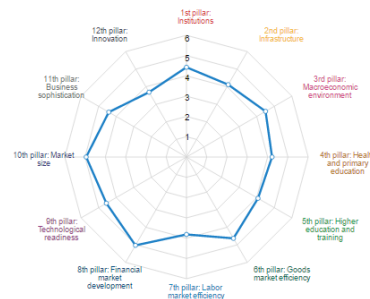
\$13,165.16 2015



Gross domestic product based on purchasing-power-parity (PPP) per capita GDP

Performance Overview

South Africa climbs seven places to reach 49th, reversing its four-year downward trend thanks largely to increased uptake of ICTs—especially higher Internet bandwidth—and improvements in innovation (up five places to 38th), which establish the economy as the region's most innovative. South Africa also hosts the continent's most efficient financial market (12th) and benefits from a sound goods market (38th), which is driven by strong domestic competition (28th) and an efficient transport infrastructure (20th). It further benefits from strong institutions (38th), particularly property rights (24th) and a robust and independent legal framework. Reducing corruption (70th) and the burden of government regulation (117th) and improving the security situation (102nd) would further improve institutions. The country also needs to address its inefficient electricity supply (116th) and inflexible labor market (107th). Even more worrisome are health (128th) and the quality of education (120th), where higher secondary enrollment rates will not be enough to create the skills needed for a competitive economy.



Competitiveness Rankings

Access the rankings for every component of the Global Competitiveness Index (GCI) by choosing an item from the pull-down menu which reproduces the structure of the GCI. Click "Economy" to sort table alphabetically to quickly identify an economy of interest.

Show this page:



Head later:



Select Index Component:

2.02 Quality of roads

In your country, how do you assess the quality of the roads? [1 = extremely underdeveloped – among the worst in the world; 7 = extensive and efficient – among the best in the world]

Rank	Economy	Info	Value	Distance from best
1	United Arab Emirates	🇦🇪	6.6	📊
2	Portugal	🇵🇹	6.3	📊
3	Austria	🇦🇹	6.3	📊
4	France	🇫🇷	6.2	📊
5	Netherlands	🇳🇱	6.1	📊
6	Singapore	🇸🇬	6.1	📊
7	Hong Kong SAR	🇭🇰	6.0	📊
8	Oman	🇴🇲	6.0	📊
9	Switzerland	🇨🇭	6.0	📊
10	Japan	🇯🇵	5.9	📊
11	Spain	🇪🇸	5.9	📊
12	Taiwan, China	🇹🇼	5.9	📊
13	Germany	🇩🇪	5.9	📊
14	Finland	🇫🇮	5.9	📊
15	Luxembourg	🇱🇺	5.7	📊
16	United States	🇺🇸	5.7	📊
17	Croatia	🇭🇷	5.6	📊
18	Korea, Rep.	🇰🇷	5.6	📊
19	Malaysia	🇲🇾	5.6	📊
20	Sweden	🇸🇪	5.5	📊
21	Denmark	🇩🇰	5.4	📊
22	Slovenia	🇸🇮	5.4	📊
23	Canada	🇨🇦	5.3	📊
24	Cyprus	🇨🇾	5.3	📊
25	Ireland	🇮🇪	5.3	📊
26	Saudi Arabia	🇸🇦	5.3	📊
27	Belgium	🇧🇪	5.3	📊
28	Norway	🇳🇴	5.2	📊
29	Puerto Rico	🇵🇷	5.2	📊
30	United Kingdom	🇬🇧	5.2	📊
31	Chile	🇨🇱	5.1	📊
32	Sri Lanka	🇱🇰	5.1	📊
33	Barbados	🇧🇧	5.1	📊
34	Qatar	🇶🇦	5.0	📊
35	New Zealand	🇳🇿	4.9	📊
36	Lithuania	🇱🇹	4.9	📊
37	South Africa	🇿🇦	4.9	📊
38	Slovenia	🇸🇮	4.9	📊

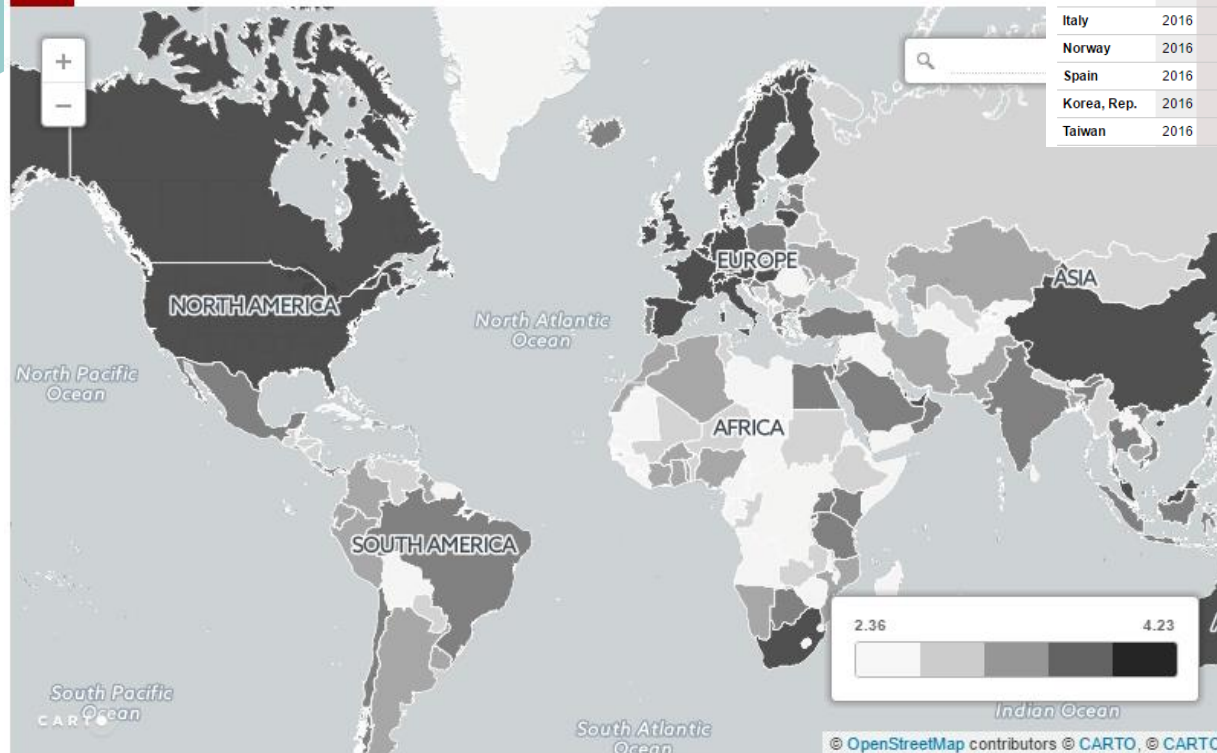
Logistics Performance Index

○ 20th!

Country	Year	LPI Rank	LPI Score	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
Germany	2016	1	4.23	4.12	4.44	3.86	4.28	4.27	4.45
Luxembourg	2016	2	4.22	3.90	4.24	4.24	4.01	4.12	4.80
Sweden	2016	3	4.20	3.92	4.27	4.00	4.25	4.38	4.45
Netherlands	2016	4	4.19	4.12	4.29	3.94	4.22	4.17	4.41
Singapore	2016	5	4.14	4.18	4.20	3.96	4.09	4.05	4.40
Belgium	2016	6	4.11	3.83	4.05	4.05	4.07	4.22	4.43
Austria	2016	7	4.10	3.79	4.08	3.85	4.18	4.36	4.37
United Kingdom	2016	8	4.07	3.98	4.21	3.77	4.05	4.13	4.33
Hong Kong, China	2016	9	4.07	3.94	4.10	4.05	4.00	4.03	4.29
United States	2016	10	3.99	3.75	4.15	3.65	4.01	4.20	4.25
Switzerland	2016	11	3.99	3.88	4.19	3.69	3.95	4.04	4.24
Japan	2016	12	3.97	3.85	4.10	3.69	3.99	4.03	4.21
United Arab Emirates	2016	13	3.94	3.84	4.07	3.89	3.82	3.91	4.13
Canada	2016	14	3.93	3.95	4.14	3.56	3.90	4.10	4.01
Finland	2016	15	3.92	4.01	4.01	3.51	3.88	4.04	4.14
France	2016	16	3.90	3.71	4.01	3.64	3.82	4.02	4.25
Denmark	2016	17	3.82	3.82	3.75	3.66	4.01	3.74	3.92
Ireland	2016	18	3.79	3.47	3.77	3.83	3.79	3.98	3.94
Australia	2016	19	3.79	3.54	3.82	3.63	3.87	3.87	4.04
South Africa	2016	20	3.78	3.60	3.78	3.62	3.75	3.92	4.02
Italy	2016	21	3.76	3.45	3.79	3.65	3.77	3.86	4.03
Norway	2016	22	3.73	3.57	3.95	3.62	3.70	3.82	3.77
Spain	2016	23	3.73	3.48	3.72	3.63	3.73	3.82	4.00
Korea, Rep.	2016	24	3.72	3.45	3.79	3.58	3.69	3.78	4.03
Taiwan	2016	25	3.70	3.23	3.57	3.57	3.95	3.59	4.25

Global Rankings 2016

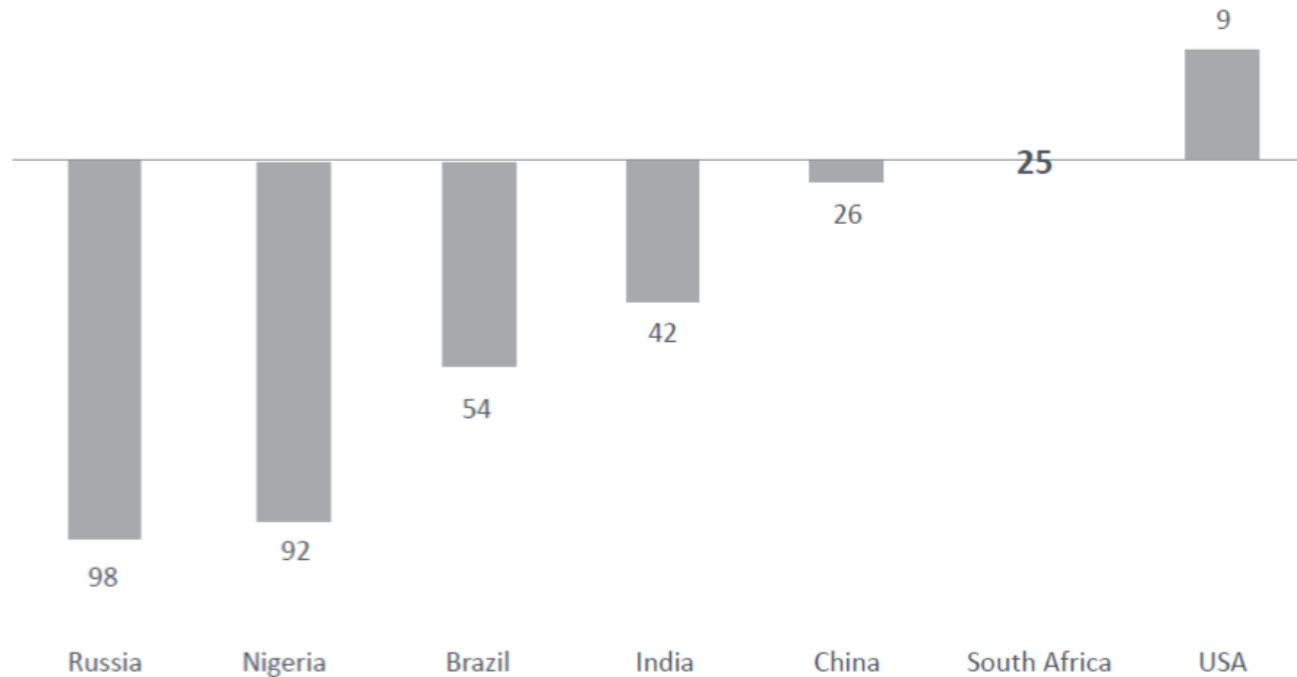
2016 2014 2012 2010 2007



What about other rankings? We're also placed well amongst BRICS for LPI



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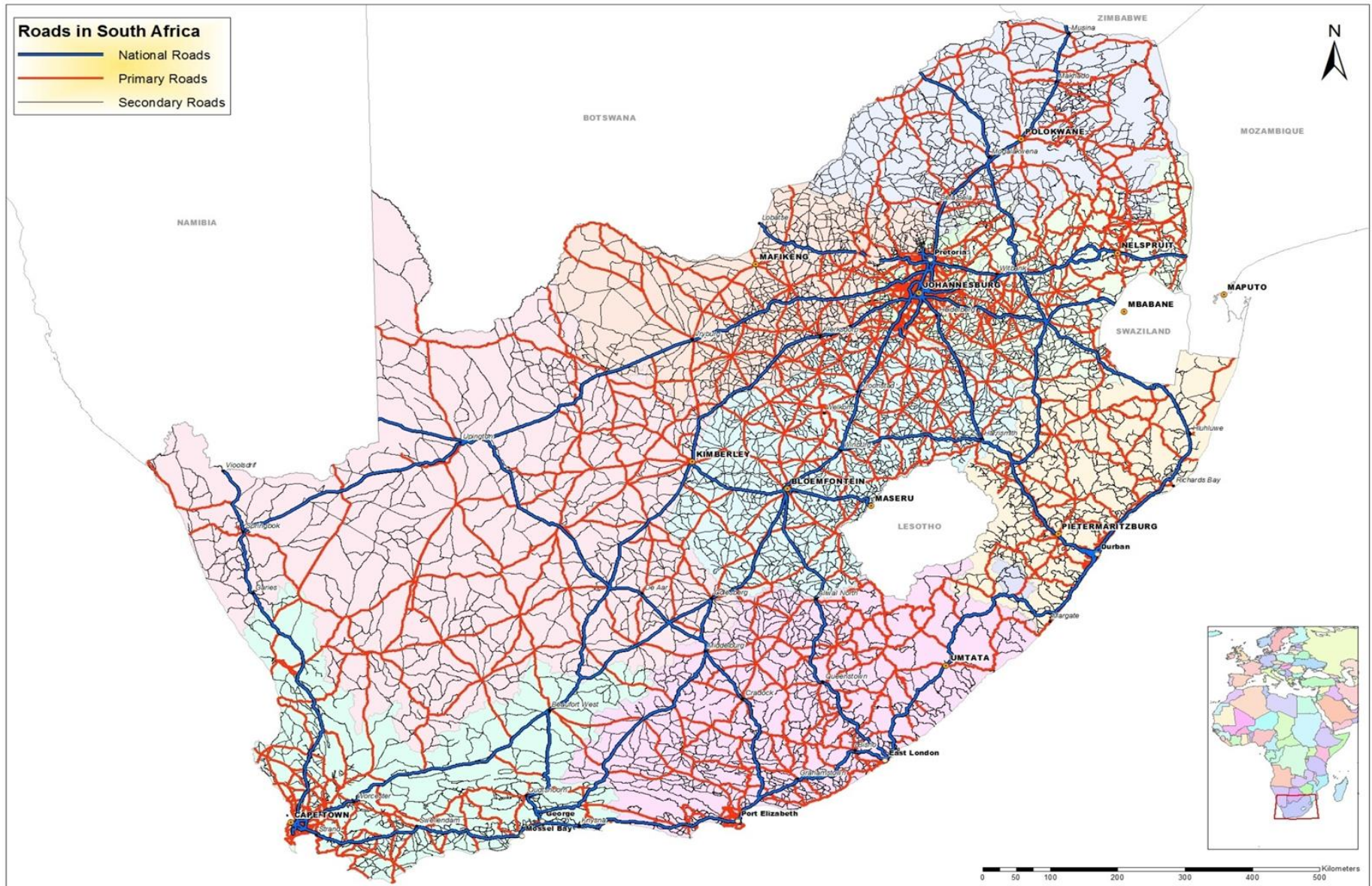
*Average over four editions: 2010, 2012, 2014, 2016

LOGISTICS
BAROMETER 2016 South Africa



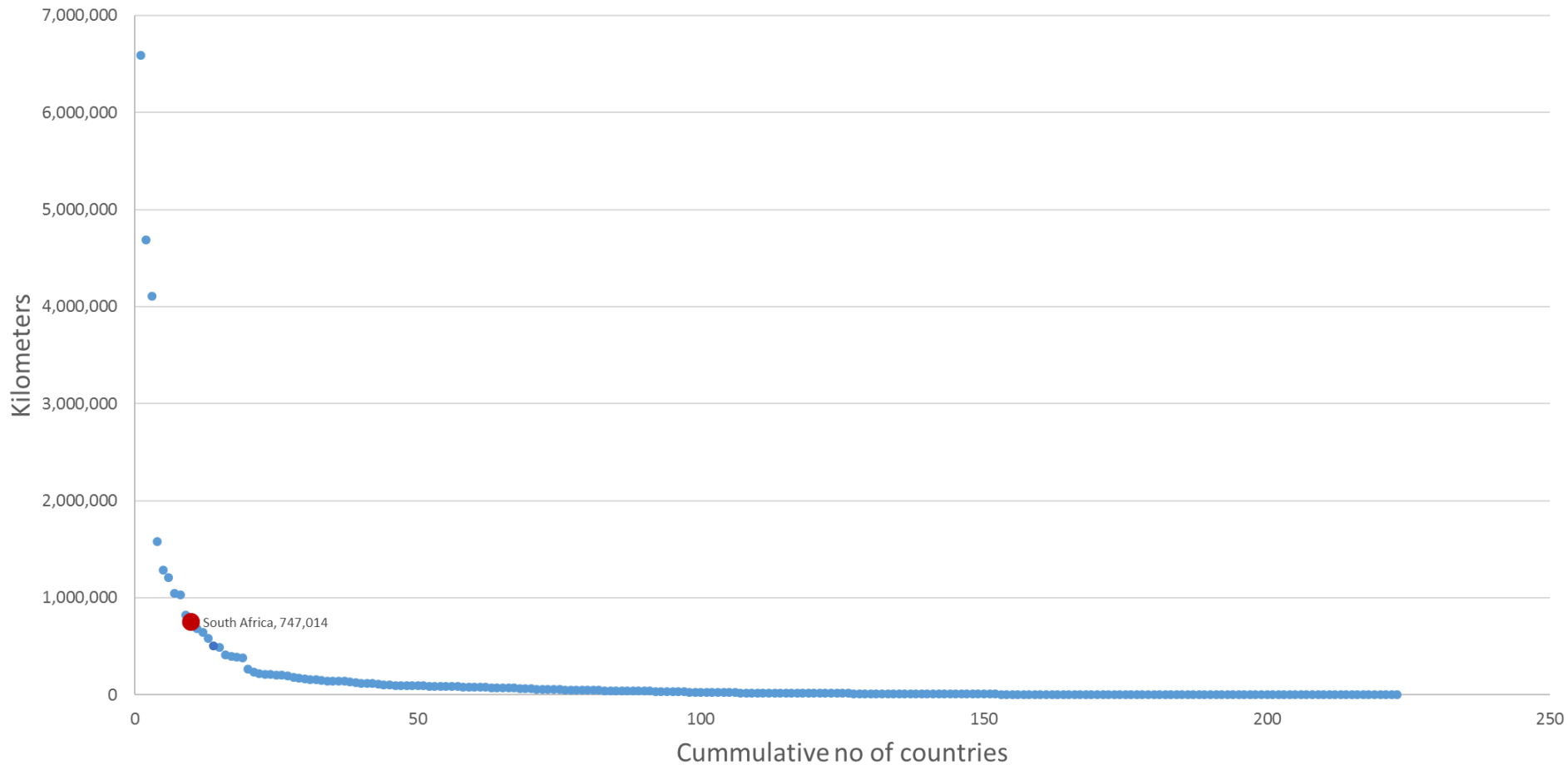
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And our road network ...

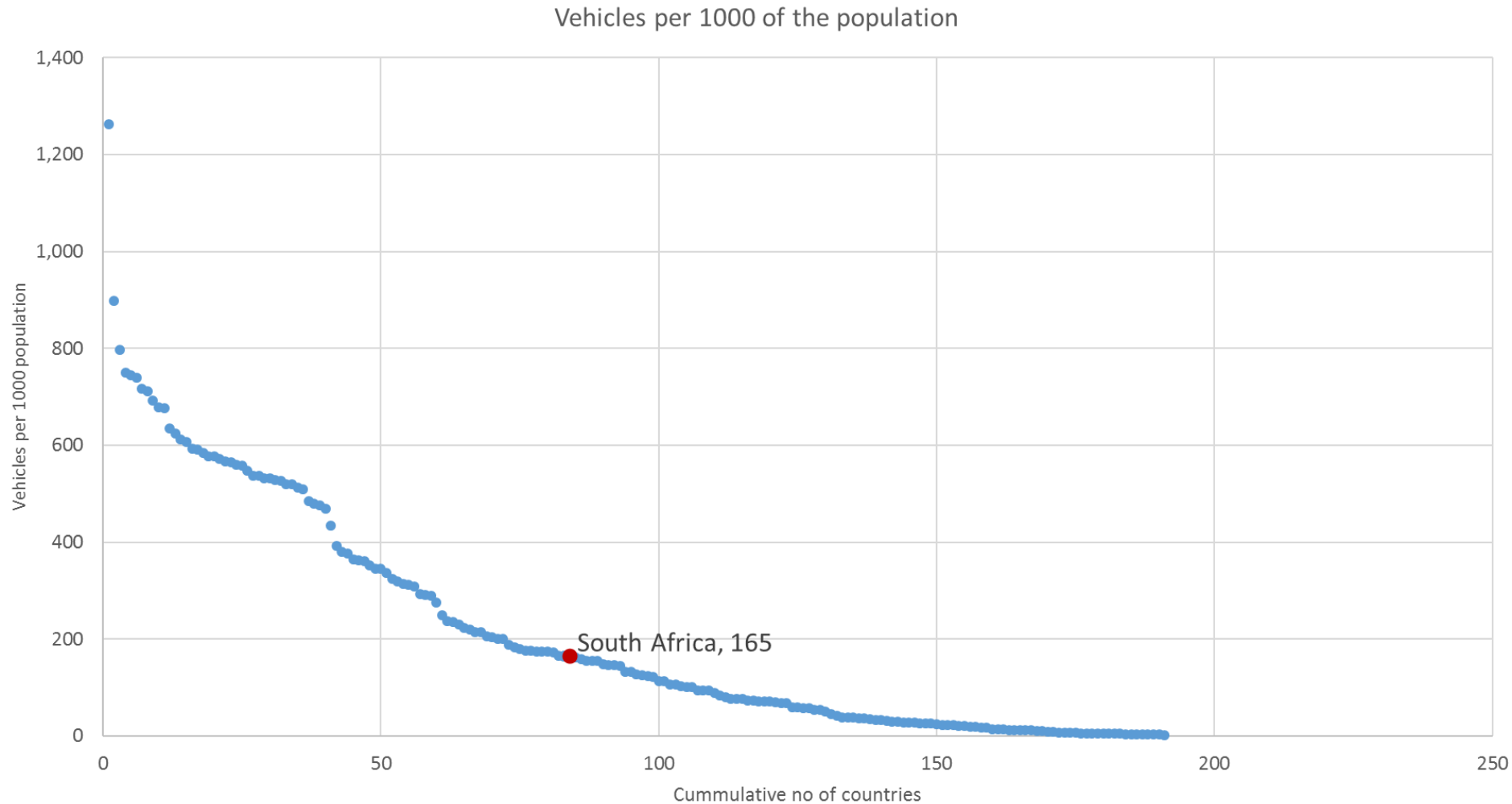


Size of our network ... (10th – 13th)

Total kilometers of paved and unpaved road network



Size of our vehicle fleet ... (85th)



PS:

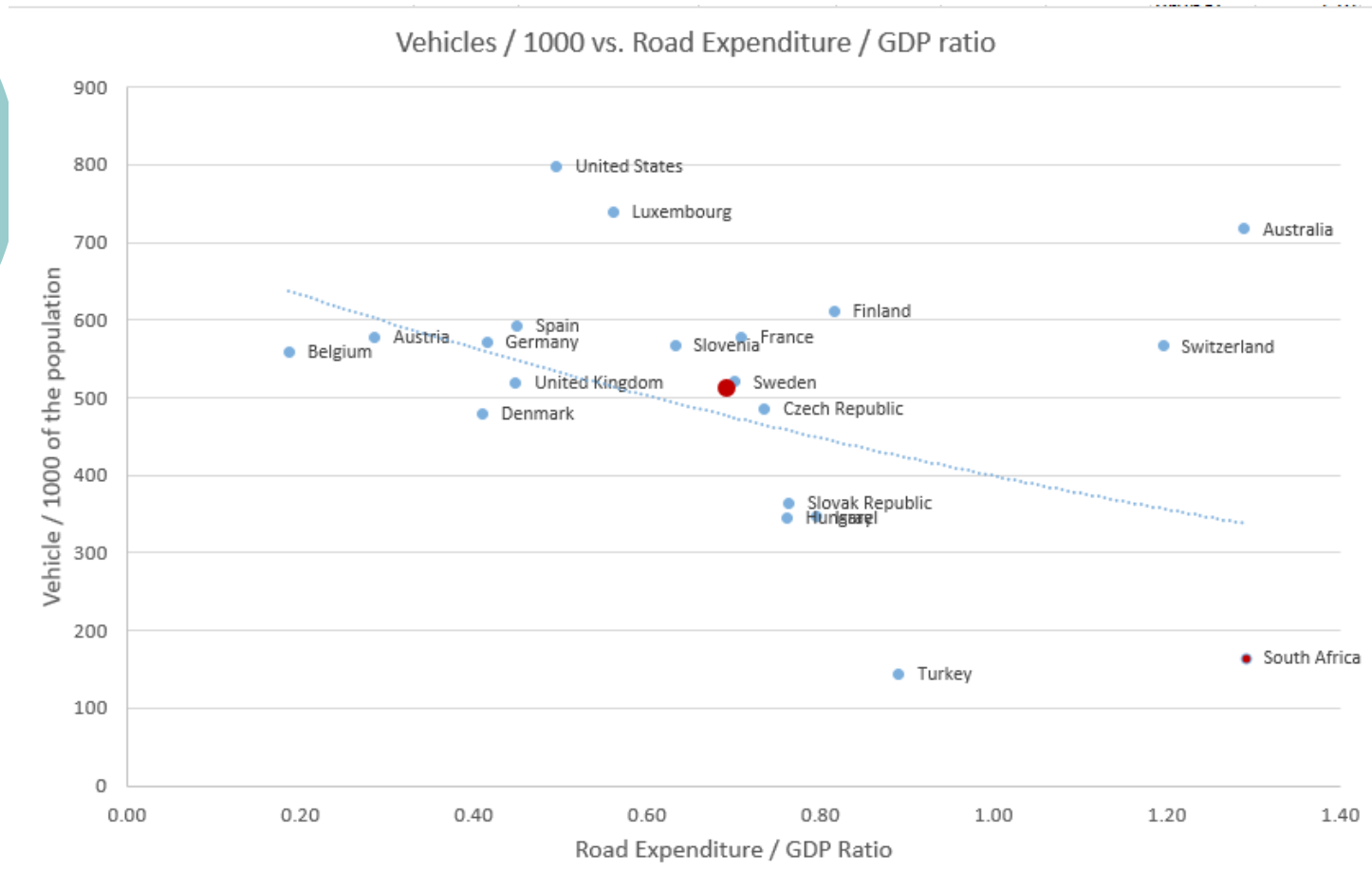
If your network is bigger, your fleet, *the users*, the people that pay, should also be the bigger...

If not, the country will either be paying proportionally more (if they are less) for the network or proportionally less (if they are more)

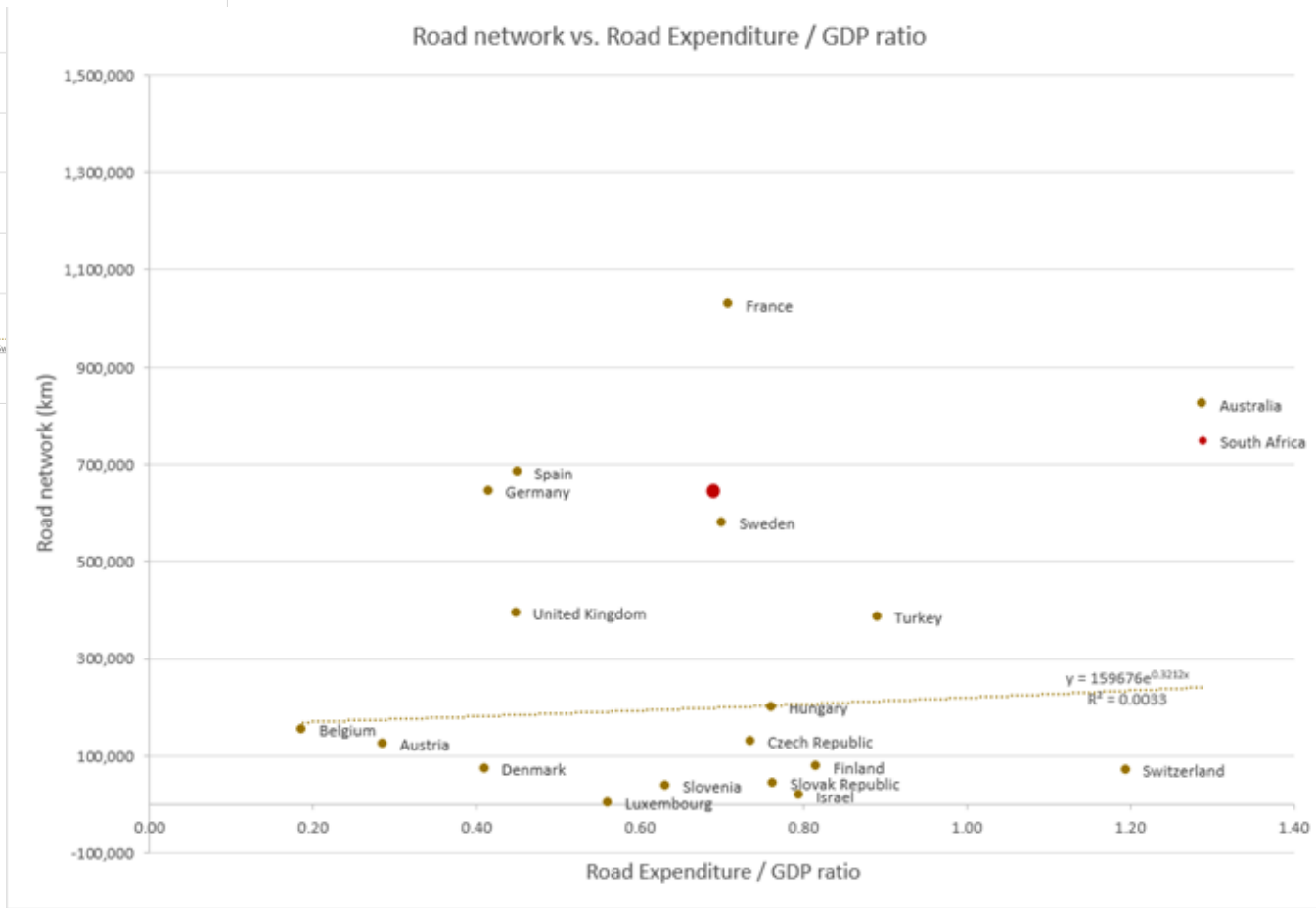
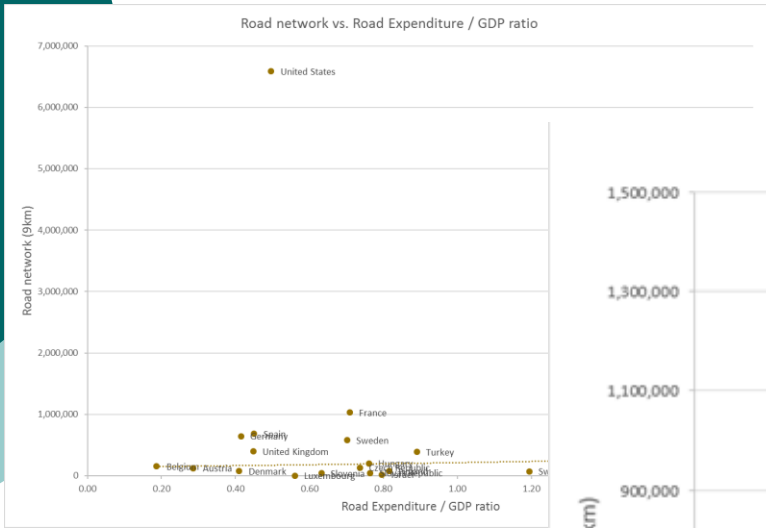
BUT THE USER DOES NOT PAY MORE!



How is our performance ... (1)

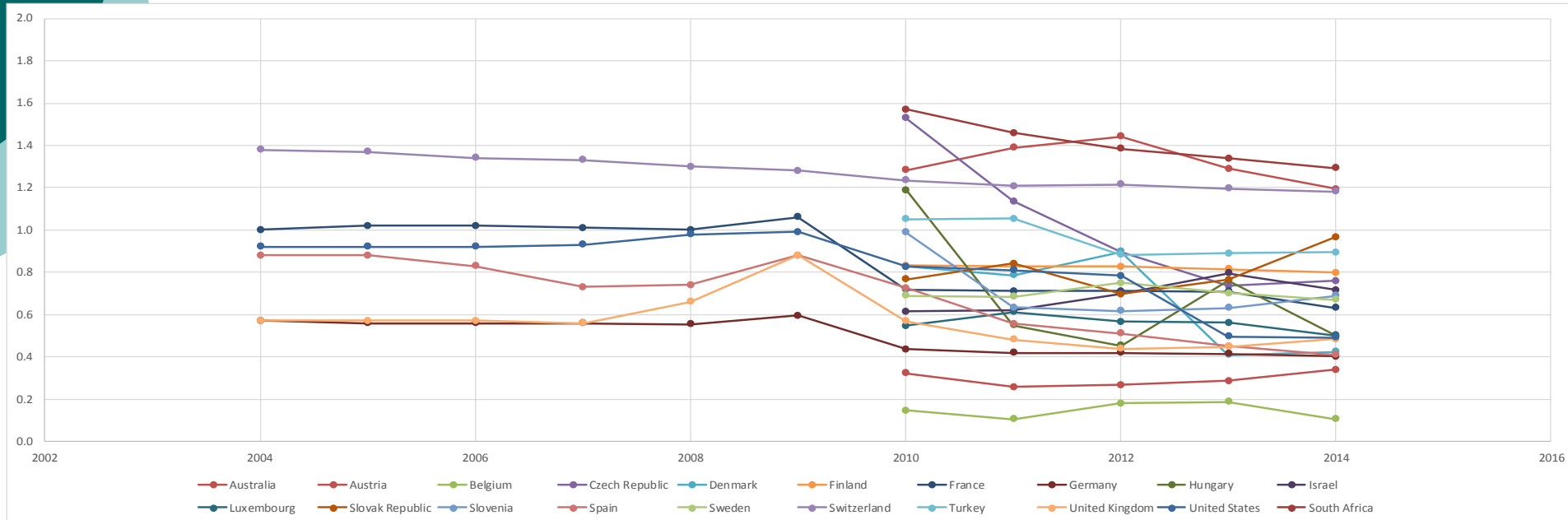


How is our performance ... (2)



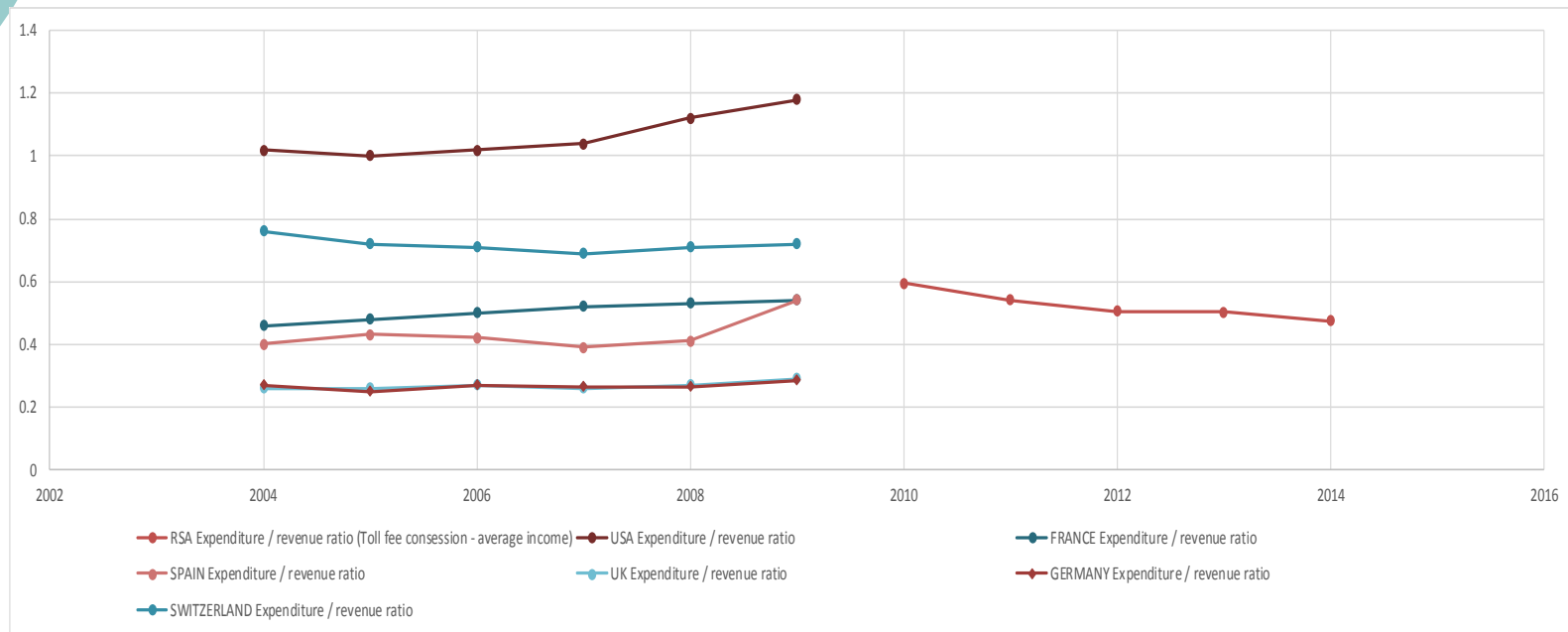
South Africa compared to the rest of the world

□ Road Expenditure compared to GDP



South Africa compared to the rest of the world...

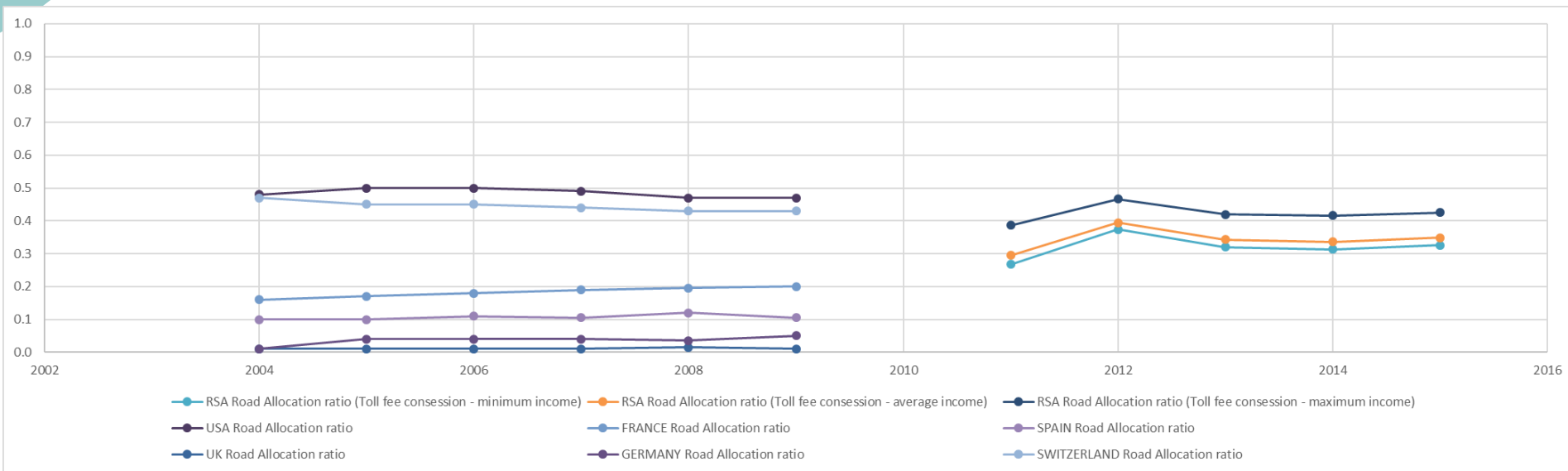
- ❑ Road infrastructure expenditure (RE) against road generated revenue (RGR)....
 - In short, for *every rand* that we *collect*, how much money do we *ACTUALLY* spend on road infrastructure



South Africa compared to the rest of the world...

❑ *Road allocation* against the road generated revenue:

- For every road collected, how much must be spent (is earmarked) from National Government



What is our Government planning
to do...?



Our future - make it work

EXECUTIVE SUMMARY

FUTURE



ACCESS ROAD DEVELOPMENT PLAN



March 2017
VERSION 1



DEPARTMENT OF TRANSPORT
PRIVATE BAG X193
PRETORIA
0001

PRIVATE BAG X193, PRETORIA, 0001
77 cnr Meirijes and Esselen Streets,
DTI Campus, 3rd Floor, Block A,
Sunnyside, PRETORIA
Tel: (012) 394 1006 • Fax: (012) 394 0255



THE NEW GROWTH PATH: FRAMEWORK



South Africa's Transport Policy Context

Policy / Trends	Implication for Roads	Capital Funding
Infrastructure led growth	Good Invest in transport infrastructure (Corridors, ports, rail, airports – your transfer facilities)	General Revenue Fund / User charges
Focus on manufacturing	Average Invest in transport / logistics (IDZ, ports, hubs etc.)	General Revenue Fund
Move away from resources-based economy	Average Invest in transport	General Revenue Fund
Focus on exports	Average Invest in logistics / transport links	General Revenue Fund
Focus on cities	Average Focus on public transport	General Revenue Fund
Economic Infrastructure	Average Roads, ports, pipeline, airports, etc.	General Revenue Fund / User charges
Focus on Public Transport	No impact (Subsidies, vehicles, some dedicated lanes),	General Revenue Fund / Users charges
Increased road maintenance	Good Focus on rural roads, urban streets in formally segregated neighborhoods / towns	General Revenue fund and weight distance
Ext.	Average	



Some risks, threats & opportunities



Aligning Public Transport Subsidies to Policy



EXECUTIVE SUMMARY

The current public transport subsidy framework is not aligned with the national transport policy that promotes an efficient and effective public transport system. South Africa's transport system is fragmented, subsidies are paid to rail and bus modes that have a limited coverage compared to minibus taxis, and public transport subsidies continue to rise without any proportionate benefits to the public. An integrated public transport network would make it easier to align the transport subsidy (where appropriate) to network objectives. Research by the Financial and Fiscal Commission (the Commission) found that a desirable subsidy framework should address social equity, encourage public transport operational productivity and incentivise a modal shift from private to public transport. A revised subsidy framework, which incorporates these three aspects, would cost government more than 2.6 times the current subsidy bill, but would be inclusive (unlike the current subsidy, which supports only a tiny proportion of the population). The Commission recommends that the Department of Transport (DoT) uses the research findings to formulate and implement a transport subsidy framework that explicitly incorporates these three aspects.

Joburg Mayor Mashaba's shock move

POLITICS / 14 September 2016, 07:38am

ANNA COX

Johannesburg - In a shock move during his acceptance speech on Tuesday, new mayor Herman Mashaba put the brakes on bicycle lanes and said there would be no co-operation with Sanral over e-tolls by the Joburg metro police.

Mashaba announced that the R70 million budgeted on bicycle lanes would not go ahead.



Joburg mayor Herman Mashaba reassured all residents that under the DA-led council, the city would have a government for everyone. Picture: Matthews Baloyi. Credit: INDEPENDENT MEDIA

It was former mayor Parks Tau's dream to establish bicycle lanes around the city to reduce the number of vehicles on the roads and to get people fit.

"When every road in Joburg is tarred, then maybe the city will again look at bicycle lanes," said Mashaba.



He also raised the ante on the contentious Gauteng e-tolls saga, saying there would be no co-operation between the JMPD and Sanral and that there "would be no harassment of motorists about outstanding e-toll payments".

Some risks, threats & opportunities



transport

Department:
Transport
REPUBLIC OF SOUTH AFRICA
Forum Building, 159 Struben Street, Pretoria, 0001

DISCUSSION PAPER

TOWARDS THE DEVELOPMENT OF THE MULTI-MODAL TRANSPORT PLANNING AND CO-ORDINATION DRAFT BILL



VERSION: 02

DATE: 25 SEPTEMBER 2015

- The fragmentation of transport functions is related to the dispersal of funding as well. There are serious questions about the optimal use of the available funding in the entire transport sector. The current subsidy system is deemed to entrench the old travel patterns instead of bringing about transformation. In the context of limited resources it is important to utilize the resources in the manner that gives the country the best transport solutions. Without integrated transport planning, project identification and implementation, it is not easy to use the resources efficiently;

Public Finance Management, Act No. 1 of 1999 as amended

This Act is obviously relevant to transport planning in that the implementation of transport plans and related projects is financed from the government coffers. The use of the funds by the national and provincial government is therefore subject to the provisions of the Act. Therefore the provincial and national government cannot use funds as they please to meet transport needs if funds are allocated for other purposes and ring-fenced funds for transport cannot be used for other purposes as well. This is important in the context of limited resources to achieve a myriad of government goals and objectives.

The limitation of funding for transport planning, infrastructure development, maintenance, rehabilitation, services and operations is a serious matter for South Africa. There are currently various initiatives being explored for funding, including establishment of Funds exclusively for transport. How the Funds should operate will be subject to the provisions of the Act. It is therefore important that the Funds should not contravene the Act. This applies



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Xoli Mngambi 
@XoliMngambi

 **Follow**

Mantashe says on economic policy, the [#ANCNEC](#) "adopted a framework of turning SA into a construction site".

2:20 PM - 29 Nov 2016

  3  2



Outcome of the trends

1. So everything is pointing to large investment in transport infrastructure
 - Not *only* roads
 - A lot of rather large and ambitious transport schemes
2. Main source remains our *General Revenue Fund*

Is there space to maneuver in our current road funding regime ...?



The next question:

Question 5:

How much should the user pay?



How much should the user pay...

- The Theory of the *User Pay Principle*
 - Consumers and users must carry the full and real cost of their consumption or utilisation to ensure that scarce resources are allocated fairly to users
 - We call this **Short Run Marginal Cost (SRMC)**...

- However SRMC is the starting point
 - Very difficult to measure and implement,
 - This is what the Europeans, the Americans, the Asians, etc. are busy with,

- Other options include
 - **Long Run Marginal Cost**
 - **Average costs**



What is included in MSC?

❑ Components of *Marginal Social Cost*

1. Infrastructure Cost
2. Noise Cost
3. Pollution Cost
4. Accident Cost
5. *Congestion Cost*

- Marginal simply mean the *additional* (or the individual) road user

❑ Requires very accurate records

- South Africa has not done any work on these costs
- Fortunately the EU, the USA and Asia has worked on this extensively



Marginal costs of infrastructure: Road

This is a part of the Excel annex for Ricardo-AEA et al (2013) "Update of the Handbook on external costs of transport", European Commission - DG MOVE

Please select or type in a country name (please consult sheet "Country list" for the list of available countries):

Select region **EU**

The unit costs for infrastructure costs will be automatically calculated below

Illustrative marginal road infrastructure costs for EU countries, €ct (2010) per vkm

Vehicle category	All roads	Motorways	Other trunk roads	Other roads
Motorcycles and mopeds	0.2	0.1	0.1	0.3
Cars	0.5	0.2	0.3	0.8
Buses	2.0	0.8	1.4	2.7
LDV < 3.5 t	0.7	0.3	0.5	1.2
HGV 3.5 - 7.5 t, 2 axles	0.1	0.0	0.0	0.4
HGV 7.5 - 12 t, 2 axles	1.5	0.6	1.0	8.2
HGV 12 - 18 t, 2 axles	3.9	1.6	2.7	21.5
HGV 18 - 26 t, 3 axles	5.2	2.2	3.6	28.9
HGV 26 - 32 t, 4 axles	6.6	2.8	4.6	36.7
HGV 26 - 32 t, 5 axles	3.6	1.5	2.5	20.1
HGV 32 - 40 t, 5 axles	8.0	3.3	5.6	44.6
HGV 32 - 40 t, 6 axles	4.8	2.0	3.3	26.7
HGV 40 - 50 t, 8 axles	5.0	2.1	3.5	28.1
HGV 40 - 50 t, 9 axles	3.8	1.6	2.7	21.5
HGV 50 - 60 t, 8 axles	10.6	4.4	7.4	59.3
HGV 50 - 60 t, 9 axles	7.6	3.2	5.3	42.3
HGV 40 t, 8 axles	3.5	1.5	2.4	19.4
HGV 40 t, 9 axles	2.8	1.2	2.0	15.6
HGV 44 t, 5 axles	18.8	7.9	13.1	105.0
HGV 44 t, 6 axles	10.3	4.3	7.2	57.7

Note that all values are calculated based on CE Delft, Infras, Fraunhofer ISI (2011) "External Costs of Transport in Europe", updated to price level of 2010
Road types are described by technical parameters (consult sheet "German values" for details)

Light commercial vehicles (LDV) are goods vehicles (e.g. vans) with a maximum gross vehicle weight of 3.5 tonnes.

4 : near capacity | 1

5 : over capacity | w/c > 1

Source: DfT (2012)





HDM-4 Road User Cost Model

Version 3.00, February 9, 2016

Step	Inputs	Calculations	Outputs
1)	I-Vehicle Fleet & Country Data I-Vehicle Fleet Calibration		
2)	I-Road Characteristics	Road User Costs Calculate Road User Costs	O-Road User Costs O-Resources and Performance O-Emissions
3)	I-Sensitivity Parameters	Sensitivity Analysis Calculate Sensitivity Analysis	O-Roughness Sensitivity O-Speed Limit Sensitivity O-Traffic Sensitivity O-RONET RUC Coefficients O-Charts On O-Charts All
4)	I-Network Characteristics	Network Road User Costs Calculate Network RUC	O-Network RUC
5)	I-Cost Benefit Analysis Data	Cost Benefit Analysis Calculate Cost Benefit Analysis	O-Cost Benefit
6)	I-RUC and Speeds Coefficients Inputs	Calculate RUC & Speeds Coefficients Calculate RUC & Speeds Coefficients	O-RUC and

Road User Charges Model

Version 3.00, 4/4/99

Ian Heggie
Rodrigo Archondo-Callao

The World Bank
Transportation, Water and Urban Development Department



THE WORLD BANK
<http://www.worldbank.org/transport>

[Instructions](#)

Disclaimer

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Options

[Print Instructions](#)

[Print Report](#)

Instructions

Road User Charges Model

Version 3.00, 4/4/99

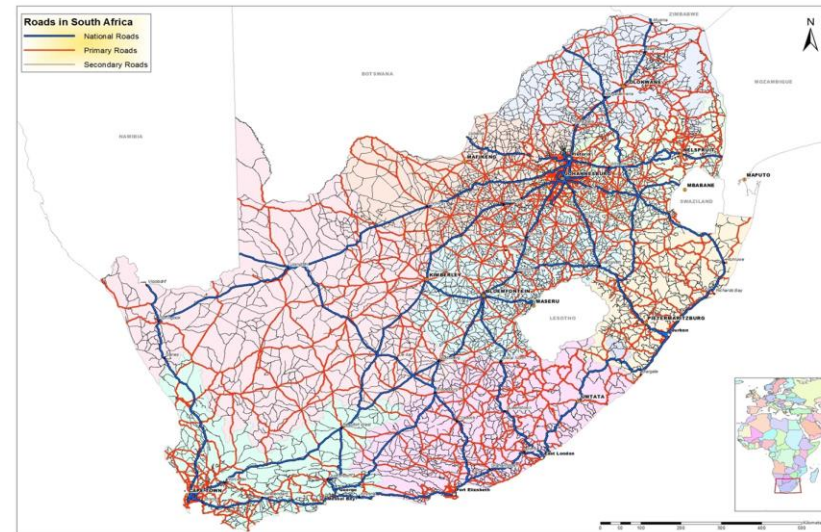
Ian Heggie
Rodrigo Archondo-Callao

The World Bank
Transportation, Water and Urban Development Department

[Instructions](#)

PS: What is it worth?

- Total road capital stock in the country (2010):
 - +/- 750 000 km
- Value of Road network:
 - R1 047 trillion (in 2010)
 - R1 047 000 000 000 ...
 - R2 000 000 000 000
- This is *current value*
 - No backlog, no expansion
- *Question is how much and how do we pay for this?*
 - Not one credible study / project / idea in South Africa



Funding requirement to sustain current road infrastructure network

Cost Element*		Rand (2014)	Per km costs
Estimated value of road network	R	2,000,000,000,000	1.27
Estimated value of road network	R	2,200,000,000,000	1.38
Operational Costs	R	70,686,248,000	0.44
Annual Maintenance	R	49,261,118,052	0.30
Cost of Accidents	R	126,000,000,000	0.78
Environmental Cost	R	20,778,948,768	0.13
Congestion Cost	R	60,000,000,000	0.37

If we get less this ... our road network & system will continue to deteriorate



EU MSC ... SA MSC

State/Type	Car			HGV			Motorcycle		
	Motor-way	Other non-urban road	Urban road	Motor-way	Other non-urban road	Urban road	Motor-way	Other non-urban road	Urban road
Austria	0.5	0.4	0.9	5.8	1.8	3.8	0.4	5.6	12.1
Belgium	0.3	0.3	0.4	3.0	1.5	0.9	1.6	3.0	6.0
Bulgaria	0.1	0.1	0.3	0.5	0.5	1.1	0.0	0.0	0.1
Croatia	0.3	0.2	2.9	0.9	0.6	16.4	0.0	0.2	1.6
Cyprus	0.8	0.1	2.1	2.0	0.3	46.2	0.3	0.1	5.6
Czech Republic	0.1	0.2	0.2	1.1	0.6	1.0	0.0	0.2	0.2
Denmark	0.1	0.1	0.1	1.1	1.0	0.7	0.3	1.2	3.8
Estonia		0.4	0.2		0.5	0.8		0.2	0.2
Finland	0.1	0.1	0.1	0.2	0.5	0.3	0.3	1.1	2.1
France	0.1	0.2	0.2	0.4	0.5	0.7	0.9	2.3	7.8
Germany	0.2	0.4	0.6	2.4	1.3	1.5	0.6	3.3	8.5
Greece	0.2	0.2	0.2	0.9	1.3	1.3	0.1	0.1	0.4
Hungary	0.1	0.3	1.3	0.8	1.2	6.8	0.0	0.1	2.4
Ireland	0.1	0.2	0.1	1.7	1.4	0.6	0.2	0.4	0.3
Italy	0.1	0.2	0.6	2.1	1.0	4.0	0.1	0.2	1.5
Latvia		0.3	0.2		0.4	0.5		0.1	0.3
Lithuania		0.2	0.3		0.3	0.9		0.2	0.2
Luxembourg	0.9		0.1	1.8		0.1	23.8		3.5
Malta			3.6			17.3			0.7
Netherlands	0.0	0.1	0.1	0.3	2.3	1.2	0.2	4.5	11.6
Poland	0.1	0.2	0.5	0.6	0.6	1.9	0.0	0.1	0.4
Portugal	0.1	0.1	0.3	2.1	2.7	9.3	0.1	0.2	0.9
Romania	0.0	0.2	2.1	0.1	0.6	12.0	0.0	0.0	1.5
Slovakia	0.1	0.3	0.5	0.8	0.7	12.2	0.0	0.2	0.5
Slovenia	0.1	0.2	0.2	0.5	0.7	1.7	0.0	0.3	0.1
Spain	0.2	0.1	0.1	1.8	0.9	0.3	1.0	0.8	1.6
Sweden	0.3	0.3	0.3	1.2	1.0	0.9	1.0	3.4	8.1
Great Britain	0.1	0.1	0.2	0.9	0.5	0.3	0.4	1.3	2.1
EU average	0.1	0.2	0.3	1.2	0.8	1.1	0.2	0.5	1.9

European Commission Marginal Social Costs: EU, US and SA				
	€ct per vkm	SA Cent per vkm	US cent per vkm	SA Cent (PPP) per vkm
Car: Motorway - Off Peak	0.77	11.20	1.05	5.61
Car: Motorway - Peak	29.17	425.64	39.75	213.40
Car: Urban road - Off Peak	2.29	33.39	3.12	16.74
Car: Urban road - Peak	54.54	795.74	74.30	398.94
HGV: Motorway - Off Peak	3.94	57.45	5.36	28.80
HGV: Motorway - Peak	89.61	1,307.46	122.09	655.50
HGV Urban road - Off Peak	9.66	140.96	13.16	70.67
HGV: Urban road - Peak	156.14	2,278.08	212.72	1142.12

Remember

- Road user are paying 62 c / km
- Government is spending 74c / km
- Tot sustain our road network we need R1.27



Applying EU MSC to South Africa

European Commission Marginal Social Costs: EU, US and SA									
State/Type	M	v	€ct per vkm				SA Cent per vkm	US cent per vkm	SA Cent (PPP) per vkm
Austria						0.77	11.20	1.05	5.61
Belgium									
Bulgaria						29.17	425.64	39.75	213.40
Croatia									
Cyprus									
Czech Republic									
Denmark						2.29	33.39	3.12	16.74
Estonia						54.54	795.74	74.30	398.94
Finland									
France									
Germany						3.94	57.45	5.36	28.80
Greece									
Hungary						89.61	1,307.46	122.09	655.50
Ireland									
Italy									
Latvia						9.66	140.96	13.16	70.67
Lithuania									
Luxembourg						156.14	2,278.08	212.72	1142.12
Malta			3.6			17.3			0.7
Netherlands	0.0	0.1	0.1	0.3	2.3	1.2	0.2	4.5	11
Poland	0.1	0.2	0.5	0.6	0.6	1.9	0.0	0.1	0
Portugal	0.1	0.1	0.3	2.1	2.7	9.3	0.1	0.2	0
Romania	0.0	0.2	2.1	0.1	0.6	12.0	0.0	0.0	1
Slovakia	0.1	0.3	0.5	0.8	0.7	12.2	0.0	0.2	0
Slovenia	0.1	0.2	0.2	0.5	0.7	1.7	0.0	0.3	0
Spain	0.2	0.1	0.1	1.8	0.9	0.3	1.0	0.8	1
Sweden	0.3	0.3	0.3	1.2	1.0	0.9	1.0	3.4	8
Great Britain	0.1	0.1	0.2	0.9	0.5	0.3	0.4	1.3	2
EU average	0.1	0.2	0.3	1.2	0.8	1.1	0.2	0.5	1.9

Remember

- ❑ Road user are paying 62 c / km
- ❑ Government is spending 74c / km
- ❑ Tot sustain our road network we need R1.27



So here my take on the findings:

1. Applying the user pay principle does not guarantee fiscal neutrality!!!!
 - ✓ It depends on Supply and Demand
 - ✓ You make money from congestion and HGV, you lose money in rural areas and off peak.
 - ✓ Getting prices right involves a systems approach involving all
2. Enough resources in the system
 - ✓ System have many dependents
 - ✓ Allocation very complex
 - ✓ The problem is not funding
3. Our road network is our competitive edge
 - ✓ It is undeniable one of our three best pillars supporting growth
 - ✓ Our *market / users* may not be able to carry such a big system any longer (that is without help)
4. But who represent the industry
 - ✓ Who is fighting for more funding for roads?



How to solve the problem?

We can learn a lot from what ASIA started doing a couple of years ago



A possibly way forward

1. Gain general acceptance of the road funding problem
 - Involve the stakeholders in understanding the dilemma.
 - Organise a 2 – 3 day workshop

2. Publish a position paper
 - Outcome of the workshop should be a position paper setting out
 - the problem to be resolved,
 - the specific matters to be addressed,
 - a timetable for the process,
 - milestones and decision points, and
 - the responsibilities of the various participants.



A possibly way forward...

3. Conduct studies and investigations
 - An intention of the position paper should be to identify research requirements and information needs:
 1. The importance of roads to the economy
 2. Road maintenance and network expansion needs study
 3. Cost allocation study
 4. Road funding study
4. Encourage public comment on a draft road user funding paper
 - The outcome of the previous steps should lead to a draft road user funding policy, which considers
 - (i) the establishment of a road user fund,
 - (ii) the charges *earmarked* for the fund, and
 - (iii) the management of the fund.
 - This document should be in the public domain and open to comments and feedback



Finally ...

□ Three “R’s”

- Establish *Road Users Authority*
 - road users & civil society stakeholders
 - to encourage better management, demand for efficiency, oversight and agree on the problem

- Establish Road Fund and Financing Guidelines
 - NOT RINGFENCED
 - Stable and predictable road financing through securing an adequate and stable flow of funds
 - Legislation, etc.

- Establish a Transport (Economic) Regulator
 - Simply to take care of the current conflicts and multiple demands on road funding.



This is how ASIA is doing it...

- a) **Gain Acceptance of a Maintenance Problem**
 - The road agency will require no convincing that there is a maintenance problem. The target audience is the finance ministry and the politicians.
- b) **Bring Stakeholders Together for Briefing and Discussion of Remedies**
 - A workshop about 3 days should be convened for stakeholders—government officials, road user representatives, and leaders of commerce and industry. The aim is to inform stakeholders and reach a consensus on the problem, its possible causes and remedies, and the way forward.
- c) **Publish a Position Paper**
 - The finance ministry or the government should issue a position paper setting out the problem to be resolved, the specific matters to be addressed, a timetable for the process, milestones and decision points, and the responsibilities of the participants.
- d) **Conduct Studies and Investigations**
 - The position paper leads to a number of matters needing study and investigation.
 - i. Road Maintenance Needs Stud
 - ii. Road Funding Study. To ensure that the earmarking of road user charges has a
- e) **Encourage Public Comment/ Prepare a Policy Paper**
 - At this point the government has a choice. It may decide on the best course to follow and draft a policy paper, on which comments are invited from interested parties
- f) **RMF Organization and Management**
 - Various approaches can be taken to RMF composition and operations and the choices will be countrydependent. There are many matters to be considered here: the RMF's mission statement, composition of the board and secretariat, authority to disburse monies, audit, and much more. See Appendix A for more details. i. Empowering Legislation
- g) **Empowering legislation** for the RMF will have to be drafted for submission to the government.
- h) **Activation of the RMF**
 - Once the legislation is passed and takes effect, the RMF will take an interest in the parallel reforms arising from the position paper.

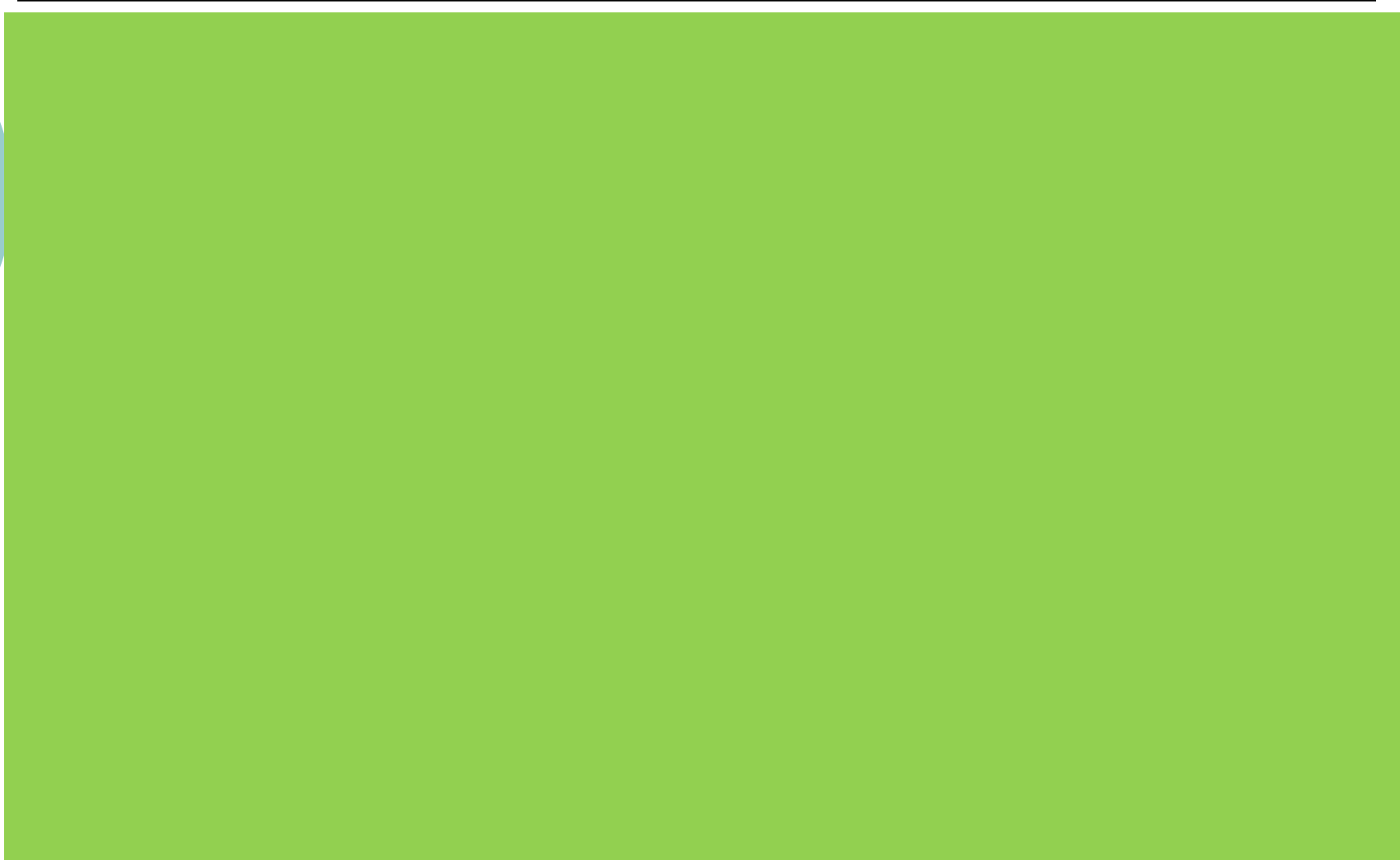


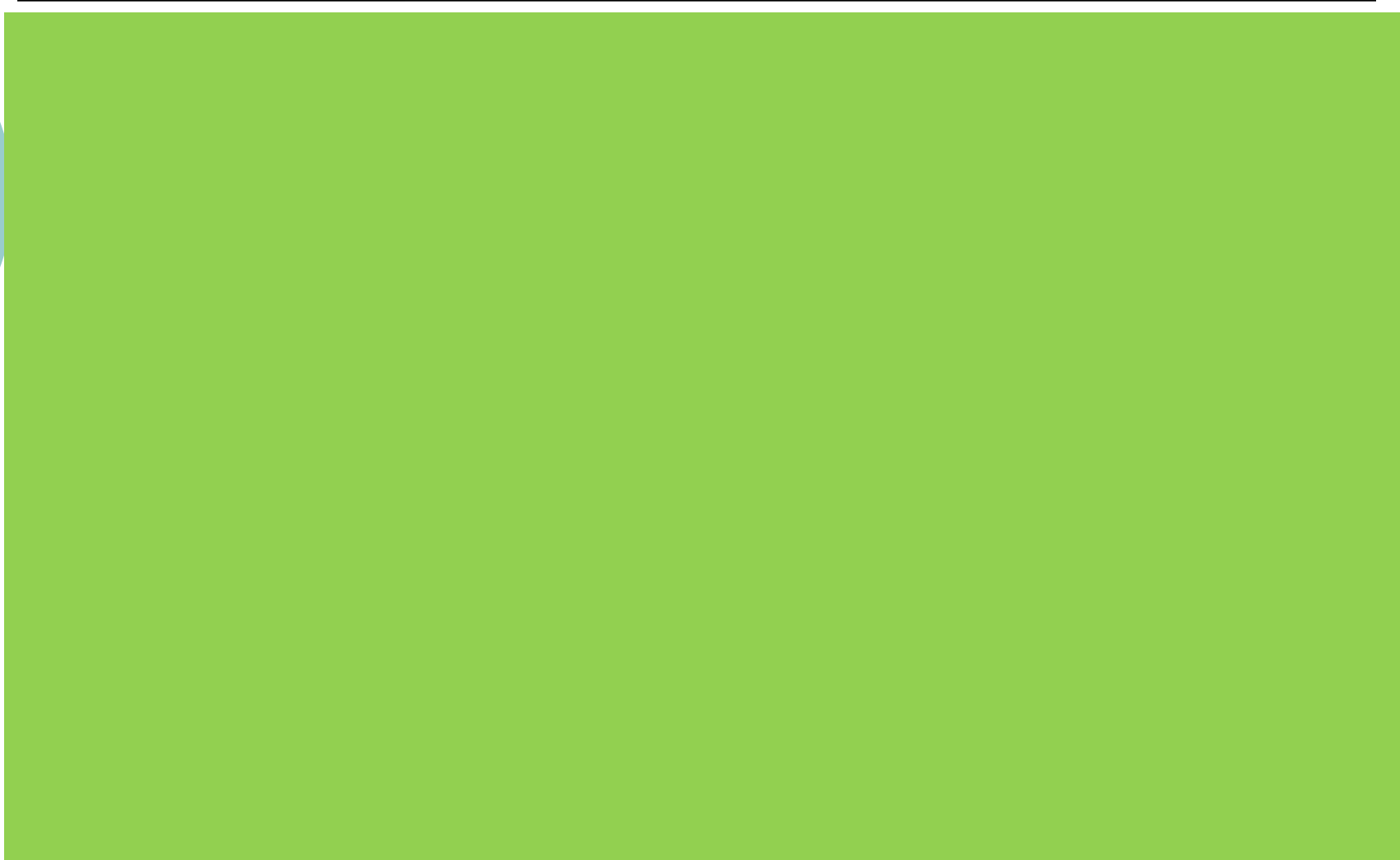
Thank you

Any comments will be much appreciated:

Skrygsman@sun.ac.za

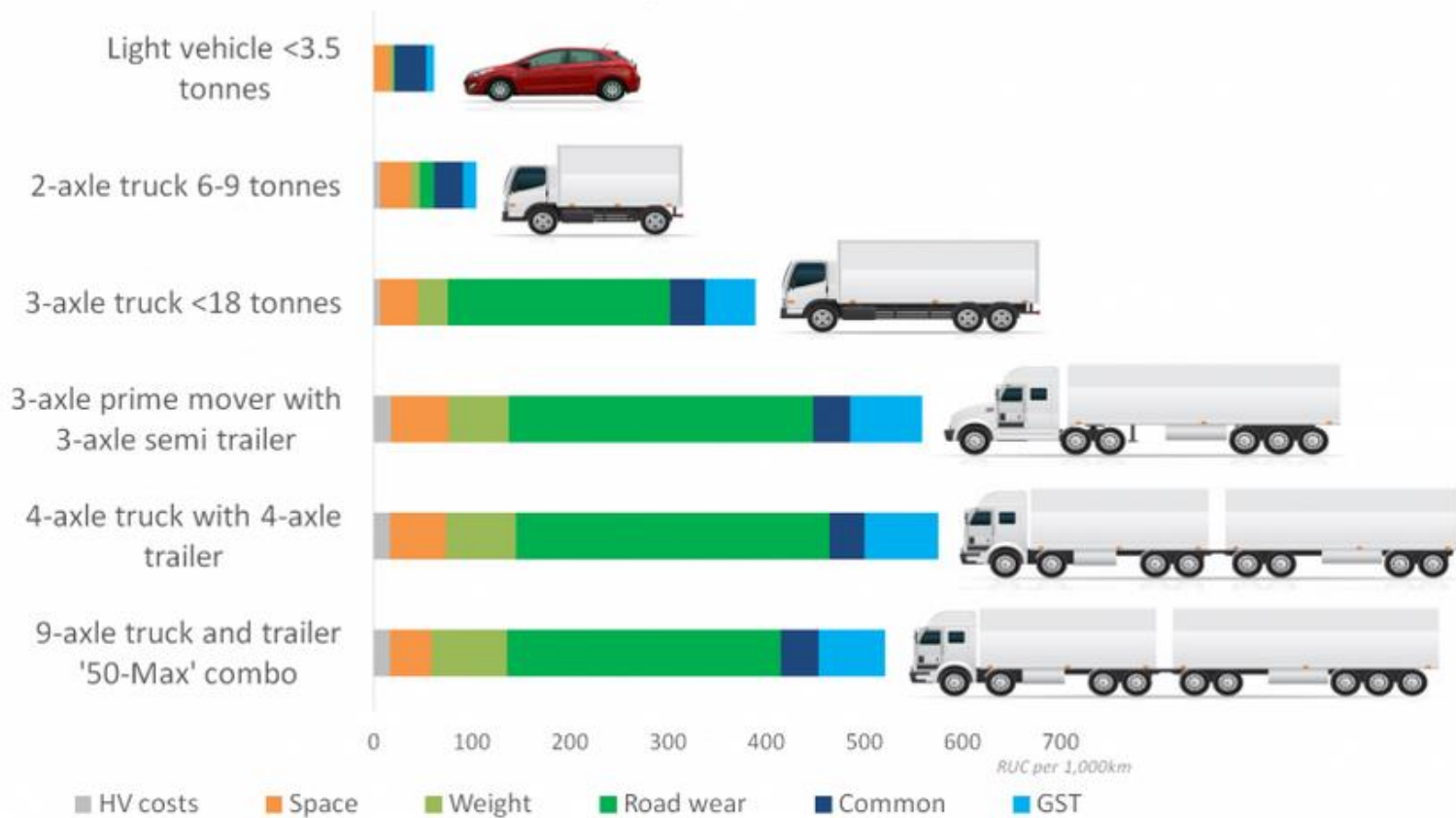




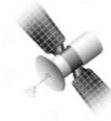


Some examples

RUC: A fair share by vehicle class



A kilometre-based road user charge system: Proof of concept study



Implementing weight – distance charges...

France Plans to End Sales of Gas and Diesel Cars by 2040

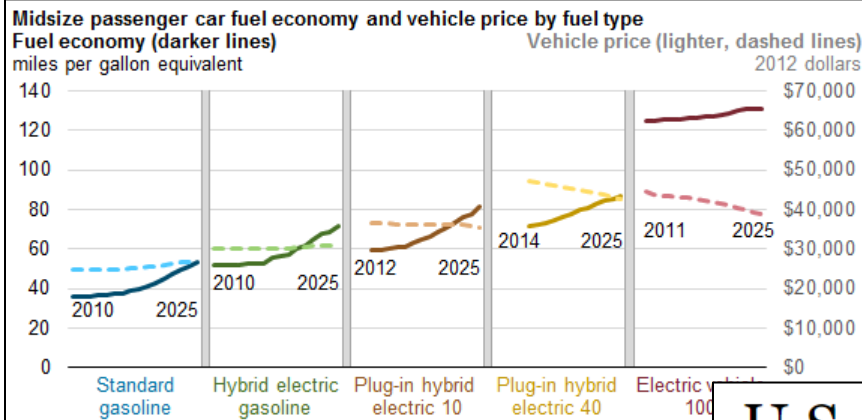
By JACK EWING JULY 6, 2017

UK plans to ban sales of diesel and petrol cars by 2040

Clean air effort follows a similar announcement in France

by Amar Toor | @amartoo | Jul 26, 2017, 4:06am EDT

**Diesel and petrol car ban:
Plan for 2040 unravels as 10
new power stations needed to
cope with electric revolution**



U.S. Electric Vehicle Sales Soared In 2016

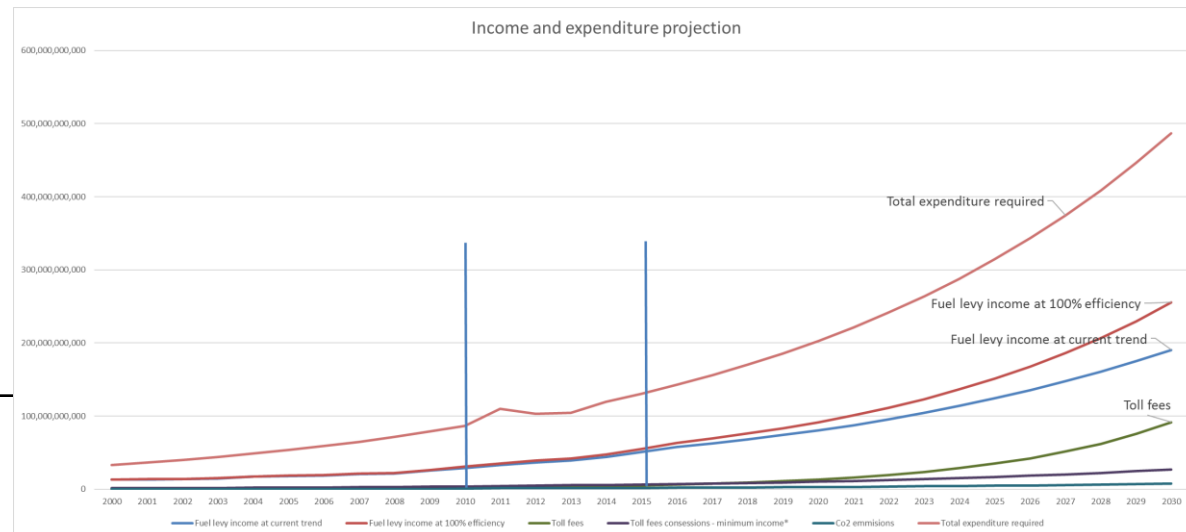
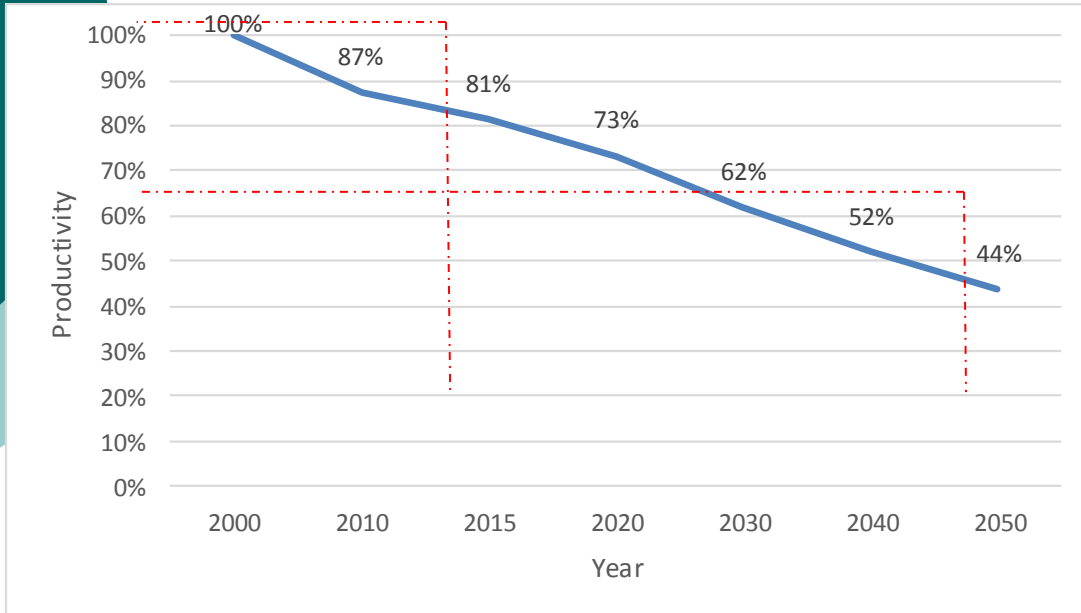


Robert Rapier, CONTRIBUTOR



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY
jou kennisvenoot • your knowledge partner

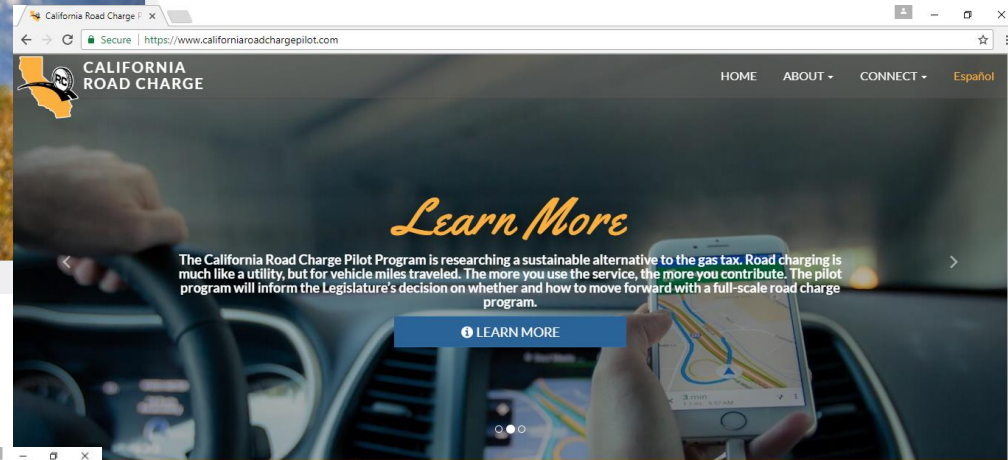
Declining productivity of the fuel levy...



Who is doing what ...



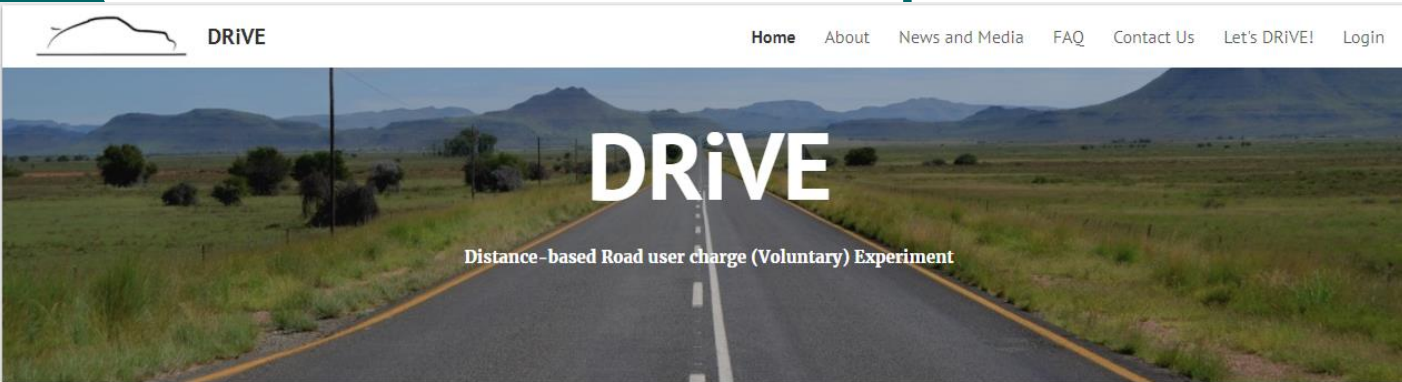
OREGO Sign up today!



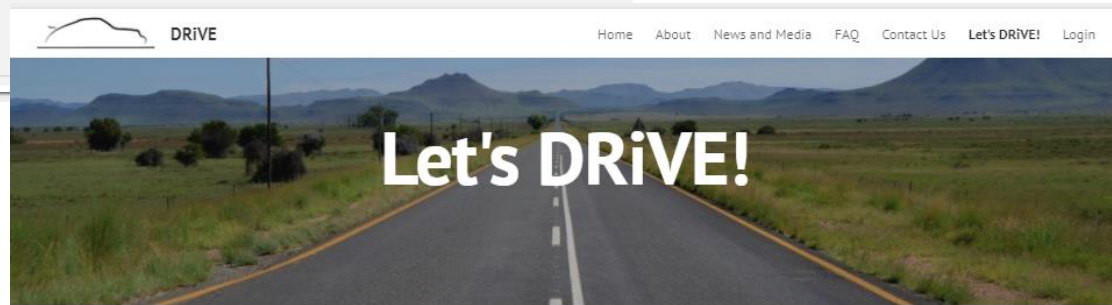
WHAT IS A ROAD CHARGE?



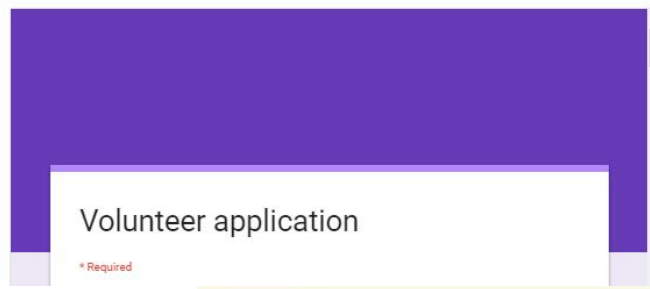
South African experiment ...

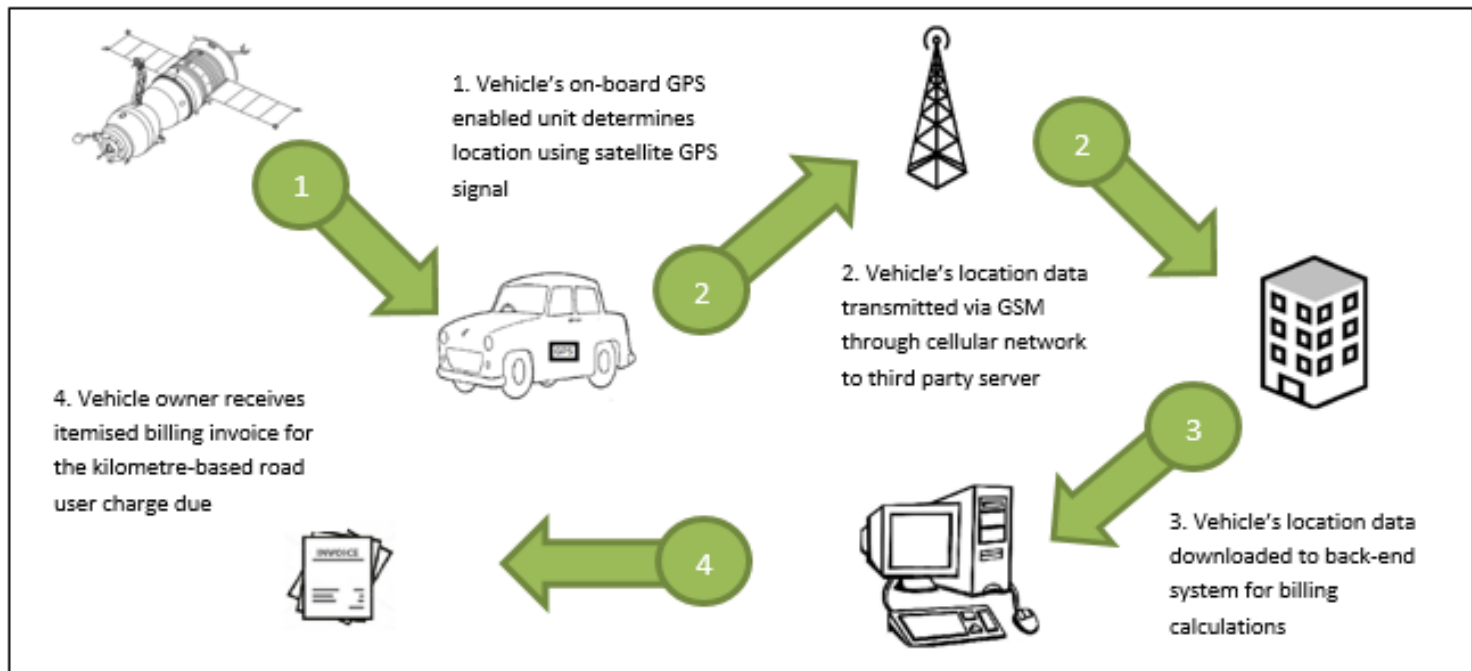


Do you know how much road tax, fees and charges you pay every month?
Do you know how much you should actually pay to include externalities?
Do you know what it actually cost you to operate your vehicle?

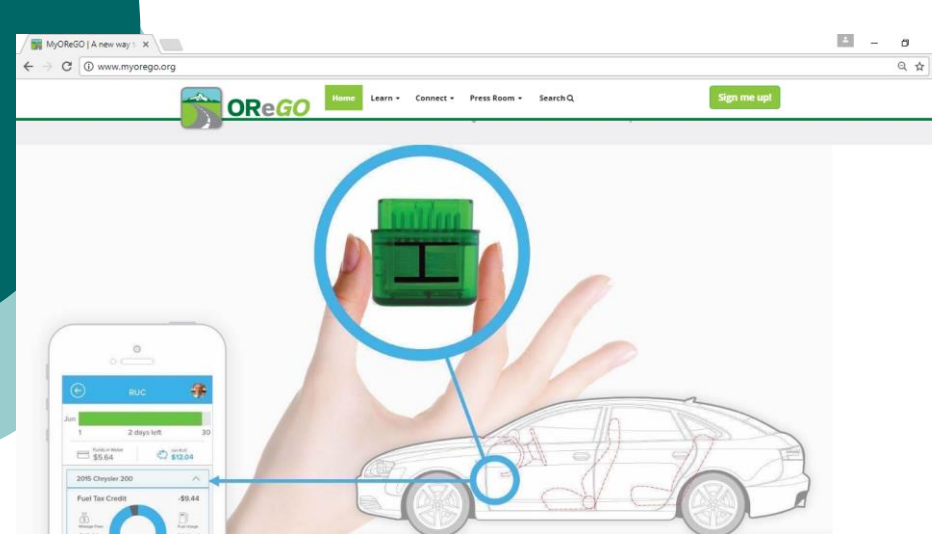


Please complete the Volunteer application form and click submit

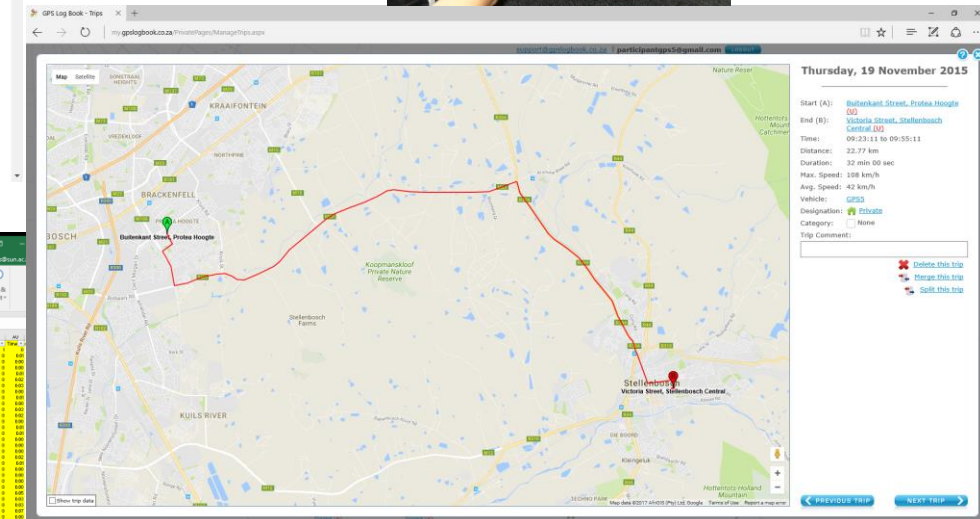




The technology ...



The image shows a screenshot of a Microsoft Excel spreadsheet. The spreadsheet contains a large table of data with columns for date, time, and various numerical values. The data is organized into multiple columns and rows, with some cells highlighted in yellow. The spreadsheet is titled 'Invoice calculation (NR 20 788) - best'.



The results ...



Stellenbosch University
Private bag X1
Matieland
7602

Account number 000001
Reference number 000001

Page 1 of 2

Road User Charge Invoice

Tel: +27 21 808 2879
Fax: +27 21 808 3406
E-mail: javrens@sun.ac.za
Correspondence: Researcher
Private bag X1
Matieland, 7602
Web address: www.sun.ac.za



Name Participant 1
Address N/A
Suburb N/A
Postal code N/A

Account summary as at	2015-09-01	Due date	2015-09-29
For vehicle:	GPS1		
Previous account balance		R	-
Less payments	2015-07-31	R	-
(a)	R -	R	-
Latest account - see overleaf		R	31,76
Current amount due (b)	2015-09-29	R	31,76
Total (a) + (b)	Total (a) + (b)	R	31,76
Total (a) + (b) above	R 31,76		
Total liability	R 31,76		

Travelling information	
Distance travelled (km)	551,41
Time spend travelling	24:24:28
Ave speed (km/h)	24,21

Travelling cost	
Vehicle running cost	R 749,91
Vehicle fixed cost	R 1 345,43
Total vehicle cost	R 2 095,35

Please note:
 (1) Billed for use of National, Provincial and Municipal Roads
 (2) Billed according to distance travelled
 (3) Billed according to time of day travelled
 (4) Interest will be charged on all amounts still outstanding after due date
 (5) You may not withhold payment, even if you have submitted a query concerning this payment

Pay points: Stellenbosch University cash offices or the vendors below
 ABSA Bank PayCity Checkers SPAR
 Shoprite WOOLWORTHS Pick n pay Post office

Account details as at		2015-09-01	Account number	000001
Charge	- Period	2015-08-03 to	2015-08-31	28
551,407495 km	x		0,231	R 127,38
Fuel rebate	- Period	2015-08-03 to	2015-08-31	28
37,4957097 litres	x		2,55	R 95,61
				R 31,76

Current account: Total due - R 31,76

	Region	Road type	Free flow	Near capacity	Over capacity
			0 (Rct/vkm)	(Rct/vkm)	(Rct/vkm)
Car	Metropolitan	Motorway	0.00	244.96	563.04
		Main roads	8.55	1 293.18	1 658.72
		Other roads	14.59	1 459.33	2 219.86
	Urban	Main roads	5.70	445.30	694.06
		Other roads	22.79	1 276.09	2 109.72
Rural	Motorway	0.00	122.48	281.52	
	Main roads	3.80	167.62	555.42	
	Other roads	1.90	384.54	1 274.19	
Rigid truck	Metropolitan	Motorway	0.00	465.43	1 069.77
		Main roads	16.24	2 457.04	3 151.57
		Other roads	43.30	2 772.74	4 217.73
	Urban	Main roads	10.82	846.07	1 318.72
		Other roads	43.30	2 424.57	4 068.47
Rural	Motorway	0.00	232.72	534.88	
	Main roads	7.22	318.47	1 055.29	
	Other roads	3.61	730.62	2 420.96	
Articulated truck	Metropolitan	Motorway	0.00	710.39	1 632.80
		Main roads	24.78	3 750.22	4 810.30
		Other roads	66.08	4 232.07	6 437.59
	Urban	Main roads	16.52	1 291.37	2 012.78
		Other roads	66.08	3 700.65	6 118.19
Rural	Motorway	0.00	355.20	816.40	
	Main roads	11.01	486.09	1 610.70	
	Other roads	5.51	1 115.15	3 695.15	
Bus	Metropolitan	Motorway	0.00	612.41	1 407.59
		Main roads	21.36	3 232.94	4 146.81
		Other roads	56.97	3 648.34	5 549.65
	Urban	Main roads	14.24	1 113.25	1 735.16
		Other roads	56.97	3 190.22	5 274.30
Rural	Motorway	0.00	306.20	703.79	
	Main roads	9.49	419.04	1 388.54	
	Other roads	4.75	961.34	3 185.47	

Calibrating the model ...

			Revenue collected				
			Current system	Proposed RUC system			
			Approach 1	Approach 2	Approach 2	Approach 4	Approach 5
	Kms driven	Average revenue required per km to sustain road network (Infrastructure and operation) - 67 Rc/km	Fuel tax	Oregon / California's current fuel tax per average fuel efficiency US ave	Oregon / California's current fuel tax per average fuel efficiency SA ave	Average social marginal cost (SMC)	Freeman's average cost allocation - 58 Rc/km for vehicle class
Participant 1	1 019	R683	R576	R405	R328	R2 264	R587
Participant 2	1 156	R775	R459	R459	R372	R1 064	R666
Participant 3	1 132	R759	R452	R474	R384	R502	R652
Participant 4	1 203	R806	R367	R503	R408	R2 935	R693
Participant 6	3 014	R2 019	R786	R1 261	R1 021	R4 811	R1 736
Participant 7	1 036	R694	R337	R434	R351	R2 053	R597
Participant 8	662	R443	R374	R263	R213	R394	R381
Participant 9	813	R545	R248	R340	R276	R394	R468
Participant 10	918	R615	R244	R364	R295	R3 154	R529
Participant 11	787	R527	R305	R312	R253	R2 680	R453
Participant 12	2 460	R1 649	R703	R1 030	R834	R1 915	R1 418
Participant 13	423	R284	R239	R168	R136	R1 123	R244
Participant 14	2 222	R1 489	R810	R930	R753	R2 989	R1 280
Participant 15	789	R529	R241	R330	R267	R535	R455
Participant 16	1 196	R801	R365	R500	R405	R536	R689
Participant 17	1 006	R674	R292	R421	R341	R2 431	R580
Participant 18	2 065	R1 383	R549	R864	R700	R5 267	R1 190
Participant 20	1 527	R1 023	R376	R639	R518	R441	R880



A Road Funding Policy for South Africa

- We cannot have 5 pages policy on road funding
 - Pick: 2 years in court or 2 years to reform approach

- Setting the scene:
 - **Phase I**
 1. Understand our road sector in terms of:
 - i. Vehicle fleet
 - ii. Road network
 - iii. Income from and expenditure on roads
 - iv. Gain acceptance of the maintenance problem and road benefit
 2. *Future* trends
 - i. Growth in vehicle fleet
 - ii. Income projections from fleet
 - iii. Expenditure projections / trends
 3. International State of Practice
 - **Phase II**
 1. Involve all stakeholders in conference
 1. 2 day workshop with Road users, Government, Infrastructure provider, commerce and industry
 2. Road Funding options
 - i. User Pay
 - ii. Tax options
 - iii. Etc.
 3. Road Cost Study
 4. Road Allocation Study
 2. Position paper
 1. Importance of roads and maintenance / capacity expansion needs study
 2. **Road Funding study**



A Road Funding Policy for South Africa

□ Setting the scene:

○ Phase III

1. Institutional, Regulatory Framework and Capacity Building

- i. Road Management Forum / Road User Authority
- ii. Road Fund Administration / Road Fund
- iii. Transport Regulator (?)
- iv. *Roads Contractor Company*

○ Phase IV

- Enabling legislation
- Activation of new system

