Submission to the Productivity Commission into Australia's maritime logistics system

DEAKIN UNIVERSITY

Inquiry into the long-term productivity of Australia's maritime logistics system

Submission to: The Productivity Commission Canberra

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Introduction

On December 10, 2021, the Hon Josh Frydenberg MP, Treasurer, pursuant to Parts 2 and 3 of the *Productivity Commission Act 1998*, requested that the Productivity Commission undertake an inquiry into the long-term productivity of Australia's maritime logistics system.

Background

The long-term productivity of the maritime logistics sector is vital for supporting Australian businesses and communities to access and supply global markets at competitive rates. COVID-19 has stretched ports and shipping to their limits around the world. While there are limited steps the Australian Government can take to address short to medium term global supply and demand pressures, we can examine the readiness of Australia's maritime logistics sector — including ports and the workforces and infrastructure that connect them — to address the challenges of the future.

Identifying the constraints and opportunities facing the maritime logistics sector will help improve the sector's resilience and support Australia's productivity. A report by the Productivity Commission released last year stated that "Australia's supply chains have been disrupted by COVID and trade tensions, but most essential supply chains have proven resilient". The report also noted that whilst; "firms and government agencies are generally best placed to manage their own supply chain risks" there is also a case for some government intervention if the community is at risk. Deakin believes it is therefore prudent to investigate whether these supply chains can be strengthened by government and/or private enterprise actions.

Deakin's expertise

Deakin conducts specialist applied research, education, capability development and knowledge exchange. Deakin prides itself on delivering practical customised solutions that help government, industry and community stakeholders think differently about supply chains and logistics to foster better decision-making. The Deakin capability includes -

- Institute for Intelligent Systems Research and Innovation (Defence, Rail, automation)
- A^2I^2 artificial intelligence
- Centre for Regional & Rural Futures – regional development, agricultural supply chains (including Deakin supply chain & logistics practice)
- School of IT (Cybersecurity Centre, blockchain, IoT).

Deakin serves a wide range of private and public sector clients throughout Australia and the Asia Pacific Region. It provides independent advice and research. The University's activities are underpinned by the diverse and extensive expertise of its people and partners, including senior academic, government and private sector managers.

Responses to the Inquiry

Deakin University offers the following comments on the issues raised in the Inquiry Terms of Reference:

Whole-of-supply chain approach

Deakin's research is largely based on a whole-of-supply chain perspective, which combines infrastructure, technology, human factors and process innovation. A balanced and integrated suite of activities is required to lift performance in port supply chains. Our researchers have conducted Business Activity Harmonisation studies in Australia and ASEAN countries and are aware of the need for coordination between levels of government and industry stakeholders.

Rail

In relation to infrastructure investment needs, rail access to container terminals remains a requirement which is intrinsically linked to the environmental performance of Australia's international supply chains. Progress on rail targets to lift the proportion of cargoes using rail and intermodal terminals will be subject to government support. There are many examples of how governments and port managers are implementing strategies to increase rail targets. The determination of road pricing regime incorporating mass, distance and emissions may support rail uptake.

Road

Bridge strength and road capacity on key supply chain routes, especially in proximity to ports, continue to limit utilisation of higher productivity freight vehicles. Work undertaken by state road agencies in identifying and investing in these routes has been beneficial.

Port performance monitoring

Current *Waterline* and the ACCC *Container Monitoring* reports could be improved with further data relating to the cost-to-serve of individual transport legs. Further comments are captured in Appendix A.

Many of the global and regional port and supply chain performance reports available to industry, including the World Bank Logistics Performance Index have sample and methodological issues that limit their use or do not factor in the characteristics of the Australian market. These indices influence investment decisions and include rankings for the following aspects –

- Efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs
- Quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology)
- Ease of arranging competitively priced shipments
- Competence and quality of logistics services (e.g., transport operators, customs brokers)
- Ability to track and trace consignments

- Timeliness of shipments in reaching destination within the scheduled or expected delivery time.

A gap in our understanding and in reporting is data on cost-to-serve, with a generalised cost model for each leg of the transport task for bulk and containerised cargoes. It is hoped that the Freight Data Hub will address these issues.

Shipping line concentration trend

Port connectivity is currently defined by the following criteria –

- the number of scheduled ship calls per week in the country
- deployed annual capacity in Twenty-Foot-equivalent Units (TEU)
- total deployed capacity offered at the country
- the number of regular liner shipping services from and to the country
- the number of liner shipping companies that provide services from and to the country
- the average size in TEU of the ships deployed by the scheduled service with the largest average vessel size.

In Australia over the last 15 years the number of shipping lines calling at Australian container ports has declined from 25 to 14 which limits the choice for Australian shippers.

The Australian Competition & Consumer Commission (ACCC) in its (2018-2019 Container Stevedoring monitoring report, page 34 onwards) highlights the fact that a number of shipping lines have merged with their competitors and deployed larger vessels carrying more freight, resulting in fewer port calls. This fact, aided by an increase in competition amongst the stevedores, has provided the remaining shipping lines in a stronger bargaining position with their service providers. The ACCC noted that 'the majority of ANZ container volumes are now being handled by less than a handful of shipping lines.'

A result of this consolidation is that shippers and cargo owners are concerned at the lack of choice. This indicates that Australian shippers may be exposed to higher prices due to less choice in container shipping lines serving Australia.

Adoption of technologies

Australia does relatively well in the way we have introduced automation in our logistics industry. Driverless trains transport iron ore from our mines to the port. Driverless machinery operates above and underground in our mines. Driverless straddles carriers, automated stacking cranes and ship to shore cranes are operated by some of our container stevedores. Electronic data exchange is widely used in the logistics and stevedoring industry. Vehicle booking systems, which regulate the arrival of trucks at container terminals, empty container parks, warehouses and logistics providers have been in use for many years. These and other measures have ensured that Australia is at the forefront of technical innovation in the logistics industry which, most times, leads to an efficient use of resources. However, there is always room for improvement and further research is required to ensure this remains the case.

The National Freight and Supply Chain Strategy will be a useful tool in guiding further research. Initiatives such as the establishment of a National Freight Data Hub will assist with this task. Research in discovery of new technologies, process and safety innovation, are undertaken across the university sector. Government support of research is evident through the CRC model. Industry research in the sector is often driven by freight customers, such as technology providers or FMCG

companies reliant on freight transport services, who have specific needs, often articulated through the Australian Logistics Council.

Supply chain visibility and data frameworks

Standardisation of data formats using the GS1 global data standards and emerging data standards for event messages, recording handovers of freight and the integrity of the product are critical in creating greater visibility in Australian supply chains. There is a need to progress data frameworks that will facilitate visibility for freight owners and their customers. These frameworks need to be based on structuring data so that it can flow between enterprise systems (interoperability) and avoid expensive integrations. In 2017, out researchers undertook a pilot that demonstrated how this can work (Austroads FS2000) and identified savings for supply chain partners including transport companies.

As distributed ledgers are increasing being promoted as a solution for securing data in Australian supply chains, the standardisation of shared data formats in smart contracts is also a means to support industry.

Deakin's work in the national Implementing Food Traceability Program shows that businesses require a data framework to accelerate adoption of improved visibility. This is particularly the case in intermodal and multimodal settings, prone to loss of visibility.

In addition to development of data frameworks for the transport legs of any supply chain, support for adoption by the long tail of small and medium enterprises is necessary. The business case for investment, virtual and F2F learning and industry-driven programs to support the business decision-maker are all necessary to drive this shift in supply chain level visibility.

Workforce issues

There is currently a skills shortage in positions that require maritime and logistics-related skills with truck drivers a key concern in landside freight transport. The shortage is exacerbated by the COVID-19 pandemic but did exist pre-pandemic. Expansion and development of Australian educational institutions specialising in the provision of maritime and logistics-based training will address some current skills shortages.

While there are many strategies employed within industry to attract employees, Deakin has focused on the creation of a pipeline of students and females who gain an awareness of the opportunity through the *Wayfinder: Supply Chain Careers for Women* Program https://wayfinder.org.au/. Deakin researchers have undertaken a series of research projects under this program.

Preservation of corridors and land use planning

This need will only increase in the future as population and freight volumes grow. Competition for industrial lands in proximity to existing population centres is, in some cases, tightening industrial land supply and pushing freight and logistics providers further from the port. These factors increase the cost to service both consumers and businesses through higher land costs and increased travel distances, also adding to road congestion, environmental impacts and the need for new road capacity investment. The protection of land and land corridors to and from ports is vital and planning processes need to ensure that urban encroachment, and the introduction of curfews on roads, does not limit the efficient use of the landside operations of a port. These factors are especially significant for some of our capital city container ports. An example of the above is the review of the use of

industrial land by the Greater Sydney Commission and the effects on Port Botany Industrial Lands Policy Review | Greater Sydney Commission

Analysis undertaken by Deakin in 2019 demonstrates the lack of professional training and education for urban planners in relation to freight and logistics. Given the critical nature of planning decisions to the licence to operate for logistics service providers and ports (e.g. introduction of time/ mass curfews), the development of state planning policies and educational offerings is much needed.

Appendix A: Port performance reporting - further comment

Port performance studies are known to have restraints on how their performance is calculated and whether the studies compare 'apples with apples'.

The latest Australian Competition and Consumer Commission's (ACCC) Container Stevedore Monitoring Report 2020-21 states that "shipping lines have told the ACCC they have had a poor experience at the Australian container ports over the past few years. Some shipping lines have described the Australian container shipping market as characterised by high costs and major disruptions at ports, container terminals and empty container parks. These comments are supported by international studies. A recent study by the World Bank and IHS Markit showed that even before the recent logistical issues caused by the pandemic, Australian container ports were relatively inefficient and well below international best practices".

When delving deeper in the IHS Markit report this performance ranking shows Beirut as number 11 in the world and ranks ports like Bell Bay and Noumea well above our main container ports. This raises concerns regarding performance data used to assess port performance. The authors acknowledge that this being the inaugural report, "the joint team intends that the methodology, scope, and data, will be enhanced in subsequent annual iterations, reflecting refinement, stakeholder feedback, and improvements in data scope and quality".

When reading the report in more detail it is hard to believe that ports in our region like Bell Bay (ranked 163), Port Moresby (ranked 211), Noumea (ranked 124) and Wellington (ranked 141) are considered better performers than Australia's capital city ports. It also surprising that respectable ports such as Southampton (ranked 317), Felixstowe (ranked 322) and Valencia (ranked 308) find themselves at the bottom end of the table.

The report's Appendix A (page 85 onwards) paints a more truthful picture of the performance of Australian container ports. The Appendix ranks the ports according to categories of vessel sizes with ranging from <1500 TEU to >13,500 TEU. If we look at the categories of vessels that call at Australian ports, that is: 1501-5000 TEU, 5001-8500 TEU and 8501-13,500 TEU, the report paints a different picture with most Australian ports sitting around the 150 to 175 ranking, in the middle of the table.

Whilst not being anywhere near the top performers, these rankings are reflective of the fact that Australia does not have the volume of containers that warrants container terminal investment like top performers such as Yokohama or Singapore. Furthermore, most of the high-ranking ports are transhipment ports rather than gateway ports such as Australia's capital city ports. Having said that, comparative ports in our region such as Auckland and Tauranga are ranked at 118 and 100 respectively, so there is certainly room for improvement in the performance of container ports in Australia.

Whilst the above describes some of the waterside performance of Australian container ports attention should also be focussed on the landside operation of the port. As has been evident recently, container terminals in the port of Los Angeles/Long Beach (LA/LB) have suffered severe congestion predominantly due an inefficient landside operation. The following explanation of performance issues in the LA/LB ports indicates the favourable performance of Australian ports.

Once an import container is discharged, it must be moved out of the marine terminal as quickly as possible to make room for another import container, but that has not been the case in LA/LB. There are a number of reasons for this: not enough trucks and/or drivers to pick up containers at the marine terminals; not enough trains to transport these containers further inland (the LB/LA area

handles about 40% of the total container throughput of the US); and not enough room in transport depots to store containers which have been picked up from the marine terminal.

The increase of COVID-related import of goods has created this backlog, which means that the current dwell time of containers at the LA/LB marine terminals is approximately nine days. The terminals discharge and load ships 24 hours seven days a week; however, the receival and delivery of containers only occurs five days a week and no night work. There is also a mismatch of opening hours of warehousing and distribution centres, which are usually only able to receive import containers five days a week and only 12 hours per day at the most, causing import containers to stay in the terminal yards too long.

Dwell times in neighbouring developing countries such as PNG and Timor Leste are around 20 days. If the terminals in those countries and in LA/LB manage to halve their dwell time it would generate landside capacity without the need for increased yard space.

Whilst there is still a certain amount of mismatch of opening hours in Australia supply chains, stakeholders and operators have managed to work around it. Consequently, dwell time of containers in Australian terminals is approximately three to four days, and the envy of the world. In Australia marine terminals match their receival and delivery hours more closely to their ship working hours, including weekend and night work. Transport companies operate similar hours as the marine terminals and if importers and exporters cannot match their opening hours transport operators stage the containers in their yards. In most Australian ports up to 80% of all containers are staged at the transport operator's yard. This is done at a cost but facilitates an efficient container supply chain.

The ACCC report also mentions that since it commenced its monitoring activity in 1998, four of the five largest container ports in Australia have been privatised. Privatisation has seen some benefits, as ports appear to have become more dynamic in responding to the needs of their customers. However, container ports in Australia are regional monopolies and, in the absence of appropriate regulatory oversight, can extract monopoly rents from port users who are unable to choose to go to an alternative port. Some stevedores have informed the ACCC that privatisation of ports has led to substantial increases in their property costs. They stated that the introduction of terminal access charges in 2017 was partly due to significant increases in port rents. It should be noted that in the port of Fremantle, which is owned by the state government, landside charges levied by both stevedores are about one third of the charges levied in privatised ports on the east coast.

Due to increased competition between stevedores, which has led to lower lift rates (quayside charges) payable by shipping lines, stevedores have steadily increased their 'terminal access charges' or 'infrastructure charges' (landside charges), payable by the transport operators/cargo owners to protect their margins. Some of these charges are justified as the stevedores have invested in landside improvements.

Whilst the ACCC report raises some valid points about port and stevedore performance, and rightly points out that our industrial relations system can and must be improved, we maintain that Australian ports are relatively efficient when compared with similar international ports.

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