

5.2.1 Current Performance

Room rates and occupancy rates are the two most commonly used measures of hotel performance. However, assuming hotels don't significantly discount their rooms regularly, occupancy rates are arguably the more useful measure. As a rough rule of thumb, hotels achieving occupancy rates of >65% should be relatively profitable for the operator.

Sydney's hotels are one of the best performing hotel markets in the world, with occupancy rates averaging over 80%. In comparison, Dubai at 86% has the highest occupancy in the world, but is currently facing chronic undersupply in the hotel sector.



Major Cities' Occupancy Rates , YTD April 2008 Chart 5.1

Source : STR Global 2008; Urbis

Note: Sydney defined as the broader metro area, larger than our Inner Sydney defined area

In the Sydney market, 4 and 4.5 star hotels have slightly higher occupancy rates than the 5 star hotels, although in the past few years, this gap has closed significantly.



5.3 Demand

Demand for hotel nights comes primarily from tourists to the city, whether for work or pleasure, from interstate or overseas. Demand over the last 8 years has been relatively volatile given the significant increase in supply pre the 2000 Olympics, while the adverse affect September 11 had on international travel was also felt in Sydney. Over the last three years, demand has remained relatively constant.



Source : CDMOTA, Tourism Research Australia

Based on the 73 competing hotels in the Inner Sydney area, we estimate some 4.8 million visitor nights are generated, with an average occupancy rate of nearly 80%.

Forecasting demand of future visitation is an inexact science. The tourism sector is susceptible to a multitude of shocks:

- A strong Australian dollar makes Australia a more expensive destination for international visitors while making an overseas trip for Australian's more attractive (albeit separate forecasts by Access Economics and Macquarie Bank are indicating an expected fall in the value of the Australian dollar by 2012, making Australia more affordable for international visitors in the foreseeable future).
- General global economic conditions, including rising oil prices, making travel more expensive and thus less appealing.
- Terrorism has significantly dampened people's propensity to travel overseas, but this has stimulated domestic tourism.
- Tourists are fickle, price sensitive and shift preferences regularly. Some places become 'hot spots' while others become a place of the past quickly.

A range of other factors, outside the control of the tourism sector contribute to the volatility of visitation and hence room night stays. The Tourism Forecasting Council (TFC) forecast relatively flat growth in visitor levels to NSW over the next decade. Therefore, when measuring the impact this new hotel is likely to have on the existing hotels, we have assumed demand using two scenarios:

- 1. Minimal growth of 1% per annum, with additional supply catering for peak periods; and
- 2. No growth from current levels.



5.4 Impact Assessment

5.4.1 Methodology

Growth in visitor nights is not expected to increase significantly, however, it is understood that during peak times, particularly when major events and exhibitions are staged, hotels in Sydney reach full capacity. As such, some visitors will either not visit the city (because they cannot get accommodation) or defer their trip (which for business visitors this is typically not an option). The introduction of a new hotel in Sydney will therefore accommodate those visitors who currently cannot book accommodation during those peak periods, whilst also spread the existing tourist nights amongst more hotel rooms.

The following assumptions have been made when assessing the impact of the new hotel on the existing accommodation offer:

- 1. The new Star City hotel will achieve an occupancy rate of 80% (about the current occupancy rate of existing hotels in Sydney). This equates to 90,228 room nights.
- 2. A 1% per annum increase in hotel guest nights over the next four years will result in an additional 195,000 room nights.
- 3. The impact is calculated by allocating the lost number of visitor nights (90,228) across the competition, and then adding in the 195,000 room nights from market growth.
- 4. Competition only includes those in the local area (as defined above). Further, only hotels with 4 star ratings or higher are considered to compete with the new hotel.
- 5. The impact will be weighted towards 5 star hotels (70%) vs. 4 and 4.5 star hotels (30%).
- 6. There are six hotels we expect will experience a greater impact because of their:
 - Proximity to the proposed hotel
 - Relative size
 - Quality

The hotels are:

- Star City Hotel & Apartments
- Hilton Sydney
- Grand Mercure Apartments One Darling Harbour
- Novotel Rockford Darling Harbour
- Holiday Inn Darling Harbour
- Four Points by Sheraton Darling Harbour Sydney

5.5 Results

The 73 hotels in the inner Sydney area are estimated to contribute 4.8 million guest nights. With minimal visitor growth, this is expected to increase to nearly 5 million guest nights by 2012.

The Australian Hotels Association collects data on a select number of hotels in terms of their occupancy and room rates. Where specific hotel occupancy rates are unknown the average is applied. The hotels have been split into three groups:

- 1. Competitive Hotels, which are the 6 hotels most likely to be impacted by the Star City development. These hotels currently have an occupancy rate of 83.5%;
- 2. 5 Star Hotels, which have an average occupancy of 77.7%; and

.



3. 4 & 4.5 Star Hotels, which have an average occupancy rate of 81.1%.

The inclusion of the new Star City hotel with an estimated occupancy rate of 80% will have the following impact on these three hotel groups:

- Forecast market growth (195,000 guest nights), outweighs the visitor nights created by the new hotel (90.228), therefore occupancy rates across the board are expected to increase should no further supply occur.
- Competitive hotels are expected to increase their occupancy by 0.2%, but this will result in an average occupancy rate of nearly 84%, nearing global highs. Therefore the addition of the new Star City Hotel will not leave these competitive hotels in a position below that of their current position;
- Other 5 Star Hotels are expected to have occupancy rates of nearly 80%, nearly 2% above current levels as a result of ongoing market growth;
- 4 and 4.5 Star Hotels are likely to have occupancy rates in excess of 83%, some 2.4% above current levels; and
- This analysis suggests that the Sydney hotel market could comfortably sustain further increased supply in the short term, with peak periods still likely to preclude some visitors to the City due to 100% occupancy levels being achieved in most hotels at these peak times.

Impact Assessment, assuming 1% per annum demand growth to 2012						
Hotel	Hotel Nights 2008	Original Occ. Rate	Hotel Nights 2012	Occupancy Rate	Impact vs. Orig Occ	
Proposed Hotel			90,228	80.0%	—	
Hotels - Higher Impact	708,545	83.5%	710,020	83.6%	0.2%	
5 Star Hotels	2,309,836	77.7%	2,359,571	79.4%	1.7%	
4-4.5 Star Hotels	1,779,003	81.1%	1,832,358	83.5%	2.4%	
Total	4,797,384	79.8%	4,992,177	81.5%	1.7%	

Source : Australian Hotel Association; Urbis

5.5.1 No Growth Scenario

If there was no growth in visitor nights over the next 4 years, which we consider a conservative or worst case scenario, then the impacts would be:

- A 3.2% fall in occupancy rates on the competitive hotels. These impacts vary between 2% and 6% on the specific hotels, but across the board average occupancy rates would still exceed 80% which is considered to be a healthy occupancy rate.
- A small 1.5% fall in 5 Star Hotels, with occupancy rates still in excess of 76%; and
- A 0.9% fall in 4 and 4.5 Star Hotels to 80.2%.

These impacts are very minor given the current high occupancy rates and performance of the hotel sector in Sydney. From this analysis there is no expectation that the development of the new hotel on the Switching Site will cause any of the competitive hotels to become unviable, and we expect that there will be significant benefits to the tourist industry in terms of providing a broader choice and capacity for larger scale events.



5.6 Economic Benefits

The addition of a new hotel can have the following benefits:

- Increased competition, which leads to downward pressure on prices. This in turn can generate
 additional demand (i.e. will attract people to the City who were previously priced out of the market).
- New supply creates efficiencies in the market, with poorer operators likely to be impacted most in the long run.
- New supply rejuvenates the overall hotel offer. Older and obsolete stock can be rebranded (e.g. downgraded star rating), or ultimately redeveloped (either as a new hotel or for another use).

Increased competition, efficiency and rejuvenation will ultimately have a positive impact for the city.

5.7 Conference Upgrade Impact

The new development will increase the capacity of the existing conference facility from 900 to 1,200 delegates. Given the very minor increase in supply to the overall conferencing market, an in-depth analysis on the impact of this aspect of the development has not been conducted. However, a report conducted by URS for the Property Council of Australia (PCA) suggests that Sydney is significantly undersupplied in terms of conference and exhibition space. In fact, Sydney may be losing a substantial number of conferences/exhibitions due to the current shortfall of adequate space in the city.

Therefore, the increase in Star City's conference capacity is not only unlikely to impact existing facilities, it is likely to encourage more conferences and conventions to the city. Given the expenditure profile of conference delegates (their average daily expenditure is considerably higher than the typical tourist), this can result in significant benefits to the local and state economies.



6 Social and Economic Benefit Assessment

6.1 State and Local Benefits

The assessment of the economic benefits of this development are based on the plans outlined in Section 2.

The economic benefits of the Star City redevelopment occur in two distinct phases. The operational phase provides benefits to the local, regional and state economies as a result of the operation of the hotel and retail facilities, which in turn attracts additional visitors to the region. The construction phase provides a number of jobs to the local and state economies in the construction industry in particular, but also to supporting industries.

The benefits of each of these phases are outlined and quantified below.

6.2 Operational Phase

Once the redevelopment is completed, there will be additional expenditure and employment impacts derived from the operating activities of the new hotel and retail development.

The development will attract additional visitors to Inner Sydney, who will then spend locally, and thus boost local employment. Based on the estimated development mix, it is estimated that over 500 jobs will be required to service the substantial retail and hotel offer. This in turn will generate 400 jobs in supporting industries.

The increase in gaming floorspace will also provide additional employment opportunities in gaming, cleaning, security, administration etc. This alone could boost employment by in excess of 300 FTE jobs.

6.3 Construction Phase

In order to assess the economic benefit of the construction phase of the development, the number of jobs the development might create has been assessed. For the purposes of this analysis the Australian Input-Output (I-O) employment multiplier tables from 1996-97¹ have been utilised. These are the most recently published tables by the ABS. Appendix 3 gives an overview of I-O analysis and modelling.

We note that the published tables are not current. In order to make them reflect the current state of the economy more accurately, adjustments have been made for productivity and inflation.

Using the adjusted employment multipliers and value of construction (as provided by Star City and estimated at \$350 million), it is possible to estimate the number of jobs to be created. This is presented in Table 6.1.

¹ ABS Australian National Accounts, I-O Multiplier Table 3T, 1996-97

Total Employment Impact of Proposed Development Table 6.1 Supplier Direct Employment Total Development Option/ Employment Multiplier Jobs² Type of Employment Effects **Construction Phase** 1,698 2,673 4,371 Operational Phase Employment Increase ³ 411 927 516 Total¹ 2,214

1. Total Employment - full-time, part-time and casual

2. Indicates the estimated number of jobs over the life of the construction project plus ongoing multiplier effects.

Jobs are for the equivalent of one year of employment.

3. Indicates the estimated number of ongoing jobs as a result of the proposed expansion (ie the floorspace increase)

Source : Urbis

The jobs created are categorised into two key sections – direct employment and indirect employment. Direct employment includes the initial effects, while the indirect effects include the first round effects, the industrial support effects and the consumption induced effects.

Construction is expected to occur over a three year period (end 2008 to mid 2011). The employment numbers shown in Table 6.1 represent full time jobs for the entire development period (i.e. over three years). Overall, the construction phase is expected to generate over 4,300 jobs.



Appendix A Socio-Economic Profile

Pyrmont and Broader Catchment Socio-economic Profile A.1

Key Socio-E conom ic Characteristics of the Trade Area Population, 2006

USUALRESIDENTBASED				
		Prodor	S ydney Metro	
Characteristics	P ym ont	Catchment		
Incom e				
Average Per Capita Income	\$51,006	\$42,848	\$29,221	
Per Capita Income Variation	+74.6%	+46.6%		
Average Household Income 5	\$103,187	\$89,668	\$78,617	
Household Income Variation	31.3%	14.1%		
Average Household Size	2.02	2.09	2.69	
Age Distribution (%)				
Aged 0-13	7.2%	9.4%	18.2%	
Aged 14-24	17.8%	17.3%	15.1%	
Aged 25-39	47.2%	37.3%	23.0%	
A ged 40-59	20.3%	24.3%	26.9%	
Aged 60+	7.5%	11.7%	16.7%	
A verage A ge	33.6	35.9	36.7	
Housing Status (%)				
Owner ²	11.7%	19.4%	32.9%	
Purchaser ²	25.0%	26.0%	34.1%	
Renter ²	63.0%	54.1%	32.3%	
Public Renter 3	7.4%	7.9%	5.6%	
Private Renter ³	55.6%	46.2%	26.6%	
Same Address 1 year ado	65.8%	72.5%	85.0%	
Different Address 1 year ago	34.2%	27.5%	15.0%	
Same Address 5 year ago	25.1%	40.5%	61.3%	
Different Address 5 year ago	74.9%	59.5%	38.7%	
Household Structure (%)				
Family Households	54.6%	52.3%	72.7%	
Non-Family Households	45.4%	47.7%	27.3%	
Group	15.2%	12.4%	4.2%	
Lone Person	30.2%	35.3%	23.1%	
Fam ily Composition (%)				
Couple family with no children	62.3%	51.9%	33.2%	
Couple family with children under 15	14.7%	21.8%	32.9%	
Couple family with no children under 15	6.2%	8.4%	16.4%	
One parent family with children under 15	5.0%	5.6%	7.8%	
One parent family with no children under 15	6.1%	7.4%	7.8%	
Other	5.7%	4.9%	1.9%	
Labour Force				
Employed	5,672	69,580	1,903,284	
Unemployed	236	3,535	106,740	
Labour Force	5,908	73,115	2,010,024	
% Unemployed	4.0%	4.8%	5.3%	
	02.076	17.370	05.070	
Occupation (%)				
Managers	19.5%	17.1%	13.5%	
Professionals	36.9%	39.5%	24.3%	
recnnicians & trades workers	6.8%	7.3%	12.9%	
Community & Personal Service Workers	8.9%	8.2%	8.2%	
Sales Workers	10.0%	14.270	9.7%	
Machinery operators & Drivers	1.0%	1.6%	5.7%	
Labourers	3.7%	4.1%	8.2%	
White Collar (%)	88.5%	87.0%	72.8%	
Blue Collar (%)	11.5%	13.0%	27.2%	
Birthplace (%)				
Australian Bom	46.6%	60.1%	65.6%	
Overseas Born	53.4%	39.9%	34.4%	
Tertiary Education (%) 4				
Bachelor Degree or Higher	34.2%	35.1%	21.1%	
Advanced Diploma or Associate Degree	7.6%	7.8%	8.5%	
Undertaking Tertiary Education	8.0%	11.9%	5.7%	

Not Stated and Inadequately Described have been removed from alcabulations ¹ Other Tenure Types have not been included ² As a percentage of totalRentes. Rubc Renters include State or tentroy housing authorly' and Housing co-operative/community/church group? Hivate Renters include Realestated agent? Herson not is same household and Other Introdu type! ⁴ As a percentage of the totalpopulation aged over 18 years. Not adqualization and education options have been stated, therefore the percentages are of a range much

Be produced to an approximate region of the provided to 100%.
^a Cabulated using mit points for the personalincome ranges and then divided by the number of occupied pivate diverges. Therefore I wont equal personalincome multipled by household size.

Source : ABS Census of Population and Housing 2006; Urbis



Appendix B Tourist Profile

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B.1 Tourist Profile

The tourist market in Sydney LGA comprises of:

- International visitors
- Domestic overnight visitors, from interstate and intrastate; and
- Day trip visitors

In 2007, 32.3 million overnight tourists visited Sydney and an additional 17.1 million day visitors. The average length of stay for domestic visitors in 2007 was 2.7 nights while for international visitors there average length of stay is up to 12.5 nights.

Table B1.1 is a time series of domestic and international visitors and day trips over the past 5 years. Both International and Day Visitors have increased since 2003, while domestic visitors have decreased sightly since 2003.

Star City Tourism Market Overview Table B1.1							
	Domestic Visitors ('000)			International Visitors ('000)			Day Trips ('000)
Year_	Visitors	Visitor Nights	Average Length of Stay	Visitors	Visitor Nights	Average Length of Stay	Visitors
2003	4,858	13,000	2.7	1,688	15,176	9.0	15,270
2004	4,724	12,061	2.6	1,781	17,056	9.6	14,269
2005	4,713	12,509	2.7	2,041	22,684	11.1	13,641
2006	4,743	13,489	2.8	2,070	27,425	13.3	15,537
2007	4,237	12,318	2.9	2,076	25,890	12.5	17,125
Total	23,275	63,377	2.7	9,655	108,231	11.2	75,841

1. Year ended December

Source : Toursim Research Australia; Urbis

B.2 Day Visitors

Day visitors are domestic residents who travel at least 50 kms away from home and are away for at least 4 hours that is not included as part of a routine trip.

B.2.1 Visitor Origin

Chart B1.1 illustrates the regions in which domestic day trippers originated. The majority of day trip visitors are intrastate visitors (i.e. come from within New South Wales) comprising of 94% of all day visitors to the Sydney LGA.

A break down of the respondents within New South Wales found that 16% of all day visitors originated from the South Coast, 14% from the Central Coast and 13% from the Hunter Region.

Interstate Visitors consisted of 6% of all day visitors with a significant proportion of day visitors originating from the ACT at 3%, followed by Victoria at 2% and Queensland at 1%.



Chart B.1

Sydney LGA : Day Visitor Origin 2007_



1. Year ended December

Source : Urbis, Tourism Research Australia

B.2.2 Visitor Demographic Profile

Table B1.2 below provides a summary of the demographic profile of day visitors to Sydney. The typical day visitor to Sydney was aged between 25-44 years of age, earning between \$36,400 - \$77,999 and working full time.

Sydney LGA: Day Visitors Demographics, 2007		Table B1.2
	Visitors (No.)	%
Age ¹		
15 - 24 years	13,574	24%
25 - 44 years	18,498	33%
45-64 years	16,463	30%
65 years or over	7,170	13%
Refused	10	0%
Gender		
Male	27,572	49%
Female	28,142	51%
Household Income		
below \$15,600	2,635	5%
\$15,600 - \$36,399	7,836	14%
\$36,400 - \$77,999	14,502	26%
\$78,000 - \$129,999	10,729	19%
\$130,000+	5,270	9%
Refused	5,895	11%
Don't know	8,848	16%
Employment		
Working - Full time	22,967	41%
Working - Part time	8,455	15%
Unemployed/looking for work	1,941	3%
Retired	10,292	18%
Home Duties	2,893	5%
Studying	8,058	14%
Other	1,109	2%

1. People aged under 15 not surveyed

Source : Toursim Research Australia; Urbis

B.2.3 Purpose of Visit

Day visitors were asked to categorise their purpose for visiting Sydney and the top responses included:

- 27% described their purpose as a holiday/get away; •
- 24% came to visit friends and relatives; and
- 13% came for business purposes.

Interestingly 3% of all day visitors attended conferences/exhibitions during their day visit. See chart B1.2 below.



Source : Urbis, Tourism Research Australia

B.2.4 Activities Undertaken

The activities typically undertaken by day visitors to Sydney include, eating at restaurants (48%), shopping for pleasure (27%), visiting local attractions (10%). The other category includes amalgamation of activities such as visiting a casino (2%), attending a sports event (3%) and attending picnics and BBQ's (3%). See Chart A1.3 below.



Source : Toursim Research Australia; Urbis

B.2.5 Expenditure Profile

Chart B1.4 below shows the proportion of expenditure spent by day tripper to Sydney by type. Day visitors are likely to spend a significant proportion of their total expenditure on shopping (32.9%), takeaway food (18.6%). Increases in petrol prices have seen fuel comprise of 18.4% of total expenditure. Interestingly only 0.7% of total expenditure is spent on some sort of recreational gaming.





Source : Urbis, Tourism Research Australia

B.2.6 Summary

Overall the typical day visitor is likely to be an intrastate visitor, who will be aged between 25-44 years of age, earning between \$36,400 - \$77,999 and working full time. The reason they came to Sydney was for a holiday. Typical activities undertaken by the day visitor include eating out at a restaurant and shopping for pleasure. Majority of the day visitors' expenditure will be on shopping and food.

B.3 Domestic Overnight Visitor

B.3.1 Visitor Origin

As shown in Chart B1.5 below, 41% of Sydney's domestic overnight visitors during 2007 were intrastate visitors. Residents from NSW (excluding Sydney) accounted for 33% of domestic overnight visitors, while Sydney residents accounted for 8% of domestic overnight visitors. The majority of interstate visitors to Sydney during 2007 came from the eastern states. Victoria accounted for 24% of all domestic visitors to Sydney, while Queensland accounted for 15% and 8% were from the ACT. A further 5% of interstate visitors were from South Australia.



Source : Urbis, Tourism Research Australia



B.3.2 Visitor Demographic Profile

Table B1.3 below provides a summary of the demographic profile of domestic overnight visitors to Sydney. The key points to note are as follows :

- Domestic overnight visitors typically range between 25 to 59 years.
- There is a higher proportion of male domestic overnight visitors (57%) compared with female visitors (43%).
- The majority (61%) of domestic overnight visitors are working full time.
- 42% of domestic overnight visitors have a household income of \$78,000 or more.

Sydney Domestic Overnight Visitors Demographics, 2007				
	Visitors	%		
Age ¹				
15-24	6,895	15%		
25-39	13,567	30%		
40-59	18,734	42%		
60+	6,068	13%		
Gender				
Male	33,765	57%		
Female	25,345	43%		
Household Income				
below \$15,600	1,882	4%		
\$15,600 - \$36,399	6,535	15%		
\$36,400 - \$77,999	15,833	37%		
\$78,000 - \$129,999	13,650	32%		
\$130,000+	5,011	12%		
Employment				
Working - Full time	35,784	61%		
Working - Part time	7,395	13%		
Unemployed/looking for work	871	1%		
Retired	7,010	12%		
Home Duties	2,427	4%		
Studying	4,796	8%		
Other	466	1%		

1. People aged under 15 not surveyed

Source : Toursim Research Australia; Urbis

B.3.3 Purpose of Visit

Chart B1.6 below shows the relative change in purpose for overnight visits to Sydney between 2003 and 2007. Of note is the increase in proportion of business work trips, which has risen from 27% to 32.7% and holiday trips which have increased from 14.7% to 23.5%. The proportion of visits categorised as other has fallen significantly, down from 30.7% to 8.9%.



Source : Urbis, Tourism Research Australia

B.3.4 Activities Undertaken

Chart B1.7 below shoes the activities undertaken by domestic overnight visitors. The most popular activities include socialising (88%), eating out at restaurants (65%) and shopping (32%).



Source : Toursim Research Australia; Urbis

B.3.5 Accommodation

Chart B1.8 below shows the type of accommodation facilities utilised by visitors when staying in Sydney. 31.3% of visitors stay with friends or relatives while visiting Sydney. Of those that stay in paid accommodation, 31.2% of visitors choose to stay in luxury hotels or resorts, 24.1% stay in a standard hotel or





1. Pecentage of total visitors in Year Ending December 2007 Source : Urbis

B.3.6 Expenditure Profile

Chart B1.9 below shows the proportion of expenditure by type for Sydney domestic visitors. Accommodation accounts for the largest proportion of expenditure by domestic overnight visitors at 22%. Airfares typically account for 17.5% of domestic visitor expenditure to Sydney. A further 17.5% of expenditure is on meals and 16% on shopping. Less than 3% of domestic visitor expenditure is on entertainment.



1. Year ended December

Source : Urbis, Tourism Research Australia

B.4 International Visitors

Chart B1.10 below shows the origin of Sydney international visitors. 30% of overnight visitors to Sydney are from Asia, typically Japan, Korea, Hong Kong and Singapore. Sydney also draws strongly from Europe, the United Kingdom, the United states and China.





Source : Toursim Research Australia; Urbis

Chart B1.11 provides a comparison of the purpose of visits to Sydney by international visitors in 2003 and 2007. As demonstrated below, there has been a significant increase in the number of visitors making business trips and visiting friends and relatives. By contrast the proportion of holiday or leisure trips have fallen substantially.



1. Year ended December

Source : Urbis, Tourism Research Australia

Chart B1.12 below shows the type of accommodation facilities utilised by international visitors while staying in Sydney. In terms of paid accommodation, approximately one third of international visitors choose to stay in luxury hotels and resorts, 30.1% opt for standard hotels or motor inns, 4.5% stay in serviced apartments. 13.7% of international visitors choose to stay with friends or relatives while in Sydney. 18.1% of international visitors stay in some other form of accommodation.





1. Pecentage of Total visitors in year ending, December 2007 Source : Toursim Research Australia; Urbis



Appendix C

Input – Output Analysis – General Comments

C.1 Input – Output Analysis – General Comments

Input-Output (I-O) analysis is a useful way of measuring the impact of economic shocks to a regional economy. I-O analysis requires the use of I-O tables for the defined region. Generating such tables is a complex, resource intensive process.

I-O tables are a snap-shot of an economy. They provide a detailed picture of the intermediate transactions in an economy, and describe the supply and use of the products for that economy. As such, they provide great detail on the workings of an economy, and the interrelationships between different industries, different segments of final demand (e.g. exports, households), and different sources of inputs (e.g. imports, labour).

When an individual industry changes its level of production, the impact is felt by all industries that are linked to that industry via supply or demand chains. By observing how each industry and segment of the economy is linked, it is possible to estimate how a shock that changes production in one industry impacts on the economy as a whole.

I-O Multipliers are a useful product of I-O tables. Multipliers are a simply way of showing the impact on one industry on the rest of the economy. Production multipliers show how much production is required throughout the entire economy to produce \$1 worth of production in a single industry. Another useful multiplier is the employment multiplier – it shows how many jobs are required to produce \$1 million in a single industry. For the purposes of this analysis we have utilised employment multipliers.

I-O employment multipliers are generally divided into four segments :

- 1. **Initial Effects**: The extra employment required to construct the facility.
- 2. **First Round Effects:** the amount of employment created in all industries of the economy to produce the goods required for the construction of the facility.
- 3. **Industrial Support Effects:** The first round output from all industries will induce output from all industries, and in turn, these will induce extra output, and so on. All of this extra output will require increased employment.

The first round effects and industrial support effects are cumulatively known as the production induced effects.

4. **Consumption Induced Effects:** The construction of the facility (initial effect) and the production induced output wage and salary earners will earn extra income which they will spend on commodities produced by all industries in the economy. This spending will induce further production in all industries. The required employment for this further induced production is the consumption induced output.

There are a few underlying assumptions when forecasting impacts using I-O analysis that need to be taken into account :

- There is a fixed input structure in each industry, and all producers in an industry produce an
 identical product (or products in fixed proportions to each other). In reality, however, demand
 changes in one industry is likely to change the mix of goods demanded in other industries as
 relative prices of goods change.
- Each industry exhibits constant returns to scale in production. That is, greater production can only be achieved by increasing demand for all inputs in fixed relative proportions. This is because I-O analysis only describes average effects, not marginal effects. In reality, industries are likely to be able to achieve economies of scale as they expand.
- There is no restriction to the availability of labour or capital at a fixed price. Further, labour is assumed to have been idle prior to any economic shock, and not contributing to final demand. However :

- it is likely that some new labour demand resulting from an economic shock will be satisfied by labour that was previously employed (resulting in a zero net increase in employment).
- previously unemployed workers are likely to have been on some form of welfare, therefore contributing to final demand.

On average, these assumptions generally result in I-O analysis exaggerating the impact of an economic shocks, whether positive or negative. However, as long as these assumptions are kept in mind, I-O analysis is still a useful and illustrative tool for conducting economic analysis.