Aviation Infrastructure and Regional Economic Development: Understanding the Importance of Integration in Regional Airfreight Networks

by

Tarryn Kille¹, Paul Bates², and Patrick S. Murray³ Aerospace Strategic Study Centre, Griffith University, Queensland, Australia E-mail: t.kille@griffith.edu.au¹, p.bates@griffith.edu.au², patrick.murray@griffith.edu.au³

IJMBE International Journal of Management, Business, and Economics

Aviation Infrastructure and Regional Economic Development: Understanding the Importance of Integration in Regional Airfreight Networks

by

Tarryn Kille¹, Paul Bates², and Patrick S. Murray³ Aerospace Strategic Study Centre, Griffith University, Queensland, Australia E-mail: t.kille@griffith.edu.au¹, p.bates@griffith.edu.au², patrick.murray@griffith.edu.au³

Abstract

The purpose of this article is to investigate the infrastructure challenges for regional communities with regards to the provision of regional airfreight services. Through a critical discourse analysis, the findings assist in realising the latent meanings that have the effect of shaping policy, impacting on the regional airfreight sector. Four major themes provide empirical evidence to substantially address issues of infrastructure with regards to airfreight services including: business decision-making; cost of business; governmental advice; and the limits of integration in various levels of government decision-making processes. The results presented in this research provide a framework to assist in clarifying the issues associated with regional airfreight provision. There is a notable gap in academic literature that focuses on the role of regional aviation in the logistics industry. To the best of our knowledge, no paper has yet sought to investigate the discourse that impacts on this sector. It is hoped that the outcomes of this research will support the industry and policy makers in future efforts towards the economic development of regional communities, and the progression of the regional aviation sector.

Keywords: Airfreight, Logistics, Regional Communities

1. Introduction

Over the past two decades, the air cargo industry has demonstrated significant growth (Yuan, Low, & Ching Tang, 2010). Although world air cargo traffic stagnated in from mid-2011 to 2013 (Boeing, 2014), the growth returned in 2014 accounting for approximately 35% of global merchandise trade by value (International Air Transport Association, 2008, 2014, 2015). Air cargo has the effect of facilitating trade whilst contributing to global economic development and creating millions of jobs.

One of reasons to explain this dramatic growth in airfreight is an apparent industry trend towards the production of high value, lightweight goods (Ari-Pekka & Hintsa, 2009). This includes the new economy associated with the transport of fresh, perishable, high value produce (Sim, Barry, Clift, & Cowell, 2007). Statistics support this emerging economy highlight that transport of perishable food accounts for 14% by volume of total global airfreight (Bridger, 2008).

Increases in the perishable airfreight task are linked to the emergence of a social focus on the consumption of foods produced from regions known for 'clean' production processes. This new

social focus has called for research, which investigates the food chain in an effort to understand rural development patterns (Renting, Marsden, & Banks, 2003). Thus, sea, road, rail and air transport of freight in the food production cycle from the farm to the plate of the consumer has come under scrutiny (Saunders & Hayes, 2007). The scrutiny has been applied in the pursuit of clarity surrounding the cost of transport to the environment, society and communities.

It is regional communities that provide the first step of the food production cycle. For many regional communities, access to airfreight networks means an opportunity to penetrate and participate in markets that cannot be equally serviced by other modes of transport. The requirements for freight services are even more pronounced for sea locked communities, such as the island state of Tasmania. In the decline of traditional resource dependent and forestry product industries (West, 2013), the Government of Tasmania (2013), now anticipates that Tasmania's agricultural industry will support Tasmania through it's economic transition.

For perishable agri-producers, access to market means access to appropriate freight services with the ability to transport products efficiently and effectively from the farm to the consumer plate. Thus, regional aviation (or air transport in rural and remote regions) is an important factor in the development of regional communities (Kille, Bates, & Murray, 2013).

The discord from the community relating to Tasmania's freight access indicates that we are yet to understand the needs of regional communities in this regard. For island states, in particular, access to airfreight services and associated infrastructure is directly related to regional economic development (Ward, 1998). As such in 2013, the federal government sought to investigate Tasmania's shipping and freight services. This investigation was conducted by Australia's Productivity Commission, who called for papers from the public regarding the matter of freight access to the island state of Tasmania.

This paper builds on our earlier work (Kille, Bates, & Murray, 2014), in an effort to further understand the condition of regional aviation and its importance to economic development of regional communities. Essentially, the paper investigates the discourse, which articulates the needs of regional communities regarding airfreight infrastructure and service reliability. It is hoped that the research will assist policy makers, regional communities, logistics and aviation industry representatives as they aim to overcome the limitations that hinder the development of regional airfreight networks in Australia.

2. Research Methodology

A systematic literature review published by Kille et al. (2014) highlighted the significant challenges facing the regional air freight sector in Australia. In particular, two aspects associated with the challenge of infrastructure were identified. Firstly, the review revealed the requirement for private investment, technology and innovation in the areas of growing and processing (at the producer level) and in the area of air transport access to regional communities. Secondly, the review revealed the need for tangential facilities which aim to enhance overall service quality, and reliability of freight services. The systematic literature review emphasised the need for further empirical evidence to support the needs of regional communities with respect to airfreight infrastructure (Kille et al., 2014)

A pragmatic investigation might suggest that research in the areas of regional aviation, the airfreight industry and the needs of regional communities is insubstantial. However, what means would the pragmatist use to come to this conclusion? What evidence is needed to understand and

support the issues and concerns of regional communities? This study intends to build on the earlier systematic literature review in an attempt to answer these epistemological questions. In the greater epistemological scheme, this study forms part of a mixed methodological research approach, underpinned by the principle of triangulation (Bryman, 2006). This approach aims to reduce vulnerability of research outcomes by employing more than one measurement procedure to investigate the research problem.

This research extends on this work (Kille et al., 2014) by further investigating the state of regional aviation. Ultimately, the paper aims to provide empirical evidence through a discourse analysis, which articulates the requirements of regional communities with regards to airfreight infrastructure and service reliability.

The study examines data from submissions to the Productivity Commission's Inquiry into Tasmania's Shipping Costs and Freight Competitiveness. The submissions are investigated through quantitative and qualitative analysis, with a combination of content and critical discourse analysis (Jick, 1983). Two research questions formed the basis of this study including: (1) What features of airfreight services do regional communities require?; and (2) What is the significance of multi-mode freight transport services to regional communities?

Firstly, the content analysis allowed issues of quality to be treated quantitatively. It is a systematic method in social sciences by which apparent and latent contexts of written or spoken text are identified (Babbie, 1983; Krippendorff, 1980; Rosengren, 1981). In it's simplest form, the content analysis involves the determination of units of analysis and counting the frequency of these particular words within the semantic contexts. The units are then constructed into categories, which offer another level of analysis, where a framework of coding can be used. Conceptual or operational codes, such as: 'integrated multi-modal freight transport'; and 'airfreight access', allows researchers to uncover the latent meaning from the apparent content. The techniques of counting, categorising as well as coding were used in this study.

The following coding manual was initially used to assist in categorising content into areas of interest relating to the key research questions.

Concept	Category		
Airfreight access	Supply chain-focus on		
	perishable, agri-produce		
	Just-in-time (JIT)		
	Low weight, high value		
	Service reliability for		
	business continuity		
Integrated multi-modal	Freight connectivity		
freight transport	Logistics processes		
	Multi-mode integration		
	planning		

Table 1 Categories defined as a result of the content analysis and earlier systematic literature review

The content analysis provided the cornerstone for the development of a framework of categories in which further critical discourse analysis can be applied. The critical discourse analysis offers a method of dealing with hidden issues of text quality, such as ideology and symbolic

meaning. Discourse is defined as the recurrent statements, wording and themes across texts, which represent perspectives and orientations to the world (Petrina, 1998). Discourse analysis is a method of analysing text where 'text' denotes the spoken or written word, a picture or image, narrative or media. Text is the synthetic representation of the world (Ettinger & Maitland-Gholson, 1990; Janks, 1997; Lindkvist, 1981; Luke, 1995).

Discourse analysis also provides researchers with a method of linking text to structural relations and formations of power (Petrina, 1998). The questions that fortify critical discourse analysis include: "How is the text positioned or positioning? Whose interests are served by this positioning? Whose interests are negated? What are the consequences of this positioning?" (Janks, 1997, p. 329). As a method, critical discourse analysis draws on hermeneutics, linguistics, semiotics, and more generally from critical and post-structuralist theory.

At one level, this method of analysis includes a critical reading of the way in which texts are constructed. However, on another level, it involves a critical reading which considers how the text and the context are culturally located and interests are identified. Ultimately, critical discourse analysis offers a mechanism for drawing links between texts and demonstrating the political and powerful nature of seemingly unremarkable statements.

In this study, discourse analysis was used on its macro-analytical level to substantively address issues of infrastructure with regards to airfreight services. Discourses of regional communities, business economics, and airfreight access were analysed with regards to marginalized and minority discourses. These discourses were read against the codes of the content analysis. As discourses mirror content, they provided a second level of data for coding the submissions. It is here that manifest content is carried as empirical evidence of latent meaning (Petrina, 1998). The following table provides the framework by which the content and discourse analysis were conducted.

Concept	Discourse framework -	Emergent features	
p-	Features to be considered	(Inductively)	
	(deductively)		
Private investment	Infrastructure	What features of airfreight	
	Integrated multi-modal freight	services do regional	
	transport	communities require?	
	Business continuity and		
	economic development		
Tangential facilities	Infrastructure	What is the significance of	
which aim to	Integrated multi-modal freight	multi-mode freight	
enhance service	transport	transport services to	
quality and	Business continuity and	regional communities?	
reliability in	economic development		
airfreight services			

Table 2 Framework for discourse analysis

The authors' own biases in defining units of analysis and coding of discourses for interpretation reflect knowledge, personal experiences and concerns with a variety of environmental factors impacting the regional aviation sector. However, objectivity and rigour are maintained by strict adherence to the qualitative research method suggested by Glaser and Strauss (1967). Essentially, this technique provided a methodical review of the submissions with input from all

authors. This allowed fresh perspectives and new insights to the data being analysed, which offered an evolution in the meaning and validation of the results (Corbin & Strauss, 2008).

3. Results

demonstrates the level of concern in the Tasmanian Freight and Shipping Inquiry submissions relating to airfreight access and integrated multi modal freight transport. In some cases, where concerns overlapped more than one category, for example 'multi-mode integration planning' and 'just-in-time', the submissions were coded and counted for both issues. Of the 61 submissions received, the topic of 'multi-model integration planning' was raised 25 times.



Figure 1 Concern about airfreight access and integrated multi-modal freight transport

The greatest source of submissions was the business sector, which provided 27 or 44.3% of the total. These submissions came from primary producers, manufacturers, airports, shipping companies and freight forwarders. As shown in Table 3, most of the remaining submissions came from Business and/or Industry Associations, accounting for 31.1% of the submissions. Governments, mostly local government, and federal governments were responsible for 11.4% of the submissions.

Participant Type	Number of Submissions	% Total Submissions
Business	27	44.3
Business/ Industry Association	19	31.1
Individuals	7	11.5
Political party groupings	1	1.6
Federal Government	3	4.9
State Government	1	1.6
Local Government	3	4.9
Total	61	100

Table	3	Sources	of	Sul	mis	sions
1 ant	0	Sources	01	Suc	mino	510115

Table **4** shows the most frequently mentioned airfreight infrastructure related issues in the submission. Multi-mode integration planning topped the list with 25 mentions and ranked equally high by all three of the major participant types including Business Submissions, Business/Industry Associations and Government submissions. Freight connectivity and Supply Chain, (with a focus on perishable, agri-produce), were the next most frequently mentioned issues for both Businesses and Business/Industry Associations. Government submissions also ranked Freight Connectivity as an important issue on equal terms to logistics processes.

Rank, by Frequency	All Submissions (no.)	Business Submissions	Business/ Industry Associations Submissions	Government Submissions
1	Multi-mode integration planning (25)	Multi-mode integration planning	Multi-mode integration planning	Multi-mode integration planning/Service reliability for business continuity
2	Freight Connectivity (14)	Freight Connectivity /Supply chain - focus on perishable, agri- produce	Freight Connectivity/Supply chain - focus on perishable, agri- produce/Logistics processes	Freight Connectivity /Logistics processes
3	Supply chain - focus on perishable, agri- produce (12)	Just-in-time /Service reliability for business continuity	low weight, high value/Service reliability for business continuity	Supply chain - focus on perishable, agri- produce/Just-in-time
4	Logistics processes (11) / Service reliability for business continuity (11)	low weight, high value	Just-in-time	low weight/high value
5	Just-in-time (8) / Low weight, high value (8)	Logistics processes		

Table 4 Most Frequently Mentioned Airfreight Infrastructure related Issues

In the following section, the theoretical framework is applied. The first step is to examine the ideas the concept of private investment is based on including a consideration of infrastructure, integrated multi-modal freight transport and business continuity and economic development. Next, the same framework is applied to the concept of tangential facilities, which aim to enhance service quality and reliability in airfreight services. This is then followed by a critical analysis of the discourse and the outcomes this research presents with relation to the research questions.

Requirement for private investment

The requirement for investment in infrastructure is highlighted in the discursive content of many of the submissions. While the Productivity Commission's Inquiry sought to cover the merits and weakness of current arrangements for supporting freight and passenger services between the mainland and Tasmania, the submissions appeared to focus on the economic environment in which the regional community operates. The two most important aspects of the economic environment appeared to be associated with access to international markets and government incentives to attract foreign investment. These aspects are discussed within the framework of infrastructure, integrated multi-modal freight transport, and business continuity and economic development.

Infrastructure

Submissions to the inquiry highlighted that the direct impact of freight costs on the King Island economy is largely double the rest of the state of Tasmania. The King Island Shipping Group (2013) argues that this attributed to the restrictions of island infrastructure and limitations to access competition in service providers. The freight infrastructure challenges are further supported by the Tasmanian State Government (2013) who claims that "Tasmania's fundamental transport disadvantage stems from its regional location and its distance from markets, combined with its lack of alternative modal options for freight compared to mainland Australia. The later is the key reason why Tasmania is considered a 'special case' in terms of receiving Commonwealth assistance to reduce freight cost disadvantage." (p. 3). Some argue that the free market has not yet encouraged appropriate private investment in freight infrastructure for the State. The TT Line Company Pty Ltd (2013) discusses the need for replacement or additional capacity to be added because a third of the Bass Strait shipping fleet is more than 20 years old. As such, the discourse focuses on the fact that the private sector has so far failed to invest in necessary replacement tonnage. This has the effect of leaving the State highly vulnerable to prolonged access issues due to the time it takes to build and/or procure replacement vessels. These factors place increased pressure on shipping rates and negatively impact Tasmania as a State and its business. Views on freight infrastructure also expands to include discussion on the lack of incentive applied to airport infrastructure, with Launceston Airport (2013) highlighting that while airfreight may offer a solution to meet the competition and alternative freight services required by the region, there is potential for private investment in freight related airport infrastructure. However, investment has stagnated due to the lack of government support provided to the airfreight sector.

Integrated multi-modal freight transport

The majority of the views in this area related to the need for a planning strategy that included all modes of freight transport. For example, one business stated: "There is not much point in having a focus on roads, if you still cannot get the goods out of the ports, or the industry shuts down as there is no competitive freight access" (Corporate Financial Consulting, 2013, p. 5). Fundamentally, the views of the majority of participants explicitly highlight the importance of all modes of transport in fostering Australia's ability to compete in the international arena. "Efficient ports are key to long term freight planning in the State" (Burnie Chamber of Commerce, 2013, p. 4). This is supported by (Regional Development Australia - Tasmania, 2014) who comment that "to maintain industry competitiveness the state's export infrastructure is required to be reliable, retain capacity for growth, have frequent shipping services, and maintain efficient port and intermodal infrastructure" (p. 31). The businesses and business/industry associations appreciate that infrastructure investment needs to

come from private funding. "It will be the innovation in the packaging of assets, the regulatory conditions attached and the method used in offering the package to private investors that will be the key factors in attracting private sector investment" (Maritime Union of Australia, 2013, p. 5). However, these views are followed with notations that the private sector has not been able to deliver in these areas. While freight infrastructure, maintenance and replacement are high areas of concern, the shipping industry and users of sea freight emphasise that the private sector has not been able to provide relief to the capacity constraints, and that government policy in the form of 'cabotage' restricts further private investment in sea freight services. An alternative to support the competition appears to come in the form of airfreight capacity. Businesses (i.e., airport and consulting firms) have argued that airfreight has the potential to provide for the growing demand in fresh, time sensitive agri-produce. For this reason, private investment in freight infrastructure facilities at both Launceston and Hobart had been initiated. However, Launceston Airport (2013) comments that "artificial barriers [in the form of sea freight subsidy disadvantage] are preventing private investors from investing and stimulating the Tasmanian economy...greater competition in Tasmania's freight industry has the ability to drive investment and productivity within the sector and enhance the state's economic performance" (p. 2).

Business continuity and economic development

A number of the submissions express concern that when considering Tasmanian freight services, there is an "inherent lack of competition in the market place. There are only two commercial shippers who compete on the Bass Strait route with limited influence from Tasmanian government operated TT-Line" (Regional Development Australia - Tasmania, 2014, p. 1). This lack of competition, or lack of viable options is mentioned by industry groups from the smaller islands such as the King Island Shipping Group (2013) who note that King Island Port is not designed to be an all-weather port. Increased south-westerly swells leads to missed port calls into the harbour. Any 'no boat' situation has significant cost impacts to businesses on the island requiring extensive use of airfreight to achieve the freight movement demand. However, Flinders Council (2013) confirms that with regards to business continuity and the economic development of the community, sea and air access are "arguably the most critical factors to ensuring the sustainability of the region" (p. 2). Under this aspect of the framework, the issue of private investment is discussed by local governments under the lack of inclusion of airfreight in current subsidy schemes. Northern Tasmania Development (2013) asserts "the current exclusion of airfreight from the TFES does little to encourage on-island value adding or employment growth in niche product development for remote communities like Flinders Island. Policy measures suggested by the Productivity commission need to focus on enhancing economic inclusion and encouraging investment in value-adding of primary [produce] within regional areas like Flinders Island" (p. 5).

Tangential facilities, which aim to enhance service quality and reliability in airfreight services Infrastructure

Many participants mention the issue of service quality and reliability. Throughout the 61 submissions reviewed, the word 'reliability' with respect to freight services is counted 32 times. The concern for infrastructure in this aspect of the framework is discussed within the context of the removal of the international shipping services at Bell Bay. The majority of businesses utilizing the international service from Bell Bay were affected by the removal of the international shipper claiming that the rural sector can only survive and grow with "a regular reliable international shipper from a centralized port such as Bell Bay who's infrastructure is set up but under utilized" (View Banks Pty Ltd, 2013, p. 1).

Yet, Launceston Airport (2013) argues that the airfreight sector may be able to provide the much needed international access. "Airfreight plays an important role transporting goods, particularly time sensitive and perishable produce, to international markets." (p. 2). Additionally, Hobart Airport (2013) claims "direct airfreight from Tasmania provides alternate port options such as Sydney and Brisbane Airports that may provide improved capacity to international markets" (p. 2). The airport submissions confirm that there is already significant freight infrastructure in the form of dedicated airfreight tarmac capacity, freight storage and the potential for freight forwarding facilities which may assist in enticing further infrastructure investment and hence assist in improving service quality and reliability.

The producers of perishable, fresh food items explain that reliability in freight services is related to infrastructure to support the processing, packaging and transporting of high value goods. "Once harvest starts the supply chain must keep moving or the system will hemorrhage. A frequent, reliable and cost effective refrigerated transport service is absolutely fundamental to the business's supply chain and therefore viability" (Harvest Moon, 2013, p. 2).

Integrated multi-modal freight transport

The concept of reliability is discussed in the multi-modal freight transport aspect of the framework. Predominantly, the views relate to the capacity limits already experienced by TT-Line, (considered by Corporate Financial Consulting (2013) to be the most reliable freight service provider for perishable produce), and the lack of integrated multi-modal strategy. One of the businesses claim that "it would be in the interest of the Tasmanian Government to aggregate both companies [Tasrail and the TT line], develop a port link policy where freight is directed to the appropriate port, this is not being left to market forces, so as to ensure, full use of the railway and port logistics capacity, and thus generate a market competitive outcome. TT-Line admits that it is at capacity with the truck trailer borne fresh freight yet the Tasmanian Government has been expending hundreds of millions on the irrigation food bowl projects with little thought as to how the product would get to market". While the capacity constraints for the export of fresh produce appears to be of concern to a number of businesses, it is of great concern to a range of participant types that integration of the various modes needs to be part of a planning strategy that seeks to offer reliability and service requirements needed from the producers of perishable produce.

Business continuity and economic development

The Department of Infrastructure and Regional Development (2013) accepts the value of airfreight services claiming that "airfreight presents a range of economic and efficiency advantages over freight by sea, including speed of transport and the ability to service geographical areas without seaport facilities" (p. 15). Many submissions highlight the integral part that freight access plays in the ability of regional communities to compete with mainland and international markets. Some have cited experiences where in the absence of government assistance, individual companies have commenced mainland market penetration by absorbing the significant costs associated with airfreight. However, as the product has been well received by mainland markets, more frequent airfreight services are required. Government assistance is called for which serves regional communities, such as these, in accessing sustainable business opportunities and actively growing identified priority sectors.

4. Discussion

Two questions defined this part of our mixed methodology research approach. In particular, this discourse analysis aimed to uncover: (1) What features of airfreight services do regional communities require?; and (2) What is the significance of multi-mode freight transport services to regional communities? The following section provides the critical analysis of the discourse and the outcomes that this research presents with respect to those research questions. What features of airfreight services do regional communities require? Two themes in the discourse have emerged which illuminate the needs of regional communities with respect to airfreight services: (1) Business decision-making; and (2) the cost of doing business in a sea locked community.

Business decision-making

The local government and airport submissions appeared to emphasize the community need for airfreight services. However, a number of business submissions did not even consider air-freight as an alterative or an option worthy of mention. While many of these companies are producers and manufacturers of high weight, low value goods, a number of the companies import a range of products to be used in the manufacturing of products on the island. These products are often imported in less than container load (LCL) or pallet sized freight, which could certainly be accommodated for with the current airfreight services offered. Yet, the businesses appear to choose sea freight and consider this the only alternative.

Some authors of decision making and supply chain studies specifically chose to exclude airfreight as a mode of choice due to complexity, lack of use, or the assumption that this mode is only used on very rare occasions (Coley, Howard, & Winter, 2011; Ortmann, van Vuuren, & van Dyk, 2006). However, from the perspective of the grower harvesting high value, perishable produce, Akkerman, Farahani, and Grunow (2010) and Ahumada and Villalobos (2011) highlight a paradigm shift in decision behaviour. At the farm gate, decisions of transport logistics are not based on cost alone, but on reliability, network services and certainty that produce will be delivered to the consumer maintaining high quality standards (demanded by the high paying consumer) (Batt & Morooka, 2003).

The discursive content of the submissions reviewed in this study highlight the levels of concern regarding business decision making and assist in explaining why airfreight has not been considered by all as a viable alternative. Certainly, the study reveals that the businesses producing high value, perishable produce are aware of the airfreight opportunities. However, many of these comments follow a requirement for integrated freight forwarding facilities and networks with commitments to service reliability. That is, the product needs other modes of freight such as road networks at either side of the airfreight sector and the producer needs to be guaranteed that the product will maintain its quality and thus value throughout the multi-modal service.

The need for just-in-time services has been supported by a reliable sea freight schedule across the Bass Strait, which appears to adequately satisfy many of the participants. The access to integrated modes of freight service through companies such as Toll, appear to give businesses the confidence and reliability of a time sensitive delivery that is needed. The frequency and reliability of the sea freight service has been bolstered by government incentive in the form of the Tasmanian

Freight Equalisation Scheme

A number of the airport and local government submissions highlight a contradiction in the discourse arguing that while there is much potential for growth in the airfreight task, there are many opportunities for the airports and associated airport infrastructure to support this growth. However, the growth in the airfreight task is undermined by business decision making, which favours the freight service that includes rebates or government subsidies. These subsidies artificially distort the freight prices and show preference to sea freight rather than airfreight.

As such, while the sea freight offers a reliable service with government subsidy, business decision-making will continue to exclude airfreight as a viable alternative to sea freight. Since the implementation of the Tasmanian Freight Equalisation Scheme (TFES) in 1976, the Federal government has refused to include airfreight into such a subsidy scheme. However, the airports and local governments continue to hold the argument that airfreight (with associated subsidies) allows communities to enter markets previously unavailable and thus allow the community to develop their own strengths economically. This is particular for those in island communities where the cost of conducting business may be higher than for those on the mainland.

The cost of conducting business

Another significant thematic concern of discourse throughout the business and industry association's submissions was that of the cost of conducting business within a sea locked community such as Tasmania. Businesses importing products to assist in manufacturing processes contended that they experienced a disadvantage by the cost of that freight service import. Principally, arguments were supported by citations of the significant costs of sea freight between Melbourne and northern seaports of Tasmania. Additionally, businesses argued that the subsidies, in the form of the Tasmanian Freight Equalisation Scheme (TFES), added significant costs to international exports from the island community.

This was contrasted with the argument that the subsidy scheme favours those who freight products to the mainland and instead, add value or manufacture products there. It is these businesses that have access to the freight subsidy scheme. Many of the businesses argue that this places the Tasmanian economy at a disadvantage, encouraging manufacturers and processing facilities to recede from operations in Tasmania. Thus, the lack of consideration of these circumstances in government subsidy policy has the outcome of hindering business development in Tasmania as opposed to supporting it. For example one of the business submissions noted that: "...the TFES is not available to direct international exporters from [Tasmania]. Rather, the \$885 subsidy per 20' container is only available to exporters who process or re-pack and grade [Tasmanian] produce in Victoria. The subsidy is also available to competing businesses based in [Victoria] sourcing [Tasmanian] produce - Thus no level playing field for [Tasmanian] based company's shipping directly internationally" (Cutherbertson Bros. Pty. Ltd, 2013, p. 1).

The links between concepts associated with cost of doing business and business continuity were emphasized also in the discourse analysis as businesses and business/industry groups portrayed the entire costs of transports. Again, an issue of comparability with mainland counterparts, some listed examples of international export cost from Island communities to Asia, citing that the sector between King Island to Melbourne accounted for 70-80% of the total shipping cost (Kelp Industries. Pty. Ltd, 2013).

While the apparent issue appears to be the shipping costs, the latent issue emerges in the form of the community needs associated with consistent, reliable and international market access. The international market access is what allows the often-isolated communities, the opportunity to trade, to develop transitioning economies and explore previously untapped sources and business collaborations. Submissions from the local governments, businesses and airport groups confirm this within the notion of 'efficiency'. The question of 'efficiency' is amplified by the disparity between the percentage costs of the sea freight sector between Tasmanian and the mainland compared to the cost of a sea freight sector between the mainland and an Asian port (Corporate Financial Consulting, 2013).

Yet the discourse on Government subsidy links also to the infrastructure challenges facing the airfreight industry. Local government and business submissions recognize the ability that airfreight has to meet the consistency, reliability and access to international markets that regional communities appear to require. The economic reforms of the 1990's led to the privatization of a range of Australia's services and assets including regional airports. Now, many airports are left to their own vices, competing for similar markets, negotiating with the same airlines and developing airport-planning models that include the consideration of income streams from the potentially lucrative land surrounding and adjacent to the airport. In the isolation of integrated transport infrastructure planning, businesses have developed their own airfreight facilities and infrastructure through private investment (Launceston Airport, 2013).

The issue of the cost of doing business in Tasmania is pronounced in the effects of Government subsidy with a number of submissions citing that the lack of inclusion of airfreight into government subsidy policy hinders Tasmania's airports from attracting further investment to support the freight task and drive growth in the airfreight sector. It is perhaps the airfreight sector that can offer the capacity issues, encouraging competition and offering viable alternatives through dedicated freight forwarding facilities, dedicated freighter aircraft and international market access.

What is the significance of multi-mode freight transport services to regional communities?

The discourse reveals an apparent understanding that while airfreight services provide the potential to support transitioning economies, particularly those with a focus on the high value, low weight agricultural products, airfreight services need to exist within a multi-modal freight service system. As such, the discursive content emphasises the necessity for a long-term integrated freight strategy.

The submissions reveal that airfreight in Tasmania has limited influence in decision making of Tasmanian businesses as well as business/industry associations and government groups. However, the word 'airfreight' and it's derivatives which have an intended meaning associated with the 'transporting of goods by air', were noted 70 times throughout the 61 submissions that were reviewed in this study.

In the final report to the Inquiry, the Productivity Commission concludes that "Tasmania has a comparable level of competition for air freight and passenger services to regional areas on the mainland, with low cost carriers servicing Hobart and Launceston airports" (Productivity Commission, 2014, p. 9). The very nature of the inquiry into Tasmania's freight access and associated industry is perhaps part of a larger government political process linked to two key notions including: (a) the impact of governmental advice; and (b) the limits of integration in various levels of government decision making.

Governmental advice

This finding of the Productivity Commission regarding the comparability of Tasmania's airfreight service to other regional areas of Australia may be indicative of the response from a government body, which is considered a bastion of neo-liberal views on public policy (Freestone, 2011).

Although the Productivity Commission does not enact legislation, findings such as these inform and mould government policy (Australian Government). Neoliberal economics are anchored in a fundamental ideology allowing markets the freedom to develop the most effective and efficient services. This has been applied through a range of models in Australia's past including the 'macro-economic reform' and the 'economic rationalism' agendas which all premised the privatization of a range of sectors of the economy.

However, many of the submissions (particularly those from the more remote island communities in the Bass Strait), emphasise that air passenger transport and airfreight are a basic public service obligation where neoliberal ideologies associated with market demand cannot be realised.

Neoliberalism can occupy two 'spaces' including: ideological; and institutional (Brenner, 2004; Brenner & Theodore, 2002; Harvey, 2005). It is within these two 'spaces' that the predicament of regional airfreight is squeezed. For example, neoliberal ideologies were applied to a discrete space through airport deregulation in the 1990s through the new Airports Act 1996 (Steves, Baker, & Freestone, 2010). While regional airports in Australia were sold to private investors as well as local governments, this effectively transferred the ownership of state assets from the public to the private sector (Freestone, 2011). It is this transfer of ownership (in our context, airports and associated airfreight infrastructure), which amplifies the tension under neoliberal policies between communities (with potential for economic growth) and sources for "fissures in which urban resistance and social change can take root" (Boudreau, Keil, & Young, 2009, p. 22).

The tension comes down to implicit social needs of the regional community to air transport access (of which they believe the Federal Government is responsible), contradicting with the actual neoliberal process of transferring the ownership of such services (indirectly) to private investors. This is supported by the fact that in the reviews and adjustments concerning the equalization of transport and freight services across the Bass Strait since 2006, the Government, through advice from it's various Departments and Commissions has rejected the need for airfreight services to be part of a subsidy scheme (Department of Infrastructure and Regional Development, 2013). Recently however, the subsidy scheme has been extended to include airfreight where there is no viable alternative service and the vendor may incur penalties as a result of late delivery of the goods.

Individuals, businesses, and business/industry associations are aware of this and highlighted in the following quote from an individual representing a group of businesses: "The TFES was subject to a review by the Commission in 2006. On that occasion the Commission's recommendations reflected the usual Canberra bureaucratic view that a freight equalization subsidy to Tasmania is not warranted" (Barker, 2013, p. 3).

While the contradiction of neoliberal policies is seen in the case of regional communities, policy advice is not the only cause of airfreight's lack of consideration in business decision-making. Categories such as 'freight connectivity', 'logistics processes' and 'multi-mode integration planning'

are linked thematically to the emergence of a topic highlighting the lack of interaction and coordination between federal and State Governments.

The limits of integration in various levels of government decision-making processes

When considering regional airfreight services in Tasmania, one of the inductive findings from this study is that lack of consideration of airfreight as a viable alternative to freight services across the Bass Strait is due (in part) to the Federal Government's reform agenda's of the 1990s. However, it is the need for strategic and integrated planning and communication that precipitates as a significant concern from the majority of participant types (i.e., businesses, business/industry associations, state government, local governments and individuals).

Firstly, the lack of communication between the levels of Government is highly apparent by the preface to the inquiry. Through it's submission, the Tourism Industry Council of Australia (2013) highlighted that "the Australian Government commissioned the Tasmanian Freight and Shipping Inquiry without the input of the Tasmanian Government" (p.4).

Another area of disjointed strategy development linked to accessibility of freight networks is the emerging concern of infrastructure investments in the areas of growing and processing. Kille et al. (2014) asserted that in the case of the regional airfreight scenario, one of the challenges of infrastructure is the requirement for private investment, technology and innovation in the areas of growing and processing (at the producer level). Many niche products are highly successful in terms of quality due to the conditions of growing at specific locations. In many cases, this geographic limitation and specific growing climate is what makes the produce valuable. Time sensitive and perishable produce also does not have the luxury of distance to process as the travel to process time adds valuable time to the entire transport time.

A number of statements within the submissions support these findings including: "Freight support measures and infrastructure planning must account for the substantial existing exporting businesses in the region as well as future growth options including the dairy industry, food and beverage manufacturers and new investment that will unlock value in the forestry industry plus the inevitable productivity gains arising from new irrigations networks" (Northern Tasmania Development, 2013, p. 1).

"It will be innovation in the packaging of assets, the regulatory conditions attached and the method used in offering the package to private investors that will be the key factors in attracting private sector investment" (Maritime Union of Australia, 2013, p. 5).

However, a critical analysis of the submissions highlights a disparity in integrated planning processes. For example, the Tasmanian State Government has invested millions into irrigations schemes that seek to protect the agricultural industry. The agricultural industry (i.e., 'Growing') is regarded as an industry with a "bright future" (Webster Limited, 2013) and is projected to assist in supporting the transitioning Tasmanian economy (Government of Tasmania, 2013). As such, the State Government through the State owned Tasmanian Irrigation Pty Ltd, administers a range of schemes that seek to secure water and irrigations sources with public/private investment partnerships.

Unfortunately, the submissions demonstrate an area of public discord: "Millions of dollars have been spent in recent times on irrigation projects to drought-proof any future investment in the agricultural and horticultural space. However, any industry looking to establish a new operation in Tasmania or to expand an existing operation, would look closely at the cost of transporting their produce to market and ascertaining if they can do this in a viable way" (Webster Limited, 2013, p. 2).

What is apparent is a disjointed implementation of initiatives and policies, which have a consequence on freight, network deliveries and, inevitably, regional airfreight networks. In it's submission, the Tasmanian State Government (2013) stated that it has "consistently pursued a significant suite of micro-economic reform and infrastructure projects over recent years, including: the largest expansion of irrigation infrastructure in Tasmania's history" (p. 5).

Yet, the Tasmanian State Government (2013) has also realised the limits of it's abilities commenting that "As significant as this agenda is, its potential to deliver transformative and lasting change to the Tasmanian economy will only be fully realised if Tasmania has a transport and freight logistics network that is capable of efficiently and effectively supporting the needs of our industry and our community" (p. 5).

Many of the submissions called for an integrated freight strategy, which considers the State's entire essential transport infrastructure, (including airports, rail, road and sea ports). Others criticize the lack of integration drawing links to private infrastructure investment and long term integrated multi-level government and industry coordination.

This lack of coordination is best explained by the concept of 'actually existing neoliberalism' originally developed by Brenner and Theodore (2002) and further explored and developed by Peck, Theodore, and Brenner (2009). 'Actually existing neo-liberalism' forms an analytical platform to approach the production of urban precincts within specific spatial contexts that are moulded by inherited and evolving institutional policy frameworks. This term assists in informing us how resistance, policy roll-out and roll-back intertwine in particular settings to produce complex variants of what still remains an ideological force and shaper of governance frameworks of irresistible momentum.

Previously we have seen how neoliberal ideals have shaped advice to governments. However, here we have an example of how 'actually existing neo-liberalism' wanes from neoliberalist ideology and highlights the complexity of state interventions, which are often aimed at both promoting the rule of the market as well as managing the negative effects of this. Freestone (2011) extends that the idea supports both the path-dependent and politically contingent character of neoliberal reform initiatives through ultimately, 'trial-and-error'. The submissions demonstrate that the majority of participant types are willing to remove the disjointed 'trial and error' approach, favouring a more inclusive and strategic approach, which considers all freight infrastructure and networks.

One of the responses to the inclusivity and state-wide approaches to freight infrastructure came in the form of the Federal Government funded Freight Logistics Coordination Team (FLCT), established in 2011. This team sought to provide the State Government with expert freight and logistics advice. In their final report, the FLCT provided 26 recommendations, of which airfreight featured in only one of those. While the report highlighted that there are a range of gaps in data and literature, there is little empirical evidence to inform recommendations regarding airfreight. Rather, the report concluded that "as part of the development of the Tasmanian Freight Strategy, further work should be done to investigate the extent and nature of air freight needs, with a view to identifying opportunities to better integrate air transport into Tasmania's strategic freight system" (Freight Logistics Coordination Team, 2013, p. 11).

It is recommendations such as this, which link all three categories of 'freight connectivity', 'logistics processes' and 'multi-mode integration planning' together. The FCTL report and the comments on airfreight embody the state of the regional airfreight sector. While freight connectivity is considered critical to the prosperity of regional communities, airfreight is considered an essential part of this 'freight connectivity' for sea locked communities. The urgency of supported logistics process to help regional communities with economic opportunity cannot be achieved unless there is appropriate and inclusive strategic 'multi-mode integration planning'. With air transport and airports effectively deregulated, State and Federal planning has focused on State owned assets (such as sea ports, road networks and railways) to the exclusion of (now privately owned) airports and associated (airfreight) infrastructure.

The study has revealed that the urgency of adequate logistics processes to support regional communities cannot be achieved without appropriate and inclusive strategic 'multi-mode integration planning'.

5. Conclusion

This research offers a framework that develops understanding of the airfreight needs of regional communities. The critical content and discourse analysis provides some insight into those issues that have emerged and shaped the discussions relating to Tasmania's freight and shipping services. In our consideration of the features of airfreight services required of regional communities, two notions have emerged from the discourse. Firstly, business decision-making processes regarding modal choice are impacted significantly by sea freight subsidies that artificially distort the pricing of freight services and thus show preference to sea freight. Secondly, the cost of conducting business in a sea locked community is inextricably bound to discourses of business continuity, efficiency of services and prevailing subsidy schemes. While there is lack of empirical evidence, careful consideration of the impact of freight subsidies is needed for all modes of transport, including airfreight.

In our consideration of the significance of multi-modal freight transport services to regional communities, two notions emerge from the discourse. Firstly, the impact of government policy on services provided to regional communities can be heavily influenced by government agencies offering policy advice grounded in neoliberal ideologies. Secondly, there is high concern for the lack of effective integration and communication between various tiers of government resulting in disjointed implementation of initiatives and policy. This has a consequence on the freight sector, which includes regional airfreight networks. Overwhelmingly, the discourse highlights that the urgency of adequate logistics processes to support regional communities cannot be achieved without appropriate and inclusive strategic 'multi-mode integration planning' which seeks to integrate air, sea and road in long-term freight strategy.

References

Ahumada, O., & Villalobos, J. (2011), "A tactical model for planning the production and distribution of fresh produce," Annals of Operations Research, Vol. 190, No. 1.

Akkerman, R., Farahani, P., & Grunow, M. (2010), "Quality, safety and sustainability in food distribution: a review of quantitative operations management approaches and challenges" OR Spectrum, Vol. 32, No. 4, pp. 863-904. doi: http://dx.doi.org/10.1007/s00291-010-0223-2.

Ari-Pekka, H., & Hintsa, J. (2009), "Assessing the drivers of change for cross-border supply chains," International Journal of Physical Distribution & Logistics Management, Vol. 39, No. 9, pp. 741-761. doi: http://dx.doi.org/10.1108/09600030911008184.

Australian Government (No Date), Productivity Commission: Core Functions Retrieved 12 December 2014, 2014, from http://www.pc.gov.au/about/core-functions.

Babbie, E. (1983), The practice of social research (third ed.). Belmont, CA: Wadsworth Publishing.

Barker, J. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries/completed /tasmanian-shipping/submissions.

Batt, P. J., & Morooka, R. (2003), "Perceptual differences in offer quality between Western Australian rock lobster exporters and Japanese rock lobster importers," Supply Chain Management, Vol. 8, No. 5, pp. 476-484.

Boeing. (2014), World Air Cargo Forecast. Seattle, USA: Boeing World Air Cargo Forecast Team.

Boudreau, J. A., Keil, R., & Young, D. (2009), Changing Toronto: Governing Urban Neoliberalism. Toronto: University of Toronto Press.

Brenner, N. (2004), New State Spaces. Oxford, United Kingdom: Oxford University Press.

Brenner, N., & Theodore, N. (2002), Spaces in Neo-liberalism: Urban Restructuring in North America and Western Europe. Oxford, United Kingdom: Blackwell.

Bridger, R. (2008), Food air freight, the global infrastructure expansion.

Bryman, A. (2006), "Integrating quantitative and qualitative research: how is it done?" Qualitative Research, Vol. 6, No. 1, pp. 97-113.

Burnie Chamber of Commerce. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au /inquiries/completed/tasmanian-shipping/submissions.

Coley, D., Howard, M., & Winter, M. (2011), "Food miles: time for a re-think?" British Food Journal, Vol. 113, No. 7, pp. 919-934. doi: http://dx.doi.org/10.1108/00070701111148432

Corbin, J., & Strauss, A. (2008), Basic and qualitative research: Techniques and procedures for developing grounded theory. United States of America: Sage.

Corporate Financial Consulting. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries/completed/tasmanian-shipping/submissions.

Cutherbertson Bros. Pty. Ltd. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries/completed/tasmanian-shipping/submissions.

Department of Infrastructure and Regional Development. (2013), Submission to the Productivity Commission Inquiry into Tasmania's Shipping Costs and Competitiveness of Tasmania's Freight Industry. Canberra, Australia: Australian Government.

Ettinger, L., & Maitland-Gholson, J. (1990), "Text analysis as a guide for research in art education," Studies in Art Education, Vol. 31, No. 2, pp. 86-98.

Flinders Council. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au /inquiries/completed /tasmanian-shipping/submissions.

Freestone, R. (2011), "Managing Neoliberal Urban Spaces: Commercial Property Development at Australian Airports," Geographical Research, Vol. 49, No, 2, pp. 115-131.

Freight Logistics Coordination Team. (2013), Final report of the freight logistics coordination team. Hobart, Tasmania: Department of State Growth.

Glaser, B. G., & Strauss, A. L. (1967), The Discovery of Grounded Theory - Strategies for Qualitative Research. Chicago, Illinois: Aldine Publishing.

Government of Tasmania. (2013), Structural Change in the Tasmanian Economy: Information. Hobart, Tasmania: Department of Treasury and Finance.

Harvest Moon. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries/completed /tasmanian-shipping/submissions.

Harvey, D. (2005), Spaces of Neoliberalization: Towards a Theory of Uneven Geographical Development. Stuttgart: Franz Steiner Verlag.

Hobart Airport. (2013), Submission to the Productivity Commission: Tasmanian Shipping andFreightInquiry.AustralianGovernmentRetrievedfromhttp://www.pc.gov.au/inquiries/completed/tasmanian-shipping/submissions.

International Air Transport Association. (2008), World Transport Statistics.

International Air Transport Association. (2014), Airfreight market analysis December 2013.

International Air Transport Association. (2015), The Value of Air Cargo: An ode to air freight, from http://www.iata.org/whatwedo/cargo/sustainability/Pages/benefits.aspx

Janks, H. (1997), "Critical discourse analysis as a research tool," Discourse, Vol. 18, No. 2, pp. 329-342.

Jick, T. D. (1983), "Mixing qualitative and quantitative methods: Triangulation in action," In M. van Maanen (Ed.), Qualitative methodology (pp. 135-148). Beverly Hills: Sage.

Kelp Industries. Pty. Ltd. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries /completed/tasmanian-shipping/submissions.

Kille, T., Bates, P., & Murray, P. S. (2013), "Measuring success: the search for assessment criteria in determining the impact of deregulation in regional aviation," International Journal of Aviation Management, Vol. 2, No. 1/2, pp. 4-34.

Kille, T., Bates, P., & Murray, P. S. (2014), "Integration, infrastructure and service reliability: understanding the challenges for regional aviation and the provision of airfreight services," Paper presented at the 32nd Conference of Australian Institutes of Transport Research, New South Wales, Australia. http://www.rciti.unsw.edu.au/sites/default/files/2-3_caitr_2014_final_article_kille_bates_murray. pdf

King Island Shipping Group. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries/completed/tasmanian-shipping/submissions.

Krippendorff, K. (1980), Content analysis: An introduction to its methodology. Beverly Hills, CA: Sage Publications.

Launceston Airport. (2013), Submission to the Productivity Commission: Tasmanian Shipping andFreightInquiry.AustralianGovernmentRetrievedfromhttp://www.pc.gov.au/inquiries/completed/tasmanian-shipping/submissions.

Lindkvist, K. (1981), "Approaches to textual analysis," In K. E. Rosengren (Ed.), Advances in content analysis (pp. 41-60). Beverly Hills, California: Sage Publications.

Luke, A. (1995), "Critical discourse analysis," In M. Apple (Ed.), Review of research in education 21. Washington, USA: American Education Research Association.

Maritime Union of Australia. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries/completed/tasmanian-shipping/submissions.

Northern Tasmania Development. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries/completed/tasmanian-shipping/submissions.

Ortmann, F. G., van Vuuren, J. H., & van Dyk, F. E. (2006), "Modelling the South African fruit export infrastructure: A case study," ORiON, Vol. 22, No. 1, pp. 35-46,48-57.

Peck, J., Theodore, N., & Brenner, N. (2009), "Neoliberal urbanism: models, moments, mutations," SAIS Review, Vol. 29, pp. 49-66.

Petrina, S. (1998), "The politics of research in technology education: A critical content and discourse analysis of the Journal of Technology Education, Volumes 1-8," Journal of Technology Education, Vol. 10, No. 1, pp. 27-57.

Productivity Commission. (2014), Tasmanian Shipping and Freight: Productivity Commission Inquiry Report: Report No. 69. Canberra, Australia: Commonwealth of Australia.

Regional Development Australia - Tasmania. (2014), RDA Tasmania Regional Plan: July 2013 - June 2016. Launceston, Australia: Regional Development Australia - Tasmania.

Renting, H., Marsden, T. K., & Banks, J. (2003), "Understanding alternative food networks: exploring the role of short food supply chains in rural development," Evironment and Planning A, Vol. 35, pp. 393-411.

Rosengren, K. E. (1981), Advances in content analysis. Beverly Hills, CA: Sage Publications.

Saunders, C., & Hayes, P. (2007), Air freight transport of fresh fruit and vegetables. Canterbury, New Zealand: Lincoln University.

Sim, S., Barry, M., Clift, R., & Cowell, S. J. (2007), "The Relative Importance of Transport in Determining an Appropriate Sustainability Strategy for Food Sourcing: A Case Study of Fresh Produce Supply Chains," International Journal of Life Cycle Assessment, Vol. 12, No. 6, pp. 422-431.

Steves, N., Baker, D., & Freestone, R. (2010), "Airports in their urban settings: towards a conceptual model of interfaces in the Australian context," Journal of Transport Geography, Vol. 18, No. 2010, pp. 276-284.

Tasmanian State Government. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries /completed/tasmanian-shipping/submissions.

Tourism Industry Council of Australia. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries/completed/tasmanian-shipping/submissions.

TT Line Company Pty Ltd. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries /completed /tasmanian-shipping/submissions.

View Banks Pty Ltd. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries /completed/tasmanian-shipping/submissions.

Ward, R. G. (1998), "Remote Runways: Air Transport and Distance in Tonga," Australian Geographical Studies, Vol. 36, No. 2, pp. 177-187.

Webster Limited. (2013), Submission to the Productivity Commission: Tasmanian Shipping and Freight Inquiry. Australian Government Retrieved from http://www.pc.gov.au/inquiries /completed/tasmanian-shipping/submissions.

West, J. (2013), "Obstacles to progress: what's wrong with Tasmania, really?" Griffith Review, Vol. 39, No. Autumn, pp. 50-59.

Yuan, X.-M., Low, J. M. W., & Ching Tang, L. (2010), "Roles of the airport and logistics services on the economic outcomes of an air cargo supply chain," International Journal of Production Economics, Vol, 127, No. 2, pp. 215-225. doi: http://dx.doi.org/10.1016/j.ijpe.2009.08.005