Running dry

assessing the fuel levy as a long-term, economically efficient road-use fund

The fuel levy, a domestic transport cost component added to the basic fuel price, has long been South Africa's main source of income to fund the construction and maintenance of roads, as well as lend support to public transport. During the 2012/2013 financial year the fuel levy (which was ring-fenced for the provision of road infrastructure from 1935 to 1988) contributed R40.4 billion to the National Revenue Fund administered by National Treasury. Recent comments regarding e-tolling of the Gauteng Freeway Improvement Project (GFIP) have raised questions and strong opinions about the continuing use of the fuel levy as an income source from road users to fund land transport operations and infrastructure in South Africa.

It is contended that the fuel levy was and remains an economically efficient way to collect income from road users. Proponents state that:

- There is an existing mechanism to administer it and no additional infrastructure elements, such as toll booths, retail billing systems or enforcement issues, need to be implemented.
- The distance travelled and the weight of the vehicle are two of the primary factors influencing vehicle fuel consumption, so the fuel levy is a relatively good match for the cost incurred by vehicles on our roads.
- The fuel levy adds costs to all forms of road trips, removing incentives to use back-roads.
- Driving during the peak traffic period gives rise to higher fuel consumption due to the stop-start nature of traffic, so the fuel levy acts, in some small way, as a type of congestion charge.

Opponents to the fuel levy state that this tax is not without problems:

- While the fuel levy is levied nationally, it is used to fund roads in specific regions, thus there is a spatial mismatch between those who pay (everyone) and those who benefit (the region).
- If the fuel levy is not levied nationally, it will give rise to increased arbitrage opportunities near periphery regions.
- Electrical and hybrid vehicles do not contribute to the fuel levy, even though they incur road use cost (i.e. maintenance and congestion).
- Increasing the fuel levy has a negative impact on socio-economically deprived population classes, as it

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The SAICE Transportation Engineering Division awarded the full version of this article as the *Best Paper by a Young Professional* at the Southern African Transport Conference held in Pretoria earlier this year. The original paper was co-authored by Prof Stephan Krygsman, who is also acting as the author's PhD supervisor.

is a regressive tax where everyone pays the same. Lower-income car users will therefore be hit hardest by the fuel levy increase, as they do not have as much disposable income as higher-income car users.

- Road users do not really consider the fuel levy when driving and the levy therefore does not really induce people to change their travel behaviour.
- Advances in vehicle technology will result in vehicles becoming more fuel efficient, and will result in less fuel being used for travelling the same distance.
- Increasing the fuel levy will have a corresponding increase in transport costs, which will in turn have an impact on inflation.

The original research paper, on which this article is based, was presented at the Southern African Transport Conference in July with the aim of assessing whether a review of the fuel levy is needed, to be supplemented or replaced by a viable alternative, in order to secure a long-term sustainable income source for the country's ageing transport road infrastructure.

A comparison was made between the fuel levy in South Africa and other countries, including selected BRICS nations and selected European countries. It was illustrated that the fuel levy in South Africa is not particularly high compared to these countries. In South Africa in 2004 the fuel levy made up 26.3% of a litre of petrol sold locally, dropping to 17.9% in 2012. In the United Kingdom this figure was 71.2% in 2004, and 59.5% in 2010, while in Brazil it was 46.4% in 2004, and 42.5% in 2012.

It was furthermore found that alternative fuels, and electrical and more fuel-efficient vehicles will have an increasing impact on the fuel levy income. While the registered vehicle population in South Africa grew by 47.2% in the period from 2003 to 2012, vehicle kilometres increased by 38.5% but fuel sales only increased by 21.9%.

New advances in technology are making road vehicles more fuel efficient each year. Between 1970 and 2012 the average fuel efficiency of all vehicle types increased by 32% at an average rate of 0.9% per annum. Roughly translated this implies that a 2012 model vehicle can travel 32% further than a 1970 model vehicle, using the same fuel amount, and paying the same fuel levy.

The result is an increasingly unproductive fuel levy. This trend between vehicle population growth, annual kilometres travelled and an unproductive annual fuel levy is not unique to South Africa. This phenomenon is also experienced in various countries, including America, Germany, the United Kingdom, Sweden, Australia, New Zealand and Singapore. Most of these countries are searching for viable alternatives to the declining fuel income source.

Measuring the productivity of the fuel levy seems a valuable index to assess the long-term income earning potential of a fuel tax. It was found that on average the potential to generate additional income per additional vehicle kilometres has decreased over the past ten years.

A review of the current fuel levy is needed, as increasing the fuel levy each year will only be a temporary solution. The fuel levy must be supplemented or replaced by a viable alternative in order to secure a long-term sustainable income source for the country's ageing transport (road) infrastructure.

The paper on which this article is based forms part of the ongoing research at Stellenbosch University on financing for road transport infrastructure. Future research will consider alternative financing options, including toll roads, GPS-enabled road user charging, etc, to supplement the fuel levy. □

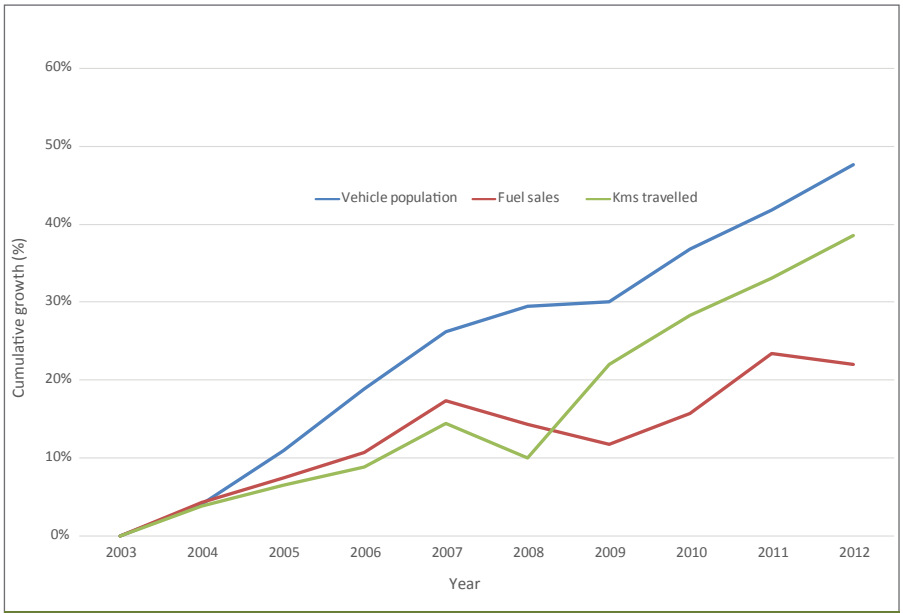

Figure 1: Cumulative growth – registered vehicle population, kilometres travelled and fuel sales (Metschies 2013; Engen 2014; OECD 2014)

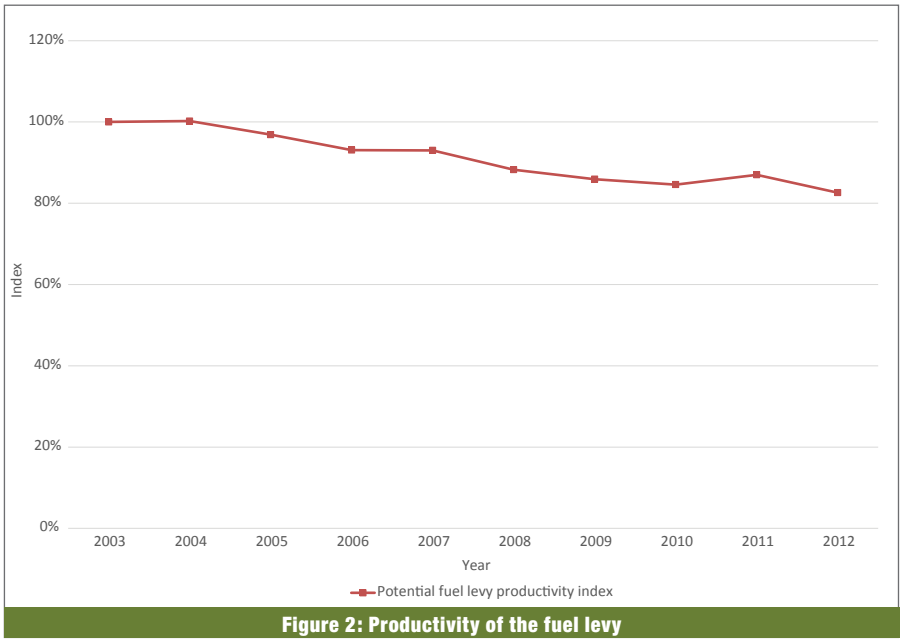

Figure 2: Productivity of the fuel levy