



Asia-Pacific Research and Training Network on Trade
Working Paper Series, No. 16, August 2006

The Relationship between Liberalisation in the Logistics Sector and Trade Facilitation



UPDATE: A revised and edited version of this paper has now been published as:

De Sousa, D. and C. Findlay, 2007. “Relationship between liberalisation in the logistics sector and trade facilitation”, pp. 245-278, Chapter VIII in ESCAP, *Trade facilitation beyond the multilateral trade negotiations: Regional practices, customs valuation and other emerging issues – A study by the Asia-Pacific Research and Training Network on Trade*, (United Nations, New York).

Available online at: <http://www.unescap.org/tid/artnet/pub/tipub2466.pdf>

Institute for International Business, Economics and Law, University of Adelaide, Australia would like to thank Darel De Sousa and Christopher Findlay for their contribution of this study. The views presented in this paper are those of the authors and do not necessarily reflect the views of IIBEL & ARTNeT members, partners and the United Nations. This study was conducted as part of the UNESCAP/ARTNeT and UNDP Joint Research Programme on Trade Facilitation and Regional Integration and carried out with the aid of a grant from UNDP Asia-Pacific and Investment Initiative (APTII), Regional Centre in Colombo. The technical support of the United Nations Economic and Social Commission for Asia and the Pacific is gratefully acknowledged. Any remaining errors are the responsibility of the author. The author may be contacted at james.redden@adelaide.edu.au

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Executive Summary

Logistics services, which include activities required for the transportation, storage and handling of production inputs and finished products from producer to consumer, play a critical role in international trade. Consumers of logistics services are typically suppliers of products themselves. Consequently, the efficient supply of logistics services helps to facilitate international trade in a whole range of other products. The more timely, reliable and efficient the logistics supply chain, the more efficiently and reliably goods can be delivered from the point of production to the point of consumption.

Using the export of tuna from South Australia to Japan as an illustrative example, this study demonstrates that the improvement of the performance of logistics services through domestic liberalisation may generate a virtuous cycle, whereby international trade is increased and that this, in turn, may increase the demand for logistics services. This study also supports the view that the benefits of improved performance of logistics services could be enhanced through governmental measures that assist the flow of trade across national borders. Further, trade facilitation measures instituted by a government, including but not limited to more efficient, well-coordinated border control mechanisms, may promote greater demand for logistic services. Indeed, the respective extent and pace of measures taken by governments to liberalise the supply of logistics services and to facilitate trade will determine whether or not a virtuous cycle will be generated and the extent of the benefits that will accrue from that cycle.

This study highlights that a regulatory framework which can balance the need to progress the liberalisation of logistics services while at the same time maintain the requisite degree of control at national borders to protect against security, safety and health threats will lay the foundation for such a virtuous cycle. Consultation with all the relevant stakeholders – governmental bodies, suppliers of logistics services, and exporters and importers dependent upon logistics services – will help to realise the known benefits of logistics liberalisation.

Introduction

Logistics can broadly be defined as the range of activities required for the transportation, storage and handling of production inputs as well as finished products from producer to consumer. The various activities that may be involved in the “logistics supply chain”, which are often interdependent, play a critical role in international trade. More specifically, exporters of many goods will heavily depend upon logistics services for the efficient, cost-effective and timely delivery of those goods to consumers in the import market.¹ Further, in a recent report prepared by the United States’ International Trade Commission (USITC) on the global market for logistics services, it was suggested that improving the performance of logistics services through liberalisation may generate a virtuous cycle, whereby international trade is increased which, in turn, increases the demand for logistics services.²

In theory, the liberalisation of logistics services and other governmental efforts aimed at facilitating trade could be mutually reinforcing. In particular, the benefits of improved performance of logistics services could be enhanced through governmental measures that assist the flow of trade across national borders rather than hindering such trade. Nevertheless, the converse could also be true. In its report, the USITC considered the effects on logistic services of trade impediments. It found that the benefits that could potentially accrue to suppliers of logistics services as well as to international traders from measures to enhance the efficiency of logistics services could be undermined by governmental trade barriers.³ Indeed, such obstacles might result in delays, which, in turn, may erode the comparative advantage of products being exported or imported.

Whether or not a virtuous cycle can be generated will ultimately depend upon the respective extent and pace of measures taken by governments to liberalise the supply of logistics services and to facilitate trade. This study seeks to examine the changing nature of the domestic market for logistics services in Australia over the past 10 – 15 years with a view to determining the relationship, if any, between the progressive liberalisation of logistics services and trade facilitation. For the purposes of this study, the term “trade facilitation” includes the interpretation of this term as the simplification and harmonisation of international trade procedures that apply at the border to exported and imported goods while also encompassing broader governmental measures to facilitate trade, which reduce traders’ transaction costs and thereby promote trade. The export of tuna from South Australia to Japan is used as an example to illustrate this relationship.

¹ This tends to be supported by empirical studies, which suggest that a robust statistical link exists between transport costs and international trade flows: Limão and Venables, “Infrastructure, Geographical Disadvantage, Transport Costs and Trade”, *World Bank Economic Review*, 2001, Vol. 15: 451-479.

² United States International Trade Commission, “Logistic Services: An Overview of the Global Market and Potential Effects of Removing Trade Impediments”, Investigation No. 332-462, USITC Publication 3770, May 2005, p ix.

³ United States International Trade Commission, “Logistic Services: An Overview of the Global Market and Potential Effects of Removing Trade Impediments”, Investigation No. 332-462, USITC Publication 3770, May 2005, p 3-1.

Trends in the Australian Market for Logistics Services

The Importance of Liberalisation

The services sector plays an important role in any domestic economy. In 1998, the World Bank estimated that among developing countries, the services sector accounted for 38% of gross domestic product in low-income countries and 56% for middle-income countries. For high-income developed countries, the figure was estimated to be 65%.⁴ More recently, in 2005, the OECD estimated that, among OECD countries, the services sector accounts for over 70% of total employment.⁵

A number of benefits are touted as flowing from domestic liberalisation of the services sector. For example, it is generally considered that regulatory reform of services markets will create opportunities for firms to develop new services, meet emerging global demands and increase employment. Further, liberalisation spurs competition, which improves efficiency and innovation.⁶ Theory also suggests that liberalisation results in lower prices, better quality and increased choice for consumers. Evidence in the telecommunications⁷ and financial sectors⁸ tend to bear this theory out. The precise impact and size of the gains resulting from services liberalisation will depend upon the market structure of the sector in question, the nature and extent of the liberalisation measures adopted, as well as the broader regulatory framework within which the services in question are being supplied.

The logistics sector is a particularly important services sector for all domestic economies and, therefore, the rewards of domestic liberalisation can be especially significant. The global market for third-party logistics services was valued at around \$130 billion in 2002.⁹ Notably, consumers of logistics services are typically suppliers of products themselves. Consequently, the efficient supply of logistics services, which is enhanced through liberalisation, helps to facilitate the supply of a whole range of other products. The more timely, reliable and efficient the logistics supply chain, the quicker and more reliably goods can be delivered from the point of production to the point of consumption.

In this regard, globalisation has highlighted the need for and importance of liberalisation of logistics services. As a result of globalisation, a vast range of products – perishable and non-perishable alike – can be sourced from all over the world. It is in this context that the “cost of time” has become a critical factor from the perspective of exporters, importers and suppliers of logistics services. The time it takes to get a product to market may determine whether or not a product gains entry into a foreign market. Furthermore, time may still affect the volume of trade, even in cases where entry into the foreign market has been achieved.¹⁰ Recent studies indicate that a 10% increase in time reduced bilateral trade

⁴ <http://www.dti.gov.uk/files/file23412.pdf>

⁵ OECD, “Growth in Services: Fostering Employment, Productivity and Innovation”, Meeting of the OECD Council at Ministerial Level, 2005, p. 2.

⁶ OECD, “Growth in Services: Fostering Employment, Productivity and Innovation”, Meeting of the OECD Council at Ministerial Level, 2005, p. 2.

⁷ See, for example, International Communication Union, “World Telecommunication Development Report 2002”, March 2002.

⁸ See, for example, International Financial Services, “Impact of Liberalising Financial Services”, January 2002.

⁹ United States International Trade Commission, “Logistic Services: An Overview of the Global Market and Potential Effects of Removing Trade Impediments”, Investigation No. 332-462, USITC Publication 3770, May 2005, p 2-1.

¹⁰ OECD, “Logistics and Time as a Trade Barrier”, OECD Trade Policy Working Paper No. 35, 30 May 2006, p 7.

volumes by between 5 and 8%.¹¹ The cost of time becomes all the more pressing if the product is perishable and has a short shelf-life and/or if the product is needed for just-in-time production. Additionally, perishable products must be safe and edible to consume upon arrival in the destination market. These combined pressures have driven changes in the logistics sector throughout the world, including in Australia.

Logistics activities represent approximately 9% of Australia's gross domestic product (GDP), comparable with 12% for mining, construction and utilities, 11% for wholesale and retail trade and 12% for manufacturing.

Australia's large geographic dimensions coupled with the breadth of products that are exported abroad, ranging from heavy commodities to delicate perishables, pose important challenges to the supply of logistics services in Australia. A number of different types of logistics services may be necessary to transport and deliver the product from Australia to the export market in the form or state required by consumers. The efficient and cost-effective supply of multi-modal logistics services may be compromised if there are significant differences between the suppliers of each type of service along the logistics supply chain in terms of infrastructure, organization and service standards. Poor performance of just one aspect of the logistics supply chain could affect the competitiveness of the exported product. In the long-term, instances of poor performance associated with the supply of logistics services may permanently damage an exporter's reputation abroad.

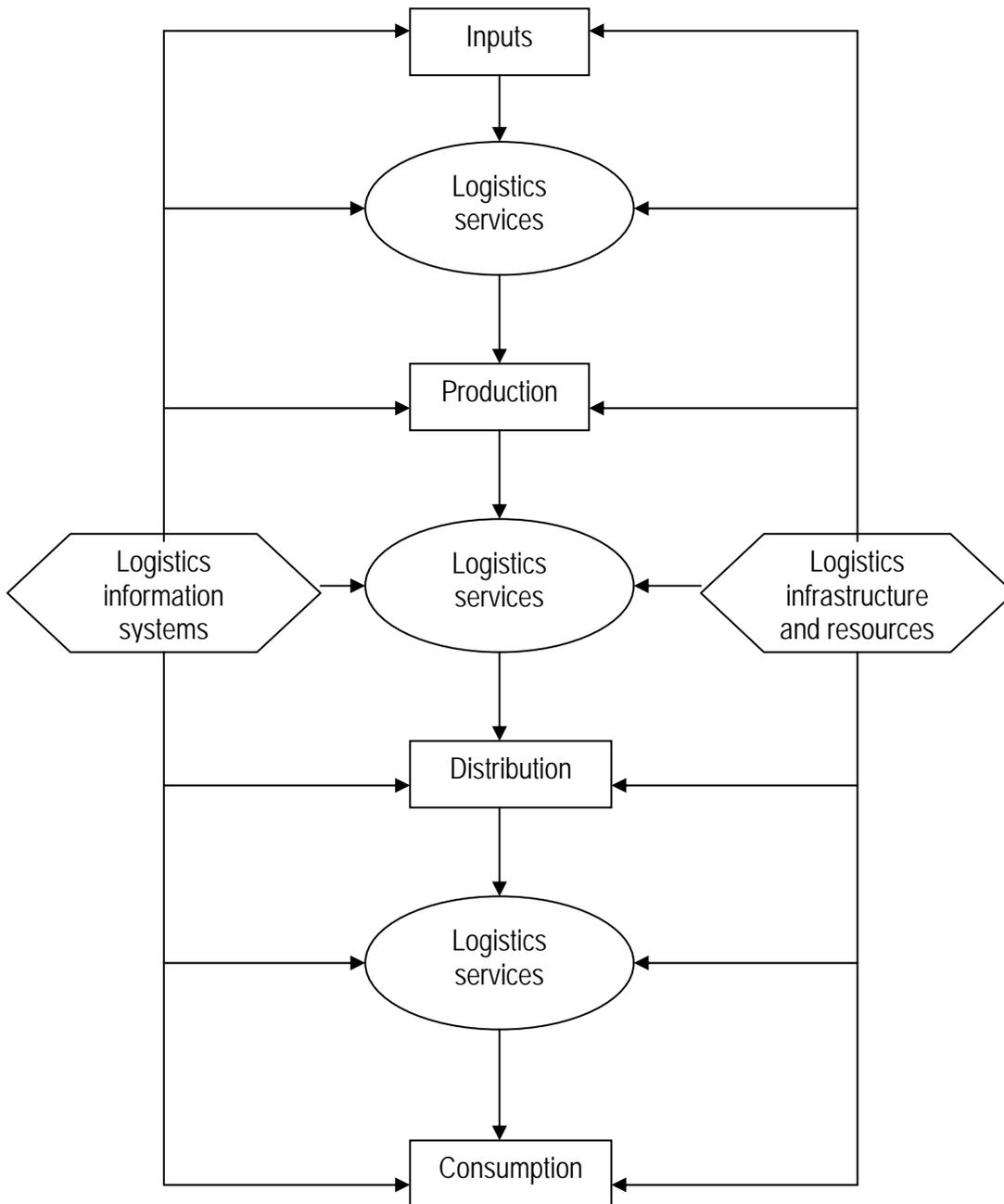
The Logistics Supply Chain

The performance of logistics services can be analysed in the context of the logistics supply chain. The supply chain represents the sequence of logistics activities involved in the transportation, storage and handling of products while en route to the destination market and illustrates the interdependencies between those activities.

Set out below is a diagrammatic representation of a typical supply chain.

¹¹ Notably, a recent survey conducted by the World Bank found that, in the case of a number of developing countries, the time taken to get products from the factory gate to the border for export after clearance was beyond the lead time for delivery of the product prescribed by customers: OECD, "Logistics and Time as a Trade Barrier", OECD Trade Policy Working Paper No. 35, 30 May 2006, pp 9-10.

Figure 1. An Overview of the Logistics Supply Chain¹²



Swift and seamless delivery is the primary objective along the entire supply chain. In order to achieve that objective, the supply of a specific logistics service must be undertaken in coordination with the supply of the other interdependent logistics services in the supply chain. One option to achieve an integrated approach is through the supply in-house of logistics services by the producers who require such services. In Australia, around 50% of logistics services consumed are currently supplied in-house. However, this may be a costly and resource-draining option, particularly for firms whose core business is far-removed from

¹² Source: Australian Bureau of Transport Economics, "Logistics in Australia: A preliminary analysis", Working Paper 49, October 2001, pg. xii.

the supply of logistics services. Indeed, an important trend in the Australian market for logistics services is the increasing preparedness of firms to outsource their logistics needs rather than undertake this function in-house. BlueScope Steel, a leading manufacturer of steel in Australia and New Zealand, adopted a hybrid approach. In particular, one of BlueScope Steel's four business units is called the "Market and Logistics Solutions" Unit. While the Market and Logistics Solutions Unit manages the logistics supply chain, it sub-contracts certain aspects of the logistics supply chain to third party logistics suppliers.

Third party logistics suppliers (or 3PLs) have played a pivotal role in logistics outsourcing. Third party logistics suppliers are external parties that perform all or part of logistics activities involved in the supply chain for a particular product on behalf of the producer. These suppliers, which exclusively specialise in the supply of logistics services, may provide benefits such as lower costs, improved quality and better integration of logistics activities. Freight forwarders are a type of 3PL and are important participants in the logistics supply chain. Freight forwarders organise the dispatch of cargo by road, rail, ship or sea on behalf of producers or on behalf of other 3PLs that have been engaged to manage the entire logistics supply chain. Apart from securing cargo space on the relevant mode of transport, freight forwarders may also deal with documentary and other formalities associated with such shipments.

Private sector logistics firms operate in many segments of the Australian logistics supply chain. However, such firms may be legally precluded from operating in particular segments where the supply of the logistics service implicates public or quasi-public infrastructure and/or where safety or security concerns exist. An example is the ownership and operation of railway lines, ports and airports. In such cases, governments may choose to own, control and operate the underlying infrastructure rather than entrusting such activities to private enterprise.

Market Dynamics

The Australian market for the supply of logistics services has been the subject of much study, comment and reform over the past 10 – 15 years. In general terms, reform has been the result of a mix of public and private initiatives aimed at enhancing efficiency in the supply of logistics services in Australia. The main aspects of these initiatives will be discussed immediately below, particularly those that have an impact on international trade.

1. Market Access Commitments

A potent tool to liberalise a sector in a country is through the grant of market access to suppliers from other countries, whether on a bilateral, regional or multilateral basis. Depending upon the characteristics of the sector in question, liberalisation through market access commitments may imply the arrival of more foreign suppliers, which could translate into lower costs, but not necessarily a reduction in the number of domestic suppliers.

During the Uruguay Round of WTO trade negotiations, Australia made commitments to grant market access to foreign suppliers with respect to a number of sectors that cover services included in the logistics supply chain. In particular, Australia made certain commitments with respect to road freight transport, maritime freight transport, storage and warehousing and various other auxiliary services. Australia's efforts to improve market access to its domestic logistics market are ongoing. In the context of the Doha Round of WTO trade negotiations, a number of offers have been made for new market access

commitments that may impact upon the domestic market for the supply of logistics services.¹³

The results of Australia’s market access commitments are illustrated in the following statistics.

Table 1. Foreign and Australian players in the Australian market for logistics services¹⁴

Logistics sub-sector	Major Players in terms of market share	
	Foreign	Australian
Road transport	TNT	Toll Holdings Linfox K&S Corporation Scott Corporation
Maritime transport	P&O	ANL Shipping Line BHP Billiton
Storage	P&O Swire	Toll Holdings Linfox

2. Domestic Regulatory Reform

Regulatory reform in the Australian logistics sector has been driven by changes in regulatory philosophy, dissatisfaction with the service provided by government or monopoly suppliers and a desire on the part of federal and state governments to reduce expenditure on infrastructure or to fund infrastructure improvements. Reform has seen major changes in the market environment for both public and private suppliers of logistics services in Australia predominantly with respect to the transportation components of the logistics supply chain, transportation being the most significant component of the supply chain in terms of dollars spent.¹⁵

Prior to such reforms, state monopolies owned and operated the railways, interstate road transport was heavily regulated, irregular and slow and relatively few shipping lines and airlines serviced Australia. Since then, liberalisation and/or privatisation have taken place in virtually all segments of the transportation components of the logistics supply chain. Broadly speaking, the result of the reform efforts has been increased efficiency and broader consumer choice, which, in turn, has facilitated the more efficient movement of freight from Australia through national and international logistics chains.

i) Rail Freight

Rail freight in Australia is used predominantly for the transportation of bulk commodity items such as minerals, coal, crude oil, petroleum, natural gas, fertilisers, grains and forest products. Demand for rail freight services in respect of products destined for

¹³ Specifically, Australia has offered market access commitments with respect to maritime cargo handling and agency services, air transport ground handling services, selling and marketing of air transport services, rail transport services and customs clearance services.

¹⁴ This table is based on general literature and press reports concerning the logistics sector in Australia.

¹⁵ An international study of logistics activities found that transportation contributed between 40 – 45% of the total logistics costs of a business. See Davis and Drumm (2001), Institute of Logistics and Distribution Management quoted in BTRE Report, “Logistics in Australia A Preliminary Analysis”, Working Paper 49, October 2001.

export is largely confined to grain, coal and iron ore. Rail freight is not an option where express delivery is required.

In the past, Australian rail freight services suffered from a reputation for poor quality. Reforms in the 1990s transformed Australia's railways through commercialisation, corporatisation and, in some instances, privatisation of government enterprises that had formerly owned and controlled the railways. The number of public and private sector providers of rail freight services has since grown. Notably, the principle of competitive neutrality, which lies at the heart of many transportation reforms, requires that in areas where both public and private sector entities are operating, government businesses should not be advantaged nor disadvantaged relative to the private sector competitors simply by virtue of government ownership. This principle has had particular importance for private sector operators' access to rail infrastructure, which continues to be within the ownership and control of public sector entities.

Thanks, at least in part, to the railway reforms, real freight rates have fallen significantly over the last two decades. Operators of rail freight services have largely been price takers given shippers' preference for other modes of transport, especially road which tends to be cheaper for low volume, short-haul journeys. The competitive nature of the market for rail freight services is likely to be further enhanced as large freight transport service providers offer multi-modal services.

In the past, lagging infrastructure and disparate regimes between Australian states for private sector access to rail tracks that continue to be owned and controlled by public sector entities have hindered competition to a certain extent. Nevertheless, innovation and investment in infrastructure is expected to increase as the degree of private participation in rail freight operations continues. Competition between rail and shipping for the transportation of freight has already resulted in the provision of innovative rail services, for example the establishment of "feeder" services to and from the port of Melbourne for transportation elsewhere.

ii) Road Freight

Road freight is the mode of transport most commonly used for the movement of non-bulk freight within Australia, particularly from and to rural and regional communities where rail, air and sea freight are not economically or physically viable. Road freight is also often used in combination with the other modes of transportation for goods that are exported from Australia. Road freight is typically preferred to rail freight because it is cheaper, quicker and the routes are more flexible.

The regulation of road transport is linked to externalities such as car accidents involving heavy vehicles, noise emissions, air pollution and traffic congestion that may damage roads and the environment in the long-term. These externalities imply social, environmental and economic concerns that have been addressed in Australia through a variety of safety and technical standards, rules on traffic and driving conditions and charges on the use of road infrastructure, such as freeways.

The states and territories are primarily responsible for the regulation of road transport under Australia's Constitution.¹⁶ In the past, the states had each enacted their own laws dealing with road rules, vehicle standards and driver licensing. Over time, differences between those laws became an impediment to transportation of road freight across state and territory borders. In 1991, the National Road Transport Commission was established to develop uniform arrangements between the states and territories and has made considerable progress in harmonising vehicle registration requirements, vehicle standards and road rules including those relating to the carriage of dangerous goods.

The market for road freight services, in which a significant number of small owner-operators are incumbent, is fiercely competitive despite the existence of heavy regulation. The barriers to entry are low given the relatively low start-up capital that is needed (to buy a truck, for example). Inter-modal competition between road transport and other modes of transportation, such as rail, air and sea, has also served to heighten the level of competition in the market.

Available evidence indicates that competition in the market for road freight has resulted in downward pressure on prices. Such evidence also suggests that competition between incumbents is based largely on specialised service (e.g. vehicles tailored for a particular industry or type of cargo) and reliability, rather than on price. Significantly, increased competition has not seen a concomitant reduction in safety standards. Further, there is evidence of a decline in the incidence of heavy vehicles involved in fatal accidents. Nevertheless, it is notable that the industry is gradually becoming more concentrated as a result of a competitive disadvantage faced by the smaller truck owner-operators – namely, the difficulties associated with maximising truck use 24 hours a day, 7 days a week. Large, foreign freight companies have become prominent in the industry through capitalising on this disadvantage. It is yet to be seen whether Australian competition law, which is discussed in more detail below, will have a role to play in addressing increasing concentration in this sector.

iii) Sea Freight

Shipping by sea freight dominates Australia's international freight activity, particularly with respect to long-haul, high volume movements of cargo.

The capacity of Australia's ports directly affects the supply of sea freight services. Historically, government-owned ports in a number of Australian states developed in isolation from one another and were insulated from competition due to the absence of adequate land transport connections between them. Since then, the various ports have been reformed through corporatisation and privatisation and, in some state jurisdictions, third party access regimes have been established to facilitate the supply of auxiliary port services. Improved rail services and enhanced competition in the market for road freight has resulted in increased competition between the ports.

Port reforms have delivered savings to suppliers of sea freight services. Ports have progressively moved away from basing charges on the value or volume of cargo handled and

¹⁶ The Australian Government is comprised of three main parts. The first is the federal government, which has jurisdiction over and responsibility for the entire Commonwealth of Australia. The second are the state and territory governments, which only have jurisdiction over and responsibility for the relevant Australian state or territory they have been elected to govern. The third are the local governments, which have responsibility for certain matters within sub-areas within the Australian states and territories.

have, rather, introduced charging that is based on cost. However, inadequate port infrastructure at a number of Australian ports may constitute an impediment to the further realisation of efficiencies and cost savings.

With respect to the sea freight services themselves, reform has been relatively limited, due in part to the existence of international bodies that play a role in determining the global regulatory framework for the supply of such services, such as the International Maritime Organization. Nevertheless, during the 1990s, several state-owned shipping lines were privatised, including Australian National Lines (ANL). The sea freight industry in Australia is now characterised by a high degree of globalisation and is relatively concentrated, with foreign flagged ships carrying the majority of goods in and out of Australia. The speed and nature of the service offered by air freight poses a competitive threat to sea freight, particularly in respect of low volume, time-sensitive and valuable freight as well as for inputs needed for just-in-time production. A formidable barrier to entry is the costly acquisition of equipment – in particular, ships. Further, prices for shipping services to and from Australia are largely determined by international freight rates and are known to be the subject of price-fixing.

Shipping conferences are currently conditionally exempted from the application of domestic competition law.¹⁷ The main objective of this exemption is to ensure that exporters have access to sea freight services of adequate frequency, capacity and reliability and at rates that are internationally competitive. Amendments made to domestic competition law in 2000 have provided partial extension of this exemption to assist importers.

iv) Air Freight

Air freight is typically used for the transportation of low volume, high value products. In Australia, air freighted imports consist mostly of high-value, high tech manufactured goods such as computers and other electronic goods whereas exports are dominated by perishable primary products of lower market value, particularly fresh seafood. Air freight services can only be accessed through the use of freight forwarders.

The domestic Australian market for air freight services can now be described as vigorously competitive following the introduction of competition during the past two decades. Competition has been increased through the grant of the right to provide air services under air services arrangements (ASAs), which have been negotiated by Australia and other countries, largely on the basis of mutual benefit. Such arrangements determine the number of aircraft authorised to operate on each route.

As a result of increased competition, the air freight industry is now serviced by a number of different airlines, both domestic and foreign. A large proportion of air freight transported to and from Australia is carried in the belly-holds of passenger aircraft, as this is cheaper than using aircraft that are dedicated to air freight. Previously, air freight cargo rates were negotiated and fixed at traffic conferences convened by the International Air Transport Association (IATA, an international body responsible for the regulation of international air transport) and were subsequently approved by governments under ASAs. However, indicative “reference fares” have since replaced the fixed rates, leaving airlines with some price flexibility. Demand tends to be highly price elastic with respect to low value to weight

¹⁷ A shipping conference is an alliance made up of a number of carriers that provide service from specified points to points for a defined route, which is distributed according to market share.

cargo (i.e. those products typically imported into Australia via air freight) whereas cargo rates on outbound journeys from Australia for high volume, low value goods tend to be higher. Of relevance in this regard is the fact that air freight operators are reluctant to carry high volume, low value cargo on outbound journeys from Australia if this compromises their ability to carry high value products on a subsequent leg of the journey. If the users of freight services are flexible regarding the time taken to deliver freight, cheaper, less direct routes may be possible.

Infrastructure capacity has been and will continue to be a constraining factor with respect to the supply of air freight services. In the longer term, airlines are expected to invest in larger dedicated freight aircraft to take advantage of this fast growing sector.

3. The Role of Domestic Competition Policy

In 1995, the state and federal Australian governments agreed to a domestic reform package called the National Competition Policy. It was pursuant to this policy that many of the reforms referred to above concerning the supply of transportation services in Australia were undertaken. Competition policy continues to play a role in respect of a number of the market segments along the logistics supply chain. In particular, competition policy has a bearing upon access to publicly and privately owned infrastructure, particularly with respect to rail freight. It may also be relevant to mergers, alliances and cooperative arrangements that have been struck between companies supplying services within and/or between segments of the logistics supply chain.

i) Access to Infrastructure

The terms and conditions according to which access to infrastructure is granted will have a direct impact upon the supply of services that are immediately dependent upon that infrastructure (for example, access to rail tracks to provide rail freight services). Moreover, service providers further downstream in the supply chain may also be affected if the cost and time associated with negotiating and arranging access to infrastructure result in delays and uncertainty.

Competition policy can help to strike a balance between the competing interests of, on the one hand, the infrastructure owner to make a reasonable return on investment and, on the other hand, users of the infrastructure to be granted certain, fair and equitable access to infrastructure. Competition policy may also assist in ensuring a competitive environment among service providers that are seeking access to such infrastructure.

Australian competition law governs access to “essential facilities”, including interstate and intrastate rail infrastructure controlled by public as well as private entities. That law establishes the framework for access to rail infrastructure in Australia. In particular, it provides that rail infrastructure must be accessible by third parties that wish to provide a service dependent upon such infrastructure through a “declaration” process. The terms and conditions according to which access will be granted is determined up front through undertakings made by the infrastructure owners, which are enforceable in court. Competition law also provides for arbitration by the competition regulator in the event that access to rail infrastructure is the subject of dispute between the owner and the third parties seeking access to the infrastructure in question.

ii) Other Competition Issues

As is evident from the foregoing discussion, the degree of competition within particular market segments along the logistics supply chain varies and, in some cases, quite considerably. The regulatory environment in which the logistics service in question is supplied will clearly have an impact upon the degree of competition within the relevant market segment. Furthermore, the degree of competition will be affected by the nature of the service being supplied and the market structure. More specifically, the competitive environment will be affected by the degree of homogeneity of the particular services being supplied. It will also be affected by the existence or absence of barriers to entry. Buyer power will also be relevant. For example, the larger the firm seeking to ship its cargo, the greater the power to demand speedy, cost-effective, tailor-made freight transport solutions. Further, the level of competition will depend upon the degree of consolidation, partnerships and alliances within particular segments of the logistics supply chain and as between segments of the supply chain.

Australian competition law and policy has a role to play in ensuring that the degree of competition in each market segment along the logistics supply chain maximises benefits for the suppliers and consumers of such services. It is of particular relevance with respect to the emergence of increased supply chain collaboration, which is possible thanks to increased globalisation, advances in information technology and a series of acquisitions, mergers and other alliances.

On the one hand, formal as well as informal linkages between players along the logistics supply chain may result in cost savings for service suppliers and service users. They may also lead to improvements in the range of services offered. Additionally and perhaps, more importantly, such linkages may facilitate the supply of integrated, seamless logistics services, which is increasingly of utmost importance to consumers of logistics services. In this regard, it is important to note that studies undertaken over the last decade indicate that seamless integration along the logistics supply chain had previously not been achieved in Australia due, at least in part, to fragmented market structures, incompatible information systems and infrastructure (particularly at inter-modal transfer points), and the independent and competitive mindset of supply chain participants. On the other hand, however, linkages between players along the logistics supply chain may attract the application of Australian competition law if they compromise the degree of competition in the domestic market. For example, mergers among large global players have been the subject of scrutiny by the Australian competition regulator in relation to the supply of rail freight services, maritime freight services and stevedoring services. However, as yet, action has not been taken by the competition regulator to prevent such mergers.

General Observations

Despite Australia's relatively close geographic proximity to key export markets in the Asia-Pacific region, in the past, logistics costs had been higher than in a number of competing countries. Inefficiencies within segments of the logistics supply chain as well as lack of integration along the supply chain were at least partly responsible.

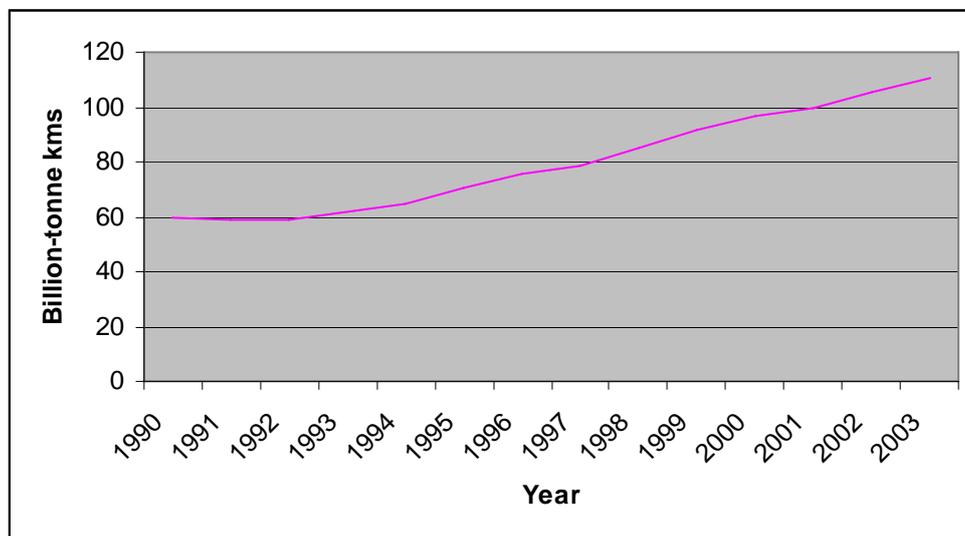
As noted earlier, Australia has implemented a number of reforms in the logistics sector, some of which have been undertaken with respect to specific aspects of the logistics supply chain (e.g. with respect to rail and port reform), others of which are applicable more generally (i.e. the National Competition Policy).

Table 2. Summary of main reforms in Australia that have had an impact upon the logistics sector

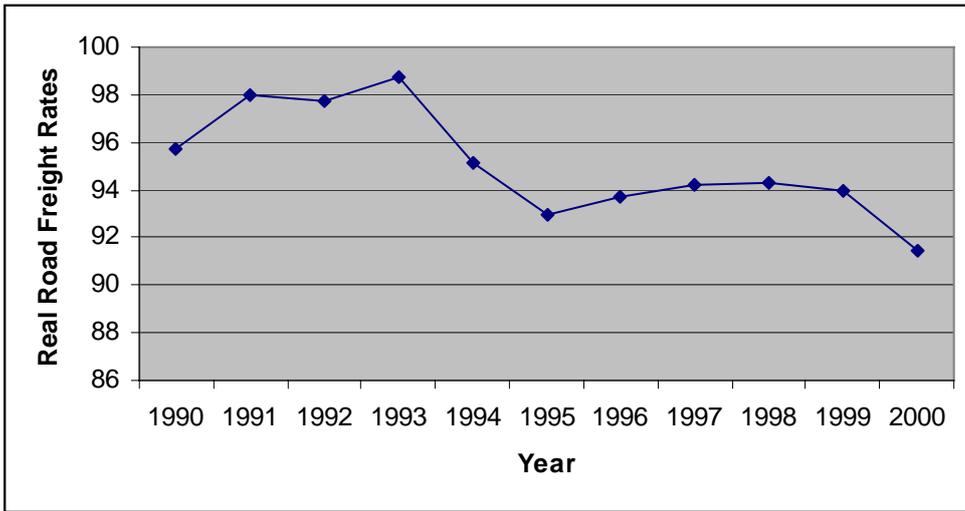
TYPE OF REFORM	General/Specific to Logistics Sector	Aspect of Logistics Supply Chain affected	Time of Adoption
Privatisation/deregulation	Specific	Rail freight Road freight Sea freight (including port reform)	1990s
Market access commitments	Specific	Road freight Sea freight Storage Warehousing Auxiliary logistics services	1994
National Competition Policy	General	Potentially all aspects but particularly relevant in relation to rail freight and sea freight	1995

The abovementioned reforms appear to have yielded positive results from the perspective of suppliers of logistics services as well as international traders.

Figure 2. Road Freight Trends¹⁸

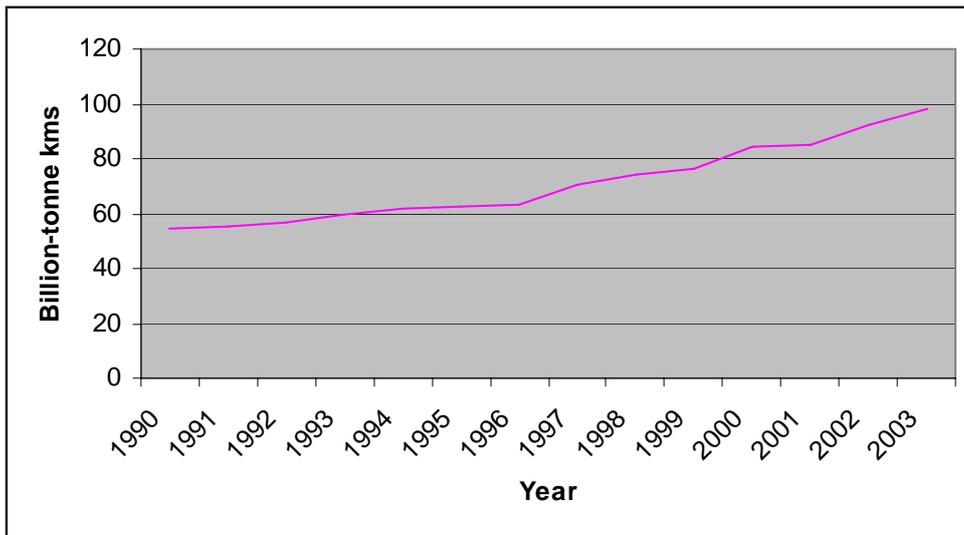


¹⁸ Source: Australian Government Department of Transport and Regional Services, Bureau of Transport and Regional Economics, "Freight Measurement and Modelling In Australia", Report 112, 2006.



As is evident from Figure 2, the utilisation of road freight services has steadily increased during the past decade and a half. Moreover, real road freight rates dropped by 4 cents per tonne-kilometre between 1990 and 2001.

Figure 3. Rail Freight Trends¹⁹



¹⁹ Source: Australian Government Department of Transport and Regional Services, Bureau of Transport and Regional Economics, "Freight Measurement and Modelling In Australia", Report 112, 2006.

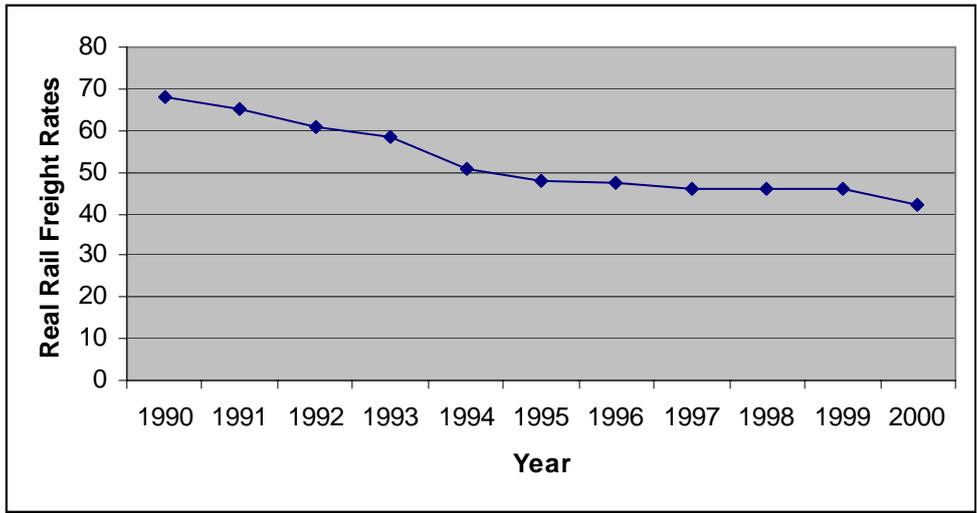
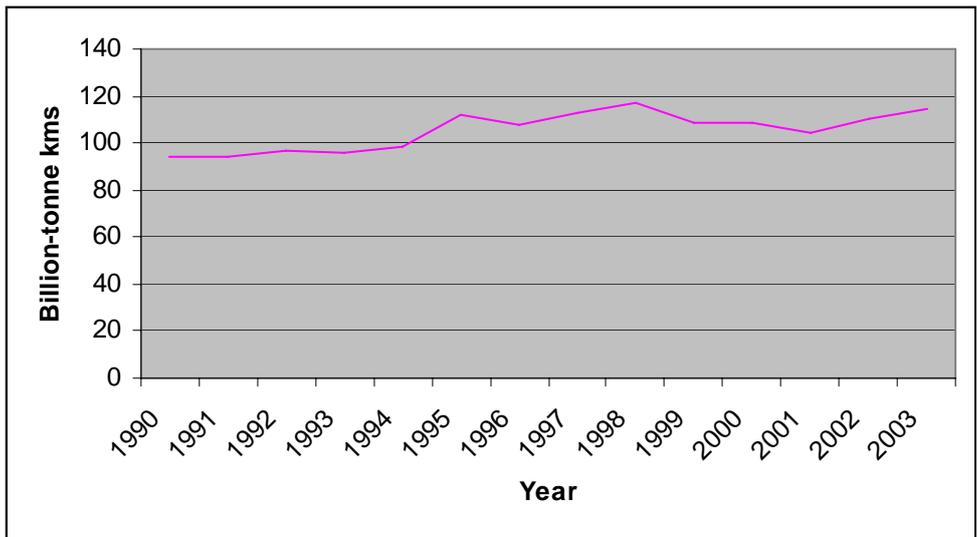


Figure 3 illustrates a similar steady increase during the past decade and a half in the utilisation of rail freight services. Notably, real rail freight rates declined by 26 cents per tonne-kilometre between 1990 and 2001.

Figure 4. Sea Freight Trends²⁰



²⁰ Source: Australian Government Department of Transport and Regional Services, Bureau of Transport and Regional Economics, "Freight Measurement and Modelling In Australia", Report 112, 2006.

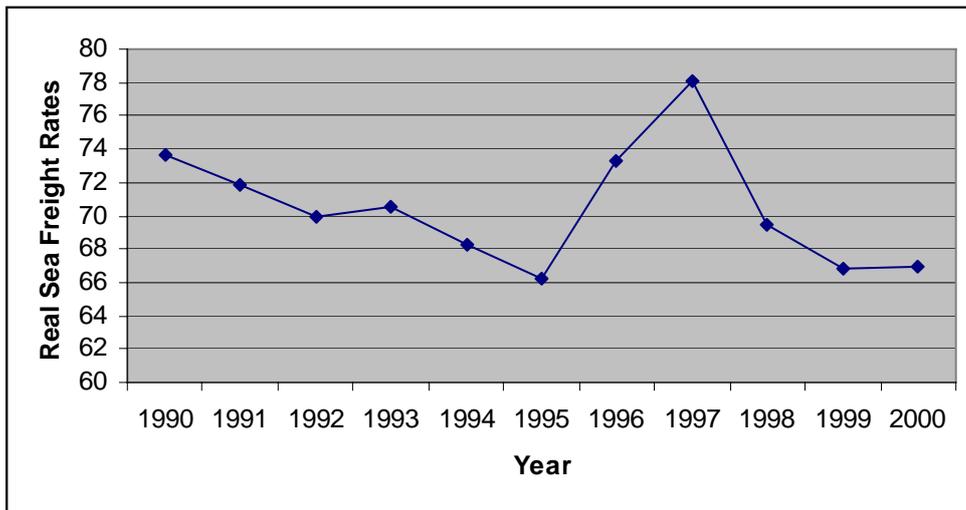
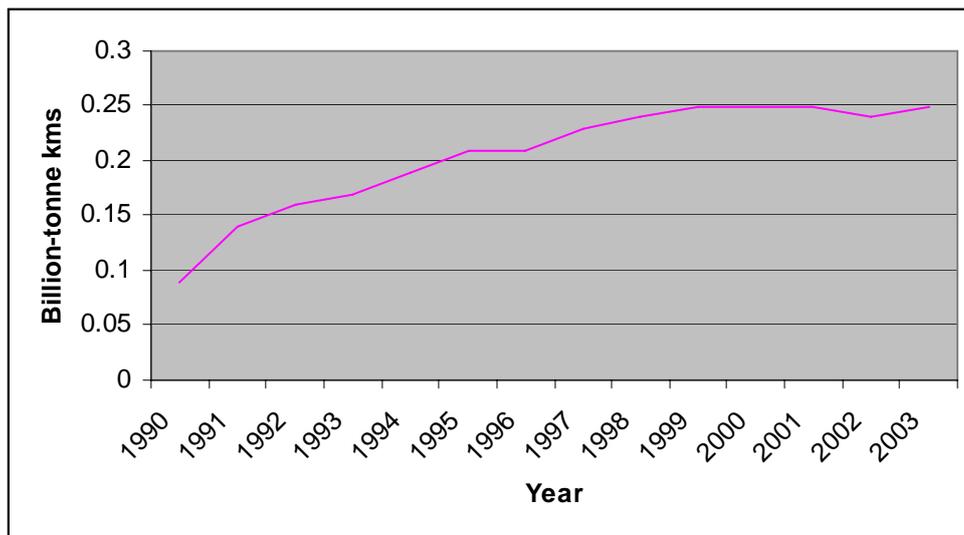
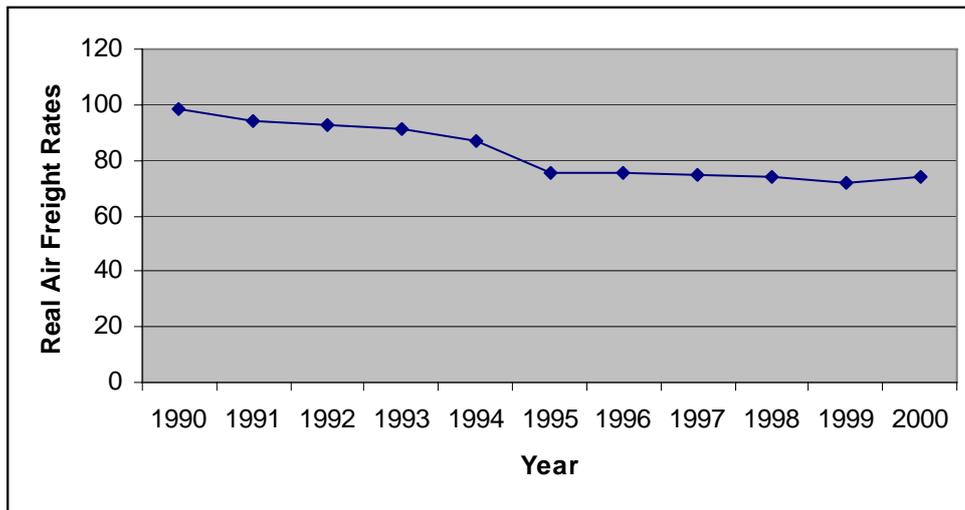


Figure 4 indicates that the utilisation of sea freight has also increased during the past decade and a half, although more gently than is the case for road and rail freight. Real sea freight rates reduced by 7 cents per tonne-kilometre between 1990 and 2001.

Figure 5. Air Freight Trends²¹



²¹ Source: Australian Government Department of Transport and Regional Services, Bureau of Transport and Regional Economics, "Freight Measurement and Modelling In Australia", Report 112, 2006.



Finally, Figure 5 evidences a marked increase in the utilisation of air freight services during the past decade and a half. Real air freight rates declined by 27 cents per tonne-kilometre between 1990 and 2001.

Australian competition policy and law currently plays and will continue to play an important role in striking a balance between the need, on the one hand, to maintain a competitive environment that produces the efficient supply of good-quality logistics services at a reasonable price and, on the other hand, to allow linkages between suppliers of logistics services in aid of an integrated, seamless supply chain.

Governmental Measures that may have an Impact upon the Supply of Logistics Services

As noted previously in this study, non-tariff governmental measures have the potential to undermine the benefits of logistics liberalisation. Indeed, in its report on the global logistics market, the USITC found that border customs procedures and inspections pose the most significant obstacles to the supply of certain logistics services, the principal objective of which is to move freight expeditiously, reliably and at the lowest cost possible.²² Nevertheless, in appraising governmental border measures that may have an impact upon the supply of logistics services, their rationale needs to be considered particularly in light of the globalised context in which such services are supplied, where real security threats at national borders exist. Indeed, tighter border controls over freight movement, handling and storage throughout the world are being implemented in the face of increasing security concerns. Furthermore, while the removal of certain governmental measures might facilitate trade, it could also seriously jeopardise the health and safety of citizens on both sides of a country's border. Therefore, a balance is needed between furthering the trade facilitation objective and ensuring that borders are secure against terrorist, health and safety threats.

Australia's international trade is subject to a number of customs and quarantine requirements, which are relevant to the logistics supply chain. The governmental institutions which administer such requirements are the Australian Customs Service (ACS) and the Australian Quarantine and Inspection Service (AQIS). Generally speaking, exporters and

²² United States International Trade Commission, "Logistic Services: An Overview of the Global Market and Potential Effects of Removing Trade Impediments", Investigation No. 332-462, USITC Publication 3770, May 2005, pg 3-2.

importers must provide the ACS and AQIS certain information about movements of products between Australia and overseas origins or destinations. That information is primarily required for the purposes of collection of customs duties, the prevention of the entry of pests and diseases into Australia, the quality certification of some exports, and for national security reasons. Various organizations are involved in the provision of this information, including shippers, shipping lines, terminal operators, customs brokers and freight forwarders. Other governmental agencies, such as state-based agriculture departments, may also be involved on the government side.

Export controls

Under Australian customs law, goods may not be exported nor loaded on a ship or aircraft for export unless they have been entered for export on the Customs Export Integration System (EXIT). EXIT is an electronic data interchange clearance and reporting system for exports which automates procedures for the reporting of exports; accelerates and simplifies the clearance of outward bound air and sea cargo; and enables the ACS to monitor high risk exports without impeding the majority of exports, which pose no risk. The EXIT system links the ACS with exporters, freight forwarders, airline and shipping companies and the Australian Bureau of Statistics for the record of Australia's export statistics. Exporters that have been registered in the EXIT system apply for export clearance by transmitting information to the ACS electronically. EXIT verifies the data and, if valid, an Export Clearance Number (ECN) will be issued with a turnaround time of approximately ten minutes.

A similar system for the clearance of cargo by AQIS exists. The Export Documentation System (EXDOC) was developed by AQIS to facilitate export approval and health certification by AQIS. The purpose of the EXDOC system is to electronically process and produce government-to-government documentation required for the exportation of certain prescribed goods. This system expedites the clearance of cargo and helps to minimise delays by automatically generating a sanitary and phytosanitary certificate required by importing customs authorities. Currently, export approval for all meat and meat products is available using EXDOC. EXDOC now also covers dairy, fish, grains and horticultural products. EXDOC is available twenty-four hours a day and seven days a week.

EXDOC and EXIT are linked, providing a single electronic window through which exporters may access the ACS as well as AQIS. The single electronic window allows exporters to lodge one message requesting clearance of cargo by both ACS and AQIS. Currently, around 98% of export entries are lodged electronically directly into the EXIT system.

Import controls

Goods imported into Australia must be cleared by both the ACS and AQIS. Import declarations are used to obtain ACS clearance for security, health and safety reasons. Import declarations must be filed in the Integrated Cargo System (ICS), which can be accessed in three ways. First, a hard copy of an import declaration may be filed with an ACS officer. Second, the importer may purchase a digital certificate which enables communication with the ACS electronically via an interactive website. Finally, the services of a customs broker may be engaged to complete the customs requirements. On occasion, the ACS will examine the imported goods to verify that they correspond to the description of the goods in the import declaration or to ensure that the goods are not prohibited, restricted or pose a quarantine risk

Imported goods may also be screened by AQIS. For example, with respect to imported foods, these are monitored by AQIS to ensure that they conform to the Australian Food Standards Code. High risk food is subjected to mandatory inspection and testing whereas low risk food may be randomly tested. Rapid quarantine clearance is available for cargo accompanied by documentation demonstrating that the entry requirements have been met. An electronic entry request may be lodged with the AQIS via the Joint Entry Management System (JEMS). The entry request will then be sent to the AQIS Import Management System (AIMS), which enables tax concessions, broker accreditation and other co-regulation activities to be implemented and monitored. Finally, AQIS officers also use the Import Conditions Database (ICON), which is used to check the quarantine requirements for particular goods and to verify that the relevant entry import permit is valid.

Other

In the context of the 1999 World Customs Organizations Revised Kyoto Protocol (which seeks to establish a blueprint for modern, efficient and effective customs procedures), the ACS and AQIS continue to work closely with foreign customs administration with a view to establishing harmonized customs procedures.

The following table summarises the main Australian governmental measures that may have an impact upon the supply of logistics services.

Table 3. Summary of main Australian governmental measures that may have an impact upon the logistics sector

	Type of Control	Mechanisms to facilitate trade
Export Controls	Clearance by the ACS	EXIT (Export Integration System)
	Clearance by AQIS	EXDOC (Export Documentation System)
Import Controls	Clearance by ACS	ICS (Integrated Cargo System)
	Screening by AQIS	JEMS (Joint Entry Management System)
		AIMS (AQIS Import Management System)
		ICON (Import Conditions Database)

The Relationship between Logistics Liberalisation and Trade Facilitation: An Illustrative Example from the South Australian Seafood Industry

So far in this study, general trends in the Australian market for logistics services have been examined. In addition, governmental measures that may have an impact upon the supply of logistics services have been considered. What remains to be discussed is the inter-relationship, if any, between logistics liberalisation and trade facilitation. The evolution of the logistics supply chain for the exportation of South Australian tuna to Japan will be considered with a view to determining the impact, if any, that the liberalisation of logistics

has had on trade for this product.²³ The role of governmental measures will also be considered in this context.

Introduction

The Australian seafood industry is worth in excess of AUD2 billion. South Australia accounts for 20% of total seafood production in Australia, a significant proportion of which is exported. South Australian seafood is renowned abroad for its premium quality. This reputation is largely the result of rigorous quality control mechanisms implemented by seafood producers from the point of capture until the point of consumption. These initiatives have been successful in optimising the seafood's shelf-life and ensuring that the state of the seafood is to the consumer's satisfaction, which, in turn, has bolstered the seafood's reputation. Efforts undertaken by the local South Australian seafood industry to continually improve product quality have been supported by legislative measures, which have sought to simultaneously promote quality as well as sustainable production.

Some Factors affecting the Supply of South Australian Tuna

As previously mentioned, this section of the study focuses on the exportation of tuna from South Australia (in particular, from the coastal town of Port Lincoln²⁴) to Japan, Japan being one of the world's largest markets for the consumption of fresh tuna.

Despite the existence of a quota limiting the amount of tuna that can be fished in Australia,²⁵ tuna is the fastest growing and most lucrative type of seafood exported from South Australia. In 1991, the first experimental tuna farm was established in Port Lincoln and, by 1992, export of tuna from South Australia had commenced. The vast proportion of tuna produced in Port Lincoln is being exported to Japan for consumption in the premium sashimi market. The total export value of the industry grew from around 2000 tonnes worth approximately \$40 million in 1994 to 10,000 tonnes worth around \$264 million in 2006.

There are numerous tuna producers based in Port Lincoln. The industry body representing them, the Australian Tuna Boat Owners Association, has played a critical role in the evolution of the tuna industry in South Australia. Through the association, producers have jointly adopted initiatives to nurture, market and preserve the reputation of South Australian tuna abroad. They have also worked closely with Japanese purchasers (who are heavily involved in the tuna production process in South Australia) to achieve advances in fishing and aquaculture techniques, which advances have contributed to the quality and value of South Australian tuna in export markets.

In the early 1990s, South Australian southern blue fin tuna faced competition from imports into Japan from China, Taiwan, Indonesia and the Philippines. However, the degree of competition has significantly lessened in recent years. Over-fishing in the breeding grounds proximate to those competing countries has led to a diminution in the supply of southern blue fin tuna. Rising fuel costs have prevented producers in the competing countries

²³ A map of Australia, including the state of South Australia and some general statistics about South Australia are contained in Appendix 1.

²⁴ A map indicating the location of Port Lincoln in South Australia is contained in Appendix 2.

²⁵ The quota is imposed pursuant to an agreement reached between Australia, New Zealand and Japan under the auspices of the Commission for Conservation of Southern Blue Fin Tuna, which was established in 1994 to restore the global population of southern blue fin tuna, which had been significantly depleted due to overfishing in the early 1980s.

from fishing further afield and, consequently, have largely driven them out of the Japanese market for the supply of high-end tuna.

The Logistics Supply Chain for the Export of Tuna from South Australia to Japan

Perishable products are prone to deterioration and spoilage. Tuna is one such product. The role of logistics services for the delivery of tuna from the point of production to final destination where the tuna is consumed, and for that matter all perishable products, is critical. The speed and manner in which perishables are delivered to consumers will have an impact upon the condition of the product at the point of consumption. The better the condition of the product at the point of consumption in terms of its colour, taste, appearance and safety for consumption, the higher the price paid and the greater the likelihood of repeat business. Delays in transportation and failure to transport, handle and store in a manner that inhibits the deterioration of product throughout the logistics supply chain could mean spoilage of the product with a consequent mark-down of the price payable for the product, outright rejection of the entire consignment of the product and possibly even refusal to accept future consignments from the producer concerned as well as other producers of the product from the same geographical area. In other words, deficiencies in the logistics supply chain may have widespread and profound repercussions for an industry.

The logistics supply chain for the export of tuna from South Australia to Japan depends upon the form in which the tuna is being exported i.e., chilled or frozen. When the exportation of tuna from South Australia to Japan first commenced, it was exclusively supplied in chilled form. Limitations in freezing technology at the time prevented exportation of frozen tuna. However, since then, the use of nitrogen freezing as a complement to blast freezing has made the exportation of frozen tuna to Japan possible also. Currently, 3000 tonnes of South Australian tuna are exported fresh and 7,000 tonnes are exported in the frozen form.

Generally speaking, the longer and more circuitous the route from Australia to Japan, the cheaper the cost of delivery. However, lower costs may come at the expense of quality. The longer the delivery path, the greater the likelihood of breaks in the so-called “cold chain”²⁶ and the more vulnerable the product to spoilage. Temperature control along the entire supply chain and minimisation of breaks in the cold chain is of critical importance for the exportation of both chilled and frozen tuna. The price of tuna that has been improperly handled in transit may be less than a third of the price that would otherwise be payable. In every case, a balance must be struck between the need to get the tuna to market as soon as possible, the cost associated with achieving that objective and the requirement that the tuna be fit for consumption when it finally reaches its destination.

Organization of the logistics supply chain for the delivery of tuna from South Australia was somewhat fraught during the early days when export to Japan was just starting to accelerate. Tuna producers faced an increasingly customer-driven market in which time and quality were of the essence. Simultaneously, the logistics system in Australia prior to export as well as in Japan became more and more complex. The increasing complexity made optimisation of the path of delivery from production to consumption difficult. In addition, as

²⁶ The cold chain refers to the supply or demand chain for cooled or frozen produce. It requires the continual maintenance of the correct temperature for the product concerned from the point of production/harvesting through all stages of packaging, transport, storage and retailing.

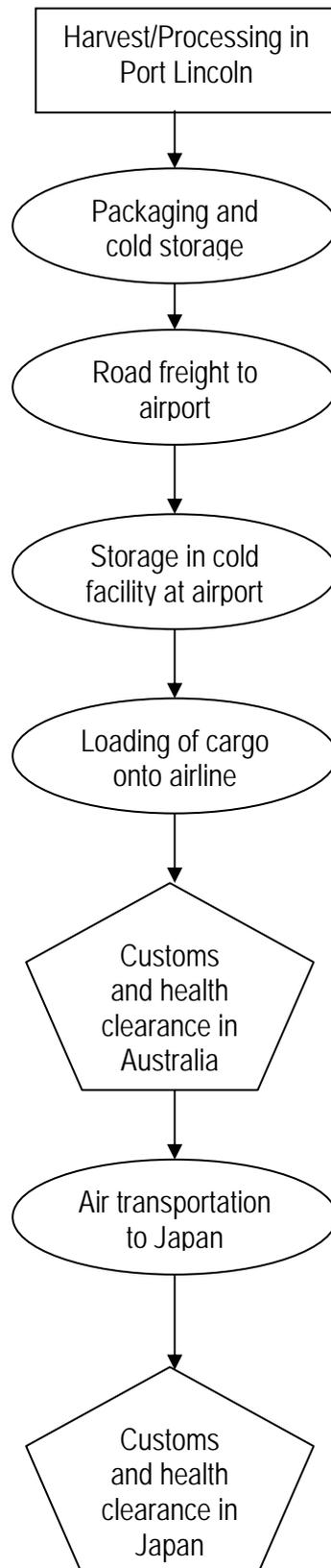
previously mentioned, the state of technology at that time imposed certain limitations on the supply chain.

In order to ensure that they could compete in the global marketplace, the South Australian tuna producers worked closely together with the Japanese purchasers as well as with suppliers of logistics services to establish the most efficient logistics supply chain in terms of processing, storage and transportation, which minimised the time in transit and the risk to the quality of the product being exported. Freight forwarders and other 3PLs have played an important role in organising and supervising the supply chain on behalf of South Australian tuna exporters.

4. Chilled Tuna

Clearly, the speed of delivery is critical for the exportation of chilled tuna. The shelf-life of a tuna fish is attenuated by a day for every hour it is left un-refrigerated. The only manner in which chilled tuna can reach the Japanese market in a safe, edible form is by air freight. Thanks to increased competition and capacity among airlines carrying cargo as well as the establishment of direct routes from Australia to the destination export markets, air freight is an increasingly viable option for South Australian tuna producers exporting their product to Japan.

Figure 6. Logistics supply chain for chilled tuna prior to export to Japan



South Australian tuna is sent by air freight from Adelaide, Sydney or Melbourne airports. In all cases, the tuna must be transported by road freight from Port Lincoln to the relevant airport. Road freight reforms have resulted in incremental efficiency improvements with respect to the transportation by truck of tuna from Port Lincoln, which have led to lower costs. In addition, tuna exporters have witnessed quicker transportation times. It is now possible to transport tuna from Port Lincoln to Sydney or Melbourne within 3 days of catching the tuna. Competition has also led to the emergence of road freight companies with particular expertise in the transportation and handling of perishable goods, such as tuna. Chilled tuna must be transported in a pre-cooled refrigerated vehicle, which must preserve the temperature of the tuna for the duration of its journey. Specialist road freight companies are now able to supply trucks fitted with rolarised decks to minimise handling while loading and unloading the tuna onto the trucks. The trucks are also refrigerated and triple insulated to maintain the temperature of the fish.

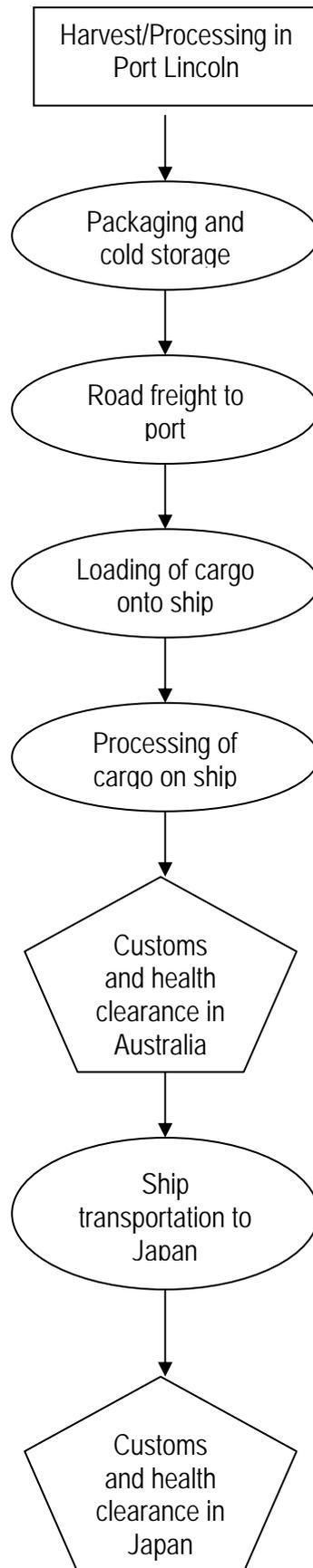
Once the tuna arrives at the relevant airport, it must be stored in a cold facility. The cold facility at Adelaide airport has been identified as a potential weak link in the logistics supply chain for the export of tuna from South Australia to Japan. The costs associated with operating the facility, even for small quantities of tuna, are so high that it has proved uneconomical for many producers to transport their chilled tuna via Adelaide airport. The result has been diversion of tuna from Adelaide airport to Sydney and Melbourne airports, which has increased transportation time and costs. Further, there is a heightened risk of product spoilage because of additional breaks in the cold chain.

Freight forwarders must be used to arrange for the transportation of cargo by air freight, given that airlines will only deal with freight forwarders when allocating cargo space. Lack of regulation in the freight forwarding market has meant that some freight forwarders lack the requisite skills to ensure appropriate handling, storage and transportation of perishable products by air freight, including tuna from South Australia. Furthermore, growing competition and reducing margins in the freight forwarding business has led to the adoption of cut-throat business tactics. For example, some freight forwarders are known for reserving cargo space on airlines without having first secured contracts for the transportation of cargo with prospective exporters. Such tactics have resulted in inefficiencies in the logistics supply chain for the export of chilled tuna by air freight.

5. Frozen Tuna

The combination of nitrogen and blast freezing, which rapidly freezes tuna while maintaining uniform fresh quality of the fish, has meant that tuna may be exported frozen to Japan, defrosted and then used fresh for the sashimi market. While the speed of delivery is not as pressing as for the exportation of chilled tuna, it is still an important consideration for frozen tuna. The longer the period of freezing, the more susceptible the tuna is to alteration, deterioration and, ultimately, spoilage.

Figure 7. Logistics supply chain for frozen tuna prior to export to Japan



Port reform in Australia has facilitated the export of frozen tuna from South Australia to Japan in two ways. First, such reform has directly translated into lower costs for tuna exporters using port services to export their product. Secondly, such reforms have had a major impact on efficiencies and costs at Australian ports associated with storing and handling of imported feed that is used for tuna aquaculture in South Australia.

The supply of sea freight services for the exportation of tuna from South Australia to Japan is usually undertaken by Japanese flag ships, whose crews are experienced in the processing, preparation and transportation of tuna to Japan. Global expansion of the shipping sector has led to the emergence of massive shipping companies that have the capacity and facilities to efficiently ship perishable products in refrigerated containers. While it is not obligatory to use freight forwarders for sea freight, they have proved useful for small fish producers that do not have the volume to secure cargo space on large shipping liners without the intervention of an intermediary.

Governmental Measures affecting the Export of Tuna from South Australia to Japan

6.Export control

Members of the South Australian tuna industry have commended the fact that they face relatively few governmental impediments in the export of their tuna to Japan. Indeed, the electronic, automated export clearance procedure on the Australian side (discussed earlier in this study) has helped to preserve the tuna producers' comparative advantage. There are a number of other mechanisms implemented by Australian governmental authorities that have served to further strengthen this advantage.

AQIS bears responsibility for ensuring that the systems implemented in Australia result in the production of fish and fish products that are safe to eat and are as free as possible from hazards that are potentially harmful to humans. To this end, fish producers are required to develop, implement and maintain "Approved Arrangements". Once implemented, AQIS must then decide whether or not to authorise an "Approved Arrangement". Initially, a desk audit will be conducted to evaluate the control system that is proposed by the producer and will then be followed by a site audit. If and when changes to the operations of a fishing establishment occur, an application for approval of the variation must be made to AQIS.

The Approved Arrangements have been an important mechanism through which governmental impediments to the export of tuna have been minimised in three distinct ways. Firstly, the Approved Arrangements essentially seek to ensure that the wholesomeness and integrity of fish are maintained during their preparation for export. In other words, such agreements amount to instruments to control the quality of tuna, which helps to reduce the likelihood of the tuna being blocked at the border in Japan on health and safety grounds. Secondly, while the establishment and implementation of such arrangements involve governmental input at the outset, once authorised, governmental intervention is significantly reduced. Thirdly, the Approved Arrangements may be a vehicle through which logistical issues confronting exporters may be addressed.

For example, an important issue that has arisen regarding AQIS involvement in the exportation of tuna from South Australia to Japan concerns the point in time at which the minimum temperature of tuna must be established prior to exportation for safety reasons. Initially, AQIS required the minimum temperature to be attained ex-factory. However,

following discussions with the tuna producers, AQIS has authorised establishment of the minimum temperature just prior to exportation. This means that, in the case of chilled tuna, which is usually transported by road from Port Lincoln to Melbourne or Sydney from where it is delivered by air freight to Japan, the truck journey from Port Lincoln to Melbourne and Sydney airports may be used to cool the tuna down to the required minimum temperature. This minimum temperature requirement has been formalised in the Approved Arrangements reached between AQIS and South Australian tuna producers.

The Australian government has also facilitated the export of tuna to Japan through its indirect involvement in a body promoting South Australian food abroad. Specifically, “Food Adelaide” is a government-funded body, which provides direct trade promotion services in export markets. In addition, this body collects and disseminates market intelligence regarding export markets of particular importance to South Australian exporters, including Japan.

7.Import control

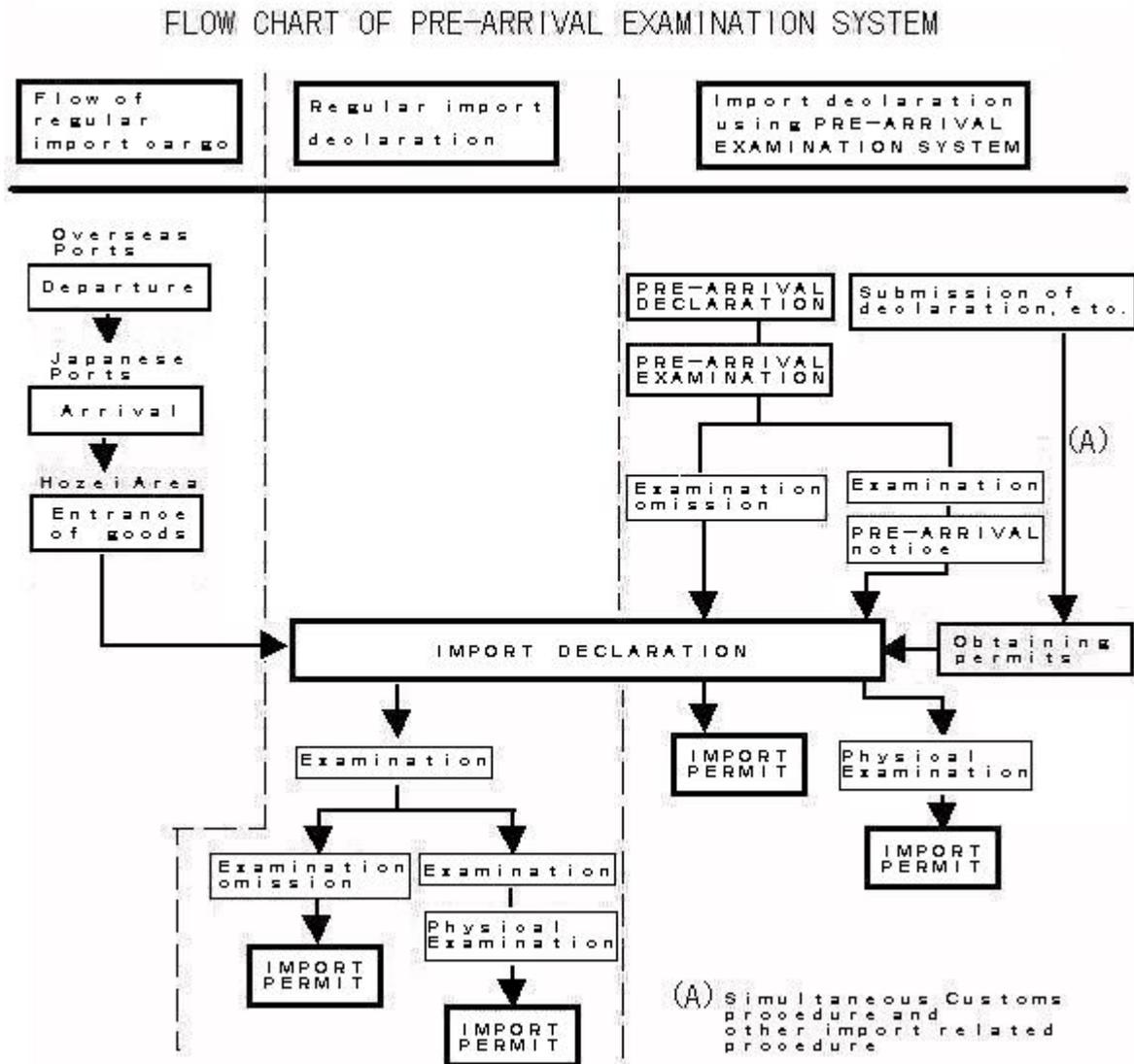
Japanese governmental controls that apply upon importation of tuna include tariffs²⁷ as well as health and safety regulations. As is the case for the importation of goods into Australia, an import declaration must be submitted in order to obtain import clearance of South Australian tuna in Japan.

Notably, in a report prepared on the impact of the IT revolution on cross-border movement of goods, the Japanese government explicitly stated that increased efficiency in the logistics supply chain meant that it was ever more incumbent upon customs authorities to ensure shorter cargo clearance times through, for example, computerised systems. Accordingly, the Nippon Automated Cargo Clearance System (NACCS), which was originally established in 1978, has been continuously expanded and further developed to facilitate speedy customs clearance by streamlining procedures and making the customs clearance process more user-friendly. It is a comprehensive electronic interface system, which establishes a single window system so that all necessary import, export or port-related procedures may be completed electronically, by a single communication through NACCS.

A pre-arrival examination system that has been established by the Japanese government may dispense with the need for inspection of goods by customs authorities when the goods actually reach Japan.

²⁷ These were reduced from 5% to 3.5% during the Uruguay Round of WTO trade negotiations.

Figure 8. Pre-arrival Examination System in Japan²⁸



Further, in cases where the quality of the imported product is assured, this may dispense with the need for any inspection or examination. In fact, with the cooperation of the South Australian Department of Primary Industries and Resources, the tuna industry has imposed upon itself certain quality controls, which have obviated the need for testing for dioxin and mercury residues by Japanese quarantine officials. This has translated into cost savings for tuna producers and has served to further enhance the reputation of South Australian tuna in Japan.

General Observations

It is evident from the foregoing that the logistics supply chain for the export of tuna from South Australia to Japan is complex, involving a number of different players and transactions. The South Australian tuna producers have, in general, successfully navigated this complex maze through a profound understanding of the market environment and regulatory requirements regarding the supply of tuna in Japan. They have been so intent

²⁸ Source: http://www.customs.go.jp/asem/partners_db/preflow.htm.

upon preserving the positive image of South Australian tuna in Japan that they have imposed upon themselves certain quality standards that are not demanded by law. These self-imposed standards reduce the risk that the product will be blocked for health and safety reasons in Australia prior to export as well in Japan following importation. In addition, the success of the South Australian tuna producers can be linked to the effective efforts they have made to establish and manage relationships between all the relevant players in the supply chain, all with a view to ensuring customers' expectations are met and that the price payable for their tuna is the highest possible. Their success is evident from export statistics, which indicate a marked increase in exports of tuna to Japan over time. In particular, in the year 2000, tuna exports were worth \$214 million, 18 per cent more than the previous year and 196 per cent more than in 1997.

Such export success on the part of South Australian tuna producers is attributable not just to the tuna producers themselves. It is also attributable to initiatives taken by suppliers in the logistics supply chain to improve customer satisfaction as well as by government bodies in Australia at the state and federal levels (and of course by the Japanese Government in terms of speedier, more efficient custom clearance of tuna imports). In Australia, air, sea and land freight councils have been established to address issues such as process and control issues concerning the logistics supply chain, public policy as it concerns the supply of logistics services as well as cultural change. These councils have been useful fora in which to identify, discuss and address issues that have hindered the supply of seamless, integrated logistics services in the past.

Moreover, the domestic reform measures adopted to liberalise the market for the supply of logistics services in Australia appear to have played a role in the South Australian tuna producers' success. Liberalisation measures in the air sector has increased air freight capacity and, consequently, has made air freight of chilled tuna to Japan more economically viable. There has been a marked increase in the use of air freight for the export of southern blue fin tuna from South Australia. Exportation of southern blue fin tuna by air freight increased from around 100 tonnes in 2001/2002 to around 3000 tonnes in 2004/2005.²⁹ Exportation of southern blue-fin tuna from South Australia to Japan by sea freight has also seen a marked increase, rising from close to 400 tonnes in 1997/1998 to around 5000 tonnes in 2004/2005.³⁰ Heightened competition in the road freight sector has contributed to the development of specialist service providers with trucks that are fitted with equipment to maximise the degree of insulation, to ensure temperature control during transit and to minimise the time spent unloading the tuna cargo from truck to airplane or ship.

Significantly, the tuna industry considers that the involvement of the ACS and AQIS in the export of tuna from Australia to Japan has served to enhance its comparative advantage rather than to hinder trade. Minimal documentary requirements coupled with rigorous quality standards have helped to support the reputation of South Australian tuna abroad without imposing unduly onerous obligations on exporters. Furthermore, computerised single windows in both Australia and Japan for the processing of export and import requests respectively, have minimised trade barriers.

On the negative side, intense competition in the Australian logistics market has, on occasion, led freight forwarders, desperate for business in a market of declining margins, to accept delivery contracts for the export of tuna to Japan, despite their lack of experience with

²⁹ Source: ABS/Maritrade

³⁰ Source: ABS/Maritrade

tuna. This lack of experience could mean that the conditions needed to ensure the delivery of a high quality product in Japan are not maintained, which could put the sale of the tuna producers' product in Japan at risk. Accreditation systems for freight forwarders for quality control purposes of a kind similar to those in place in Europe would minimise such risks.³¹ Additionally, the practical limitations associated with utilisation of the cold facility at Adelaide Airport discussed above, which have led to certain inefficiencies in the logistics supply chain, highlight the need to ensure that infrastructure matches the needs of participants in and users of the logistics supply chain. Industry consultation is essential to ensure that the development of infrastructure takes into consideration all the relevant interests at stake.

Implications for Developing Countries and Policy Makers

The Importance of Efficient Logistics for Economic Growth

The cost of logistics services typically amounts to between 12-17% GDP. Estimates indicate that total logistics costs may reach 20 per cent of total production costs in developed countries and, for certain landlocked developing countries, freight costs alone could represent up to 40 per cent of export values.

Efficient logistics supply chains may enhance international competitiveness whereas inefficiencies may undermine a country's comparative advantage. The sources of inefficiencies in the logistics supply chain may stem from a mix of action or inaction on the part of governmental authorities as well as private players involved in the supply of logistics services. More specifically, such inefficiencies may be the product of procedural red tape, inadequate infrastructure that may result in delays, or overly intense competition which may deter suppliers of logistics services from working together to provide a seamless, integrated supply chain. On the basis of the Australian experience, it would appear that addressing such inefficiencies in a consistent and coherent fashion will yield productivity and competitiveness gains for developed and developing countries alike.

Acknowledging the Relationship between the Supply of Logistics Services and Trade Facilitation

This study has illustrated that there is a clear relationship between logistics services and trade facilitation. Specifically, governmental measures that hinder the efficient supply of logistics services may, by extension, impede trade in goods. Any benefits that might accrue through the liberalisation of logistics services to enhance efficiency and thereby expedite the export or import of products could well be undermined by governmental export and import controls that unduly delay delivery of such products to their destination. Conversely, however, measures or conditions that facilitate and/or promote trade may promote greater demand for logistic services. The example of the export of tuna from South Australia to Japan highlighted the fact that minimal and, at best, actively positive governmental intervention may improve an industry's competitive standing in an export market. This may

³¹ The International Air Cargo Association states that freight forwarders should only be able to provide services if they are properly trained and certified. It further states that national associations should create standardized training and certification requirements for forwarders, and the government should endorse them. The Association notes that, for example, in Germany, Austria, and Switzerland, accreditation may be obtained following a three-year apprenticeship and business administration program, followed by an examination. While these training programs are not mandated by government, they are nevertheless encouraged. Furthermore, Switzerland's Federal Office for Professional Education and Technology grants diplomas in International Freight Forwarding and Logistics: <http://www.tiaca.org/articles/2006/06/26/DE79CF63C2FB4D4390714753009FBCD8.asp>.

result in an increase in trade of that industry's product, which will entail the consumption of more logistics services.

Given the close interrelationship between logistics and trade facilitation, it is important that the liberalisation of the logistics supply chain and more general efforts by governments to facilitate trade are undertaken on a complementary basis. An initial step of recognising and acknowledging the role logistics may play in fostering international trade is essential. Such recognition and acknowledgement will help to ensure that, to the extent possible, governments establish the appropriate physical and regulatory framework to maximise the efficiency of the logistics supply chain. Ideally, the framework should ensure the adequacy of and reasonable access to relevant infrastructure; cohesion at inter-modal transfer points (e.g. road/rail, road/rail/ports) in transport networks; and a level of competition in the various segments of the logistics supply chain that promotes innovation and specialisation without undermining the ultimate objective of ensuring a seamless, integrated supply chain. Such a framework will not necessarily compromise governments' ability to ensure trade that is safe, secure and sustainable. Obviously, measures to facilitate trade must be subject to controls to safeguard these concerns. However, these controls should be the least trade-disruptive possible. In this regard, it is essential that the measures adopted to establish such a framework are undertaken in a balanced, prudent fashion, bearing in mind all the interests and issues at stake.

The Need to Consult all relevant Stakeholders

Logistics services involve a multitude of different institutions and concern a broad range of sectors. The various stakeholders affected by the supply of logistics services include relevant government ministries and regulatory bodies, multinational or national suppliers of logistics services, and exporters and importers dependent upon logistics services. The concerns and interests of these stakeholders are varied but, at least to some extent, interdependent. Therefore, it is essential that all stakeholders be consulted during the establishment of the framework for the supply of logistics services to ensure that synergies are realised.

Effective dialogue between the public and private sector players will help to secure coherence between private and public sector initiatives. Such dialogue may also result in public/private partnerships, which will facilitate the regulatory reform process. With respect to the prospect of foreign competition as a result of market access commitments made in the logistics area, consultation with the private sector will assist in mobilising political support from key players for such commitments. Cooperation between private sector players in this process will not necessarily preclude competition between them. Rather, relationship-building between these stakeholders may yield benefits for individual firms as well as for the industry as whole.

Issues concerning the Establishment of the Regulatory Framework

This study has referred to a number of tools that might be useful in liberalising the logistics sector. Commitments to provide market access to foreign suppliers of logistics services, corporatisation or privatisation of government utilities owning and/or operating the infrastructure upon which the supply of logistics services is dependent and the application of competition law to the market for the supply of logistics services are but a few of the available tools.

The study has also highlighted the importance of balancing competitive liberalisation in logistics services with sustainable industry practice and quality control systems. The existence of unbridled competition, as was the case with freight forwarders, may lead to increased risk for traders. Prudent regulation can contribute to the quality, safety and reliability of the exported product while simultaneously abiding by the principle of minimising trade-distorting barriers.

Regarding the question of whether a particular type of infrastructure upon which the supply of logistics services is dependent should be retained in public control or should be privatised, this is a complex issue for policy makers to grapple with. The benefits of privatisation may include enhanced efficiency, enhanced competition and less government interference but could be outweighed by the threat to the public interest that might be posed by private ownership. In weighing up the benefits and the disadvantages, it is necessary to identify the objective of ownership of the infrastructure in question and ensure that the incentives that will exist for a private, public or even corporatised owner of the asset ensure that that objective is achieved.

Consultation of the various stakeholders affected by the supply of logistics services will assist the national government to identify the nature of and priorities for regulatory reform. The establishment of a framework for the efficient supply of logistic services may involve a clear sequence of discrete steps to be taken, but it may also indicate that certain steps should ideally be undertaken in tandem. Ultimately, the prioritisation of steps in the regulatory reform process and the sequencing of those steps will depend upon the domestic regulatory environment and the dynamics in the local market for the supply of logistics services.

The resistance governments may face domestically to efforts to reform the supply of logistics services may be addressed through regional or multilateral fora. Initiatives taken at the regional and/or multilateral level will help to maximise and multiply the benefits of logistics liberalisation. More specifically, such initiatives will advantage traders not only in the export market but also in the import market.

Conclusions and Research Implications

Developed and developing countries have much to gain from the liberalisation of logistics services. The benefits that may accrue to suppliers of logistics services, exporters and importers that are dependent upon such services and nations as a whole are clear. Logistics liberalisation facilitates international trade, which in turn drives economic growth and development. Trade facilitation measures that promote trade (including but not limited to more efficient, well-coordinated border control mechanisms), may also consequently promote greater demand for logistic services, thereby generating a virtuous cycle.

This study has highlighted that a balanced regulatory framework to achieve liberalisation of logistics services while at the same time maintaining the requisite degree of control at national borders to protect against security, safety and health threats will lay the foundation for such a virtuous cycle. Consultation with all the relevant stakeholders – governmental bodies, suppliers of logistics services, and exporters and importers dependent upon logistics services – will help to realise the known benefits of logistics liberalisation.

The interplay between, on the one hand, liberalisation of logistical services, and, on the other hand, trade facilitation is equally clear and should be borne in mind in the context of WTO negotiations on services and trade facilitation, when they are pursued in the future. At

a minimum, negotiators in both contexts should explicitly recognise the potential for mutual reinforcement of liberalisation of the logistics sector on the one hand and trade facilitation on the other.

A final comment on the value of further research in the area of logistics services and trade facilitation. It would be useful for further research to focus on the role of governments in developing countries in determining the appropriate balance between prudential regulation and progressive liberalisation of logistic services. For example, case-studies might be drawn from countries such as Singapore or Malaysia examining the nature of successful regulatory measures in specific segments of the logistics supply chain that have been trade-enhancing.

Identification of the variety of policy tools that have been successful in achieving progressive liberalisation and sequencing of logistics services would also add value. Deregulation, privatisation and competition policy are among domestic reform policies that, if implemented appropriately, may lead to greater realisation of efficiencies in the logistics services supply chain.

Given the relevant implications of government reforms affecting the logistics services industry and trade facilitation derived from the above analysis of the seafood industry in Australia, there would be significant lessons to be drawn from a cost - benefit analysis of the advantages (or potential advantages) of logistic services liberalisation in a developing country in the region. It would be interesting, for example, for such an analysis to focus on the clothing and textile industry in China or in a least developed country such as Cambodia.

The vital nature of government – private sector consultation and cooperation on logistics services and trade facilitation policy reform has been manifest throughout this study. Specific research and analysis as to how various governments, developed and developing, have undertaken such consultation and cooperation in specific segments of the logistics supply chain would also be instructive in determining future policy-making approaches.

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