
The limits of laws: traffic law enforcement in South Africa

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THE LIMITS OF LAWS: TRAFFIC LAW ENFORCEMENT IN SOUTH AFRICA¹

Sophia du Plessis², Ada Jansen³ and Krige Siebrits⁴

ABSTRACT

The aim of many public policies is to change behaviour. Governments tend to rely on regulations, taxes and subsidies to effect such change. These measures, which affect agents' economic incentives, have a mixed record. A key insight of the New Institutional Economics is that the efficacy of such formal institutions depends on the strength of their enforcement and the extent to which they are compatible with prevailing informal institutions. This paper uses the road safety situation in South Africa as a case study to explore aspects of the relationships among formal institutions, law enforcement and informal institutions. South Africa has a strong suite of road safety laws but poor road safety outcomes. The paper argues that improved law enforcement cannot fully solve the problem; complementary changes to the informal institutions shaping the behaviour of road-users are essential. It points out that institutional economists have to take a greater interest in the insights of research in behavioural economics, behavioural and cognitive science and other disciplines in order to provide useful advice in settings where such change is an important policy objective.

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1 INTRODUCTION

The aim of many public policies is to change behaviour. To achieve this aim, governments mostly rely on regulations, taxes and subsidies.⁵ These measures affect the economic incentives of agents: taxes and subsidies change prices, while non-compliance with many regulations carry costly sanctions. Economic incentives have a mixed record as devices for changing behaviour. As Bowles and Polanía-Reyes (2012: 369) put it: “Incentives work, often affecting the targeted behaviour almost exactly as conventional economic theory predicts... But explicit economic incentives sometimes have surprisingly limited effects, and may even be counterproductive”.

Ideas from the New Institutional Economics are valuable for understanding the varied effects of economic incentives.⁶ Institutional economists distinguish between two types of constraints that influence human behaviour, namely formal institutions (e.g. policy rules, constitutions and other laws) and informal institutions (e.g. norms of behaviour, conventions and self-imposed codes of conduct) (North, 1994: 360). Regulations, taxes and subsidies are examples of formal institutions. One of the key insights of institutional economists is that the effectiveness of such institutions depends on the strength of their enforcement and the extent to which they are compatible with the prevailing informal institutions. North (2005: 27-28) summarised this insight as follows:

[T]he policies at our disposal are very blunt instruments. They consist of alterations in the formal rules only, when in fact... performance... is an admixture of the formal rules, the informal norms, and their enforcement characteristics. Changing only the formal rules will produce the desired results only when the informal norms that are complementary to that rule change and enforcement is either perfect or at least consistent with the expectations of those altering the rules.

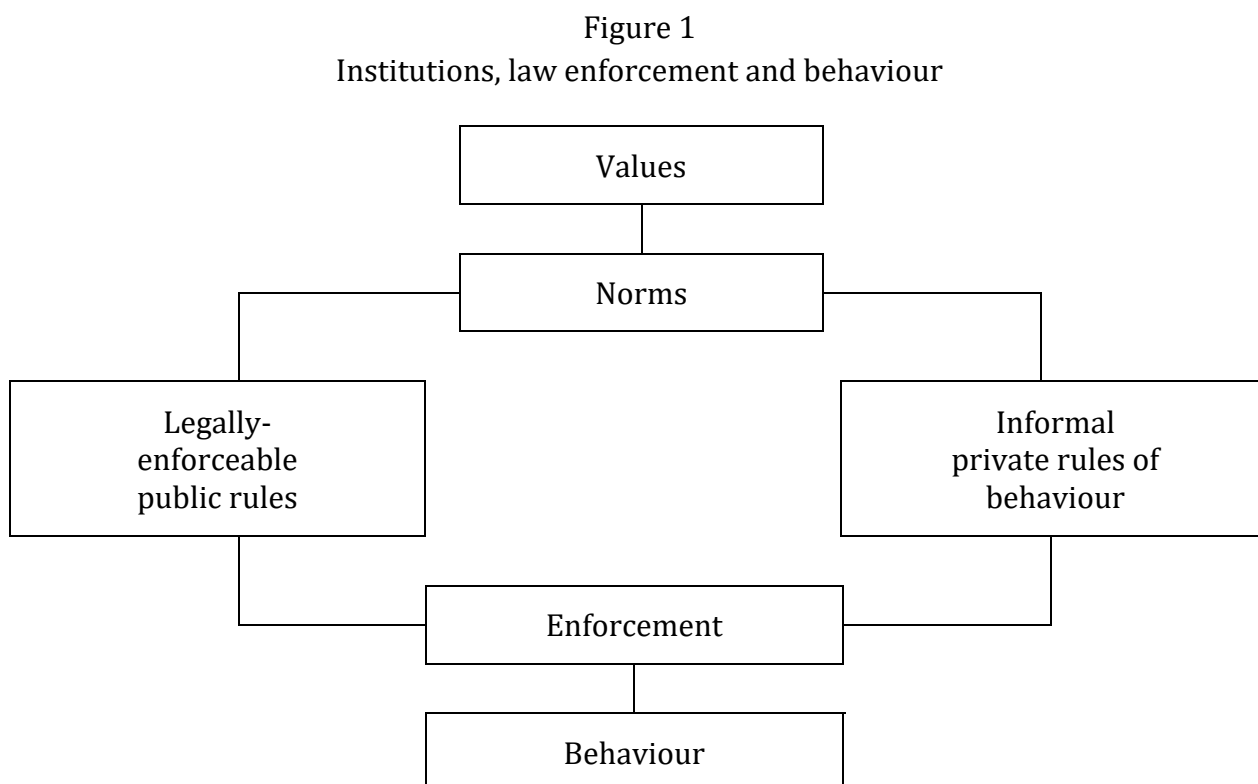
The New Institutional Economics is not the only field in Economics that recognises the interconnectedness of formal institutions, enforcement and informal institutions. Many micro- and behavioural economists now acknowledge that informal institutions influence the efficacy of incentives (cf. Festré, 2010; Gneezy, Meier and Rey-Biel, 2011), and law enforcement has long been a major theme in the Law and Economics literature (cf. Polinsky and Shavell, 2007). Yet much scope remains for studying the ways in which enforcement and informal institutions influence the incentive effects of policies to change behaviour. The present paper uses the road safety situation in South Africa as a case study to explore this issue.

⁵ Nudging has recently emerged as an alternative or a complementary policy approach for effecting behavioural change (cf. Section 6).

⁶ North's (1994: 359) well-known statement that “... institutions form the incentive structure of a society” underscores the salience of incentives in the New Institutional Economics.

2 CONCEPTUAL FRAMEWORK AND OUTLINE OF THE PAPER

Figure 1 presents a framework for conceptualising the core issues explored in this paper. This framework is an adaptation of one suggested by Groenewegen, Spithoven and Van den Berg (2010: 26-27, 33). Figure 1 depicts the institutional environment as a hierarchy of behaviour-influencing formal and informal institutions.⁷ The first two levels of the hierarchy consist of informal institutions. Values are "generally-held preferences about pursuable goals, and embody what most citizens in a certain society consider to be 'good'" (Groenewegen et al., 2010: 26). Norms are "generally-held opinions about how to achieve the values" (Groenewegen et al., 2010: 26). The notion that people should drive safely, for example, is a norm that contributes to the value of security. Values and norms are the bases of legally enforceable public rules (formal institutions, such as traffic laws) and informal private rules of behaviour (road safety-related practices that are not encapsulated in law yet widely applied). As was pointed out earlier, public and private rules and their enforcement jointly shape the behaviour of individuals.⁸



Source: Adapted from Groenewegen, Spithoven and Van den Berg (2010: 33).

The source of the problem discussed in this paper is the co-existence in societies of different sets of values and norms (Groenewegen et al., 2010: 26). Some persons hold the same values and norms that underpin the legally enforceable public rules and choose

⁷ Voigt and Kiwit (1998: 84-88) provide alternative definitions of the elements of institutional environments and a well-considered exposition of the relationships between them.

⁸ This relationship is also captured in the "interaction thesis" formulated by Pejovich (1999: 171).

corresponding informal private rules. Hence, they exhibit the forms of behaviour desired by policymakers. Enforcement of the public rules would have been unnecessary if all persons had behaved in this manner; in fact, such rules would have been superfluous. In most real-world situations, however, some persons choose informal private rules based on values and norms that give rise to inappropriate behaviour. This reality explains why governments create and enforce laws and other formal institutions to change behaviour.

This paper applies the framework in Figure 1 to the road safety situation in South Africa as follows. Section 3 shows that the incidence of road accidents in South Africa is high and costly in spite of the country's relatively strong road safety laws. The limited efficacy of these laws confirms that the road safety situation in South Africa is a pertinent setting for studying the links among formal institutions, enforcement and informal institutions. The next two sections discuss the contributions to this state of affairs of informal institutions and law enforcement. Section 4 shows that road users in South African frequently violate road safety laws and argues that such behaviour partly reflects values and norms (i.e. informal institutions) that undermine obedience to such laws. Section 5 summarises the institutional framework governing the enforcement of road safety laws in South Africa and presents evidence of the scope of law enforcement actions. It also uses information from an administrative dataset of traffic law violations in the City of Cape Town from July 2014 to July 2016 to provide further insight into the enforcement of road safety laws. This information shows that it would be extremely difficult to eradicate leading causes of road accidents by means of law enforcement activities and that the structures for enforcing sanctions for law violations function extremely poorly. Against this backdrop, Section 6 concludes that a combination of law enforcement reforms and changes to informal institutions is necessary to improve the road safety situation in South Africa. This section also points out that institutional economists' limited understanding of the roles and malleability of informal institutions constraints their ability to provide useful policy advice in this as well as other contexts. Hence, it concludes that institutional economists should prioritise research into these issues and intensify their efforts to study relevant findings of psychologists and other social scientists.

3 THE ROAD SAFETY SITUATION IN SOUTH AFRICA

The World Health Organisation (WHO) (2015: 65) has identified seven major behavioural risk factors for road traffic deaths and injuries: speeding; drink-driving; failure to use seat belts, motorcycle helmets and child restraints; drug driving; and using mobile phones while driving. According to the WHO, a strong legislative framework to reduce road traffic deaths and injuries should contain laws to regulate these risk factors. For the first five risk factors, the WHO has identified best practices that should be incorporated in such laws (evidence is still being gathered on legislative best practices with regard to drug-driving and the use of mobile phones while driving). Table 1 lists these risk factors and the associated best practices recommended by the WHO. It also shows the extent to which South African road safety legislation conforms to international best practice.

Table 1
Road safety risk factors, legislative best practices and South African legislation

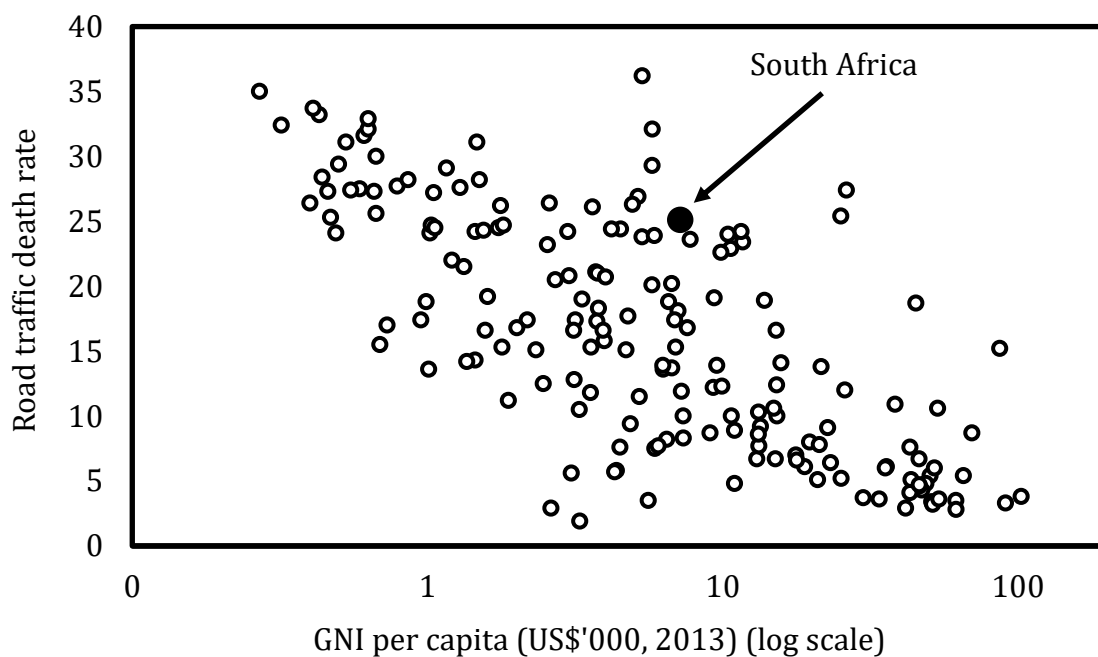
Risk factor	Laws and best practices	South Africa
Speeding	National speed law in place	Yes
	Speed limits on urban roads \leq 50km/h	No
	Local authorities may modify national speed limits	Yes
Drink-driving	National drink-driving law in place	Yes
	Law enforcement based on blood alcohol content (BAC)	Yes
	BAC limit for general population \leq 0.05g/dl	Yes
	BAC limit for young or novice drivers \leq 0.02g/dl	No
Motorcycle helmets	National motorcycle helmet law in place	Yes
	Applies to motorcycle drivers and adult passengers	Yes
	Applies to all road types	Yes
	Applies to all engine types	Yes
	Requires helmets to be properly fastened	Yes
	Requires helmets to meet a national or international standard	No
Seat belts	National seat belt law in place	Yes
	Applies to drivers and front-seat passengers	Yes
	Applies to rear-seat passengers	Yes
Child restraints	National child restraint law in place	No
	Based on age-weight-height (or combination)	No
	Restricts children under a certain age from sitting in the front seat	No
Drug driving	National drug driving law in place	Yes
Mobile phones	National law on mobile phone while driving in place	Yes

Source: World Health Organisation (2015: 65, 226, 294).

Table 1 suggests that South Africa has a strong suite of road safety laws: the country has laws to deal with six of the seven risk factors. South Africa's seat belt laws are fully aligned with international best practice, while those on speeding, drink-driving and motorcycle helmets each lacks only one element of such practices. Yet road safety outcomes are far from acceptable. According to the Road Traffic Management Corporation (2016b: 32), South Africa suffered 832 431 road traffic crashes in 2015. Fully 11 144 were fatal and a further 40 117 major crashes. These crashes caused 13 591 deaths, 62 520 serious injuries and 202 509 slight injuries. Statistics South Africa (2017: 43) attributed 12.3 percent of non-natural deaths and 1.4 percent of all deaths in South Africa in that year to transport accidents. Modelling based on the latest techniques used in studies elsewhere revealed that the cost of road traffic crashes in 2015 amounted to 3.4 per cent of South Africa's gross domestic product (Road Traffic Management Corporation, 2016b: 36).

International comparisons confirm the impression of unsatisfactory outcomes. Figure 2 shows that South Africa's road traffic death rate in 2013, namely 25.1 per 100 000 of the population, was relatively high for an upper-middle-income country. In fact, the South African road traffic death rate exceeded the average rates for low-income countries (24.1), all middle-income countries (18.4) and high-income countries (9.2) (World Health Organization, 2015: 5). Methodological inconsistencies make international comparisons of estimates of the costs of road traffic crashes hazardous. It is notable, however, that the estimate for South Africa quoted above is higher than those for the majority of countries reported by Wijnen and Stipdonk (2016: 105) (cf. Figure 3). The South African Government is well aware of the scale of the problem. It endorsed the Decade of Action for Road Safety 2011–2020 proclaimed in March 2010 by the United Nations and included a major reduction in motor vehicle accidents among the goals of the National Development Plan 2030 (National Planning Commission, 2015: 298).

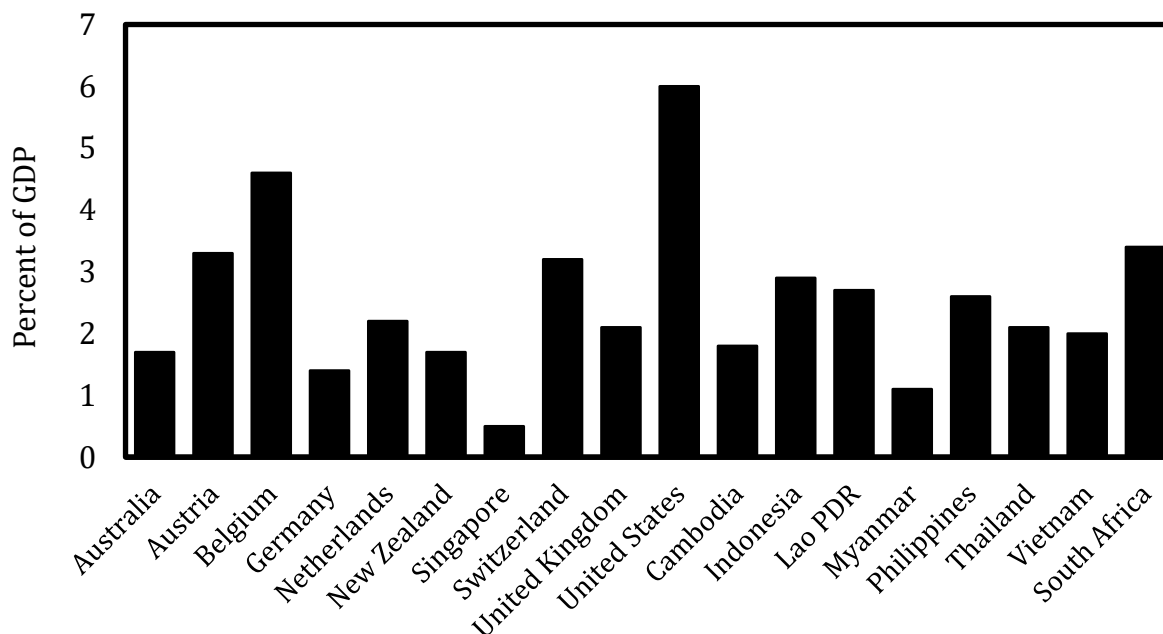
Figure 2
Road traffic deaths per 100 000 of the population (2013)



Source: World Health Organisation (2015: 264-270).

The New Institutional Economics suggests that the disjunction between South Africa's relatively strong road safety laws and the high and costly incidence of road accidents may well reflect inappropriate values and norms about prudent behaviour among road users, poor enforcement of road safety laws, or a combination of these two sets of factors. Sections 4 and 5 present evidence on this conjecture.

Figure 3
 Latest estimates of the costs of road crashes in 18 countries (percentages of GDP)



Sources: Road Traffic Management Corporation (2016b: 36); Wijnen and Stipdonk (2016: 105).

4 ADHERENCE TO ROAD SAFETY LAWS IN SOUTH AFRICA

Survey data on the values and norms underpinning the behaviour of road users in South Africa do not exist. Hence, researchers interested in the nature and effects of such values and norms have to rely on proxies. The connection between informal institutions and behaviour postulated in Section 2 implies that the incidence of violations of traffic laws in South Africa is one such proxy. Table 2 shows that a recent survey reported 6 333 177 infringements of traffic laws in South Africa from February 2015 to September 2016 (Road Traffic Management Corporation, 2016c: 9-10). This number implies 0.6 infringements of traffic laws per self-propelled vehicle listed in the National Traffic Information System (eNATIS) of the Road Traffic Management Corporation.⁹ Although indicative of a high incidence of violation of traffic laws, this ratio significantly understates the extent of the problem. Many infringements go undetected, and data for only 17 of the 20 months were useable for inclusion in the survey report. Moreover, the survey contains information compiled by the National Traffic Police and the nine provincial traffic departments. It excludes data on offences in five major cities (Cape Town, Ethekwini, Ekuruleni, Johannesburg and Tshwane), where metropolitan police forces are responsible for enforcing traffic laws. This is a large omission: the City of Cape

⁹ According to eNATIS, 10 290 634 self-propelled vehicles were in use in South Africa on 31 January 2015. By September 2016, this number had increased to 10 765 998 vehicles. See Road Traffic Management Corporation (2017).

Town, for example, reported 3 873 818 infringements of traffic laws in the two-year period from July 2014 to July 2016 (cf. Section 5.3).

Table 2
Reported traffic offences in South Africa (February 2015 to September 2016)

Offence types	Reported offences	
	Number	Percent
Driving documents:	514 820	8.1
Driving license (none or fail to carry)	164 364	2.6
Professional driving permit (none or fail to carry)	258 750	4.1
Other	91 706	1.4
Moving offences:	4 775 320	75.4
Inconsiderate driving and dangerous overtaking	104 782	1.7
Violations of road signs and traffic signals	54 970	0.9
Stopping on freeways	8 755	0.1
Speeding offences	268 735	4.2
Seat-belt offences	432 417	6.8
Unlicensed vehicles	329 667	5.2
Fail to display licence disc or operator card	170 334	2.7
Overloading (goods)	2 038 724	32.2
Overloading (passengers)	1 115 462	17.6
Mobile phone held in hand while driving	13 371	0.2
Other	238 103	3.8
Vehicle defects:	849 647	13.4
Steering	53 814	0.8
Windscreen wipers	9 271	0.1
Brakes	97 631	1.5
Tyres	98 000	1.5
Front and rear lamps and direction indicators	371 470	5.9
Side and rear reflective markings	187 839	3.0
Other	31 622	0.5
Roadworthiness:	119 367	1.9
Vehicles discontinued and impounded	119 367	1.9
Arrests:	74 023	1.1
Drunken driving	27 143	0.4
Speeding	1 667	0.0
Overloading (goods)	2 688	0.0
Pedestrians arrested	25 097	0.4
Other	17 428	0.3
Grand total	6 333 177	100.0

Source: Road Traffic Management Corporation (2016c: 9-10).

The vast majority of the infringements in Table 2 would have raised the likelihood or human cost of road accidents. These included overloading of vehicles (49.8 percent of all offences), using vehicles with various defects (15.3 percent), failure to wear seat belts (6.8 percent) and speeding (4.3 percent). It is notable, however, that only 11.7 percent of all offences were linked to key behavioural risk factors identified by the WHO (speeding, drink-driving, failure to wear seat belts and using mobile phones while driving). Furthermore, a large portion of the listed offences are not direct causes of road accidents. These included infringements of vehicle licensing laws, which totalled 7.9 percent of all offences in this period. In addition, 209 457 of the 423 114 offences of driving documents laws represented instances of drivers who held valid professional drivers' permits or drivers' licenses but were unable to present these when asked to do so by traffic officers. This raises the question whether law enforcement efforts in South Africa are focused on the most important causes of road accidents. Section 5.2 returns to this issue.

Other proxies also suggest that South Africa's poor road safety outcomes partly reflect risky behaviour probably influenced by informal institutions. International comparisons highlight three examples (cf. World Health Organisation, 2015: 264-271, 280-286, 296-302). The first is that one-third of the victims of fatal road accidents in South Africa in 2013 were pedestrians. The reality that this ratio was lower in 99 of the 140 countries for which the WHO provided data suggests a relatively high prevalence of risky behaviour among pedestrians in South Africa. The second indicator of risky behaviour is the high incidence of alcohol use among road-users (including pedestrians). Fully 57.5 percent of all road deaths in South Africa in 2013 were attributable to alcohol – a ratio exceeded by only three of the 96 countries for which the WHO provided data. The third is low seat belt usage. In 2013, only six of the 71 countries for which the WHO provided data had lower seat belt usage ratios among drivers than South Africa's 33.0 percent.

5 ENFORCEMENT OF ROAD SAFETY LAWS IN SOUTH AFRICA

The evidence presented in Section 4 suggests that informal institutions (i.e. the values and norms of many road-users) contribute to South Africa's poor road safety outcomes by undermining the effectiveness of the formal institutions (i.e. traffic laws). As was argued in Section 2, one of the responses available to policymakers when faced with such situations is stricter law enforcement. This section discusses the enforcement of traffic laws and regulations in South Africa. Section 5.1 sets the scene by outlining the institutional framework governing traffic law enforcement in South Africa. Against this backdrop, Section 5.2 comments on the extent of alignment between law enforcement actions and the main causes of deaths and accidents on South Africa's roads, while Section 5.3 confirms the poor functioning of the current adjudication and sanctioning mechanisms. Sections 5.2 and 5.3 use information on traffic law enforcement in the City of Cape Town to support these arguments. The reason for the focus on Cape Town is that officials made an unpublished administrative dataset of traffic law violations in the City

from July 2014 to July 2016 available to the authors. Other published information on road safety outcomes in South Africa complements the analysis of this dataset.

5.1 Institutional background

The Constitution of South Africa (Act 108 of 1996, as amended) apportions responsibility for the making and implementation of road traffic-related legislation among the national, provincial and local governments. Schedule 4 of the Constitution lists public transport, road traffic regulation, vehicle licensing and municipal public transport among the functional areas of concurrent national and provincial legislative competence. Schedule 5 includes provincial roads and traffic, municipal roads and traffic and parking among the functional areas of exclusive provincial legislative competence. Some of these matters (municipal public transport, municipal roads and traffic and parking) appear in Part B of Schedule 4 and Part B of Schedule 5. Section 156 of the Constitution assigns executive authority and administrative rights in respect of such matters to municipalities.

This division of responsibilities across levels of government has complicated road traffic management in South Africa. Hence, the Road Traffic Management Corporation (RTMC) was established in 1999 to "... to pool powers and resources and to eliminate the fragmentation of responsibilities for road traffic management across the various spheres of government" (Road Traffic Management Corporation, 2016a: 16). The RTMC functions at arms-length from the Department of Transport. It has a Shareholders Committee consisting of the national Minister of Transport, the Members of the Provincial Executive Councils responsible for transport, and two representatives nominated by organised local government. The functions of the RTMC range from training of traffic personnel, provision of road traffic information and vehicle registration and licensing to road traffic law enforcement and adjudication of road traffic offences (About the RTMC, undated).

The current legal framework for the latter function is the Administrative Adjudication of Road Traffic Offences (AARTO) Act (No 46 of 1998). AARTO was supposed to have replaced the previous regime in terms of which the Criminal Procedure Act (No 51 of 1977) was the framework for the administration of all violations of traffic regulations. That system functioned poorly: transgressors paid fines in fewer than 20 percent of cases related to traffic regulations (AARTO Background, undated). Apart from inappropriate informal institutions (notably a strong culture of non-payment of fines), this state of affairs reflected various shortcomings in formal institutions: some courts resolved to hear only a limited number of cases linked to infringements of traffic laws because of heavy caseloads, aspects of the adjudication process led courts to refuse to consider large numbers of traffic notices, magistrates often reduced traffic fines substantially, and bribing of traffic officials was widespread (AARTO Background, undated).

One of the key objectives of the AARTO Act is to establish better procedures for the adjudication of traffic law infringements that would encourage compliance with these laws and alleviate the burden on courts of law (AARTO Background, undated). To this

end, the Act (South Africa, 1998) distinguishes between three categories of traffic law violations. While the AARTO Regulations (South Africa, 2008) categorise some violations as "offences" that have to be dealt with by the courts under the Criminal Procedure Act, the majority are categorised as "minor infringements" or "major infringements". The Act establishes an administrative process for the adjudication and enforcement of all such infringements. A streamlined fine system and a demerit points system (which provides for the suspension and cancellation of driving licences or permits of repeat offenders) are core components of this process.

AARTO pilot projects were launched in the cities of Johannesburg and Tshwane (Pretoria) in 2007 and 2008, respectively. Elsewhere in South Africa, including Cape Town, the implementation of AARTO has been delayed by legal challenges, inter alia. Hence, the Criminal Procedure Act remains the de facto legal framework for traffic law enforcement fully twenty years after the formal adoption of the AARTO Act.

5.2 Focus areas of law enforcement actions

The South African traffic authorities undertake an impressive number of law enforcement actions every year. From February 2015 to September 2016, for example, the national and provincial traffic authorities held 56 815 roadblocks, stopped 16 233 847 vehicles, weighed 2 950 735 vehicles and tested 211 432 drivers for alcohol (Road Traffic Management Corporation, 2016c: 8). The traffic departments of local authorities are also very active. Nonetheless, there is much concern about the overall effectiveness of traffic law enforcement. This is confirmed by the weak to modest law enforcement scores provided to the WHO by South African experts (cf. Table 3).

Table 3
Expert-provided law enforcement scores for South Africa (2015)

Law	Enforcement score Scale: 0 (weakest) – 10 (strongest)
National speed limit	3
National drink-driving law	4
National motorcycle helmet law	5
National seat-belt law	2

Source: World Health Organisation (2015: 226).

One of the key aspects of traffic law enforcement is whether the actions of the authorities target the leading causes of road accidents. To explore this issue, the remainder of this subsection compares such causes with the numbers of fines issued by the City of Cape Town for violations of various traffic regulations.

Table 4 summarises the leading causes of road crashes in the City of Cape Town in 2014. The dataset provided by the City's Traffic Department distinguishes among four types of

crashes (those that that resulted in deaths, serious injuries, slight injuries and unspecified injuries) and lists more than 50 causes. To compile Table 4, the first two types of crashes were combined and the recorded causes grouped into 13 categories. Some categories may well overlap (for example, "Pedestrians" and Hit and run"), but the format in which the data were captured prevents finer-grained classification. Seven categories of causes were responsible for 90 percent of the crashes that resulted in deaths and serious injuries. Pedestrians caused more than a third of such crashes. The second most important category was failure to control a vehicle, which caused 15.6 percent of crashes. This category includes four causes in the dataset, namely "Swerving", "Lost control", "Drunk in charge" and "Blackouts and falling asleep". Hit-and-run incidents (12.0 percent) and turning and lane-changing errors (9.5 percent, consisting of "Turning in the face of oncoming traffic", "Changing lane while unsafe", "Making a U-turn when unsafe", "Failing to stay in lane", "No sign of turning", "Driving on the wrong side", and "Failing to keep left") were the next most prominent category of causes. These were followed by failure to stop at traffic-lights and stop streets (6.3 percent), other driver errors (5.3 percent, consisting of "Did not yield", "Entered traffic while unsafe", "Vehicle reversed", "Driving too fast", "Ignored barrier lines", "Cut in front of others" and "Other"; 6.0 percent) and failure to maintain adequate following distances.

The same seven categories also caused almost 85 percent of the crashes that resulted in slight injuries. Pedestrians (19.6 percent) were the most important causes of such crashes as well, followed by failure to maintain adequate following distances (18.6 percent), turning and lane changing errors (13.7 percent) and failure to control a vehicle (13.2 percent). It is clear that the vast majority of road crashes in the City of Cape Town would not have occurred if the formal and informal institutions had eliminated these seven sets of causes.

A superficial analysis of the fines issued for violations of traffic regulations might suggest that the law enforcement efforts in Cape Town were too narrow in scope to have prevented the large number of road crashes. South Africa's traffic regulations distinguish among many offences: the dataset provided by the City's Traffic Department contains 746 distinct types. Yet the vast majority of fines are issued for a small subset of these offences. Table 5 shows that 68.7 percent of all fines were issued for the ten most common offences. Seven of these were related to violations of speed limits, two to infringements of vehicle licencing regulations and the tenth for disregarding of no-stopping lines. The next ten most common offences consisted of a further six violations of speed limits, three infringements of parking regulations, and disregarding of traffic lights. These twenty offences accounted for fully 83.5 percent of all the fines issued. Slightly more than 60 percent of the fines issued for these offences were for speeding, nearly 30 percent for licencing-related offences and slightly fewer than 10 percent for stopping- and parking-related offences.

Table 4
Leading causes of road crashes in the City of Cape Town (2014)

Causes of accidents	Serious injuries		Slight injuries		Unspecified injuries	
	Number	Percent	Number	Percent	Number	Percent
Pedestrians	1 054	35.3	2 326	19.6	79	4.2
Failure to control vehicle	465	15.6	1 567	13.2	188	9.9
Hit and run	357	12.0	215	1.8	33	1.7
Turning and lane-changing	283	9.5	1 627	13.7	327	17.2
Failure to stop	187	6.3	959	8.1	95	5.0
Other driver errors	180	6.0	1 135	9.6	342	18.0
Insufficient following distance	159	5.3	2 208	18.6	449	23.7
Animals and objects	96	3.2	611	5.1	70	3.7
Overtaking	86	2.9	385	3.2	154	8.1
Vehicle defects	60	2.0	325	2.7	19	1.0
Parking and stopping	34	1.1	382	3.2	134	7.1
Weather and road conditions	9	0.3	86	0.8	3	0.2
Miscellaneous	13	0.4	39	0.3	4	0.2
Total	2 983	100.0	11 865	100.0	1 897	100.0

Source: City of Cape Town Traffic Department (2016).

Prevention of these offences should contribute to improved road safety outcomes. Table 4 showed that failure to stop at traffic lights and stop streets resulted in 6.3 percent of the crashes that caused deaths and serious injuries in 2014 and 8.1 percent of the crashes that caused slight injuries. Furthermore, one of the purposes of the vehicle licencing regulations is to lower the incidence of defect-related crashes by reducing the numbers of non-roadworthy vehicles. And although it is not included among the causes of road crashes summarised in Table 4, speeding is likely to be an important reason for failure to control vehicles and a major determinant of the damages associated with other causes of road crashes (such as collisions with people, animals and objects; hit-and-run incidents; and failures to maintain adequate following distances).¹⁰ Hence, it is essential to impose fines on violators of these three sets of traffic regulations. Yet the statistics on fines suggest that other forms of behaviour that also caused many serious crash are much less likely to be punished. The most notable of these are jaywalking and dangerous turning, overtaking and changing of traffic lanes.

¹⁰ Other evidence also suggests that speeding is an important, albeit not the dominant, cause of serious road accidents in South Africa. The Road Traffic Management Corporation (2016c: 24-26) reported that inappropriately high speeds caused 9.2 percent of all fatal accidents in South Africa in 2014 and 2015. Jaywalking pedestrians were responsible for 41.6 percent of such accidents, and hit-and-run incidents for 8.8 percent.

Table 5

The twenty traffic offences for which most fines were issued in the City of Cape Town
(July 2014—July 2016)

Code	Description	Frequency of offence	
		Number	Percent
11522	Exceeding general speed limit of 60km/h in an urban area: 71—74km/h	536 790	13.9
78320	Operating a motor vehicle without a licence disc or licence and roadworthy certificate affixed on inside of windscreen as prescribed	471 613	12.2
78011	Driver using unlicensed vehicles	465 629	12.0
11530	Exceeding general speed limit of 60km/h in an urban area: 75—79km/h	389 680	10.1
14708	Exceeded the speed limit of 80km/h	203 316	5.3
11548	Exceeding general speed limit of 60km/h in an urban area: 80—84km/h	183 952	4.8
14716	Exceeding speed limit of 80km/h indicated by a road sign: 91—94km/h	151 894	3.9
11556	Exceeding general speed limit of 60km/h in an urban area: 85—90km/h	97 085	2.5
14724	Exceeding speed limit of 80km/h indicated by a road sign: 95—99km/h	85 721	2.2
20458	Disregarding a no-stopping red line	72 818	1.9
11564	Exceeding general speed limit of 60km/h in an urban area: 90km/h+	72 646	1.9
20482	Disregarding a no-parking yellow line	72 061	1.9
13451	Speed: 50 LMV (60-64)	70 547	1.8
20539	Disregarding traffic light	69 466	1.8
20149	Parking in a loading zone	65 278	1.7
83812	Parking on the sidewalk	48 645	1.3
14732	Exceeding speed limit of 80km/h indicated by a road sign: 100—104km/h	48 219	1.3
14300	Speed: 70 LMV (81-84)	45 606	1.2
13469	Speed: 50 LMV (65-69)	42 010	1.1
14318	Exceeding speed limit of 80km/h indicated by a road sign: 81—84km/h	40 498	1.1
	Other (including 2 101 without descriptions)	640 338	16.5
	Total	3 873 812	100.0

Source: City of Cape Town Traffic Department (2016).

It would be incorrect, however, to interpret the statistics on fines issued as indicative of a lopsided law enforcement effort that focuses excessively on speeding and neglects other major causes of road crashes. The road safety strategy of the City of Cape Town (2013) for the period 2013 to 2018 shows a strong awareness of the full range of causes of road crashes and contains objectives and action plans for handling each of them. The apparent disjunction between the statistics in Tables 4 and 5 largely reflect the reality that some offences are markedly easier than others to detect and fine. The authorities rely heavily on fixed and portable cameras to identify instances of speeding and ignoring of traffic lights and use roadblocks and patrolling officers to identify infringements of licencing- and parking regulations. Offences such as jaywalking and dangerous overtaking occur at random times in random places, and detection depends on whether traffic officers happen to be in the vicinity. Law enforcement, no matter how effective, might not suffice to eradicate such causes of road crashes. Hence, Section 6 argues that appropriate values and norms (that is, informal institutions) much complement law enforcement to achieve this goal.

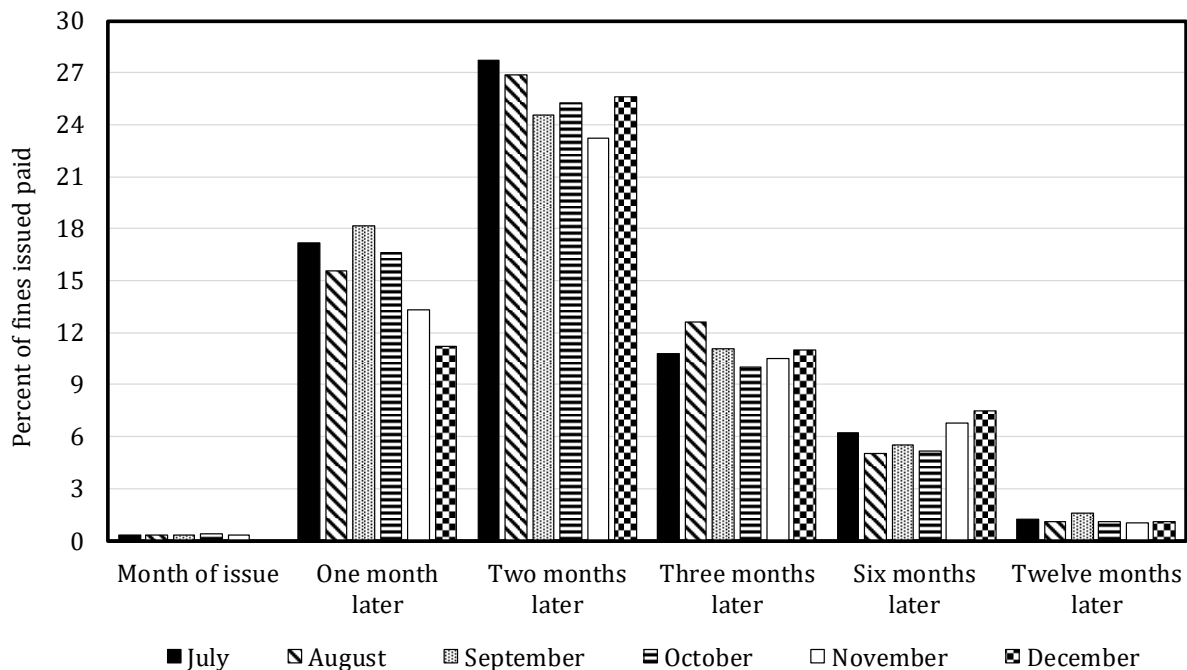
5.3 The effectiveness of enforcement of fines for offences

The dataset provided by the Traffic Department of the City of Cape Town contains various details of each violation of a traffic regulation from July 2014 to July 2016, including a descriptions of the offence, the date of the notice of the offence, the fine issued, whether the charge was withdrawn, and the amount paid (if applicable). This subsection uses some of these details to show that non-detection of behaviour that causes crashes is by no means the only weakness in the enforcement of traffic regulations in South Africa. The following analysis confirms another shortcoming already identified and partly explained in Section 5.1: only a small proportion of offenders actually pay the fines imposed for violations of traffic regulations.

It transpires from the dataset that only 26 percent of all traffic fines issued in the City of Cape Town from July 2014 to July 2016 had been paid by the end of August 2016. To be sure, payment patterns over the period as a whole suggested that some of the outstanding fines would have been settled after the end of August. However, such delayed payments would not have had a dramatic effect on the overall payment rate. The basis for this claim is the typical pattern of payments, which is illustrated by the evolution of payment rates for speeding-related fines issued in the second half of 2014 (cf. Figure 4).¹¹ Hardly any fines were paid in the months of issue, largely because it took time to notify offenders via the postal system. The bulk of compliant offenders paid during the two months after the ones in which fines were issued, and payments decreased notably and steadily in subsequent months. Fewer than 2 percent of fines were paid more than a year after the date of issue.

¹¹ The information in Figure 4 relates to the thirteen speeding-related offences included among the twenty most common fined offences listed in Table 4.

Figure 4
Evolution of payments for speeding-related fines issued from July 2014 to December 2014 (percentages of issued fines)



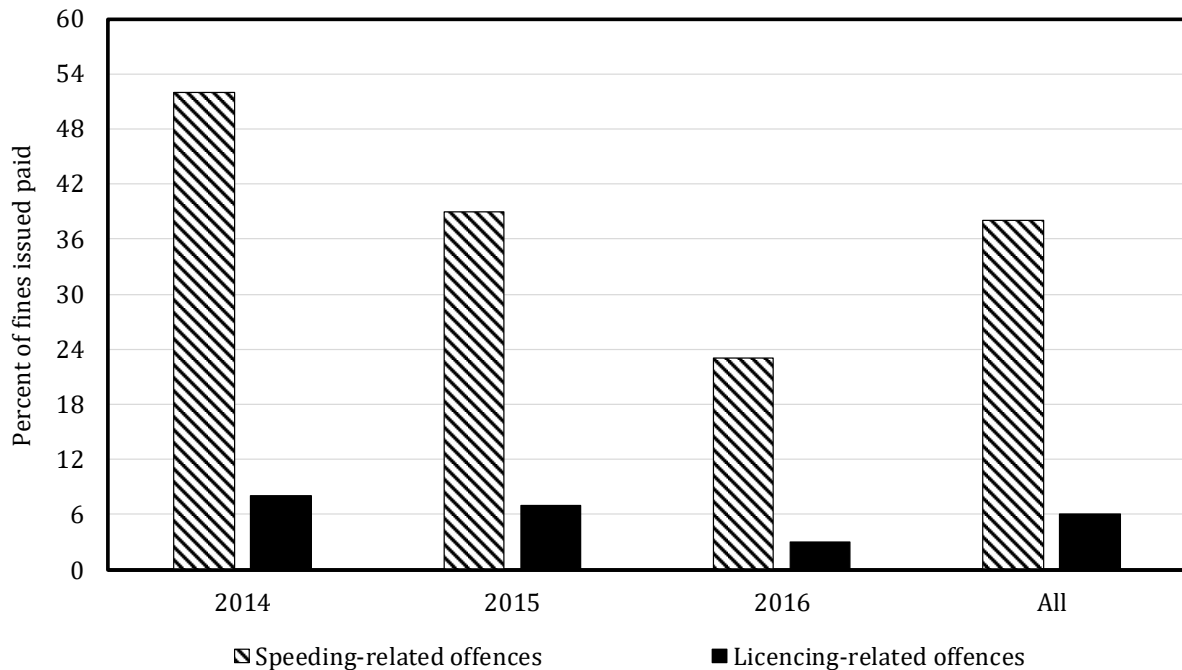
Source: Own calculations based on unpublished data provided by the City of Cape Town Traffic Department (2016).

Figure 5 shows that the payment rates for speeding-related fines were significantly higher than those for licencing-related ones in all three years.¹² There was no obvious reason for this large differential. Figure 5 illustrates another important yet unexplained pattern, namely that payments rates for offences committed in 2016 were markedly lower than those for offences committed in 2014 (the decrease for speeding-related offences was from 52 percent to 23 percent and that for licencing-related offences from 8 percent to 3 percent). As was shown earlier, payments after the end of August 2016 probably would not have changed this pattern much. Hence, it may well have reflected the growing realisation among offenders that non-payment had no consequences.

It hardly needs to be pointed out that the deterrence effect of the fine system is severely diminished by such high rates of non-payment. This is an administrative issue that, in principle, should be much easier to resolve than the detection problem discussed in Section 5.2. The requirement is a well-designed administrative process that simplifies and expedites enforcement of sanctions for infringements of traffic laws. As was pointed out in Section 5.1, this was the aim of the long-delayed AARTO system.

¹² Only those speeding-related and licencing-related offences included among the twenty most common fined offences listed in Table 4 are shown in Figure 5.

Figure 5
 Payment rates for speeding-related and licencing-related traffic fines issued from July 2014 to July 2016 (percentages as at the end of August 2016)



Source: Own calculations based on unpublished data provided by the City of Cape Town Traffic Department (2016).

6 POLICY IMPLICATIONS AND CONCLUDING COMMENTS

This paper uses the road safety situation in South Africa as a context for exploring ideas from the New Institutional Economics about the links between informal institutions and the nature and enforcement of formal institutions. By international standards, South Africa has a strong suite of road safety laws but poor road safety outcomes. The point of departure of the paper is the claim that this state of affairs confirms a core insight of the New Institutional Economics, namely the pivotal influence on the effectiveness of formal institutions of good enforcement and supportive informal institutions. In support of this claim, the paper argues that inappropriate values and norms seemingly underpin the behaviour of many South Africans road-users and that two major weaknesses mar the enforcement of traffic laws. These are that some of the most important causes of serious road crashes in South Africa by nature are extremely difficult to detect and punish and that the administrative and legal processes for punishing transgressors of traffic laws function very poorly. The second problem seems solvable; in fact, a legal framework for this purpose (the AARTO Act) has been in existence for almost two decades. With the necessary political will, it should be possible to deter many transgressions of traffic laws by more effective penalisation of reckless and negligent behaviour. The first issue is more problematic: in the foreseeable future, technological and resource constraints will continue to hamper efforts by the traffic authorities to credibly threaten all potential

offenders with detection and punishment. The policy implication of this analysis is that improvement of road safety outcomes in South Africa requires law enforcement reforms as well as changes to the informal institutions shaping the behaviour of road-users.

This is not a novel conclusion in the South African context — policy documents and statements by policymakers have long emphasised the need for such a two-pronged approach to improving the road safety situation. The following passage in an annual report of the Road Traffic Infringement Agency (2015: 26) confirmed this:

World-wide best practices have proven that for law enforcement to be effective, it must be supported by an equally effective public awareness, communication and education programme, as well as a highly efficient, transparent and expeditious adjudication process to bring traffic offenders to task.

Outcomes, however, suggest that attempts to augment law enforcement activities with programmes aimed at changing road-user behaviour (such as the "Arrive Alive" campaign — cf. Arrive Alive, 2017) have borne little fruit in South Africa. Many similar attempts in other areas of policymaking marked by conflict between formal and informal institutions have also yielded disappointing results. This raises the question whether economists and other social scientists understand the requirements for changing values and norms well enough to provide advice that would strengthen such attempts.

Although much work lies ahead for cognitive and behavioural scientists, considerable progress has been made as far as understanding change in values and norms is concerned (see, for example, the recent overview by Bicchieri and Mercier, 2014). Some economists (e.g. Young, 1996) have studied the origins of informal institutions, and many theories of institutional change incorporate informal institutions (cf. Kingston and Caballero, 2009). Yet much of the theoretical work on informal institutions has relied on questionable assumptions about the rationality properties of human behaviour. In fact, only a small number of economists (including Aldashev, Imane, Platteau and Wahhaj, 2010; Denzau and North, 1994) have included insights from behavioural and cognitive science into writings on informal institutions. Hence, Field's (2007) appeal to institutional economists to take a greater interest in the insights generated by research in these and other disciplines such as biology and neuroscience remains valid.

Another rich source of ideas is the burgeoning field of behavioural economics. One of the ideas that has emerged from behavioural economics is the notion of a nudge, that is, "an aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler and Sunstein, 2008: 6). Preliminary evidence has suggested that nudges, which should be cheap and easy to avoid, can be useful complements to formal institutions

intended to change behaviour.¹³ Various other insights from research in behavioural economics should also enhance economists' understanding of the forces that shape and change informal institutions and, hence, their ability to provide useful advice in settings where such change is an important policy objective.

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¹³ The use of "speed reduction markings" on a curve in Lake Shore Drive in Chicago is a well-known example of a road safety-related nudge (cf. Thaler and Sunstein, 2008: 37-39). These markings are a series of white stripes painted on the road. Initially, the stripes are evenly spaced, but they get closer together at the most dangerous part of the curve. This creates the sensation of increasing speed, which makes many drivers slow down. The previously unacceptable number of accidents on that section of the road decreased sharply in the six-month period after the markings were introduced.

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