



# The economic impacts of the Gold Coast 2018 Commonwealth Games

## 2018 Post-Games Report

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## Executive Summary

This report builds on the earlier 2017 Economic Impact Study utilising Games year and post-Games data that is now available. It estimates the likely overall economic and employment benefits of the Gold Coast 2018 Commonwealth Games for Queensland over the nine-year pre-Games, Games-year, and post-Games period (2013-2022).

The key findings for Queensland are as follows:

- The Queensland GSP is estimated to increase by \$2.484 billion, an increase of \$477 million over what had been estimated in the previous 2017 Study. This is an estimated increase of 20% over that of the 2017 Study.
- The estimated increase in GSP is largely due to new national and international events secured with future venue utilisation higher than previously forecast, and increased trade benefits forecast to the State flowing from the Trade 2018 Program.
- The 2018 Study estimates an economic benefit to the Gold Coast of \$1.804 billion, an increase of \$100 million over that estimated in the 2017 Study.
- This study also takes into account the updated Games budget position, including the operational and contingency savings realised. While this demonstrates excellent financial management of the Games operation, and no “budget blow-outs”, it also represents for the Games year a lower stimulus, or injection into the economy, than represented in the 2017 Study.
- About 1.266 million visitors are estimated to be attracted to Queensland as a result of the Games, an increase of about 100,000 compared to the 2017 Study.
- Employment impact in Queensland is estimated over the nine-year study period to be 21,128 Full-Time Equivalent Years (FTEYs) as a consequence of expenditure related to the Games. This is an increase of approximately 600 FTEYs from the forecast in the 2017 Report.

It is important to note that the economic benefits reported in the 2018 Study are **net** benefits and cover the whole nine years of the study period (2013-2022) not just the 12-day period of the Games. The flow of benefits to Queensland started well before the Games and will continue to generate returns over the post-Games period.

It is in the post-Games period when the most significant benefits of the Games will be realised due to higher than previously estimated venue utilisation, tourism visitors and exports.

## Extended summary and key findings

The objective of this report is to indicate what the economic benefits of hosting the Gold Coast 2018 Commonwealth Games are likely to be for Queensland, especially considering the actual data on Games visitors, operational costs and other impacts available after the Games. This study builds upon the modelling framework of the previous economic impact assessment study undertaken in 2017 prior to the Games<sup>1</sup>, hereafter 2017 Report. To ensure consistency and to enable a useful comparison of findings, this update study, hereafter this report or 2018 Report, maintains the same modelling approach and assumptions as the previous study. In some instances, however, earlier assumptions are now replaced with actual data collected during the Games period. These data are sourced from three reports as follows:

- The GC2018 Visitor Study – An Evaluation Report (GC2018 Visitor Study hereafter) released in 2018 by Office of the Commonwealth Games, Department of Innovation, Tourism Industry Development and the Commonwealth Games.
- The Trade 2018 – An Evaluation Report (Trade 2018 Study, hereafter), also released in 2018 by the Office of the Commonwealth Games, Department of Innovation, Tourism Industry Development and the Commonwealth Games.
- Commonwealth Games Mobility Intelligence (October, 2018), released in 2018 by DSpark Pty Ltd.

Compared to the 2017 Report, the net economic impact of the Gold Coast 2018 Commonwealth Games in this report is estimated to increase to **\$2.5 billion of Gross State Product (GSP) for Queensland**, up by \$0.5 billion, while the estimated actual running costs came in less than projected by approximately \$170 million. Employment is estimated to increase to 21,128 full-time-equivalent years (FTEYs), approximately 600 FTEYs higher than in the 2017 Report. These are the net changes of the impacts over the whole nine years from the pre-Games to post-Games years. However, changes in results between the two economic impact reports are not the same across all periods, as shown in Table E1 and described below.

An important observation from both the 2017 Report and this report is that the benefit from the Commonwealth Games does not occur in the Games year only, and definitely not merely in the short 12-day period of the Games. The flow of benefits had started well before the opening ceremony of the Games, and will continue to generate returns over the four years after the Games. It is in this post-Games period that the actual significant benefit to the Queensland economy of the Games will be determined.

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<sup>1</sup> <https://embracing2018.com/sites/default/files/gc-2018-economic-benefits-griffith-uni-report.pdf>

**Table E1: Net impacts of the Gold Coast 2018 Commonwealth Games – A comparison of GRP / GSP/ GDP (current prices)**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
<i>cumulative nominal, current prices</i>						
<i>Pre-Games years (2013-14 to 2016/17)</i>						
2017 Report	829	-200	-134	495	-249	246
2018 Report	811	-188	-129	494	-243	251
<i>Games-year (2017/18)</i>						
2017 Report	251	319	233	802	441	1243
2018 Report	214	236	109	559	476	1034
<i>Post-Games years (2018/19 to 2021/22)</i>						
2017 Report	625	168	-83	710	-312	398
2018 Report	779	498	154	1431	-991	440
<b>Total 2013/14 to 2021/22</b>						
2017 Report	1704	286	16	<b>2007</b>	-119	1888
2018 Report	1804	546	134	<b>2484</b>	-758	1726

### ***Pre-Games years – 2013/14 to 2016/17***

The four-year pre-Games period was characterised as a construction period for Games infrastructure. During this period, the results from the Delphi expert panel indicated only a small number of visitors travelled to the Gold Coast induced by the forthcoming Games<sup>2</sup>. Some contestants and overseas delegations visited the region to familiarise themselves with weather conditions, training facilities, and venues but the overall number was relatively low. As there is no update available on the number of visitors and Games officials and contestants during this period, it is assumed it remains the same in this revision as in the previous study.

For the construction investment, the “planned budget” and the “actual spend” do not differ significantly (see Table 19). This indicates good project planning and no budget ‘blowouts’. Thus differences in impacts of the pre-Games period between the 2017 Report and this report are largely insignificant, as shown in Table E1.

### ***Games-year – 2017/18***

In the Games-year, changes in the stimuli to the Gold Coast economy and Queensland more broadly were generally due to the cost savings in the operation of the Games. The operational costs of the Games came in lower than the planned budget, mainly due to some contingency

<sup>2</sup> For more information, see the 2017 Report <https://embracing2018.com/sites/default/files/gc-2018-economic-benefits-griffith-uni-report.pdf>

items in the budget being not required (Table A1), with additional cost savings in the budget for workforce, venue management, Games operations and venues. In total, the Games came in well under budget by approximately \$170 million (current prices). On the revenue side, changes in revenue from tickets sales, broadcast rights and sponsorship were only marginal.

In addition to the differences in the operational costs and revenue of the Games, the GC2018 Visitor Study showed considerable differences in the *actual* expenditure of domestic overnight visitors in this 2018 study than projected previously in the 2017 study. While the expenditure of domestic overnight visitors to attend the Games was approximately half of the initial estimate in the 2017 Report, an interesting finding from the GC2018 Visitor Study was that these visitors also then travelled further than expected to other parts of Queensland and Australia. This represents an additional amount of tourism revenue for what is defined as a “spillover effect” that the previous 2017 Report did not assume for domestic overnight visitors (but was included for overseas inbound visitors). Consequently, this additional spillover amount effectively offsets at the aggregate level the decrease in overnight visitor expenditure to attend the Games, although it is spread across Queensland and other states rather than occurring solely in the Gold Coast as assumed in the 2017 Report for domestic overnight expenditure. Effectively, the stimulus to Queensland was further reduced from the lower amount of the actual operational costs as a consequence of the shift in visitor expenditure to other states and territories.

Another factor not captured in the 2017 Report due to lack of data was the so-called “time switching” effect. This refers to the estimated number of local residents who left the Gold Coast during the Games period because of concern over congestion resulting in a decrease in the number of local consumers and, consequently, of revenue. This decrease in revenue most likely affected local businesses away from the regular travel routes of Games visitors and has been estimated in the Report at the maximum level possible so that the net, overall economic impacts can be estimated conservatively. Drawing a general conclusion of the short-term adverse impact alone on some of the local businesses without taking into account the significant stimuli on the overall Gold Coast economy over the longer term would create a severe bias in the analysis. Taking this “time-switching” effect into account, this report shows clearly that the gain to the Gold Coast over the years to come is far more significant.

Overall, the realised benefit in terms of GSP for Queensland for the Games year in this current economic impacts study is lower than the result of the 2017 Report, mainly driven by the changes in the number of domestic overnight visitors and the fact that the Games came in under budget.

### ***Post-Games years – 2018/19 to 2021/22***

Running parallel to the multi-sports event of the Games themselves, the state government instigated the *Trade 2018* Program so that the Games could serve as a catalyst for showcasing the state’s key industries and investment opportunities. The strategy was to maximise further induced effects on exports and investment. In addition to the amount of investment identified during the 2017 Report (\$35.4 million per year in 2012/13 prices, or \$41 million in current

prices), it is forecast that the *Trade 2018* Program will increase exports by a further \$136 million per year (2012/13 prices) for Queensland. In addition to this total, this report incorporates a small proportion of the sponsorship-induced exports estimated in the previous study, just 20 per cent or \$14 million per year (2012/13 prices). The small proportion was adopted because it was assumed that there was an overlap between the sponsorship advertising and the *Trade 2018* Program. This proportion of 20 per cent is arbitrary and conservative in this scenario. The total induced export sales per year across the four years of the post-Games period is estimated to be \$150.8 million at 2012/13 prices or \$168.8 million at current prices.

An important driver of growth in the post-Games period for the Gold Coast, and equally important for Brisbane, is the commitment to maximising the investment return of Games venues in these cities. For this report, considerable additional data was available on new national and international events secured as a result of the Games from Tourism and Events Queensland, City of Gold Coast and other venue owners and operators. Analysis of this data indicates there could be approximately an additional 250,000 visitor nights from overseas and inter-state visitors per year over the four years of the post-Games period, a substantial increase from the 25,000 visitor nights estimated in the 2017 report. The success of attracting future sport events is a fruitful outcome from a partnership of different departments and organisations at both local, state and federal levels, including in particular Tourism and Events Queensland, Tourism Australia, City of Gold Coast and Destination Gold Coast. Among the prominent events already drawn to the Gold Coast are Gymnastics Australia's largest ever event, the Gymnastics National Club Carnival (2018) and the world's leading sports convention, SportAccord World Sport and Business Summit (2019).

In addition, business events will also contribute to the growing event venue utilisation. The Gold Coast has been successful in attracting business delegations from around the world to visit in the post-Games period. It was reported earlier this year that the Gold Coast would host at least 22,450 business delegates in the post-Games years<sup>3</sup>. In fact, it is expected that the number of delegates will increase as the planned events draw closer.

As a consequence of these changes, projected results for the post-Games period have changed significantly from the 2017 Report to this report in terms of revenue, boosting both the Gold Coast and Queensland economies. The benefit to Queensland is estimated to be approximately \$1.4 billion of GSP over the course of four post-Games years (Table E1).

Over the whole nine years, after allowing for the construction and operational costs, the total net benefit of the Commonwealth Games amounts to approximately **\$2.5 billion of GSP for Queensland**, an increase of nearly \$0.5 billion over and above the estimate from the 2017 Report.

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<https://www.destinationgoldcoast.com/Portals/0/Documents/Corporate/Media/Releases/Games%20gold%20for%20business%20events.pdf>

### *Employment impact*

The reductions in stimuli during the Games period noted above especially in terms of reduced expenditure have softened the positive impact on employment in this report. On a simple full-time equivalent (FTE) basis, the total number of employed FTE for all three periods does not reflect movements of labour demand between the 2017 Report and this report, as one FTE in the post-Games or the pre-Games period implies four years of employment, while one FTE in Games year period reflects only one year. To provide a consistent measure, we adopt a new concept of *yearly* FTE, or FTEY hereafter. On this new basis, one FTE created in the pre-Games or post-Games period is equivalent to four FTE jobs generated in the Games year. Table E2 is based on this FTEY basis. It is estimated that the Gold Coast 2018 Commonwealth Games could generate a total of 21,128 FTEYs over the course of nine years, up by approximately 600 FTEYs from the forecast in the 2017 Report.

**Table E2: Net benefits of the Games, full time equivalent year basis**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
<i>Pre-Games years (2013-14 to 2016/17)</i>						
2017 Report	5,495	-1,092	-825	3,578	-1,425	2,152
2018 Report	5,377	-1,029	-799	3,549	-1,395	2,154
<i>Games-year (2017/18)</i>						
2017 Report	10,860	2,681	1,548	15,089	3,331	18,420
2018 Report	9,360	2,153	784	12,298	3,902	16,200
<i>Post-Games years (2018/19 to 2021/22)</i>						
2017 Report	2,110	69	-341	1,838	-1,838	0
2018 Report	3,082	1,413	787	5,282	-5,282	0
<b>Total 2013/14 to 2021/22</b>						
2017 Report	18,464	1,658	382	<b>20,504</b>	68	20,572
2018 Report	17,819	2,536	773	<b>21,128</b>	-2,775	18,354

### *Tourism impacts*

Between the 2017 Report and this report, changes in numbers of visitors are summarised in Table E3. For visitors attending the Games, the Table indicates that the numbers of day-trippers and international visitors are broadly the same between the two reports. However, the 2017 forecast of domestic overnight visitors (265,000) was stronger than the estimate provided by the GC2018 Visitor Study (168,000) for this report.

In contrast to the movements of the Games attendees, the GC2018 Visitor Study estimates an increase in induced visitors for the 2018 Report (675,207) compared to the 2017 forecast (490,000). The increase is particularly strong in the post-Games years for domestic overnight



visitors, driven by results from the GC2018 Visitor Study showing a strong likelihood of further return and future visits from the spectators' positive experience attending the Games. The implication of such changes in visitor numbers has resulted in an increase in tourism expenditure estimated for the 2018 Report to \$936 million (2012/13 prices) as indicated in Table E4 or \$1.09 billion in current prices.

**Table E3: Changes in visitor numbers – a comparison**

	2017 Report	2018 Report
<b>Games attendees</b>		
Day trippers	356,000	378,000
Domestic overnight visitors	265,000	168,000
International visitors	50,000	45,000
<i>Sub-total</i>	<i>671,000</i>	<i>591,000</i>
<b>Induced visitors</b>		
Domestic	390,000	592,454
International	100,000	82,753
<i>Sub-total</i>	<i>490,000</i>	<i>675,207</i>
<b>Total</b>	<b>1,161,000</b>	<b>1,266,207</b>

**Table E4: Tourism expenditure – a comparison**

	2017 Report	2018 Report
	(million at 2012/13 prices)	
Pre-Games years (four years)	\$59.7	\$59.7
Games year (one year)	\$541.1	\$484.7
Post-Games years (four years)	\$249.6	\$391.6
<b>Total</b>	<b>\$850.0</b>	<b>\$936.02</b>

Separate to these tourism impacts, increased venue utilisation through greater sports and business event attraction as a result of the Games is estimated to generate an additional tourism expenditure of \$80 million (2012/13 prices) per year in the post-Games period, or \$92.7 million in current prices.

### ***Broad measures of government funding***

Compared to the *planned* expenditure, the estimated actual total expenditure for both capital and operational categories of the Games is smaller due to cost savings in the operation of the Games and contingencies that were not required. The total estimated Games expenditure for the 2018 Report is \$1,853 million, as compared to \$2,024 million in the 2017 Report. Although the Games expenditure is lower, the net impact, measured as gross state product,

has gone up in this report as seen in Table E1. Thus, the ratio of GSP/Games-expenditure is revised upward significantly from 0.99 in the 2017 Report to 1.34 in this report. The ratio indicates the effectiveness of every dollar the government spent on the Games when leveraging on all stimuli is taken into account.

Underlying changes in the above ratio is the increased amount of revenue coming from all sources adding to the government spending on the Games to generate higher net impacts for the economy. These sources of stimuli *in addition to the government budget* for the Games included capital contribution from the private sector, tourism expenditure during the Games time, induced exports and induced tourism demand through venue utilisation in the post-Games years. Thus, the ratio of non-government stimulus per dollar spent by the government provides an aspect of how the seed funding from the government could attract revenue from other sources to generate better impacts. This measure has increased from 0.7 to 1.3 between the 2017 report and this report.

### ***Remarks***

It was observed that the estimated actual Games expenditure was under the planned budget expenditure adopted in the 2017 Report. At the same time, the management of venue utilisation and the promotion of exports in the post-Games years have effectively boosted the revenue in the post-Games years resulting in the revised significant increase in the overall net impact of the Games from the 2017 forecast. To some extent, the revised impact could be potentially higher when venue utilisation further grows toward the end of the post-Games years.

# Full Report

## Introduction

Large government-funded events are commonly examined prior to the event occurring to assess the potential economic impacts on the local or domestic economy across all industries. However, the potential is not always the same as the impacts that actually occurred, because a pre-Games assessment has to rely on many assumptions, primarily due to unavailability of information and data related to visitors attending the events. Rarely are such assessments then validated after the events, as the hosting governments may not pay sufficient attention to the importance of the validating task, including amongst others the need to collect data during the event time.

The Queensland Government recently hosted the Gold Coast 2018 Commonwealth Games. The Games has made Australia proud of its sport contestants, who together brought home 198 medals, the highest tally among all attending countries. It has certainly given the state economy the spillover of the Australian contestants' winning success.

An economic impact study of the Gold Coast 2018 Commonwealth Games was undertaken in 2017 prior to the Games (referred to as the 2017 Report). Subsequently, several comprehensive studies of the Games visitor behaviours were undertaken during the Games time with the aim to collect actual data to validate the 2017 findings. This report is a follow-up of the 2017 Report previously commissioned by the Queensland Government, and the purpose is to understand the actual magnitude of the economic impacts by using real data. The primary interest of the Queensland Government is to assess the effectiveness of the Games as an investment.

This report (referred to as the 2018 Report or this report) will replicate parts of the previous economic impact study in terms of using the same model and methodology. However, there are some differences in relation to data inputs, which are now drawn from a range of sources of data and information of visitors who attended the Games. As the methodology and model development have been explained fully in the previous 2017 Report, this report will not repeat this background again here. Instead, it will review the Games visitor data and present the revised findings of the economic impacts of the Games. This report should be read as an extension to the 2017 Report.

This is a technical report that presents on a wide range of stimuli that are imposed on the model to capture the complexity of such a large event. To allow for greater readability, much of the technical information is presented in appendices for references. This allows the readers to focus on analysis and explanation presented in the main part of the report.

## Data inputs

1. The GC2018 Visitor Study, Gold Coast 2018 Commonwealth Games – Evaluation Report published by the Office of the Commonwealth Games, Department of Innovation,

Tourism Industry Development and the Commonwealth Games. The report prepared by independent research company Culture Counts contains findings of a survey of 13,780 attendees across three main groups of visitors, namely spectators, volunteers and media. It estimates various types of visitor expenditure, captures demographic profiles and measures behaviours of those who attended the Games. This report relies on the GC2018 Visitor Study mainly for the direct tourism expenditure data.

2. Trade 2018, Gold Coast 2018 Commonwealth Games Trade and Investment Programs – Evaluation Report published by the Office of the Commonwealth Games, Department of Innovation, Tourism Industry Development and the Commonwealth Games.

The Trade 2018 program was running alongside the Commonwealth Games as a catalyst to promote trade and direct investment from overseas to the state. The evaluation report assesses the expected increases in exports generated by the invited delegations from overseas to the state at the Games time. While a small direct investment was identified earlier during the 2017 study, it is still developing and not quite apparent in the Trade evaluation report. However, expected increases in exports are evident from the survey of the delegates. The survey data are useful for the induced exports effect of the Commonwealth Games in this report.

3. Commonwealth Games Mobility Intelligence report provided jointly by Tourism Research Australia and DSpark Australia.

Tourism Research Australia (TRA) has collaborated with DSpark in a comprehensive piece of research to translate raw location mobile data into useful information on the mobility of visitors to a region. A proof of concept study was adopted to analyse the movement of domestic and inbound visitors around the Games time at the Gold Coast. This mobility data is useful to provide the 2018 study with the pattern and magnitude of a potential time switching effect. This effect was not possible to estimate in the earlier 2017 study before the Games.

More details on the above data used for the analysis presented in this report will be provided in the following sections.

## The Games cost schedule and revenue stream – a revision

Although the aim of this report is to incorporate as much actual data as possible, the approach here is also to avoid unnecessary deviation from the previous report: if actual data are not available, the simulations in this report assume the same data previously used in the 2017 Report. This section will summarise the new inputs data for all three stages of the Games, as described in the 2017 study, while the derivation of the new data is presented in the appendices. It should be noted that the modelling approach for each stage discussed in the previous study could be a useful background to this section for interested readers.

As the model base year is in 2012-13, and all financial data for the government budget of the Games are reported in current prices, it is inevitable that data measured at both prices are presented in the report. We adopted an approach in which data related to the original budget planning of the government such as those in Appendix A are presented at current prices so that it is easier for relevant government departments to identify the transactions. However, for the modelling purpose, the data at current prices are converted to the 2012-13 prices<sup>4</sup> to be used alongside the 2012-13 model database. All other data are calculated directly at 2012-13 prices for the modelling tasks, as will be seen in the following sections. Hereafter, unless explicitly stated, all values will be reported at 2012-13 prices.

### Pre-Games period: 2013-14 to 2016-17 (from June 2013 to June 2017 – four years)

The pre-Games period comprises of four years prior to the Games. It is characterised by large construction developments related to infrastructure required by the Games. This is the main driver of economic impacts during the period. The investment for construction originated from both government and private sectors. Table 1 presents the annual changes of the estimated expenditure in the 2017 Report and actual financial report as at 30<sup>th</sup> June 2018. Table 19 in the Technical Section details a net change of \$24 million<sup>5</sup> for the total construction costs in 2012/13 prices over four years. On average, this cost saving of the construction was approximately \$6 million a year, as seen in Table 1. The reduction resulted from a net reduction of (1) the industry support from the government, (2) construction costs in the new and upgraded venues and facilities, (3) village overlay and the contingency for village overlay, and (4) higher than expected *interest and other income* received by the government in the period. These changes are all in the actual government contribution toward the capital construction costs.

The amount of the actual funding provided by the government for the Games is modelled as a re-allocation, or a re-prioritisation transfer, of government expenditure from other areas in the government budget to maintain budget neutrality for the state government. This way, the results will not benefit from any unaccounted sources of stimuli. At the same time, this also implies that all *government construction costs* for the Games are fully accounted for within

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<sup>4</sup> We adopted the same uniform annual 3 per cent discount rate that was applied in the 2017 study.

<sup>5</sup> \$24 million = \$610 million - \$586 million (Table 19)

the pre-Games period, from a modelling perspective. An alternative approach could be an exercise to raise tax revenue through higher tax rates. However, we did not consider this option for a practical reason, namely that making changes to tax rates always requires legislation or regulation that the government has to go through. This is often a difficult process. More importantly, the government has not provided any advice that suggested this was the case for the Games. The reduction of the reprioritisation transfer to \$146.4 million resulted from the lower construction costs to the government under the budget neutrality assumption.

**Table 1: Annual Games expenditure and revenue during the pre-games years**

Pre-games years, 2012-13 prices	2017 Report	2018 Report
	<i>\$ million</i>	
<b>Construction</b>		
total investment	250.4	244.47
Re-prioritising transfer	-152.4	-146.48
<b>Tourism expenditure</b>		
Athletes and games officials	0.7	0.74
Athletes spillover	0.6	0.63
Delphi inbound (0.0025 CW; 0.0008 nonCW)	1.4	1.44
Delphi inbound spill-over	1.2	1.22
Delphi Domestic (.35%)	10.9	10.9
<b>Net stimulus</b>	<b>112.9</b>	<b>112.9</b>

The 2017 Report of the Gold Coast 2018 Commonwealth Games economic impacts introduced two new concepts in the event impact analysis that were never considered previously: induced effect and spillover effect. These are very important for large events. Large events often involve large scale advertising campaigns to attract visitors from overseas countries. Due to the exposure of the region during the advertising campaign, the host region can become known to a larger number of prospective visitors who may visit the region even before and after the event. This is defined as an induced effect. Furthermore, during the event time, overseas visitors are very likely to travel to other regions of the host country, apart from the event region to maximise their visit. This is defined as the spillover effect.

In this current report, we maintain the same calculations for the athletes and games officials as well as the induced effect of visitors. For the athletes and games officials, the reason to maintain the same values from the previous study was simply that numbers were already known previously and did not need to be updated. For the induced effect, this decision is justified by the strong evidence, as will be seen, that the suggested estimates by the previously implemented Delphi panel experts are generally robust. The induced effect has been affirmed even more strongly from the result of the GC2018 Visitor Study.

Overall, the total of stimulus in the pre-Games period remains unchanged although the composition has changed slightly because of shifts in the construction costs contributed by the government.

**Games Year period: 2017-18 (from June 2017 to June 2018 – one year)**

While the stimuli in pre-Games years are high on capital cost, the stimuli in the Games year are high on the operational expenses, as seen in Table 2. In total, operational expenses in the Games year amounted to \$931.9 million in 2012/13 prices, slightly lower than the corresponding estimate in the 2017 Report. The calculation of this total operational expense is explained and derived from Table 17 in the Technical Section<sup>6</sup>.

**Table 2: Operational costs and revenue in the games year**

Games year, 2012-13 prices	2017 Report	2018 Report
	<i>\$ million</i>	
Total operational expenses	1057.5	931.9
Games inbound tourism expenditure	63.0	56.1
Games Inbound tourism spill-over	26.6	25.4
Games Day Trip Tourism expenditure	34.7	10.4
Games Overnight trip tourism expenditure	225.4	120.8
Delphi inbound (4% CW; 2% non-CW)	37.3	37.3
Delphi inbound spill-over	15.9	15.9
Delphi domestic (3% within QLD; 5.5% ROA)	118.0	118.0
Athletes and team officials \$m (6,600 people)	9.4	
Athletes spill-over	4.0	
Volunteers 15,000 people - day trip productivity on road transport	6.9	
<b>New items</b>		
Domestic spillover effect	n.a.	100.8
Time switching		-6.3
<b>Net stimulus</b>	<b>1,598.6</b>	<b>1,410.3</b>

In the Input-Output national accounting framework, the total of \$931.9 million reflects simultaneously not only the operational costs of the Games (supply side), but also the revenue (demand) side of the Games operation, or the so-called *Commonwealth Games industry* (CGI) as defined in the model database. Thus, values of broadcast rights,

<sup>6</sup> \$931.9 million = \$1134.2 million - \$164.6 million - \$31.1 million - \$6.6 million

sponsorship, ticket sales and licensing (Table 20, Technical Section) are all included in this total. Combined, they amounted to a total of \$185.7 million of sales for the CGI. The difference between total cost (\$931.9 million) and the total sales (\$185.7 million) is modelled as subsidy (-746.1 million) from the government.

The subsidy amount is just part of the *Revenue from other sources* of the balance sheet in Table 20. The rest of the *Revenue from other sources* is used to fund capital expenditure in the pre-Games period.

Table 2 also includes tourism expenditure generated by the visitors during the Games time. They are categorised into revenue by inbound visitors (direct and spillover expenditure), domestic visitors (day-trippers and overnight visitors), as well as visitors who only attended the Festival 2018 activity that was organised to entertain visitors during the Games time. In the GC2018 Visitor Study, visitors are classified into the following groups:

- Ticketed sport and Festival 2018 attendees (unique visitors)
- Volunteers
- Accredited and non-accredited media
- Athletes and team officials
- Non-ticketed sports attendees
- GC2018 Workforce
- Technical Officials
- Games Officials
- Trade 2018 Delegates.

Tourism expenditure associated with the ticketed sport and Festival 2018 attendees was carefully deduced from data provided in the GC2018 Visitor Study. This approach was taken to reflect more closely the concept of *additionality* suitable for regional economic impact analysis; that means the legitimate expenditure that would not have otherwise occurred without the Games, and without compromising other planned expenditure of the visitors when attending the Games was not a primary reason for visiting the Games venues. Tourism expenditure by all other groups is adopted directly from their corresponding spend provided by the GC2018 Visitor Study and their expenditure is embedded in the *Games overnight trip tourism expenditure* in the 2018 report column. Details of the calculations are presented in Table 22 of the Technical Section.

The 2017 Report did not consider the spillover effect for domestic visitors. This implied that domestic visitors only chose the Gold Coast as a single destination of their trip. Furthermore, the tourism expenditure had been estimated using average spend per visitor and the entire expenditure was assumed to accrue to the Gold Coast.

In contrast, the GC2018 Visitor Study identified extra destinations that domestic visitors extended their stay to. However, the GC2018 Visitor Study only calculated the spillover effect for the extra regions within Queensland even though the study did identify movements (extended stay) of visitors to the rest of Australia. We applied the same accommodation and other non-accommodation rates per visitor night for similar type of visitors who extended



their stay in the rest of Australia in order to calculate the spillover effect in the rest of Australia. Details can be found in Table 23 in the Technical Section.

As observed, results of tourism expenditure for inbound tourism expenditure and the spillover effect between the previous and current reports are broadly the same. Similarly, if adding the \$100.8 million of domestic spillover to the \$120 million of *Games overnight trip tourism expenditure* in the 2018 report column, the total is very close to the value previously estimated in the 2017 Report (\$225 million). The only difference here is the pattern of where the expenditure is located. Data from the GC2018 Visitor Study suggested a large shift in expenditure from Queensland to the rest of Australia, rather than in Queensland only as had been assumed in the 2017 Report. This will have implication for simulation results as will be seen later on. Nevertheless, it is reassuring to see actual data from the GC2018 Visitor Study confirm some key results of the previous report.

Another factor not captured in the 2017 Report due to lack of data was the time switching effect. This refers to the number of local residents leaving the Gold Coast during the Games time resulting in a decrease of local consumers and subsequently revenue. While this decrease in revenue could be by far compensated by expenditure of overnight visitors to the Games generally, the decrease is more likely for businesses not located on the common movement routes and areas of gathering for the Games visitors. The loss of revenue to the local businesses is estimated to be approximately \$6.3 million at 2012/13 prices, or \$7.3 million at current prices. We intentionally estimated the decrease at the maximum level possible so that the net economic impacts can be interpreted as conservative. In fact, the figures above could be an over-stated decrease in revenue to the local businesses. Details of this calculation can be taken from Table 24 in the Technical Section. Thus, for the short period of the Games of just over 12 days, this may seem to be a sizeable decrease in revenue to the local area.

However, it is important for readers to understand how to interpret the real effect of time switching factor on local businesses. This report makes an effort to quantify and acknowledges explicitly the existence of such effect but drawing a conclusion of general adverse impacts on the local businesses without taking into account of the large stimuli on the local economy over the long term will certainly create severe bias in the analysis. Economic impact analysis, or business analysis, of large events like this Gold Coast 2018 Commonwealth Games need to be considered over a longitudinal time span so that the outcome can be compatible with the intended timeframe for the infrastructure investment.

Essentially, the GC2018 Visitor Study provides data for visitor expenditure related to expenditure during the Games time only. The GC2018 Visitor Study could not capture information or data for the induced effect of visitors who were influenced by the advertising campaign and visited the Gold Coast before or after the Games time. For obvious reasons, the survey was implemented during the Games time only while the induced visitors visited the region at a different time. The high-level accuracy of the estimates of the tourism expenditure of the 2017 study is reassuring, and for this reason, estimates related to the assumed induced effect (Delphi results) remain the same in this study.

Net change of the estimated stimulus between the 2017 report and this report is a decrease of approximately \$188 million, mainly due to the reduction in the operational expenses of the Games.

**Post-Games period: 2018-19 to 2021-22 (from June 2018 to June 2022 – four years)**

Compared to the other two periods, the post-Games period experiences a significant increase in revenue in this report, mainly in exports, event utilisation and induced effect of the domestic visitors.

Estimates of exports in this report are a combined result of the approach adopted in the previous study and new data derived from the Trade 2018 Evaluation Report. The Trade 2018 Program attracted a large number of delegates from Queensland and overseas countries. An assessment of the Trade 2018 Program estimated that it would generate an expected amount of export sales of approximately \$136 million per year at 2012/13 prices. The Evaluation Report highlighted seven key business areas where exports are likely to expand, namely:

- Health and knowledge
- International education
- Food and agriculture business
- Sport businesses
- Marine manufacturing and craftsmanship
- Film and television production, and
- Innovation and entrepreneurship.

Due to limited information on the distribution of this expected increase in exports, we allocated proportionally across all seven sectors in the Queensland economy.

**Table 3: Annual post-Games stimulus (2018-19 to 2021-22)**

Post-games year, 2012-13 prices	2017 Report	2018 Report
	<i>\$ million</i>	
Exports	69.8	150.8
Investment <sup>7</sup>	35.4	35.4
Village Roadshow Soundstage (new)	77.9	77.9
Day trip event utilisation	4.0	1.1
Overnight ROQLD event utilisation	3.4	9.3
Overnight ROA event utilisation	5.0	30.6
Inbound event utilisation	8.3	24.1
Inbound event utilisation spill-over	3.8	15.3
Delphi inbound induced	10.2	7.7
Delphi inbound induced spill-over	4.7	4.8
Delphi induced domestic - Day Trip	9.1	9.1
Delphi induced domestic – Overnight	38.4	76.3
Re-prioritising transfer	-112.8	-94.9
<b>Net stimulus</b>	<b>157.2</b>	<b>347.6</b>

Estimates of exports in the 2017 Report were deduced mainly from sponsorship expenditure and its economic relationship with the expected export sales observed from historical data of a large database of international businesses. While it is evident from the literature that sponsorship and advertising are a vehicle to increase export sales, it is very likely double counting would occur if its full result were applied simultaneously with the estimated export sales suggested by the Trade 2018 Evaluation Report, as the Trade 2018 Program itself is also a form of advertising. There is likely a degree of overlap between the two types of ‘promotion’, but modelling such overlay to quantify its magnitude is beyond the scope of this study. For simplicity, we assume a modest 20 per cent of the expected export sales from the 2017 Report (\$14.7 million at 2012/13 prices) together with the estimated export sales derived from the Trade 2018 Evaluation Report are the total expected export sales (\$150.8 million at 2012/13 prices) per year for the post-Games period.

During the time prior to the Games, information on future bookings of Games venues in the post-Games period was very limited for the 2017 study. As a result, the understanding of possible magnitude was limited. The number of bookings of future *sport events* has increased significantly since then. For this report, considerable additional data was available on new national and international events secured as a result of the Games from Tourism and Events Queensland, City of Gold Coast and other Games venue owners and operators. Analysis of this data indicated that on average there would be 251,537 visitor nights per year over the four-year post-Games period for the *sport events*, a substantial increase from the 2017 report

<sup>7</sup> Please see the pre-Games report for more details.

estimate of 25,000 visitor nights. On a yearly basis, tourism expenditure can then be estimated to be approximately \$45 million in 2012/13 prices.

Alongside with utilising sport centres, the Gold Coast has boosted the utilisation of Games venues and leveraged the Games showcasing through attracting business events. In total, business events utilisation is estimated to add another \$20 million per year to the post-Games period and an additional spillover effect of \$15.3 million to make up an annual total of \$80 million for event utilisation (2012/13 prices) or \$92.7 million in current prices. Details of the calculation are presented in the Technical Section. The breakdown of revenue for event utilisation is as follows.

- Day-trippers: \$1.1 million
- Overnight from Rest of Queensland: \$9.3 million
- Overnight from Rest of Australia: \$30.6 million
- Inbound visitors: \$24.1 million, with an additional spillover effect of \$15.3 million

The GC2018 Visitor Study does not provide estimates for the induced tourism expenditure in the post-Games period explicitly. The Study, however, indicates that there will be 387,147 future domestic visitors who will come back to visit the Gold Coast given their good experience of the region while attending the Commonwealth Games. Similarly, the number of future inbound visitors is 52,383.

The 2017 Report estimated there would be 194,708 induced domestic overnight visitors, and 69,388 induced inbound visitors for the whole post-Games period. Effectively, the domestic overnight visitors in the GC2018 Visitor Study has been nearly double the number of estimated visitors from the previous report. In contrast, the inbound visitor number in the GC2018 Study is just around 75 per cent of the inbound visitor number of the 2017 estimate. Using these visitor ratios, we adjusted the 2017 report induced tourism expenditure proportionally for this current study. The tourism expenditure of the induced inbound visitors is now estimated to be \$7.7 million, which also generates approximately \$4.8 million for the spillover effect. For the domestic market, the induced overnight visitor expenditure is estimated to be \$76.3 million.

While Games-induced investment is a feasible outcome in the post-Games period, the actual level of Games-induced investment has not materialised clearly, apart from a modest level that we observed during the 2017 Report. As a result, we apply the same value of investment assumed in the previous report for this report.

Finally, there is a required annual amount of re-prioritisation transfer of \$94.9 million in the post-Games years. This is because the revenue from *ticket sales, broadcast rights, sponsorship and licensing* could not match up with the total operating costs in the Games year. The difference was covered by the subsidy amount of \$746.1 million previously mentioned. To fund this subsidy, the modelling assumes that all tax revenue collected within Queensland in the pre-Games years and the Games year, together with those revenue above, are used to cover part of the operational costs. The shortfall is then financed by a short-term loan so that all costs in the Games years are completely covered. The short-term loan is paid

back by a future re-prioritisation transfer from other areas of the state budget toward the loan. As the loan is spread over four years, cumulative interests will incur every year and this interest is already included in the required re-prioritisation transfer presented in Table 6. Given a lower actual operational expenses as presented in Table 2, the required re-prioritisation in this report is slightly lower than that in the 2017 Report.

It should be noted that the amount of industry support (\$98 million, Table 18, Technical Section) is not factored into the sum of \$94.9 million of the required transfer. The industry support is an amount of future value, which requires the government to distribute on a yearly basis over the four-year post-Games period on the assumed interest rate of 5 per cent. Converting this \$98 million into regular payments *at current prices*, each year the government is required to provide **\$19.6 million** for four years. This amount will be funded using ongoing tax revenue that the government receives every year during the post-Games years.

## Simulation results and discussion

As simulation results have been explained in the 2017 Report fully, explanation in this report is not elaborated to the same extent. However, it may reproduce part of the previous materials so that the result section of this report can be a self-contained document for readers' convenience. Results are generally in the form of percentage change deviation from what otherwise would have been, referred to as the base case.

### Pre-Games simulation results

For this section, results should be read in conjunction with their corresponding stimuli of the pre-Games period presented earlier in Table 1.

Model scenario – a long-run setting (or closure):

- Capital stocks can change while economy-wide rate of return is fixed.
- Industry rates of return are positively related to industry capital growth.
- A modified long-run labour market in which the real wage rates are not the only instrument to settle the labour market. Instead, together with the real wage rates, unemployment rates of the state are set up to respond to the labour demand so that the real wage rates only adjust half way of what it would be in the standard long-run closure.
- Government consumption is fixed throughout all states, except for specific industries in Queensland, where the state government invests in capital infrastructure as well as the matching reprioritisation transfer for the purpose to maintain budget neutrality.

Table 4 shows the results for a typical year in the four-year pre-games period. As expected, results of the typical pre-Games year in this report are broadly the same as results previously

presented in the 2017 Report, given the fact that all stimuli in Table 1 are the nearly same between two studies.

**Table 4: Economic impacts of a typical pre-Games year – percentage deviation**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
<i>percentage change</i>						
1 Real HH consumption	0.582	-0.022	-0.021	0.040	-0.002	0.006
2 Real investment	0.503	-0.049	-0.033	0.009	-0.006	-0.003
3 Real GOV consumption	3.926	-0.267	-0.267	0.179	0.000	0.036
4 Real exports	-0.096	-0.032	-0.023	-0.032	-0.016	-0.018
5 Real imports	0.656	-0.034	-0.034	0.032	-0.002	0.005
6 <b>Real GRP/GSP/GDP</b>	<b>0.563</b>	<b>-0.027</b>	<b>-0.024</b>	<b>0.036</b>	<b>-0.004</b>	<b>0.003</b>
7 Employment	0.577	-0.026	-0.026	0.038	-0.005	0.004
8 Real wage	0.005	0.005	0.006	0.005	0.002	0.003
9 Real capital stocks	0.666	-0.034	-0.030	0.040	-0.005	0.003
10 Exchange rate	-	-	-	-	-	-0.010
<i>Cumulative nominal at current prices, \$m</i>						
11 <b>GRP, GSP, GDP</b>	<b>811</b>	<b>-188</b>	<b>-129</b>	<b>494</b>	<b>-243</b>	<b>251</b>

Among all regions, the Gold Coast received the strongest impacts. Gross regional product (GRP) is estimated to increase approximately 0.6 per cent annual every year in the period. The main driver of growth in the Gold Coast is government consumption (4 per cent, row 3), which relates to the infrastructure development for the Games. Increases in the real wage rates in the Gold Coast provide more income to the household sector, thus boosting the regional household consumption by nearly 0.6 per cent (row 1). The negative result of the exchange rate<sup>8</sup> (-0.01 per cent, row 10) implies an appreciation of the exchange rate. The appreciation makes imported goods cheaper for domestic consumers, particularly for those with increased income in the Gold Coast region, thus it facilitates partially the increase in household consumption and investment in the region through increased imports (0.6 per cent). On the other hand, the appreciation of the exchange rate creates adverse impacts on the Gold Coast region's exports, with a decline of -0.096 per cent (row 4) per cent annually.

The labour market is configured in a set-up of a state environment, the real wage rates in regions within Queensland move in line together, separately from the rest of Australia, to reflect labour mobility within the state. As a result, the real wage rates in Brisbane and the rest of Queensland also increase, making the production costs relatively more expensive. The

<sup>8</sup> Measured as a ratio of domestic currency per unit of foreign currency.

increased real wage rates and the appreciation of the exchange rates effect adverse impacts on exports of Brisbane and the Rest of Queensland region.

The purpose of the re-prioritisation transfer is to balance the state budget for the increase in the infrastructure investment of the Games. In the model, this adjustment transfer is applied to government consumption across all three regions of Queensland. Given the fact that infrastructure development (government consumption) did not occur in Brisbane and the Rest of Queensland, these two regions see a net decline in government consumption (row 3).

Overall, growth in Queensland is mainly driven by the Gold Coast. Gross state product (GSP) increases by 0.04 per cent annually (row 6). In contrast, *Rest of Australia* declines slightly by -0.004 per cent. The driver for such decline is due to the appreciation of the exchange rate. It has dual effects: (1) the loss of exports from the region, and (2) domestic consumers substitute away from domestically produced goods for imported goods.

For convenience, Table 4 also provide results of GRP, GSP and GDP in the form of a *cumulative measure* at current prices for the whole four years. In total, the construction years of the pre-Games period boost the Gold Coast economy by \$811 million (row 11). At the **state level**, the construction period is estimated to have boosted the state economy up by **\$494 million** over the whole four-year pre-game period.

For employment, on the full-time equivalent (FTE) basis, the construction phase of the Games is estimated to have created 887 FTE jobs throughout the whole four-year pre-Games period.

**Table 5: Employment effects of a typical pre-Games year (FTEs)**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
Pre-games years	1,344	-257	-200	887	-349	538

Table 6 presents outputs of selected (representative) industries across all regions for each year in the pre-Games period. The impacts at the industry level reflect closely the pattern of changes in final demand at the macro level in Table 4.

The appreciation of the exchange rate is a mechanism that reallocates resources from the tradeable sectors to non-tradeable sectors across all regions. The declines in output below the base case of all industries in all regions, except the Gold Coast, reflect the overall reduced export demand for all regions. Although it is small, results show that the exchange rate mechanism moves resources from less productive regions to the higher productive region (Gold Coast). For Queensland as a whole, the industries that are positively affected by the

Games in this period are mainly the non-tradeable ones, including construction and industries for tourism and household consumption (retail, accommodation, restaurant, transportation, personal services); and, construction-related industries (structural metals, non-metal miner products, wood products and electrical appliances). It is clear that the construction and construction-related industries increase across all regions of Queensland as the Gold Coast region itself cannot supply enough materials for the construction development. For other industries, the output increases mainly in the Gold Coast areas, whilst it declines in Brisbane and Rest of Queensland due to the losses in export demand as well as household consumption from these two regions. In fact, the net positive impacts on the Gold Coast are estimated to spread across most industries in the region, mainly driven by the income effects and the predominant pre-Games development projects.



**Table 6: Industry impacts in a typical pre-Games year – percentage deviation**

	Gold Coast	Brisbane	RoQLD	QLD	ROA	AUS
Live stocks	-0.096	-0.018	-0.011	-0.012	-0.008	-0.009
Broad acreage crop	-0.094	-0.016	-0.013	-0.013	-0.011	-0.011
Fruit Veg Growing	-0.083	0.003	-0.001	0.000	0.000	0.000
Coal (black)	-0.127	-0.020	-0.017	-0.019	-0.015	-0.018
Oil	-0.020	-0.002	-0.003	-0.003	-0.005	-0.005
Meat Products	0.133	-0.023	-0.009	-0.010	-0.008	-0.008
Dairy Products	-0.010	-0.004	-0.005	-0.005	-0.005	-0.005
Other Food	0.093	-0.011	-0.006	-0.001	-0.005	-0.004
Wine Spirits Tobacco	-0.299	0.002	-0.001	-0.029	-0.005	-0.006
Textile Clothing Footwear	0.071	-0.003	-0.002	0.010	-0.009	-0.006
Wood Products	1.615	0.089	0.054	0.248	0.006	0.056
Petrol	0.204	0.034	0.013	0.038	0.001	0.009
Aviation Fuel	0.078	0.009	-0.003	0.010	-0.004	-0.001
Chemicals	0.391	-0.015	-0.019	0.043	-0.012	-0.004
Plastic Rubber Products	0.982	0.060	0.007	0.132	-0.002	0.021
Non Metal Mineral Products	1.882	0.153	0.009	0.278	0.004	0.061
Basic Metals	0.493	0.016	-0.015	0.018	-0.013	-0.005
Structural Metals	1.008	0.033	-0.006	0.131	-0.005	0.026
Electrical appliances	0.363	-0.003	-0.017	0.029	-0.009	-0.003
Electricity Distribution	0.318	0.016	-0.002	0.020	-0.001	0.004
Construction	2.677	0.042	0.004	0.346	-0.002	0.080
Wholesale Trade	0.398	-0.035	-0.031	0.015	-0.006	-0.002
Retail Trade	0.327	-0.053	-0.042	-0.008	-0.004	-0.005
Accommodation	0.241	-0.007	-0.002	0.028	-0.002	0.004
Restaurant	0.293	-0.015	-0.006	0.022	-0.003	0.002
Road Freight	0.377	-0.002	-0.014	0.025	-0.005	0.002
Road Passenger	0.104	0.003	0.003	0.017	-0.002	0.003
Air Transport	0.119	0.000	-0.007	0.012	-0.005	-0.001
Postage Transport Storage	-0.150	-0.392	-0.367	-0.367	-0.016	-0.090
Info Media Telecom	0.098	-0.015	-0.019	0.004	-0.004	-0.003
Internet Telecom	0.339	-0.013	-0.019	0.028	-0.002	0.003
Finance Banking Insurance	0.266	-0.003	-0.013	0.026	-0.001	0.003
Rent Hire	0.498	-0.009	-0.015	0.046	-0.004	0.009
Professional Science Tech Services	0.196	-0.077	-0.080	-0.041	-0.007	-0.013
Education	0.153	-0.003	-0.007	0.012	-0.001	0.001
Health	0.230	-0.007	-0.009	0.019	-0.001	0.003
Personal Services	0.539	-0.028	-0.024	0.030	-0.005	0.002
day trip	-0.015	0.169	0.028	0.064	0.002	0.018
overnight trip	0.350	0.022	0.025	0.096	0.001	0.038
Chinese inbound market	0.132	0.019	0.025	0.045	0.002	0.017
UK inbound market	0.324	0.045	0.020	0.066	0.006	0.040
NZ inbound market	0.296	0.021	0.009	0.117	0.003	0.032
USA inbound market	0.108	0.051	0.000	0.036	0.002	0.017

## Games-year simulation results

This section should be read in conjunction with the stimuli provided in Table 2. Results for the Games-year in this current study are not the same as those presented previously in the 2017 Report. This section explains the current results first. A discussion on comparing current results with the results in the 2017 Report will be followed later in this report.

Model scenario – a short-run closure:

- Employment adjusts to clear the labour market while nominal wage rates are fixed to reflect the brief nature of the Games period. The real wage rates of all regions within the state are not tied together as they were in the pre-games years.
- A standard short-run closure keeps capital stocks constant while the rates of return adjust to clear the capital market. In this study, this setup is slightly modified. To prepare for such a large event as the 2018 Commonwealth Games, almost all of tourism-related industries in Queensland would gradually gear up their capacity well in advance during the pre-Games years. In a dynamic simulation, these incremental changes in capital stocks are captured in such a way that the supply side changes can be built up to match up with the surge in demand in the Games year. Using a comparative static model, such cumulative changes in the supply side are not picked up, the model does not capture capital stocks explicitly. Thus, in the Games year simulation, there will be a mismatch between demand and supply of capital stocks for tourism even though the supply side has been built up. Simulations in such conditions often result in low impacts, or even an adverse outcome due to an artificially constrained capital supply. One way to overcome this situation is to impose the new level of capital stocks on simulations for the tourism industries. However, we do not know exactly the level of changes from the supply side so far. Therefore, in an effective approach, we adopt a scenario that the supply side of capital stocks will respond fully to the demand side at the pre-determined level of the rates of return, only for tourism-related industries in Queensland such as hotel, restaurant, food and drinks, etc. Capital stocks in other industries of Queensland are fixed, and similarly across all industries in other states.
- The short-term nature of the Games will not affect other non-tourism exports across all regions.
- Governments of all states, including Queensland, will not change their spending.
- Road and freight transports in the Gold Coast improve their productivity by 0.07 per cent and 0.02<sup>9</sup> per cent, respectively after the completion of Gold Coast Light Rail Stage 2.

The net stimulus of \$1.4 billion (Table 2) of the Games generates high demand for labour and high inflation in the Gold Coast region. As nominal wage rates could not keep up with the inflation, the real wage rates in the region is estimated to decline -1.5 per cent as indicated in

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<sup>9</sup> These measures were provided by the Department of Transport and Main Roads and adopted previously in the 2017 study.

Table 7 (row 8). Wage income in the region, however, still effectively continues to rise because employment growth (4.02 per cent, row 7) in the region is estimated to be far stronger than the drop in its real wage rates. The income growth effects a strong increase in household consumption of the region (2.48 per cent, row 1).

The strong appreciation of the exchange rate (-0.54, row 10) enhances domestic consumption further, especially from the imported sources (4.6 per cent, row 5), as imported goods become relatively cheaper than domestically produced goods. In fact, import growth is also strong (in relative to all other components) across all regions as the exchange rate effect does not limit to the Gold Coast region only.

As it is assumed that the short-term operation of the Games does not affect exports of other goods and services, the increases in exports across all regions in Queensland and in the rest of Australia are due to the increases of tourism expenditure from inbound visitors, either from direct expenditure or as a result of the spillover effect. Of course, the Gold Coast is the primary destination for inbound tourists, thus export growth in this region is far stronger than elsewhere.

**Table 7: Economic impacts in the Games year – percentage deviation**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
<i>percentage change</i>						
1 Real HH consumption	2.48	0.18	0.17	0.41	0.09	0.15
2 Real investment	3.79	0.28	0.17	0.56	0.00	0.10
3 Real GOV consumption	0.01	0.00	0.00	0.00	0.00	0.00
4 Real exports	6.95	0.05	0.05	0.47	0.01	0.07
5 Real imports	4.58	0.44	0.29	0.78	0.23	0.34
6 Real GRP/GSP/GDP	0.57	0.13	0.08	0.16	0.03	0.06
7 Employment	4.02	0.22	0.10	0.59	0.050	0.16
8 Real wage	-1.48	-0.04	0.02	-0.17	0.041	0.00
9 Real capital stocks	1.40	0.10	0.05	0.22	0.00	0.04
10 Exchange rate	-	-	-	-	-	-0.54
<i>Nominal at current prices, \$m</i>						
11 <b>GRP, GSP, GDP</b>	<b>214</b>	<b>236</b>	<b>109</b>	<b>559</b>	<b>476</b>	<b>1034</b>

Domestically, the Gold Coast region will source inputs from the rest of the country including regions outside Queensland, thus passing on growth to other regions as a flow-on effect (row 6, Table 7). The trade flows generate employment for the unemployed across all regions. It is because of the assumption that the short duration of the Commonwealth Games does not crowd out exports from other industries, higher demand for consumption by tourists and the household sector do not draw resources (employment) away from the tradeable goods producing industries. This is reflected by strong employment growth presented in Table 8 across all regions in the economy.

The real wage rates in the ROA increase, as opposed to those of Queensland’s regions, mainly because inflation in ROA is much lower than the increase in the nominal wage rates due to two reasons: (i) a relatively lower level of stimulus from small spillover effects of inbound tourism; and (ii) the cheaper import costs through the appreciation of the exchange rate.

Gross regional product of the Gold Coast is estimated to increase by 4.6 per cent above the base case, the strongest growth across all regions. Queensland as a whole is estimated to increase by 0.78 per cent, nearly four times stronger than that of the Rest of Australian (0.23 per cent). At current prices, the Games year is estimated to generate \$559 million of gross state product for Queensland, slightly higher than \$476 million for the Rest of Australia, as shown in Table 7.

On the FTE basis, the Games is estimated to generate approximately 9,300 jobs for the Gold Coast, nearly 12,300 jobs across all Queensland, and approximately 3,900 jobs in the rest of Australia. The actual number employed person could be larger when part-time employment is taken into account. Furthermore, the modelling framework assumes these jobs are strictly on the short-term basis for one year only. In practice, some of those employees could move to another job and remain in the employment pool after the Games year.

**Table 8: Employment effects of the Games-year (FTEs)**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
Games year	9,360	2,153	784	12,298	3,902	16,200

Growth at the industry level during the Games year has a very different pattern compared with that in the pre-Games years. Industries related directly to tourism, household consumption and the operation of the Games benefit more from the Games than all other industries, and more so in the Gold Coast than in other regions.

For tourism and household consumption in the Gold Coast, both *accommodation* and *restaurants* increase significantly, namely by 5 per cent each. Furthermore, *petrol*, *aviation fuel* and *meat product* increase 3 per cent each. Industries typically providing services to the Games operation experience strong growth, including *professional science and technical services* (2.7 per cent), *Information media telecommunication* (6.8 per cent) and *internet telecommunication* (5.2 per cent). An interesting finding emerging in this updated study is that in the Games-year visitors’ transport behaviour led to a significant increase in demand for rail transport as compared to road transport, 14 per cent and 4.4 per cent higher than the base case, respectively. In the 2017 Report, the assumed composition of visitors indicated a significant increase in demand for passenger road transport over rail transport, 22 per cent and 16 per cent respectively. The revised composition of visitors seems to portray the demand composition for transport types more realistically: solid growth in passenger road transport and very strong growth in passenger rail transport, reflecting the productivity of the sector with the new light railway in place.

For Queensland, the income effect is much stronger than the substitution effect induced by the appreciation of the exchange rate, thus outputs increase more broadly across a wide range of domestic industries. For the rest of Australia, the income effect appears to be weaker than the substitution effects, outputs of manufacturing sectors decline below the base case slightly, as these can be imported from overseas for cheaper prices.

Although the higher demand for consumption by tourists and the household sector does not draw resources away from the tradeable sector, as mentioned earlier, the changes in relative prices of tradeable and non-tradeable goods as reflected by the appreciation of the exchange rates can still create structural changes among industries as seen for the Rest of Australia. The substitution effect reduces outputs of those manufacturing sectors and thereby shifting employment in the region toward non-tradeable (services) sectors, where the income effect is relatively more influential.

**Table 9: Industry impacts in the Games-year – percentage deviation**

	Gold Coast	Brisbane	RoQLD	QLD	ROA	AUS
Live stocks	0.107	0.037	0.057	0.055	0.039	0.043
Broad acreage crop	0.003	0.027	0.028	0.028	0.018	0.019
Fruit Veg Growing	0.043	0.045	0.043	0.044	0.031	0.034
Coal (black)	-0.062	-0.005	0.003	0.001	0.003	0.002
Oil	-0.004	-0.022	-0.026	-0.022	-0.035	-0.035
Meat Products	2.903	0.116	0.118	0.255	0.059	0.118
Dairy Products	0.467	-0.047	-0.056	-0.001	-0.038	-0.034
Other Food	2.195	0.070	0.065	0.206	0.012	0.059
Wine Spirits Tobacco	0.087	-0.071	-0.063	-0.052	-0.080	-0.078
Textile Clothing Footwear	1.191	-0.545	-0.063	-0.096	-0.193	-0.177
Wood Products	0.627	0.090	0.032	0.127	-0.057	-0.019
Petrol	2.978	0.555	0.298	0.618	0.132	0.242
Aviation Fuel	2.918	0.515	0.170	0.565	0.025	0.147
Chemicals	0.630	-0.001	-0.051	0.078	-0.098	-0.073
Plastic Rubber Products	0.545	0.011	-0.053	0.048	-0.122	-0.093
Non Metal Mineral Products	0.773	0.203	0.072	0.217	-0.005	0.041
Basic Metals	0.304	-0.010	-0.012	0.003	-0.039	-0.029
Structural Metals	0.552	0.011	-0.043	0.056	-0.103	-0.067
Electrical appliances	1.889	0.096	0.028	0.255	-0.035	0.012
Construction	1.346	0.222	0.141	0.330	0.025	0.098
Wholesale Trade	2.483	0.229	0.152	0.462	0.070	0.142
Retail Trade	3.563	0.195	0.141	0.538	0.089	0.179
Accommodation	5.343	0.247	0.145	0.883	0.146	0.308
Restaurant	5.314	0.228	0.126	0.742	0.107	0.229
Road Freight	1.374	0.151	0.081	0.226	0.036	0.076
Road Passenger	4.429	0.197	0.128	0.779	0.092	0.265
Rail Passenger	13.954	1.503	0.343	1.602	0.126	0.443
Air Transport	3.826	0.270	0.076	0.627	0.011	0.154
Postage Transport Storage	0.809	0.158	0.080	0.182	0.030	0.062
Info Media Telecom	6.770	0.172	0.212	1.380	0.024	0.210
Internet Telecom	5.211	0.222	0.324	0.857	0.065	0.176
Finance Banking Insurance	0.614	0.127	0.059	0.168	0.043	0.060
Rent Hire	1.776	0.189	0.111	0.338	0.041	0.116
Professional Science Tech Services	2.715	0.285	0.162	0.580	0.043	0.146
Education	1.363	0.040	0.055	0.182	0.036	0.065
Health	1.585	0.077	0.033	0.231	0.038	0.079
Personal Services	2.379	0.181	0.075	0.355	0.055	0.116
day trip	0.380	1.155	0.491	0.674	0.202	0.332
overnight trip	3.813	1.059	0.137	1.195	0.397	0.991
Chinese inbound market	3.306	0.463	0.615	1.139	0.052	0.429
UK inbound market	4.508	0.491	0.537	0.993	0.137	0.597
NZ inbound market	4.497	0.665	0.135	1.892	0.042	0.532
USA inbound market	2.703	0.167	0.000	0.403	0.048	0.304

## Post-Games simulation and results

The post-Games period is defined as the period of four years following the event, the same interval as the time between any two consecutive Commonwealth Games. This is long enough for a long-run closure to be applied in this analysis.

Model scenario – a standard long-run closure

- Employment is assumed to remain unchanged and the real wage rate is the only instrument to settle the labour market.
- Labour productivity improvement by 1.2 per cent for accommodation and restaurant industries, the two tourism characteristic industries, in the Gold Coast and Brisbane, where the Commonwealth Games could improve the workers' skills afterward<sup>10</sup>.
- Capital stocks adjust to capital demand and the economy-wide rate of returns remain at the pre-determined level.
- Government consumption in the Rest of Australia is no longer required to be constant, as there is no reason for it to be constrained.
- Government consumption in Queensland is assumed to target the pre-determined level of re-prioritisation transfer to ensure budget neutrality for the infrastructure investment.

As highlighted in Table 3, the main stimuli during the post-Games period are the induced effects on increased exports, visitor expenditure and a modest inflow of investment into the all regions of Queensland. While inbound tourism expenditure is estimated to have 18 per cent spillover effects on regions outside Queensland, other stimuli are allocated fully to the state. Approximately, 95 per cent of the induced exports are estimated to originate from Queensland, 53 per cent from Brisbane, 15 per cent from the Gold Coast and 27 per cent from the Rest of Queensland.

Macro-economic results presented in Table 10 show an important role of exports for the Queensland State in the post-Games period. Exports are the main driver of growth, as intended in the government strategy to promote the State's key exporting sectors through the Games. Exports in the Gold Coast, Brisbane and Rest of Queensland increase 2 per cent, 0.3 per cent and 0.2 per cent per year, respectively. Collectively, exports in Queensland grow by 0.4 per cent above the base case.

The higher demand for exports and tourism draws resources toward the state, under the assumption of full employment, the real wage rates increase across all regions (row 8). The combined effect of employment and higher wage rates boosts wage income across all regions leading to increased household consumption for all regions of Queensland. However, wage income is not the only factor that enhances household consumption. The appreciation of the exchange rates makes imported goods relatively cheaper than domestically produced goods, thus domestic consumers are estimated to purchase more from overseas sources. Growth in imports (row 5) is now even higher than growth in household consumption (row 1) for all regions.

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<sup>10</sup> Please see the 2017 Report for more information.

In Queensland, the reduction in government consumption is intentional in order to transfer the budget to fund the Games operation. The combined effects of lower government demand and the substitution effect of the exchange rates generally suppress investment demand for industries in Queensland. However, the net investment growth in Brisbane and the Gold Coast is still positive due to the modest inflow of investment to the regions. The Rest of Queensland region does not have this additional investment inflow, thus its net investment is estimated to decline. Overall, annual growth in Queensland's GSP is estimated at 0.1 per cent higher than the base case per year in the four-year post-Games period.

**Table 10: Economic impacts of a typical post-Games year – percentage deviation**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
<i>percentage change</i>						
1 Real HH consumption	0.667	0.100	0.090	0.155	0.058	0.077
2 Real investment	0.666	0.103	-0.044	0.087	-0.053	-0.027
3 Real GOV consumption	-0.162	-0.168	-0.168	-0.167	-0.019	-0.049
4 Real exports	2.042	0.346	0.163	0.376	-0.047	0.011
5 Real imports	0.766	0.166	0.147	0.217	0.071	0.101
6 <b>Real GRP/GSP/GDP</b>	<b>0.566</b>	<b>0.070</b>	<b>0.028</b>	<b>0.107</b>	<b>-0.017</b>	<b>0.007</b>
7 Employment	0.331	0.036	0.026	0.066	-0.016	0.000
8 Real wage	0.336	0.063	0.064	0.092	0.016	0.031
9 Real capital stocks	0.306	0.059	0.001	0.063	-0.044	-0.024
10 Exchange rate	-	-	-	-	-	-0.009
<i>Cumulative nominal at current prices, \$m</i>						
11 <b>GRP, GSP, GDP</b>	<b>837</b>	<b>498</b>	<b>154</b>	<b>1489</b>	<b>-991</b>	<b>498</b>
12 <b>Adjusted GRP/GSP/GDP</b>	<b>779</b>	<b>498</b>	<b>154</b>	<b>1431</b>	<b>-991</b>	<b>440</b>

Recall that during the post-Games years, the government is assumed to use tax revenue to fund the regular amount of \$19.6 million for the industry support at current prices. Row 11 in Table 10 provides the cumulative economic impacts of the post-Games years prior to any deduction of the tax revenue to fund the industry support.

Following the finalisation of the budget for the Games year, an additional \$20 million cost saving has been realised in the budget for workforce, venue management, games operations and venues. As such, the required annual amount for the industry support is reduced by \$5 million per year over the four years to \$14.6 million, this is well below the tax revenue to the government, as estimated in the simulation. Row 12 in Table 10 adjusts the net economic impacts on the Gold Coast by using tax revenue within the region to fund the annual industry support. The net impact at the state level is an increase in GSP for Queensland by \$1.43



billion. Up to this point, the Queensland Government has settled all funding requirement for the Games under the budget neutrality condition.

For the rest of Australia, the reduction in government consumption is due to the overall condition of the economy, a decline of GSP by -0.02 per cent per year. This decline is due to the increase in the real wage rates that dampens exports alongside the substitution effects of the appreciation of the exchange rate. As a result, resource (employment) is re-allocated away from the Rest of Australia to Queensland. Table 11 estimated that employment in QLD will increase by approximately 1320 FTE jobs throughout the post-Games period.

**Table 11: Employment effects of a typical post-Games year (FTEs)**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
Post-games year	770	353	197	1,320	-1320.48	0

Table 12 presents economic impacts at the industry level. Across the whole Queensland, output of the industries related to tourism activity increase strongly as expected due to the induced event effects such as accommodation (1.3 per cent), restaurant (0.8 per cent), petrol and aviation fuel (0.8 per cent). Output of the film industry (*Info Media Telecom*) increases modestly by 1.4 per cent for Queensland, but at the regional level of the Gold Coast it increases prominently by 8.5 per cent per year to reflect the production of blockbuster movies in the region using the Games venue (Village Roadshow Sound Stage 9), such as Thor and Aquaman.

**Table 12: Industry impacts of a typical post-Games year – percentage deviation**

	Gold Coast	Brisbane	RoQLD	QLD	ROA	AUS
Live stocks	0.025	0.094	0.089	0.089	0.094	0.093
Broad acreage crop	-0.179	-0.014	-0.024	-0.024	-0.038	-0.036
Fruit Veg Growing	-0.322	-0.110	-0.132	-0.126	-0.099	-0.104
Coal (black)	-0.345	-0.096	-0.086	-0.092	-0.132	-0.107
Oil	-0.057	0.037	0.043	0.034	0.006	0.006
Meat Products	1.118	0.168	0.596	0.380	0.323	0.340
Dairy Products	0.019	-0.103	-0.176	-0.114	-0.124	-0.122
Other Food	0.793	0.100	0.267	0.241	0.105	0.132
Wine Spirits Tobacco	-0.234	0.133	0.103	0.085	0.093	0.093
Textile Clothing Footwear	0.284	0.056	0.100	0.110	0.003	0.021
Wood Products	-0.159	0.036	-0.045	-0.023	-0.034	-0.031
Petrol	1.570	0.934	1.126	0.987	1.261	1.200
Aviation Fuel	1.162	0.772	0.981	0.817	0.712	0.736
Chemicals	0.211	-0.001	-0.022	0.025	-0.032	-0.024
Pharmaceutical	-0.651	-0.583	-0.638	-0.595	-0.168	-0.216
Plastic Rubber Products	-0.072	-0.008	-0.102	-0.030	-0.052	-0.048
Non Metal Mineral Products	0.009	0.049	-0.062	0.007	-0.053	-0.040
Basic Metals	-0.105	-0.046	-0.083	-0.072	-0.068	-0.071
Electrical appliances	0.266	0.048	-0.047	0.044	-0.055	-0.039
Electricity Distribution	0.100	-0.011	-0.069	-0.033	-0.100	-0.085
Construction	0.161	0.057	-0.049	0.027	-0.052	-0.032
Wholesale Trade	0.422	0.053	0.052	0.096	-0.010	0.009
Retail Trade	0.909	0.057	0.172	0.194	0.001	0.040
Accommodation	2.144	0.952	1.321	1.263	0.912	0.989
Restaurant	2.194	0.344	1.033	0.811	0.467	0.532
Road Freight	0.251	0.052	0.031	0.061	-0.001	0.012
Road Passenger	1.583	0.483	1.288	1.018	0.712	0.790
Air Transport	1.323	0.723	1.081	0.882	0.695	0.738
Postage Transport Storage	-0.168	-0.190	-0.218	-0.197	-0.001	-0.042
Info Media Telecom	8.491	-0.207	-0.280	1.359	-0.151	0.044
Internet Telecom	0.432	0.021	-0.110	0.042	-0.127	-0.103
Finance Banking Insurance	0.099	-0.011	-0.104	-0.020	-0.126	-0.111
Rent Hire	0.369	0.140	0.101	0.150	0.083	0.100
Professional Science Tech Services	0.204	0.065	0.020	0.072	0.013	0.024
Education	0.419	0.086	-0.018	0.085	-0.111	-0.072
Health	0.732	0.226	-0.085	0.175	-0.123	-0.060
Personal Services	0.471	0.020	-0.049	0.036	-0.094	-0.067
day trip	0.260	0.743	-0.154	0.186	-0.397	-9.769
overnight trip	3.809	4.208	4.058	4.039	5.594	5.546
Chinese inbound market	9.817	1.374	1.826	3.422	0.154	1.313
UK inbound market	0.638	0.027	0.039	0.108	0.011	0.072
NZ inbound market	0.439	0.031	0.013	0.179	0.003	0.049
USA inbound market	2.162	0.133	0.000	0.328	0.038	0.249

Tables 13 and 14 consolidate the net impacts of the Gold Coast 2018 Commonwealth Games on the regional economies. At current prices, all GRP, GSP and GDP in Table 13 are compatible with values that the balance sheet recorded (Tables A1 and A2), thus Table 13 is convenient for results to be related directly to budget discussion. Summing up impacts across nine years of the whole period, the net effect is approximately **\$2.5 billion** of GSP for the Queensland economy.

Table 14 provides information on the outcome of jobs created by the Games, measured by FTEs. Care must be taken when interpreting results from this table. Among three periods, FTEs for the Games year period are only for one year, a short-term basis, while FTEs for the pre-Games and post-Games periods are for four years each, a long-term basis. Adding them directly together posts a conceptual inconsistency. Even though the relationship between the two impacts is not linear, conceptually they would be expected to move in the same direction. It is not plausible for net economic impacts to significantly increase while net employment impacts decrease. Thus, an alternative measure of the employment impacts has been adopted in this report (see following section and Table 16).

**Table 13: Net economic impacts over the whole period – \$ million, current prices**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
<i>cumulative nominal, current prices</i>						
Pre-Games years (4 years)	811	-188	-129	494	-243	251
Games-year (1 year)	214	236	109	559	476	1034
Post-Games years (4 years)	779	498	154	1431	-991	498
<b>Total</b>	<b>1804</b>	<b>546</b>	<b>134</b>	<b>2484</b>	<b>-758</b>	<b>1784</b>

**Table 14: Typical year employment effects of the Games – FTE basis**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
Pre-Games years	1,344	-257	-200	887	-349	538
Games-year	9,360	2,153	784	12,298	3,902	16,200
Post-Games years	770	353	197	1,320	-1,320	0
<b>Total</b>	<b>11,475</b>	<b>2,249</b>	<b>782</b>	<b>14,505</b>	<b>2,233</b>	<b>16,738</b>

## Comparing results between the 2017 Report and 2018 Report

For convenience, Table 15 reproduces gross regional product, gross state product and gross domestic product of both studies for an overview of changes between the two studies. As expected, results of the pre-Games period are not different between the two studies. In the pre-Games period, the Gold Coast is the only region that observes positive growth. Simply, this is due to the construction of infrastructure in the region while other regions do not receive any positive stimuli. In contrast, Brisbane and Rest of Queensland have attained lower government consumption due to the re-prioritisation transfers to fund the Games infrastructure investment, thus both regions show declining growth.

**Table 15: A comparison of GRP/GSP/GDP between two studies, million**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
<i>cumulative nominal, current prices</i>						
<i>Pre-Games years (2013-14 to 2016/17)</i>						
2017 Report	829	-200	-134	495	-249	246
2018 Report	811	-188	-129	494	-243	251
<i>Games-year (2017/18)</i>						
2017 Report	251	319	233	802	441	1243
2018 Report	214	236	109	559	476	1034
<i>Post-Games years (2018/19 to 2021/22)</i>						
2017 Report	625	168	-83	710	-312	398
2018 Report	779	498	154	1431	-991	498
<b>Total (2013/14 to 2021/22)</b>						
2017 Report	1704	286	16	<b>2007</b>	-119	1888
2018 Report	1804	546	134	<b>2484</b>	-758	1784

In the Games-year, there are two factors affecting the results for Queensland. The first is a lower operational expense, because contingency costs were not actually spent and as a result were taken out of the budget. This directly affects the magnitude of the impacts, which could be observed by the net changes of GDP between the two studies (\$1034 million vs \$1243 million). The actual spend of the budget is around 88 per cent of the approved budget (= \$1,410 million/ \$1,598.6 million; Table 2). In addition, the spillover effect of the domestic tourism expenditure was estimated to shift expenditure away from Queensland to the Rest of Australia (\$48 million and \$52.7 million, respectively; Table 24 in the Technical Section). Compared to the 2017 Report, this allocation of domestic spillover effect lowers the stimulus in Queensland. Thus, results for Queensland in general are lower in this current study than in the previous report. In contrast, result for the Rest of Australia has increased (Games-year row, Table 15).

For the post-Games period, the induced exports were allocated mainly to Brisbane and the Gold Coast in the 2017 study. The update from the Trade 2018 Evaluation Report indicates the increased exports are likely to come from the Rest of Queensland regions. Thus, the Rest of Queensland is now estimated to gain from the post-Games period, rather than being adversely affected as estimated in the 2017 study.

While comparing GRP/GSP/GDP between the two studies is relatively easy, it is conceptually challenging for the comparison of the employment impacts. The nature of one FTE in a short-run scenario of the Games year is drastically different from the nature of one FTE in the long-run scenario. The use of 16443 FTE jobs in the 2017 study did not take into account the time span of the jobs. On the simple FTE basis, the total number of employed FTE for all three periods does not reflect correct movements of labour demand between the 2017 report and this report, as one FTE in the post-Games or the pre-Games period implies four years of employment, while one FTE in Games year period reflects only one year. Thus, a direct comparison of the FTE numbers between the two studies will not be consistent with the movements of GRP/GSP/GDP between the two studies: net GRP/GSP/GDP increases but the net employment declines.

To provide a consistent measure, we adopt a new concept of *yearly* FTE, or FTEY hereafter. On this new basis, one FTE created in the pre-Games or post-Games period is equivalent to four FTE jobs generated in the Games year. Table 16 is based on this FTEY basis. It is estimated that the Gold Coast 2018 Commonwealth Games generates a total of 21,128 FTEYs over the course of nine years. Table 16 provides a more compatible comparison of employment impacts between the two studies, showing the current result is 624 FTEYs higher than the 2017 study.

**Table 16: A comparison of employment impacts between two studies – FTEY basis**

	Gold Coast	Brisbane	Rest QLD	QLD	Rest AUS	Australia
<i>Pre-Games years (2013-14 to 2016/17)</i>						
2017 Report	5,495	-1,092	-825	3,578	-1,425	2,152
2018 Report	5,377	-1,029	-799	3,549	-1,395	2,154
<i>Games-year (2017/18)</i>						
2017 Report	10,860	2,681	1,548	15,089	3,331	18,420
2018 Report	9,360	2,153	784	12,298	3,902	16,200
<i>Post-Games years (2018/19 to 2021/22)</i>						
2017 Report	2,110	69	-341	1,838	-1,838	0
2018 Report	3,082	1,413	787	5,282	-5,282	0
<b>Total (2013/14 to 2021/22)</b>						
2017 Report	<b>18,464</b>	<b>1,658</b>	<b>382</b>	<b>20,504</b>	<b>68</b>	<b>20,572</b>
2018 Report	<b>17,819</b>	<b>2,536</b>	<b>773</b>	<b>21,128</b>	<b>-2,775</b>	<b>18,354</b>

## Broad measures of government funding

Compared to the *planned* expenditure, the estimated actual total expenditure for both capital and operational categories of the Games is smaller due to cost savings in operations and contingencies that were not required. The total Games expenditure for this report is \$1853 million, as compared to \$2024 million in the 2017 Report. Although the Games expenditure is lower, the net impact, measured as gross state product, has gone up in this report. Thus, the ratio of GSP/Games-expenditure indicates the effectiveness of every dollar the state government spent on the Games when leveraging on all stimuli is taken into account:

- The 2018 Report  
The GSP/Games-expenditure ratio = \$2484 million/ \$1853 million = **1.34**
- The 2017 Report  
The GSP/Games-expenditure ratio = \$2024 million/\$2007 million = **0.99**

Underlying changes in the above ratio is the increased amount of revenue coming from all sources adding to the government spending on the Games to generate higher net impacts for the economy. These sources of stimuli *in addition to the government budget* for the Games included capital contribution from the private sector, tourism expenditure during the Games time, induced exports and induced tourism demand through venue utilization in the post-Games years. Thus, the ratio of non-government stimulus per dollar spent by the government

provides an aspect of how the seed funding from the government could be multiplied to generate better impacts.

- The 2018 Report  
The net stimulus = \$3,771 million  
Government budget = \$1642 million  
Thus, addition stimulus = \$3,771 million - \$1642 million = \$2,129 million  
Ratio of non-government to government = \$2129 m/ \$1642 m = **1.3**
- The 2017 Report  
The net stimulus = \$3,023 million  
Government budget = \$1780 million  
Thus, addition stimulus = \$3,023 million - \$1780 million = \$1243 million  
Ratio of non-government to government = \$1243 m/ \$1780 m = **0.7**

## Conclusion

This report updates the earlier 2017 Report on the economic impacts of the Gold Coast 2018 Commonwealth Games with actual data that were collated through the Games time. Impacts are estimated in three different periods: pre-Games years, Games-year and post-Games years. Between the two studies, results for the pre-Games years change marginally. In the Games-year period, as the actual expense of the Games operation is less than what was projected in the previous report, results for the Games year in this report are lower than previously estimated. However, results for the post-Games period increase significantly in this update because of considerable uptake of event bookings and induced exports.

This report improves on multiple aspects compared with the previous 2017 Report. In the first instance, the majority of expenditure is collected directly from the attending visitors. In addition, movement patterns of visitors and local residents are explicitly captured and quantified. In particular, using mobile data, the time switching effect of locals leaving the Gold Coast during the Games times was estimated. While the loss of customers to the local businesses might be visible to those businesses that were not located along the route of visitors' movements during the Games time, the economic decrease is not significant in the context of the benefits to the region during the Games time and in the years to come. It is critical for event impact analysis to have a longitudinal approach, as the benefit for such a large investment will not eventuate just over weeks or months. The economic impact analysis of the Gold Coast 2018 Commonwealth Games adopts a timeframe of nine years, a long time span for the benefit to be absorbed fully. As seen, the impacts of the post-Games period are far more significant than the other periods.

Another improved aspect of this report from the previous one is the result of the Trade 2018 Program Evaluation Report, where the expected export sales is estimated to double from the previous study.

An important observation from this update is that the state government managed to reduce the budget for Games while the management in the post-Games period has focused effectively on maximising the use of the Games venues, resulting in better return to the infrastructure investment. This shows significantly improvements in the effectiveness of the use of the public investment for the Games from the 2017 Report. Indeed, the total impacts of the Games depend heavily on how the Games venues are utilised in the post-Games period. The net benefit this could potentially be even higher than the estimates in this update when more sport or business events are attracted to the Gold Coast over time after this study.



## Technical Section

### Allocation of government budget

Games activities primarily occurred within a very short time frame of only twelve days, from the opening ceremony on the 4<sup>th</sup> April followed by 11 days of sporting competition concluding on the 15<sup>th</sup> April 2018. However, the preparation and implication of the Games spread over an extended period. The economic impacts are therefore analysed in different stages depending on the nature of main activities within the whole timeframe. This section revises details of stimuli that are used as shocks to the model.

Both Tables A1 and A2 in Appendix A present the financial position of the Games by the end of June 2018 compared to the planned budget. Data in the two tables are cumulative sums in nature. The two tables are the two parts of a balance sheet in the account framework: *revenue* and *expenses*. Table A1 consolidated all expenses of the Games, including *capital account* and *operational account*. Capital expenditure changed slightly between planned and actual amounts. The costs of constructions for both the Games village and the Venue/Facilities were marginally less than the approved budget by \$31 million in nominal terms.

On the operational account, there are some cost components that exceeded the pre-approved level, such as corporate and administration, venue overlay and transport. However, these increases were more than offset by larger reductions in the operational costs of other components such as the contingency for operation and venue overlay, village overlay, security, village operations, and venue management. The actual *operational* cost was approximately \$139.9 million below the approved budget. Overall, the total reduction of the Games budget was \$171 million.

The reduced spending required a lower level of revenue (\$133 million) from the State Government as reflected in Table A2. Apart from this government funding, the actual revenue of the broadcast rights and sponsorship was also less than expected by \$19 million.

Using a similar structure, Table 17 presents the actual operational account in 2012/13 prices, to be consistent with the model database for modelling purposes. It is convenient to present Table 17 here as a reference point for the subsequent comparison of the capital and expenditure accounts of the actuals and planned values.

It is important to note that total capital expenditure in Table 17 only reflects the government contribution to the total construction cost for the Games, which also included contribution from the private sector.

In the 2017 study, the capital expenditure for the Games Village comprised of three components: construction, land and road improvement and industry support. In this study, as the construction costs of the Games Village did not change, the Games Village capital expenditure reduction from \$232 million in the 2017 study to \$216 million (as shown in Table 17) is translated into a lower level of industry support (figures are commercial-in-confidence). Thus, the total construction cost of both the Games Village and the *new and*

*upgraded venues* amounted to \$799 million, mainly due to the changes in the construction cost of the *new and upgraded venues*, by \$10 million (Table 18).

Table 19 combines the construction costs of the Games Village and the New and upgraded venues together with smaller construction components listed in the operational expenditure in Table 17, such as venue overlay (\$164.6 million), village overlay (\$31.1 million) and public domain improvement (\$6.6 million), so that all construction work can be dealt with at the same time. This treatment was adopted in the earlier 2017 report. Such approach does not affect the outcome of the economic impact study. In addition, Table 19 includes the *interest and other income* from the operational revenue as a source of funding to offset the construction costs.

The actual total *construction investment* cost during the pre-Games period is reduced to \$978 million of which the government sector (predominantly State Government) funded \$586 million. On average, the ***construction investment*** cost was **\$244.4 million** per year during the four-year pre-Games period. The modelling was also assuming that the government would have to re-prioritise their spending for their contribution of the \$586 million of capital construction. Thus, on average, **the re-prioritising transfer** was approximately **\$146.4 million** per year during the pre-Games period.

As venue overlay (\$164.6 million), village overlay (\$31.1 million) and public domain improvement (\$6.6 million) are now accounted in the capital account, effectively the operational cost is equal to just \$931.9 million<sup>11</sup>.

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<sup>11</sup> \$931.9 million = \$1134.2 million - \$164.6 million - \$31.1 million - \$6.6 million

**Table 17: Games expenditure – a revision (\$million, 2012/13 prices)**

<b>EXPENDITURE</b>	Estimated actuals - June 2018	2017 Report – planned budget	% to date
(\$ million, 2012-13 prices)			
<b>CAPITAL EXPENDITURE</b>			
New and upgraded venues and facilities	289	299	0.966
Games Village	216	232	0.929
<b>TOTAL CAPITAL</b>	<b>505</b>	<b>532</b>	<b>0.950</b>
<b>OPERATING EXPENSES</b>			
Ceremonies	35	35	1.01
Arts and culture	19	10	1.82
Games benefits	8	3	2.44
Corporate and Administration	86	57	1.51
Workforce	222	214	1.04
Games operation	60	62	0.96
Anti-doping	2	2	0.77
Medical	3	6	0.42
Venue management	18	31	0.58
Village operations	7	24	0.27
Event City operation	12	20	0.63
Venue overlay	165	110	1.50
Village overlay	31	58	0.54
Marketing and communications	42	51	0.83
Media and broadcast costs	47	51	0.92
Technology	79	80	1.00
Transport	75	54	1.39
Security	153	192	0.80
Games fee	64	62	1.03
Public domain improvement	7	9	0.77
Contingency - operations	0	103	0.00
Contingency - Venue overlay	0	24	0.00
<b>TOTAL OPERATING EXPENSES</b>	<b>1134</b>	<b>1258</b>	<b>0.90</b>
<b>TOTAL EXPENDITURE</b>	<b>1639</b>	<b>1790</b>	<b>0.92</b>

**Table 18: Revised capital expenditure by public and private sector**

	Construction	Industry support	Construction	Industry support
(\$ million, 2012/13 prices)				
	<i>Actuals</i>		<i>2017 Report</i>	
<b>Games Village</b>				
Total Games Village (Government and private)	506	*	506	*
<b>New and upgraded venues</b>				
Government contribution	289		299	
Private	4		4	
Total Village Roadshow	293		304	
<b>Total</b>	<b>799</b>	<b>*</b>	<b>810</b>	<b>*</b>

\* = figures are commercial-in-confidence.

**Table 19: Revised net capital expenditure (\$ million, 2012-13 prices)**

	Total	Government	Total	Government
(\$ million, 2012/13 prices)				
<b>Construction costs</b>	<i>Actuals</i>		<i>2017 Report</i>	
Games Village	506	*	506	*
New and ungraded venues	293	289	304	299
Construction for operation				
Venue overlay	165	165	110	110
Village overlay	31	31	58	58
Public domain improvement	7	7	9	9
Contingency - Venue overlay	-	-	24	24
<b>Return to capital</b>				
Accommodation Services	-	-	-5	-5
Interest and other income	-24	-24	-4	-4
<b>Total construction cost</b>	<b>978</b>		<b>1002</b>	

\* = figures are commercial-in-confidence.

Apart from the interest and other income that was mentioned in Table 19, Table 20 provides the estimated actual Games' revenue in a similar structure as Table A2 but in 2012/13 prices. The top half of Table 20 shows the revenue generated by the Games, while the second half presents the revenue funded by the government.

**Table 20: Revised Games revenue (\$ million, 2012/13 prices)**

REVENUE	Estimated actuals - June 2018	2017 Report - planned budget	% to date
(\$ million, 2012-13 prices)			
<b>Revenue from the Games</b>			
Broadcast rights	56	61	0.92
Sponsorship	70	82	0.86
Ticket sales	57	55	1.03
Licensing/Merchandising	2	4	0.64
<b>Subtotal</b>	<b>186</b>	<b>202</b>	
<b>Revenue from other sources</b>			
Accommodation Services	0	5	0.00
Local government	102	105	0.97
Federal government	141	141	1.00
State government	1216	1333	0.91
Interest and other income	24	4	6.62
<b>Subtotal</b>	<b>1484</b>	<b>1588</b>	
<b>TOTAL REVENUE</b>	<b>1670</b>	<b>1790</b>	<b>0.93</b>

For the modelling purposes, the revenue from the Games in Table 20 and the operational expenses from Table 17 are incorporated into the Tourism CGE model for this present impact analysis. The former is the sales side and the latter is the cost structure of the Games activity, which was previously defined as the Commonwealth Games Industry (CGI). It is important to note that only non-construction components of the operational expenditure are included in the cost structure of CGI. This is because all the construction components are already included as construction investment costs. Output of CGI is calculated as total operational expenses net off those construction costs, which equals \$932 million (2012/13 prices). Compared to the total revenue from the Games of \$186 million presented in Table 20, the output value is approximately **\$746.1** million higher. This difference is treated as *subsidy* from the government to the Games industry in the model database.

## Tourism expenditure

### *Direct tourism expenditure*

Apart from the revenue that the government receives from ticket sales, sponsorship, broadcast rights, the Games generate more revenue to the local economy from expenditure made by Games visitors. Tourism expenditure in this report stems from the GC2018 Visitor Study.

Table 21 reproduces the number of visitors and direct expenditure estimated in the GC2018 Visitor Study. The expenditure from the *ticketed sport and Festival 2018 attendees* was defined under the *additionality* condition of the survey, in which visitors were filtered through two questions:

- (1) Was the Games the primary reason for your trip (if not, did you modify your trip in order to attend?)
- (2) Was attending a Games or Festival event the primary reason you came into the local area today?

Tourists' spend was recorded for the direct expenditure in the Visitor Study only when attending the Games was the primary reason. From the economic modelling perspective, as long as attending Games was not at the expense of any other activity that visitors were planning to visit the region for, the spend at the Games is deemed to be legitimately adding to the region, regardless how significantly visitors have to modify their itinerary. For this reason, the direct revenue for the Ticketed sport and Festival 2018 attendees is re-estimated using information from the GC2018 Visitor Study on average spend and number of visitors while all other direct expenditure components listed in Table 21 are incorporated in this study without further modification.

**Table 21: Games visitors and direct expenditure (current prices)**

Visitor types	Number of visitors	Direct expenditure
Ticketed sport and Festival 2018 attendees (unique)	451,640	126,842,691
Volunteers	14,752	6,492,673
Accredited and non-accredited media	4,500	5,986,303
Athletes and team officials	6,600	6,437,868
Non-ticketed sports attendees	73,690	4,645,435
GC2018 Workforce	35,000	8,117,190
Technical Officials	1,200	485,168
Games Officials	2,150	888,216
Trade 2018 Delegates	1,800	1,181,822
<b>Total</b>	<b>591,332</b>	<b>161,077,366</b>

Source: extracted from GC2018 Visitor Study, Culture Counts, 2018 – Tables 5 and 51.

Utilising average spend figures and the number of public visitors provided in the GC2018 Visitor Study<sup>12</sup>, total direct expenditure for Ticketed sport and Festival 2018 attendees was estimated to be \$182,890,122. This is considerably higher than the revenue of \$126,842,691 listed in Table 21 above. Combining revenue from the rest of Table 21 with the newly calculated expenditure for Ticketed sport and Festival 2018 attendees, a total of \$217,124,797 direct expenditure was estimated at current prices. Table 22 presents direct tourism expenditure in 2012/13 prices. Expenditure of visitors from Elsewhere in Queensland to the Gold Coast in Table 22 includes direct expenditure of visitors from the Volunteer to the Trade 2018 Delegates groups of Table 21.

**Table 22: Direct tourism expenditure (\$million, 2012/13 prices)**

EVENT CITY	GOLD COAST	BRISBANE	CAIRNS	TOWNSVILLE	TOTAL
Local	7.2	1.6	1.0	0.6	10.4
Elsewhere in Queensland	59.2	2.4	0.7	0.4	62.8
Interstate	54.3	1.9	1.6	0.2	58.0
Overseas	42.3	12.4	1.4	0.0	56.1
<b>Total</b>	<b>163.1</b>	<b>18.2</b>	<b>4.7</b>	<b>1.3</b>	<b>187.3</b>

Source: derived from Figures 7, 33 and 34, GC2018 Visitor Study

Using the visitor categories adopted for the modelling framework of the CGE model, direct tourism expenditure data is broken down into:

- Day trip: \$10.4 million
- Overnight trip: \$120.8 million (equal to \$62.8 million + \$58 million)
- Inbound trip: \$56.1 million

### ***Extended stay tourism expenditure – spillover effect***

The GC2018 Visitor Study identifies the proportions of Gold Coast visitors who extended their stay in Queensland or other parts of Australia. This is defined as spillover effect in the pre-Games study. It is also likely that visitors attending the Games in Brisbane, Cairns and Townsville were also going to visit other parts of Queensland and Australia, just like those attending Games in the Gold Coast. However, the sample sizes of visitors attending Games in Brisbane, Cairns and Townsville were not large enough, thus the spillover effect of visitors to these cities were not obtained. In this report, we focus on the spillover effect of visitors to the Gold Coast only.

Applying the average spend per night on the number of Gold Coast visitors who extended their stay, the GC2018 Visitor Study<sup>13</sup> estimated the spillover effects of Gold Coast visitors

<sup>12</sup> Refer to GC2018 Visitor Study Figures 33 and 34 for average spend and Figure 7 for number of public visitors.

<sup>13</sup> Refer to GC2018 Visitor Study Figures 55 and 53, respectively.

on Queensland only. It is noted that the structure of questionnaires effectively makes the spillover impacts on Queensland and on other parts of Australia to be mutually exclusive. The GC2018 Visitor Study, however, did not calculate the spillover effect on other parts of Australia. Adopting the same approach, we incorporated the spillover effect of Gold Coast visitors to other parts of Australia in our modelling work.

Table 23 presents the spillover effects of Gold Coast visitors to other parts of Queensland and Australia. Domestic visitor spillover expenditure is \$100.8 million (2012/13 prices) or \$116.8 million in current prices. Overseas visitor spillover expenditure is \$25.4 million (2012/13 prices) or \$29.4 million in current prices.

**Table 23: Spillover effects (\$million, 2012/13 prices)**

LOCATION OF RESIDENCE	Spillover expenditure on Queensland	Spillover expenditure on other parts of Australia	Total
<i>\$million, 2012/13 prices</i>			
Domestic overnight			
Elsewhere in QLD	\$26.2	\$28.6	
Interstate	\$22.0	\$24.1	
<b>Total</b>	<b>\$48.1</b>	<b>\$52.7</b>	<b>\$100.8</b>
Overseas	\$9.7	\$15.7	\$25.4
<b>Total</b>	<b>\$57.8</b>	<b>\$68.4</b>	<b>\$126.2</b>

### Time switching effect

The Commonwealth Games Mobility Intelligence Report (DSpark, 2018) established the average number of Gold Coast local residents who left the Gold Coast for a domestic trip outside the region in three different conditions:

- Baseline: normal days with any special events
- Easter: a normal holiday condition
- Commonwealth Games: a significantly large event condition

**Table 24: Average number of locals away from the Gold Coast per day.**

	Baseline		Easter		Comm. Games	
	no.	difference	no.	difference	no.	difference
Day trip	8597	12980	4383	7504	-1093	
overnight	52719	59289	6570	60416	7697	

Source: Commonwealth Games Mobility Intelligence report (DSpark, 2018)



It turns out that during the Games time, the average number of day trips of the Gold Coast residents is actually less than the average number of day trips that local residents actually travel outside the Gold Coast, and even lower than the baseline condition.

In contrast, the daily average number of local residents who left the Gold Coast for overnight trips is much larger, around 7,697 more people. This partially explains the lower average number of day trippers travelling outside the region, as perhaps quite a large number of people who normally take daytrips decided to take overnight trips away from the region. While this decrease could be offset by expenditure the average number of Games attendees per day (around 100,000), the decrease of revenue is more likely for businesses not located on the common movement routes and areas of gathering for the Games visitors. For a balanced view, business or economic analysis of the impact of the Games should not focus just on the twelve days of the Games and those businesses that were not on the route that Games visitors could compensate for the loss of local residents.

In order to estimate the economic impacts, generally one would estimate the net balance of visitor changes between day trips and overnight trips, as the changes in daytrips and overnight trips are in opposite directions. However, the nature of expenditure related to the two categories are very different, thus not compatible for such adjustment directly. Our approach is to estimate the most severe loss of residents as possible so that we will not underestimate the adverse impacts of the time switching effect. As such, we ignore the below-baseline average number of day-trippers during the Games time.

The Commonwealth Games Mobility Intelligence report also indicates that on average, each local resident could stay 5.28 days away from the Gold Coast during the Games time. Thus the total number of days-away is 40,640 ( $=5.28*7697$ ). Analysis of the data provided by Tourism Events Queensland for event utilisation indicates that on average a domestic overnight visitor would spend \$180 in Queensland, slightly higher than the average derived from TRA data (\$170). When we apply the higher rate on the number of days-away, the estimated leakage of outbound tourism expenditure from the Gold Coast is around \$7.3 million.

It should be noted that the average spend of overnight visitor includes hotel and transportation costs which do not incur to the local residents when they stay at home. Thus, technically, the impact on local business due to the time switching effect should not be at the full extent of the estimated expenditure loss. However, we adopt the full amount of \$7.3 million at current prices (or \$6.3 million at 2012/13 prices) in this modelling as revenue decrease to the local businesses to reflect a conservative approach in this study.

## **Trade exports**

Large events are a meeting place of consumers from many countries around the world. Thus, international events are often utilised, indeed should be utilised, as a catalyst for more business connection and trade among countries.

Alongside the Gold Coast 2018 Commonwealth Games, the Queensland Government also organised a comprehensive Trade 2018 Program with an intention to attract more investment to the region as well as to create export opportunities for domestic industries.

The Trade 2018 Program attracted thousands of business visitors from within Queensland (68 per cent), inter-state (13 per cent) and overseas countries (19 per cent). The program promoted seven key business areas of the state:

- Health and knowledge
- International education
- Food and agriculture business
- Sport businesses
- Marine manufacturing and craftsmanship
- Film and television production, and
- Innovation and entrepreneurship.

Of the Trade 2018 Program delegates, 36 per cent of domestic delegates indicated it would be extremely likely or likely for them to increase their export sales after the Games. The expected value of the export sales range from \$25,000 to \$5 million, corresponding to proportions of various groups in the total number domestic delegates. In total, when extrapolated to the total number of domestic delegates to the Trade 2018 Program, the induced export sales is estimated to be \$104 million per year measured in 2012/13 prices (\$121.4 million per year in current prices).

In addition, the overseas delegates indicated an increase in potential export sales from Australia to be \$62.9 million per year in 2012/13 prices (\$72.9 million per year at current prices). As it is likely to have some level of overlapping of estimates from the domestic and overseas delegations, we assume that 50 per cent of the induced export sales reported by the overseas delegates is already captured by the estimates from the domestic group. Thus, in total, when extrapolated to the total number of overseas delegates to the Trade 2018 program, it is estimated that the expected induced export sales per year would be \$136.2 million.

In the pre-Games report, the induced export sales was deduced from the sponsorship contribution, as the purpose of sponsorship is indeed to advertise goods and services to prospective consumers. While the advertising through sponsorship is still assumed to effect induced exports, the magnitude of such effect is not assumed to be in full strength, as to some extent it could also be overlapping with the outcome of the Trade 2018 program. Thus, only 20 per cent of the initial estimate in this report is remained and added to the expected induced export sales above.

The total induced export sales per year across the four years of the post-Games period is estimated to be **\$150.8 million** at 2012/13 prices or \$168.8 million at current prices. To put this in to context, Queensland recorded a total of \$83.6 billion of exports of goods and services in 2016/17<sup>14</sup>. The estimated induced exports is approximately 0.2 per cent of total

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<sup>14</sup> <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/5220.02016-17?OpenDocument>

exports of Queensland based on 2016/17 total exports. So while the assumptions applied are arbitrary, they are clearly conservative. This estimate is an achievable target.

## **Event utilisation**

### *Sport events*

Games venues and stadiums are intended to attract more subsequent events in order to maximise the return to public investment – the more events, the higher benefit to the state economy. Thus, state and regional tourism organisations play a crucial role in attracting and creating more events and sport activities in the post-Games period, so as to utilise the facilities and generate ongoing economic activity.

Data for event bookings over the next four years have been provided by Tourism Events Queensland, City of Gold Coast and other Games venue owners or operators. The list of events is indeed comprehensive; this report cannot reproduce it here. Essentially, the bookings are translated into number of visitors for day-trippers, and visitor nights for overnight visitors from other states and territories as well as from overseas countries, depending on the types of events. Subsequently, the revenue for each group is calculated using the corresponding average spend derived from TRA data.

On the yearly average, tourism expenditure of the induced sport events estimated for each group is:

- Day-trippers: \$1.08 million
- Overnight from Rest of Queensland: \$9.3 million
- Overnight from Rest of Australia: \$25.31 million
- Inbound visitors: \$9.5 million

These amount to a total of \$45 million per year (in 2012/13 prices) for the induced sport events.

On average, the number of visitors (including day-trippers, domestic overnight and inbound visitors) is estimated in this report to increase to 88,200 per year over the post-Games period, a significant change from approximately 6000 visitor per year as estimated previously. The number of visitor nights is estimated to increase from approximately 25,000 to 251,000 per year over the post-Games period.

### *Business events*

Information from Destination Gold Coast<sup>15</sup> indicated the Gold Coast had secured 43 business events that could attract 22,450 delegates as result of the Games. It was estimated that these events would generate around \$74 million (current prices). This implies an average spend of \$3,296 per visitor. Given this statement, we assumed that 75 per cent of these visitors are from overseas and the rest are from domestic origins. On this basis, \$13.9 million and \$4.6

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<https://www.destinationgoldcoast.com/Portals/0/Documents/Corporate/Media/Releases/Games%20gold%20for%20business%20events.pdf>

million are allocated to inbound and domestic visitors per year, respectively, over the post-Games period at the current prices, or equivalent to \$12 million and \$4 million per year at the 2012/13 prices.

Destination Gold Coast also indicated another 19 meetings that were waiting for confirmation, with a potential of 7,500 delegates generating \$18.2 million. This implies an average spend of \$2,427 per visitor. We assumed 50 per cent of these would eventuate, thus generating additional \$1.96 million per year at 2012/13 prices for the inbound sector.

In September 2018, the Queensland Government<sup>16</sup> announced the SportAccord World Sport and Business Summit would be held in the Gold Coast in May 2019, as result of the successful hosting of the Games. This Summit will attract more than 1500 sporting leaders from up to 100 countries. Of the 1500 visitors, it has been estimated that 1,300 visitors would be from overseas. These visitors are estimated to generate 10,000 visitor nights and \$6 million (implying \$600/visitor night).

Given the average per person derived from the abovementioned business events, the SportAccord World Sport and Business Summit is estimated to generate approximately \$2.7 million at 2012/13 prices for the inbound sector, and \$0.1 million for the domestic sector per year.

In total, business events are estimated to be \$14.61 million and \$5.31 million at 2012/13 prices for the inbound and domestic visitors respectively.

Combining both sport and business events, the yearly average induced of event utilisation is estimated to be \$65 million across:

- Day-trippers: \$1.08 million
- Overnight from Rest of Queensland: \$9.3 million
- Overnight from Rest of Australia: \$30.6 million
- Inbound visitors: \$24.1 million with an additional spillover effect of \$15.3 million

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<sup>16</sup> <http://statements.qld.gov.au/Statement/2018/9/7/government-secures-global-sporting-convention-for-the-gold-coast>

## Appendix A: Financial Position as at June 2018

*Table A1: Estimated Actual Games Expenditure, current prices*

<b>EXPENDITURE</b>	<b>Estimated actuals to date</b>	<b>2017 Report – Planned budget</b>	<b>Difference</b>	<b>% To Date</b>
million, current prices				
<b>CAPITAL</b>				
Venues & Facilities	315.6	327.1	11.5	0.97
Village	244.5	264.2	19.6	0.93
<b>TOTAL CAPITAL</b>	<b>560.1</b>	<b>591.2</b>	<b>31.1</b>	<b>0.95</b>
<b>OPERATING EXPENSES</b>				
Ceremonies	40.7	40.1	-0.6	1.02
Arts and Culture	21.8	11.9	-9.9	1.83
Games Benefits (legacy)	9.5	3.8	-5.6	2.48
Corporate and Administration	96.5	62.7	-33.8	1.54
Workforce	250.1	240.4	-9.7	1.04
Games Operations	69.2	71.6	2.4	0.97
Anti-Doping	2.2	2.8	0.6	0.77
Medical	3.0	7.1	4.1	0.42
Venue Management	20.7	35.8	15.0	0.58
Village Operations	7.7	28.3	20.6	0.27
Event City Operations	14.0	22.7	8.7	0.62
Venue Overlay	190.5	126.9	-63.6	1.50
Village Overlay	36.2	66.7	30.5	0.54
Marketing and Communications	47.8	57.7	9.9	0.83
Media and Broadcast Costs	53.9	58.3	4.3	0.93
Technology	90.6	90.8	0.2	1.00
Security	176.8	222.0	45.2	0.80
Transport	86.9	62.4	-24.5	1.39
Games Fees	67.8	65.6	-2.2	1.03
Public Domain Improvements	7.3	9.6	2.2	0.77
Contingency - Operations	0.0	118.1	118.1	0.00
Contingency - Venue Overlay	0.0	27.9	27.9	0.00
<b>TOTAL OPERATING EXPENSES</b>	<b>1,293.1</b>	<b>1,433.0</b>	<b>139.9</b>	<b>0.90</b>
<b>TOTAL EXPENDITURE</b>	<b>1,853.2</b>	<b>2,024.3</b>	<b>171.0</b>	<b>0.92</b>

**Table A2: Total revenue of the Commonwealth Games**

<b>REVENUE</b>	<b>Estimated actuals to date</b>	<b>2017 Report - Planned budget</b>	<b>Difference</b>	<b>% To Date</b>
	million, current prices			
Broadcast Rights	65.4	71.2	5.8	0.92
Sponsorship	81.5	95.0	13.5	0.86
Ticket Sales	65.9	63.8	-2.2	1.03
Licensing/Merchandising	2.8	4.4	1.6	0.64
Accommodation Services	0.0	5.6	5.6	0.00
Mascot	0.2	0.0	-0.2	0.00
Corporate Hospitality	0.0	0.0	0.0	0.00
Local Government	111.7	115.0	3.3	0.97
Federal Government	156.0	156.0	0.0	1.00
State Government	1,374.4	1,509.4	135.0	0.91
Interest and Other Income	27.5	3.9	-23.6	6.97
<b>TOTAL REVENUE</b>	<b>1,885.5</b>	<b>2,024.3</b>	<b>138.8</b>	<b>0.93</b>

## About the authors

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Tien is a Principal Research Fellow of GIFT and the *Lead Researcher* of this project. He has worked for the Australian Government Departments as well as academia, including Queensland Treasury, the Australian Bureau of Agricultural and Resource Economics, Productivity Commission, University of Queensland (UQ) and Tourism Research Australia (TRA). At TRA, Tien managed his team to produce tourism forecasts, tourism satellite accounts for all states and territories, tourism economic modelling, and a wide range of annual economic reports.

### **Professor Susanne Becken**

Prof Susanne Becken is the Director of the Griffith Institute for Tourism at Griffith University in Australia. She has published widely on sustainable tourism, destination management and visitor behaviour. Susanne managed the Visitor Flows Model at the Ministry of Tourism in New Zealand from 2006 to 2008. She is a member of the Air New Zealand Sustainability Advisory Panel, PATA's Sustainability and Social Responsibility committee, and the Whitsunday Climate Change Innovation Hub.

### **Professor Michael Powell**

Michael is Professor Emeritus at Griffith University and Academic Director of Griffith University Industry Partnerships. Prior to this appointment, Michael was Academic Director of Griffith University's GC 2018 Partnership. Formerly Pro Vice Chancellor (Business) and Dean of Griffith Business School, Michael has served as President, Vice President and Treasurer of the Australian Business Deans Council, a member of international accreditation committees of AACSB International, and Chair of the Globally Responsible Leadership Council. He is a graduate of The University of Chicago and The University of Auckland where he also served as Deputy Dean of the University of Auckland Business School.