

Tackling productivity – How to reverse the trend in Australian productivity

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Abstract

Australian productivity is displaying a negative trend and its effects have been partially disguised by the boom in mineral exports. As the resource boom stabilises, the trend will be accentuated unless action is taken.

There are proponents of decoupling transport from GDP, however until that time; transport continues to be a critical engine of economic growth in Australia.

Until recently states and territories in Australia have been working in a relatively isolationist manner in regards to freight transport, issues relating to cross border crossings, how infrastructure is built and assessed, how infrastructure is either protected or used, compliance and enforcement and safety.

The paper will speculate on the potential and perceived benefits of several initiatives that the NTC has worked on to address productivity and safety in the transport industry.

These initiatives on their own can provide productivity benefits, but as a whole they have the capacity to allow for innovation and increase efficiency in the transport sector while ensuring that it is done in a safe and responsible manner.

The paper will focus on three main pieces of work and how they interface with each other creating a more holistic approach to tackling productivity today, and be ready for tomorrow's challenges.

The three main pieces are:

- The Heavy Vehicle National Law - HVNL
- Performance Based Standards - PBS
- National Heavy Vehicle accreditation Scheme - NHVAS

Keywords

Heavy Vehicle National Law, Accreditation, Performance based standards, Heavy vehicle access, transport reform.

1. A little bit about geography¹

Before 1901, Australia was not a nation. At that time, the continent consisted of six British colonies, which were self-governing, but subject to the law-making power of the British Parliament. Each colony had its own government and laws, including its own railway system, postage stamps and taxes.

The colonies of New South Wales, Victoria, Queensland, South Australia and Tasmania united and became states of Australia, known as the Commonwealth of Australia. Western Australia was not a party to the initial agreement but also agreed to join the federation before 1 January 1901.

The territories

In 1901, the two territories did not exist. The Constitution provided for the establishment of a national capital (the Australian Capital Territory – ACT), to be located in New South Wales but at least 100 miles from Sydney. In 1911, the Australian Government created the Australian Capital Territory for this purpose. In the same year, the Northern Territory was also created. Until then, this area had been part of South Australia.

While the territories are part of the Commonwealth of Australia, they do not have the same legal status as states.

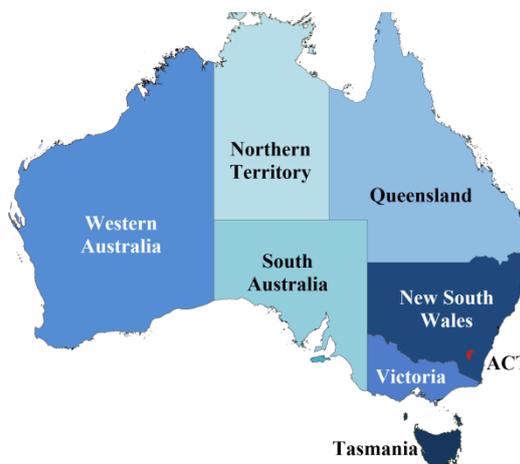
2. National Transport Commission

From this disparate background 80 years later (1980s) interstate trucking faced different road rules, driver licence categories, registration classifications, charges, vehicle mass and dimensions and driving hours. In 1991, heads of government stepped-in and created the National Road Transport Commission (NRTC) to ‘coordinate’ the regulation of road transport nationally.

The role of the organisation was extended into rail and inter-modal transport in 2004 when it became the National Transport Commission.

The National Transport Commission (NTC) is an inter-governmental agency charged with improving the productivity, safety and environmental performance of Australia’s road, rail and intermodal transport system.

Figure 1 Current Australian jurisdictions



¹ <http://www.peo.gov.au/learning/fact-sheets/federation.html>. Accessed August 2014.

State and territory governments contribute 65 per cent of the NTC's funding, and the Commonwealth Government provides 35 per cent. The NTC has over 40 staff in its Melbourne office and under the leadership of six Commissioners.

As an independent statutory body, the NTC develops and submits reform recommendations for approval to the Transport and Infrastructure Council (The Council) which comprises federal, state and territory transport, infrastructure and planning ministers. The NTC also plays an important role in implementation planning to ensure reform outcomes are realised on the ground, as well as coordinating, monitoring, evaluating and maintaining the implementation of approved reforms.

3. Productivity in Australia

From a road transport perspective, total domestic road freight grown exponentially from 27 btk (billion tonne kilometres) in 1971 to 180 btk in 2007². Also in this period, productivity of road freight vehicles has doubled (introduction of higher masses, B- doubles).

This productivity increase meant that the same freight task is being performed in 2007 with half as many vehicles were not there been productivity improvements.

Productivity can be measured in many ways; however, an accepted method is to use the multi-productivity factor measure, which takes into account several inputs to an output³. The Australian Bureau of Statistics (ABS) has performed extensive research in this matter and in a report published in 2014⁴ it was shown that while the overall result compares well with the rest of industry, the Transport, Postal and Warehousing sector trend is decreasing. Refer Figure 2 and Figure 3.⁵

² Bureau of Infrastructure, Transport and Regional Economics 2011, Truck productivity: sources, trends and future prospects , Report 123, Canberra, ACT..

³ <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/5260.0.55.001Appendix12007>. Accessed 1 October 2014.

⁴ Bureau of Infrastructure, Transport and Regional Economics (BITRE) 2014, Infrastructure, Transport and Productivity, Information Sheet 55, July, Canberra.

⁵ *ibid*

Figure 2 Multi-factor productivity growth by industry group, 1985–86 to 2010–11

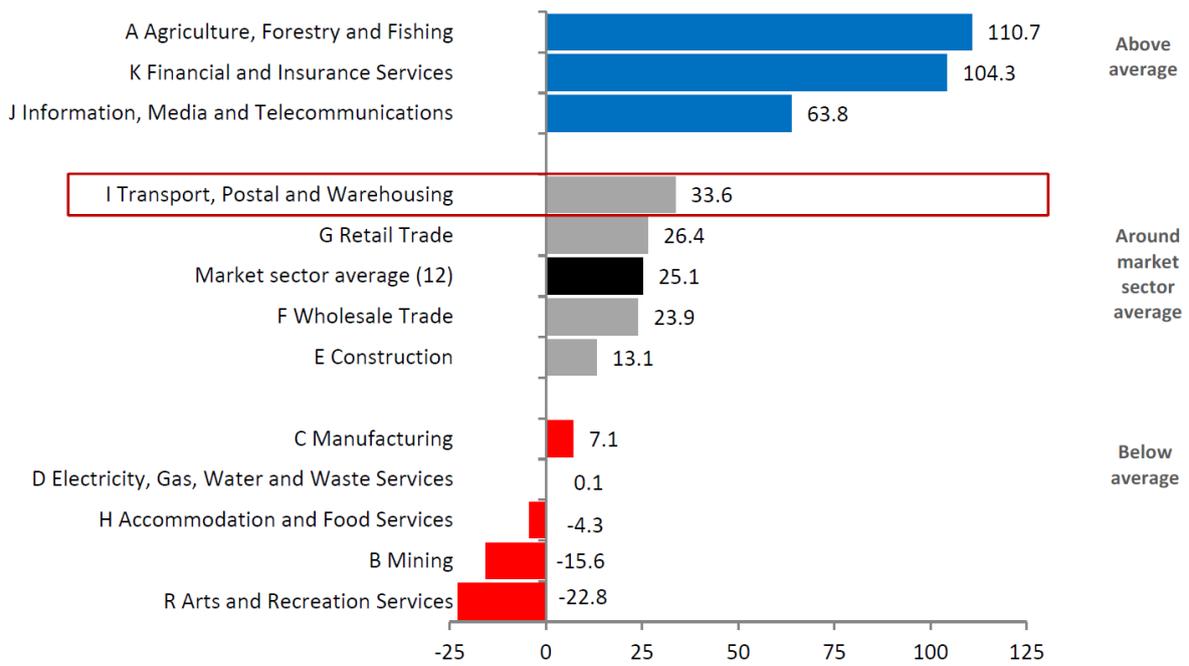
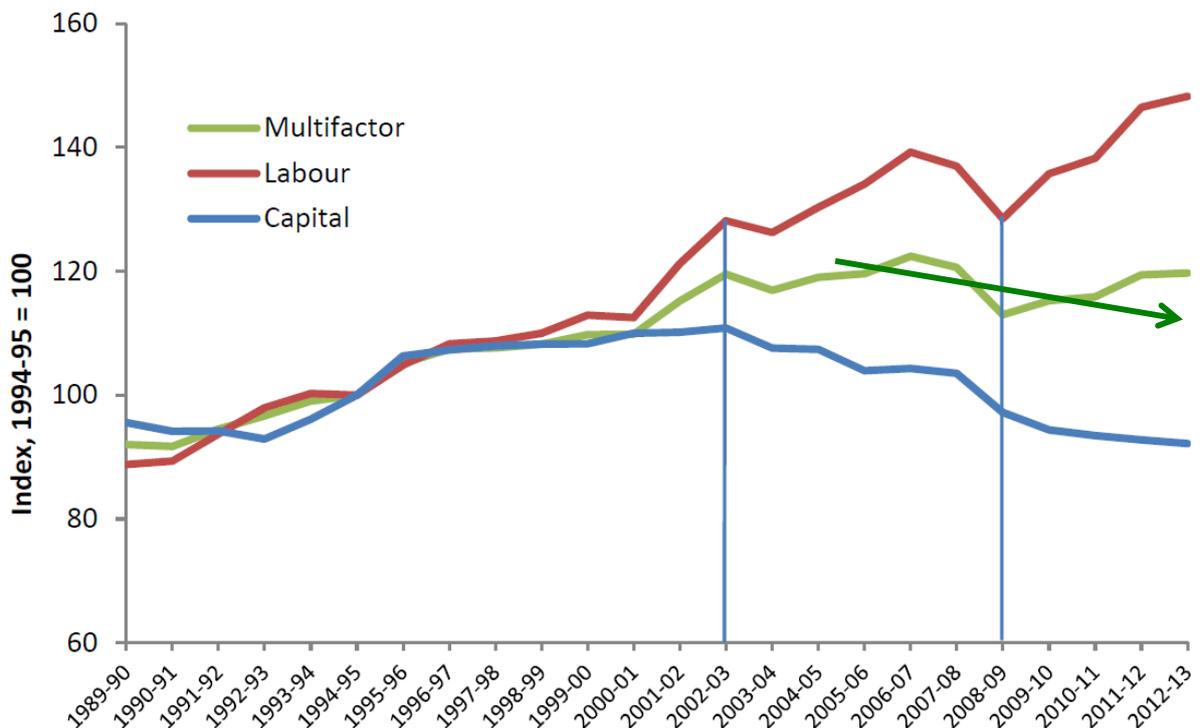


Figure 3 Productivity indices for Transport, Postal and Warehousing, 1989–90 to 2012–13



While there are many factors that can affect productivity in the transport sector (for example, the Global Financial Crisis around 2008), the NTC has played a major role in four key areas that have the potential in fomenting productivity:

Figure 4

Key issues that affect transport sector productivity



These four key areas are:

- The development of uniform laws – HVNL.
- A standard process for assessing access – HVNL.
- An objective means to assess vehicles outside prescriptive regulations – PBS.
- The development of alternative compliance methods – NHVAS.

4. Uniform laws

In late 2008, the acting Prime Minister of Australia wrote to State and Territory Ministers proposing to prepare a Regulatory Impact Statement (RIS) on a single, national system of heavy vehicle regulation, registration and licensing.

This request focused on several issues that require reviewing (for vehicles over 4.5t Gross Vehicle Mass):

Framework	Outcome
a single regulation entity to administer a body of national heavy vehicle laws	The National Heavy Vehicle Regulator – Started operations in 2013
A body of national heavy vehicle laws that encompasses existing heavy vehicle regulation. This includes registration, vehicle standards, mass and loading, oversize and over mass vehicle standards, restricted access vehicles, higher mass limits, licensing, driver fatigue management, speeding and associated compliance and enforcement activities. This body of law should make provision for variations to enhance local productivity	The Heavy Vehicle National Law (HVNL) incorporating vehicle standards, mass, loading and dimensions, restricted access vehicles, higher mass limits, concessional mass limits, driver fatigue management.
A national heavy vehicle registration scheme, established under Commonwealth law	Currently under review

a consistent approach to minimum standards for heavy vehicle driver competency and testing and to heavy vehicle driver training school recognition	Not implemented
A single, physical, national heavy vehicle driver licence.	Not implemented.

The NTC’s responsibility was to develop a set of laws focusing on harmonising existing state and territory laws based on ‘model’ laws prepared by the NTC over a 20-year period.

This work consisted in resolving over 368 variations from the model law.

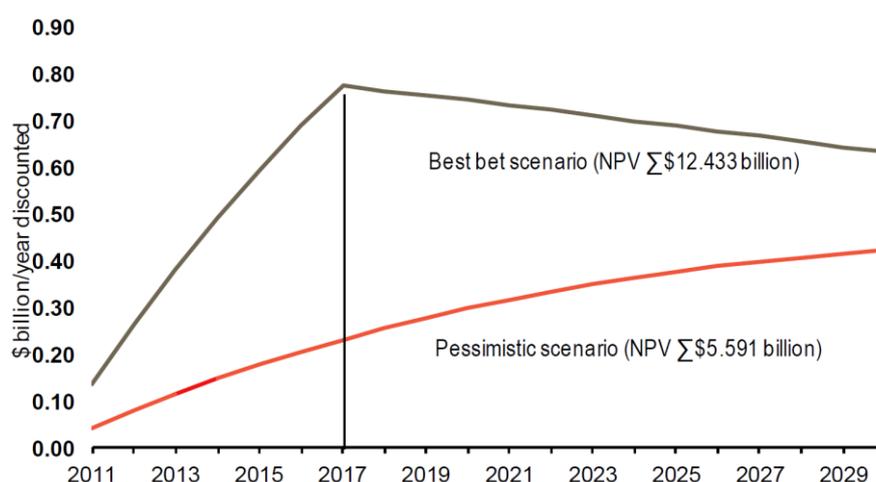
Benefits gained from this process were:

- Reduced compliance costs for the industry, especially for national operators
- Improved decision-making will promote fairness and improve industry’s ability to plan and confidently invest.
- Access will be easier and fairer.
- Ability to locate, track and analyse access “hot spots” and work with local councils, state governments and the commonwealth to resolve them.
- Cross border stress will be reduced through introducing consistency or mutual recognition.
- Improved safety through a national chain of responsibility laws and a national approach to compliance and enforcement.
- Improved safety through a national approach to compliance & enforcement and chain of responsibility laws
- Improved decision-making will promote a fairer and easier access and improve industry’s ability to plan and confidently invest
- Ability to identify access “hot spots” and work with governments to resolve them
- Streamlined implementation of national reforms
- National economic benefits of around \$12.4 billion over 20 years Net Present Value (NPV)⁶

It is worth noting that this compounded economic benefit incorporates several benefits accrued by previous model laws developed by the NTC.

⁶ Centre for international Economics, Benefit-cost analysis: National Heavy Vehicle Regulator (NHVR) model law, September 2001. P. 17

Figure 5 Expected benefits over 20 years



5. Standard process for assessing access.

The initial three points in the previous heading relate to providing operators transparency and consistency in the process used to provide consent to heavy vehicle access. The HVNL including the ministerial guidelines provide a standard process by which an operator can seek and obtain access.

Pre the HVNL an operator seeking a permit may not be sure where and to whom an application for access can be lodged or who the decision maker is.

This was complicated by needing to apply to several ‘road managers’ with different requirements, application forms and fees if the heavy vehicle had to travel across several jurisdictional boundaries.⁷

Post HVNL operators wishing to travel across several borders need only to apply to the National Heavy vehicle regulator stating the vehicle type and desired routes.

It worth noting that to date (September 2014) Western Australian and the Northern Territory have not adopted the HVNL

The role of the regulator is to coordinate with all the road managers (at state or local government level) under the rules prescribed by the law and published ministerial guidelines on access.

Road managers have the duty to provide consent or to deny consent with obligations that compels them to provide the reasons why access is denied.

The “*Approved Guidelines for Granting Access*”⁸ is a document that provides industry and operators some guidance on how to deal with access requests. These guidelines are based on the HVNL and specify that if a road manager decides not to give consent when the vehicle may:

- a) cause damage to road infrastructure; or
 - b) impose adverse effects on the community from noise, emissions or traffic congestion ;
- or

⁷ In Australia arterial roads are managed by the states and territories, and the rest by local governments.

⁸ National Heavy Vehicle Regulator (2014), *Approved Guidelines for Granting Access*. Brisbane.

- c) pose significant risks to public safety arising from heavy vehicle use that is incompatible with road infrastructure or traffic conditions.

The guidelines also offer the following advice” ‘.. before deciding not to give consent the road manager must satisfy itself that it is not possible to grant access subject to road or travel conditions that will avoid or significantly mitigate these relevant risks.’

This system works for notices in which the regulator develops standard access conditions based on vehicle types for specific routes. Operators that comply with the notice’s requirements do not need to seek further authorisation to access the routes listed in the notice.

Individual requests are termed ‘permits’. These instruments tend to include more detailed information on the vehicle, time of travel and routes.

Both notices and permits can be used for vehicles that comply with the prescriptive requirements in the law or if vehicles that fall outside those specified in the law.

6. Objective means to assess vehicles outside prescriptive regulations

In Australia, prescriptive heavy vehicles can operate on different sections of the road network based on the dimensions and weight.

The road network is divided roughly into four main classifications.

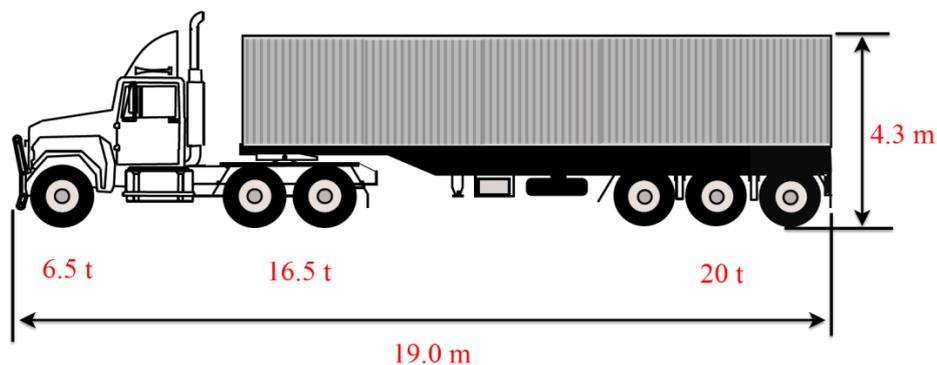
These classifications are General Access, B-double routes, Road train type 1 and road train type 2 networks. A vehicle combination will fit one of these networks depending on the vehicle length for most purposes.

For example, a general access vehicle is 2.5m in width, 4.3 m in height and 19 m in length. With a total maximum weight of 42.5t

The weight that a vehicle is allowed to carry will depend on the number of axles and tyres per axle, and, if the vehicle is eligible to participate, on mass schemes like Higher Mass Limits (HML) or Concessional Mass Limits (CML). An example of a vehicle operating on these mass schemes is shown in Figure 7.

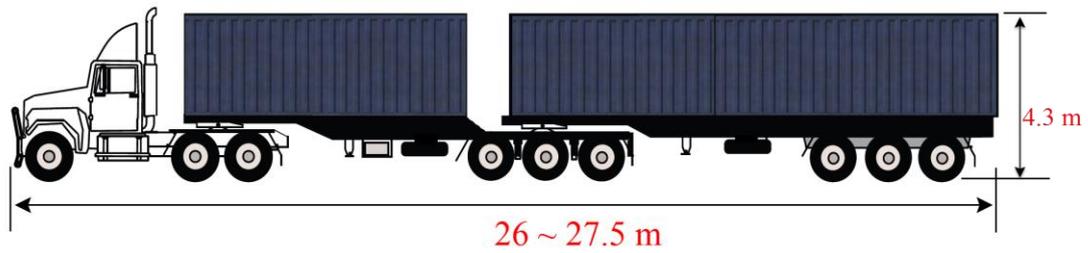
Vehicles longer than 19 metres or heavier than 42.5 tonnes are classified as restricted access vehicles, so a B-double or a road train would be classified as a restricted access vehicle.

Figure 6 General access semitrailer



A restricted access b-double vehicle:

Figure 7 Australian B-double - allowable mass schemes



GML	6.5t	16.5t	20.0t	20.0t
CML	6.5t	17.0t	21.0t	21.0t
HML	6.5t	17.0t	22.5t	22.5t

If a vehicle falls outside these envelopes, road managers can use the Performance Based Standards (PBS) Scheme to assess objectively the safety and infrastructure effects of a proposed vehicle combination.

The NTC has championed the use of PBS for over 10 years. The scheme was adopted under an administrative arrangement with states and territories up to its inclusion in the HVNL.

The PBS scheme comprises of 12 safety and four infrastructure standards. The standards are divided into three requirements (safety) each under powertrain, vehicle stability, trailer performance and vehicle manoeuvrability, and four infrastructure standards (pavements and bridges).

By removing subjectivity from the vehicle assessment process through the PBS scheme, operators can expect a more transparent and objective outcome for their applications.

7. Alternative ways to assist with compliance.

The fourth key aspect to improving productivity relies on two concepts:

- accreditation (also known as the National Heavy Vehicle Accreditation Scheme – NHVAS),
- chain of responsibility.

National Heavy Vehicle Accreditation Scheme (NHVAS)

This scheme is a voluntary scheme.

The accreditation scheme design is centred on a ‘systems management-audit’ approach and operators must have developed a management system which meets each of the standards in the area (module) being applied for –

NHVAS has three modules associated with it:

- Mass
- Maintenance
- Fatigue

In general terms operators are subject to scheduled third party audits for the life of their accreditation. These include an audit six months after being granted accreditation, then approximately once every two years after (once every accreditation renewal period, which is every two or three years).

Heavy vehicle accreditation was introduced in Australia in 1997 as the “alternative compliance policy”. The objective of this was to improve safety and efficiency by improving compliance with road transport laws.

Operators in the scheme would meet higher standards than the minimum under heavy vehicle laws, and they would benefit in the form of reduced or no roadside inspections and in turn, governments would benefit by better targeting enforcement resources.

The logic behind this was because operators in the scheme would meet higher standards, and enforcement resources would be better targeted, overall compliance rates were expected to improve and it was also hoped that a more ‘co-operative’ approach to regulation would generate positive results.

Due to low operator uptake on the NHVAS, productivity (regulatory concessions) enticements were offered to those that took up accreditation.

The regulatory concessions available are:

- Higher and concessional mass limits
- exemption from the annual vehicle inspection requirement in some jurisdictions in the maintenance module
- the maintenance module facilitates operators receiving the federal government fuel rebate
- flexible and longer working hours in the fatigue module

In Australia as of 2014 there are around 7000 operators accredited under the NHVAS. To put this numbers into context there are over 520,000 registered trucks in Australia⁹.

Table 1 Accredited operators by state or territory¹⁰

State operators by name	Total
QLD	1310
VIC	1868
NSW	1518
SA	1159

Figure 8 Vehicle sticker issued to participants in NHVAS



⁹ Data extracted from NTI report found on <http://www.nti.com.au/files/files/NTI-Guide-to-Trucking-Industry.pdf>

¹⁰ Data supplied by the NHVR, September 2014

TAS	168
NT	51
Totals	6956

In recent work done by the NTC and the NHVR on heavy vehicle roadworthiness concerns have been raised on the quality of auditing and the correlation between an operator's paperwork and actual on-road outcomes. These concerns and other improvements to the NHVAS accreditation are being considered as part of the ongoing work by the NTC and the NHVR.

Table 2 Nominated vehicles by state/territory (module)¹¹

State operator Vehicles	Mass	Maintenance	Totals
QLD	7481	35399	42880
NSW	18355	24911	43266
VIC	18384	15386	33770
SA	8686	15046	27732
TAS	921	218	1139
NT	1175	1963	3138
Totals	55002	92923	151925

The heavy vehicle accreditation scheme can assist operators in developing sound practices that have the potential to increase safety and in avoiding accidents increase productivity. Industry has stated that there is a great number of operators that want to comply with regulations but lack the knowledge to do so and the accreditation scheme could become a good template for improving safety among operators.

Recent work conducted by the NTC and the NHVR is showing signs that more work is required to make the accreditation scheme more robust and at the same time the scheme, or some elements of the scheme could be made mandatory as a means to improve the operations of heavy vehicle fleets (repeat offenders) especially in the area of maintenance.

Chain of responsibility

The second concept under alternative ways of compliance is Chain of Responsibility (CoR).

Previously, the driver was the primary party that suffered the consequences of breaches in mass or speeding and fatigue.

Chain of responsibility is designed to ensure that any party in a position to control, influence or encourage particular on-road behaviour is identified and held appropriately accountable. Simply put, chain of responsibility recognises the on-road effects of actions, inactions and

¹¹ *ibid*

demands of off-road parties in the transport and supply chain, and provides for their accountability.

Chain of responsibility aims to recognise that off-road parties have the ability to influence on-road activities, which potentially leads to breaches of the law.

Chain of responsibility identifies those parties who may control, influence or encourage on-road behaviour by making them legally accountable for their actions.

It's about making sure all parties in the supply chain are aware of their actions and consequences of those actions, and to take appropriate steps to prevent breaches from happening.

The Heavy Vehicle National Law contains a number of chain of responsibility provisions across the fatigue, speed and mass, dimension and loading chapters.

Again, this is a work in progress. A government and industry taskforce reviewed the Heavy Vehicle National Law's approach to chain of responsibility and reported that more work was required. The NTC is currently progressing this work through:

- A review of the structure of duties.
- Considering applying chain of responsibility to vehicle standards, maintenance and roadworthiness.
- Refining the application of executive liability

8. Conclusion

This paper shows that road freight vehicle productivity, measured by freight carried per vehicle, more than doubled between 1971 and 2007 and that due to regulatory reform and other initiatives the heavy freight vehicle productivity was increased even more rapidly.

However, more recent data (post 2008), is showing a decreasing trend in multifactor productivity, indicating that some action ought to be taken to reverse that trend.

Economic modelling conducted by the Bureau of Infrastructure Transport and Regional Economics (BITRE) suggests that in without any further regulatory intervention future productivity growth is likely to suffer.

The NTC, from its creation has been instrumental in the development of several key transport reforms that have assisted in fomenting productivity in the heavy vehicle freight area. These areas included the development of key reforms like the National Heavy Vehicle Accreditation Scheme (NHVAS), the Heavy Vehicle National Law (HVNL) including provisions that enhance the transparency of access decisions, and the internationally noted Performance Based Standards (PBS) scheme.

It would be interesting to see in five years or so the true effect of the policy reforms stated here. While the NHVAS has been operating for a while and CoR is slowly finding its feet, the HVNL and PBS (in its current form), have been operational since February 2013, their productivity effects may not be felt until further integration is achieved with other transport reforms and some operational issues are addressed.

In addition, the forces of federalism are providing a challenge to a seamless integrated freight task, as different jurisdictions apply their views based on their particular interests.

This paper touched lightly on some of the processes and provisions in the HVNL. More information is available by contacting the National Transport Commission (www.ntc.gov.au) or the National Heavy Vehicle Regulator (www.nhvr.gov.au).