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Dunedin Railways – economic impacts on Dunedin’s economy



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Executive Summary

This assessment provides an overview of the economic impacts of Dunedin Railways on Dunedin’s economy prior to Covid-19. These economic impacts stemmed from the spending of out-of-town rail passengers and the associated flow-on effects of Dunedin Railways’ operations on the broader economy. The analysis assumes that economic activity associated with the railway does not simply displace activity that would have occurred anyway in Dunedin’s economy. For that reason, spending associated with local passengers has not been included in the analysis as it is likely that Dunedin residents would have spent a similar amount on other activities in Dunedin had they not taken a rail excursion.

In terms of total spend it was estimated during the 2019 financial year that:

- Visitors to Dunedin, who took a Dunedin Railways excursion, spent a total of \$24 million in Dunedin during their visit.
- Of this total, \$6.7 million was spent directly on rail excursion tickets, while \$17.2 million was spent on other attractions, hospitality and retail during their Dunedin visit, as well as on commissions to local sales agents.
- The total spent by rail excursion passengers during their time in Dunedin equated to 3.1% of total visitor spending in Dunedin.

Translating these spending estimates into GDP shows that during 2019:

- Direct economic value added to Dunedin’s economy associated with Dunedin Railways’ passengers was \$10.0 million in the 2019 financial year.
- Dunedin’s total tourism sector GDP was estimated by Infometrics to be \$454 million during 2019.
- In proportional terms, economic value added by Dunedin Railways’ visitors represents approximately 2.2% of Dunedin’s total tourism GDP.

The results in the analysis are for 2019 and so are based on pre-Covid-19 pandemic activity levels and spending patterns. Although the visitor sector will slowly mount a recovery from its current shutdown, the tourism landscape will be forever changed by the crisis. There is an expectation that domestic and short-haul tourism will play an increased role for the foreseeable future, with a higher level of risk aversion and a less competitive aviation sector limiting long-haul travel. For that reason, there is a section of this report that performs sensitivity analysis of various scenarios for future recovery of visitor numbers following the crisis. All future scenarios considered represent a lower level of economic value add.

Methodology

Within the scope of this analysis

The economic impacts of Dunedin Railways have been calculated based on spending by out-of-town rail passengers. Two primary channels of this expenditure have been considered:

1. Spending on Dunedin Railways excursions by out-of-town visitors
2. Broader spending by these out-of-town visitors during the rest of their time in Dunedin.

The implicit assumption is that Dunedin Railways is a key motivating factor in out-of-town rail passengers’ decision to visit Dunedin so their broader spending in Dunedin should also be considered.

Outside the scope of this analysis

Spending by Dunedin residents on rail excursions has not been considered in the analysis. Dunedin residents have a certain level of income and if they had not taken a rail excursion then they would have probably spent a similar amount on other leisure activities in Dunedin across the year.

No broader public transportation benefits from the railway have been assumed as Dunedin Railways timetables are generally prepared for sightseeing rather than general transportation purposes. There are intangible benefits for Dunedin residents from the railway giving them a sense of pride and identity, but these are not able to be quantified in the analysis.

The economic impacts of capital investment by Dunedin Railways is not captured within this report. Any future decisions regarding the scale, scope and viability of potential capital investment must be made by the board after first evaluating the Dunedin Railways’ ongoing operations from both a financial and a broader economic perspective. This analysis is designed to provide guidance as to the ongoing economic benefits to Dunedin from railway excursions attracting people to visit the area.

Base inputs and assumptions

To calculate the economic impacts, some base inputs were needed regarding rail passenger numbers and their associated spending patterns. These base inputs use pre-Covid-19 pandemic levels from 2019. The timing and speed of a recovery following the crisis is uncertain. It is likely that there will be structural changes to the market demand paradigm for tourism in New Zealand in future. Scenarios that test this different dynamic are included in sensitivity analysis later in the report.

Dunedin Railways figures

Rail passenger numbers were collected directly from Dunedin Railways. The following table gives out-of-town passenger numbers and average ticket prices received by Dunedin Railways during the 2019 financial year. Non-cruise is defined as Taieri Gorge Railway and Seaside excursions which have average ticket prices of \$80.38 and \$46.05 respectively. Rail touring and charter services have not been included.

Table 1 – Dunedin Railways passenger numbers and average ticket price, 2019 financial year

	Non-cruise	Cruise
Out-of-town passenger estimate	56,617	19,503
Average received ticket price	\$69.85	\$143.01

For the purpose of later analysis, it is further assumed that 37% of the Taieri Gorge and Seaside passengers are international visitors, with the rest being domestic visitors to Dunedin. This split comes from visitor origin shares in commercial accommodation statistics and is necessary to refine spending estimates on non-rail activities when people are in Dunedin. No such distinction has been made for cruise passengers as cruise spending statistics are only available for the average passenger regardless of origin.

Table 2 – 2019 passenger numbers by visitor origin

	Non-cruise		Cruise
	Domestic	International	
Passenger numbers	35,450	21,167	19,503

Approximately 70.3% of Dunedin Railways’ revenue from out-of-town passengers is from direct sales, with the rest going through agents. Agents’ commission rates average 15% for the Taieri Gorge and 12% for the Seaside services – on a weighted average basis based on each product’s sales share the average commission is 14.4%. Of these commissions, 20.8% was to Dunedin-based sales agents, with the rest going to externally based agents. No agent commission is paid for Cruise sales, but the ships are known to inflate prices – for this analysis a conservative 15% mark-up has been assumed on the ship.

Sundry revenue for Dunedin Railways, which includes food and beverage, and souvenir sales is not captured directly in ticket sales, but is indirectly captured within visitor spending assumptions in the next section as part of each visitor’s total expenditure in Dunedin.

Visitor spending assumptions

Spending on rail tickets can be set against the rest of each passenger’s budget when they are in Dunedin to see what they spend on other things during their Dunedin visit. The following table gives the estimated total level and pattern of spending for each non-cruise international and domestic visitor while they are in Dunedin.

Table 3 – Estimated average spend by non-cruise international and domestic visitors during their stay in Dunedin

	International visitors	Domestic visitors
Average spend per visitor across Dunedin visit	\$446.66	\$284.80
Spending split		
Accommodation, restaurants and bars	\$155.51	\$55.99
Retail	\$132.20	\$147.25
Activities and transportation (Ticket price received by Dunedin Railways)	\$69.85	\$69.85
Activities and transportation (Other)	\$89.10	\$11.71

All spending figures exclude GST because GST revenue accrues directly to central government, with the level of government spending within Dunedin not tied in any way to its GST revenue share. Commissions paid to domestic agents are captured within ‘activities and transportation (other)’.

The spending assumptions for each visitor types were formed using the following methods:

- International visitor spend was taken as the mean spend per day by holiday/vacation visitors responding to the International Visitor Survey. This spending was broken down using spending proportions for categories in MBIE’s Monthly Regional Tourism Estimates.

- Domestic visitor spend was based on spending patterns by overnight visitors in the Domestic Visitor Survey. Note that the Domestic Visitor Survey was discontinued in 2012 so spending estimates have been inflated to 2019 terms using data from MBIE’s Monthly Regional Tourism Estimates and domestic visitor numbers in MBIE’s NZ Visitor Activity Forecast tool.
- Estimates were scaled up to total spend across a visit by assuming the average visitor to Dunedin stays for 1.74 days, this assumption is consistent with commercial accommodation statistics.

Average visitor spending patterns have also been calculated for cruise passengers to Dunedin based on data contained in Statistics New Zealand’s 2019 cruise ship traveller and expenditure statistics. Total spend data (excluding GST) for vessels visiting Port Chalmers was averaged across passengers disembarking at the port and split into vessel expenditure (eg. fuel, produce, logistics) and activity/transportation spending by passengers using industry averages. It is further assumed that cruise passengers are only in Dunedin for one day as that is usual practice in the cruise industry when stopping at Port Chalmers. The average spend by a cruise passenger to Dunedin is given in the following table.

Table 4 – Estimated average spend per cruise passenger to Dunedin

Average spend per cruise passenger	\$253.39
Spending proportions	
Onshore activity, retail and hospitality spend	\$164.67
Vessel spend per passenger	\$88.72

The average price received by Dunedin Railways for a cruise visitor rail excursion is \$143.01, while the budget for each cruise visitor for onshore activities is only \$164.67. This budget is only approximately 15% higher than the price that Dunedin Railways charges cruise ships per passenger. In other words, if the cruise ship markups the price of a rail excursion by 15% as has been assumed or more, then the average cruise passenger has no budget for spending on other things while in Dunedin. For the purposes of the rest of this analysis, this is precisely the assumption that has been made.

Results from analysis

The assumptions above were used to calculate the following estimates of total spend by rail passengers within Dunedin. The estimates factor in the revenue that accrued to Dunedin Railways, money that went to Dunedin based sales agents, and the residual amount that was spent by visitors outside of their rail excursions. Revenue that accrued to non-Dunedin sales agents and mark-ups on cruise ships is excluded from these estimates as it leaks from Dunedin.

Table 5 – Total spending by Dunedin Railways visitors on rail product and other aspects of Dunedin visit during 2019 financial year

	Non-Cruise	Cruise	Total
Rail ticket sales to Dunedin Railways	\$3,954,603	\$2,789,108	\$6,743,711
Dunedin based agent commissions	\$88,365		\$88,365
Residual spent on other things during Dunedin visit	\$15,398,372	\$1,730,307	\$17,128,679
Total visitor spend within Dunedin by rail passengers	\$19,441,340	\$4,519,415	\$23,960,755

The data shows that there was a total of \$24 million spent by Dunedin Railways passengers on rail excursions and on other things during their stay in Dunedin during the 2019 financial year. Of this total, \$19.4 million was by non-cruise visitors, while \$4.5 million was cruise passengers.

As a point of comparison, this total spend by rail passengers during their visit compares to the total visitor spend in Dunedin by all visitors to the city in the March 2019 year of \$773 million, of which approximately \$60 million was spent by cruise ships. In proportional terms, total spending associated with rail passengers is equal to about 3.1% of all spending by visitors to Dunedin. Splitting further into the non-cruise and cruise market shares tells a slightly different story, with non-cruise passengers’ share of total non-cruise spending sitting at 2.7%, while cruise passengers’ share of total cruise spending is 7.5%.

These spending statistics were then translated into GDP to get an estimate of economic value add. There were two methods employed to do this. Direct spending on Dunedin railways product was converted to economic value add based on the ratio of EBITDA (earnings before interest, taxation, depreciation and amortisation) plus wages (and directors’ fees) to revenue. Such a calculation is usual practice for converting accounting concepts into direct economic value add. Agents’ commissions and residual spending by visitors on the rest of their stay in Dunedin was run through Infometrics’ events impact tool to estimate the direct contribution to Dunedin’s GDP.

This methodology resulted in the following estimates of GDP in the table below.

Table 6 – Direct economic value add (GDP) associated with Dunedin Railways passenger spending on rail product and other aspects of their Dunedin visit during 2019

	Non-Cruise	Cruise	Total
Economic value add from ticket sales	\$2,001,331	\$1,411,502	\$3,412,833
Value add: commission and other spending by visitor:	\$5,878,788	\$677,239	\$6,556,027
Total direct economic value add associated with rail	\$7,880,119	\$2,088,741	\$9,968,860

The data shows that the direct economic value add associated with Dunedin Railways passengers’ visits to Dunedin was \$10.0 million in the 2019 financial year. As a point of comparison, Dunedin’s total tourism sector GDP was estimated by Infometrics to be \$454 million during 2019. In proportional terms, economic value added by Dunedin Railways visitors represents approximately 2.2% of Dunedin’s total tourism GDP.

Sensitivity analysis

Given the large degree of uncertainty as to how tourism will recover after the Covid-19 pandemic, it is prudent to perform sensitivity analysis in any future planning for Dunedin Railways. This sensitivity analysis should consider both the total level of demand from visitors and the types of visitors that will frequent Dunedin.

There is an expectation that tourism will not recover as quickly as it has following previous economic crises, as it will take some time for international travellers to be reassured of public health safety. It is likely that travel over the medium-term will be more heavily dominated by domestic visitors firstly and then short-haul international travel will recover more quickly than long-haul visitor arrivals to New Zealand. As cruise ships during the crisis were a key source of virus spread, there are significant long-term risks to the cruise industry.

The following bullet points illustrate different scenarios of what could happen to GDP associated with spending by visitors to Dunedin who take an excursion on Dunedin Railways:

1. Return to business-as-usual: Under the scenario that visitor activity returned quickly to pre-crisis levels, with no material change in demand patterns, then annual GDP associated with visitors who take rail excursions would return to approximately \$10.0 million.
2. No cruise ship activity: If cruise ships do not return over the medium-term, but visitor numbers from other markets quickly recover then annual GDP associated with visitors who take rail excursions would be approximately \$7.9 million.
3. Visitor numbers return to 75% of pre-crisis levels, with the same composition across non-cruise (domestic and international) and cruise markets as before the crisis: Under this scenario, annual GDP associated with visitors who take rail excursions would be approximately \$7.5 million
4. Non-cruise passenger numbers return to pre-crisis levels, but based on domestic visitors only, and there are no cruise ship visits to Dunedin: Under this scenario, GDP associated with visitors who take rail excursions would be approximately \$6.9 million.