Removing poker machines from hotels and clubs in Tasmania: Economic considerations

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Contents

Executive Summary

Unlike most other elements of consumer spending, gambling has acknowledged and measurable social costs. However, most Australian States have come to rely on taxation generated from gambling and justify doing so on the basis that they believe the revenue generated exceeds the associated social cost. This argument cannot be used in Tasmania, where poker machine revenue constitutes only one per cent of State revenue. Just over half of this one per cent comes from poker machines in hotels and clubs.

Anglicare Tasmania is seeking to have poker machines removed from hotels and clubs in Tasmania and restricted to licenced casinos, the model currently in place in Western Australia. This in the belief that the social harm (and its quantifiable economic costs to the most vulnerable in Tasmanian society) associated with the widespread and easily accessible poker machines in Tasmania outweighs any economic benefits that may accrue.

This report examines the likely economic impacts of such a shift in poker machine location against a backdrop of likely change in the legislation and regulation of gambling in Tasmania.[1] The current parliamentary inquiry into the gambling industry in Tasmania provides the opportunity for structural change and for promoting policies that minimise social costs associated with gambling.

It is in this context that Anglicare's proposal should be seen as providing a non-complex means of reducing social costs of gambling while still providing gambling options in the State.

In summary, the main findings of this report are:

- Expenditure on poker machines does not bring new economic activity to Tasmania, it simply replaces existing activity.
- Gambling is only a small part of the Tasmanian economy, which results in social costs exceeding economic benefit.
- The Tasmanian economy is in a period of growth where the expansion of service industries will more than counter any employment loss that might arise from within poker machine venues.
- The three economic scenarios modelled for this report show increases in Gross State Product and employment with the removal of poker machines from all hotels and clubs.
- The Tasmanian Government is not dependent on taxation from poker machines.

How economic modelling works

Economic models are driven by what is called 'shifts in final demand'. By this we mean that new expenditure on finished products represents a stimulus to economic activity. If this new expenditure is exogenous (i.e. originates from outside the economy it is spent in), it is particularly valuable to the local economy because it represents additional new investment, not just displacement from other

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[1] See "Tasmanian Government vows to end Federal Groups pokies monopoly" www.abc.net.au/news, 18 March 2016.

areas of past spending within that economy (endogenous spending). Overall the main factors that govern how influential an industry will be terms of economic impact are:

- *Endogenous vs Exogenous,* the extent to which the activity brings in new spending to the economy rather than simply displacing existing activity.
- *Leakage*, the extent of leakage from the host economy, for example through the need for imports in the production process, or the repatriation of profits and dividends. The more leakage the less impact the activity has on the domestic economy.
- *Linkage,* the extent to which the production of the product is linked to other sectors in the economy. The more integrated a sector is to the domestic economy the greater the impact of exogenous expenditure.

Gambling expenditure on poker machines in Tasmania does not perform well as a vehicle of economic impact on any of these criteria:

- It is almost completely displacement spending, taking away from other potential spending in the domestic economy.
- It has a large amount of economic leakage to the mainland States. Leakage occurs via poker machine leases payable to lease financiers and dividends to interstate shareholders of Federal Hotels via its gaming business Network Gaming.
- It is final demand expenditure, meaning that gambling expenditure does little to stimulate intermediate production in other areas of the Tasmanian economy.

A number of studies have been conducted into the economic impacts of gambling both internationally and in Australia, including the ACIL-Allen Social and Economic Impact Studies (2011, 2014) for Tasmania. These later studies had mixed results, reporting an overall negative impact on the Tasmanian economy (2011) and a small positive effect 3 years later (2014).

These differing results are not unexpected. Economic modelling is not an exact science and small variations in results are to be expected, particularly when different time periods are being compared. However, the ACIL-Allen modelling (2014) did not consider "*the extent to which the negative* impacts *of gambling (e.g. problem gambling) impacts upon the Tasmanian econom*y" (ACIL-Allen Consulting 2014, p. 129).

A recent report for the Canadian Government found that the failure to include consideration of social costs "*creates a very unbalanced analysis in that the positive economic impacts are not evaluated in the context of the negative social impacts By way of example, it would be inappropriate if socioeconomic analyses of the effects of alcohol or tobacco just focused on the tax revenues, employment gains, support to the agricultural sector, and failed to mention the negative social impacts caused by consumption".*[2]

In this report, social costs are included in the analysis. In view of measurement disagreements over the correct valuation of social costs, a conservative estimate has been used.

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[2] See Williams R & Rehm, J 2011, "The Social and Economic Impacts of Gambling", Final Report for the Consortium for Gambling Research, consisting of the Alberta Gaming Research Institute, Canadian Centre on Substance Abuse, Gaming Policy and Enforcement Branch of British Columbia, Manitoba Gaming Control, Commission Ministère de la Sante et des Services Sociaux du Québec, Gambling Awareness Foundation of Nova Scotia & Ontario Problem Gambling Research Centre.

Tasmanian Economy

It is important to ground the outcomes of the structural change proposed by Anglicare Tasmania in the context of the current and likely future state of the Tasmanian economy. Economic projections by the Tasmanian Department of Treasury and Finance (2015/16) and the Commonwealth Bank of Australia (2017) found that, after a decade of below average growth, the Tasmania economy was in the early stages of recovery and was expected to grow between 2.5 per cent and 2 per cent until 2020. This study finds that any short-term adjustment to jobs in hotels and clubs following the removal of poker machines would be readily absorbed by the growth of service industries in the State.

Structural changes in employment patterns are expected to favour service industries. The Tasmanian Department of Treasury and Finance predicts strong growth in accommodation and food services (+12.0%), rental, hiring and real estate services (+11.9%), health care and social assistance (+ 16.4%) and arts and recreation services (+10.8%). Gross Value Added (GVA) for accommodation and food services in 2015/16 was $723M, and $166M for arts and recreation. Respectively these industries made up 3 per cent and 0.7 per cent of Gross State Product (GSP)[3].

In August 2016, 235,300 persons were employed in Tasmanian industries by ANZSIC code[4]. Employment in accommodation and food services (which includes hotels and clubs) was 21,800, with approximately 4,800 people employed in hotels and clubs. However, the number of FTEs employed by hotels and clubs in gaming areas may only be 200, with a small number of additional FTEs employed by Network Gaming to service the machines.[5]

In 2015/16 household consumption in Tasmania was estimated to be $17.75 billion. The main areas of consumption spending for that year were housing ($3.53 billion), food and non-alcoholic beverages ($3.37 billion), transport ($2.61 billion) and recreation ($1.99 billion).[6] In comparison, spending on poker machines in hotels and clubs made a relatively small contribution to total consumer spending at $114.44 million which is just 0.6 per cent of total household consumption.

This report suggests that any short-term job adjustment in hotels and clubs as a result of a shift in the location of poker machines would be absorbed into other service industries.

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[3] Australian National Accounts; State Accounts ABS Cat. 5220.0 November 2016.
[4] The Tasmanian Labour Office reports this number had increased to 245,000 in June 2017, indicating an improvement in the Tasmanian economy, but no industry breakdown are available.
http://lmip.gov.au/default.aspx?LMIP/GainInsights/LabourEconomicsOfficeLEOReports/Tasmania
[5] Estimation procedure explained in text – see footnote 43.
[6] ABS (2016) p.2.

The Relative Importance of Gambling to the Tasmanian Economy

Poker machines taxes in Tasmania account for less than one per cent of total Government income and five per cent of total State-sourced taxation revenue. This is less than other States.[7]

ACIL-Allen Consulting (2011, p.1), found that the net impact of domestic gambling in Tasmania was likely to be negative. In a later study (ACIL-Allen Consulting 2014), they found a small positive net contribution in comparison to other activities of between 0.66 per cent and 0.73 per cent but without considering the social costs attached (p. XVI). Tourism data shows that "gambling" was not cited as a reason to visit Tasmania.

When examining relative significance of an activity it is necessary to be aware that economic benefits derived from one source of activity, should not be evaluated independently of the rest of the economy. There is an opportunity cost (alternative use cost) to all economic activity, particularly endogenous activity, where spending on the activity is displacement activity and comes at the expense of other activity in the economy. In the case of gambling the opportunity costs are expressed in terms of the loss of income to competing activities such as retail spending, entertainment, travel or investment.

The fact that the Tasmanian economy receives so little in the way of direct economic benefit from gambling places the State Government in a good position to evaluate the opportunity costs associated with gambling and implement effective gambling market reform without the fear of short run economic harm.

The study

This study examines the economics of removing poker machines from hotels and clubs in Tasmania that currently house them, and restricting their location to licensed casinos only.

It should be noted that the hotels and clubs that will be impacted do not make up the majority of hotels or clubs within Tasmania, with only 7 out of 189 clubs and 89 of 338 hotels having poker machines. These venues employ approximately 200 FTE gambling-specific employees[8]. Hotels and clubs that have poker machines predominantly service the local trade and are minor participants when it comes to providing accommodation.

The methodology used has several strands: behavioural, economic modelling and estimation and implications for the industries related to gambling and the Tasmanian economy in general. Estimation is undertaken through the Tasmanian Non-Linear Input Output Model (TNLM), and by necessity takes place at the sectoral and State-wide level.

The principle technique used in the estimation is to compare the impact of a removal of poker machine revenue within hotels and clubs with a range of possible leakage to the rest of the economy, including the casinos. The size of that leakage cannot be determined ex-ante and, as a

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[7] Source: http://www.treasury.tas.gov.au/Documents/2015-16-Treasurers-Annual-Financial-Report.pdf
[8] Estimation procedure explained in text – see footnote 43.

result, a number of scenarios were tested. Conservative estimates of potential social cost reduction from the movement of poker machines were added to the modelled scenarios.

- Scenario 1 is a test of the ACIL-Allen Consulting (2011) finding that domestic (within Tasmania) gambling may make a negative contribution to the Tasmanian economy. Under this test all poker machine revenue (player losses) was transferred out of hotels and clubs into the rest of the economy and the net economic effects noted using consumption patterns established by the Australian Bureau of Statistics in their *Household Expenditure Survey and Survey of Income and Housing* for Tasmanian households.
- Scenario 2 models the impact of a 20 per cent shift in player losses to casinos and 80 per cent leakage to the rest of economy.
- Scenario 3 used a similar methodology but shifted 50 per cent of the player losses directly to casinos and 50 per cent was transferred to the rest of the economy.

One potentially limiting factor is that, under ANZSIC classifications (used in TNLM), hotels and clubs are included in the accommodation and food services industrial sector while casinos are measured in the arts and recreation sector. Hotels and clubs with substantial gambling facilities do not easily fit into these standard industry classifications.

Results

Below are the results of the estimation of the scenarios (with the inclusion of imputed values for social cost reduction), noting that we believe the estimates of social cost are conservative.

Scenario 1

This scenario measures the deadweight loss[9] of poker machine spending. It was found that after a readjustment period the State economy would improve if the poker machine spending in hotels and clubs were diverted to other consumption in the wider economy based on the observed consumption patterns of Tasmanians by:

- $91 million *annually* in gross output/turnover[10]
- $61 million *annually* in net additions to GSP
- $45 million *annually* in wages, profits and dividends
- 670 FTE jobs across the economy.

To place these results in context, the results suggest that a simple redirection of current spending on poker machines to alternative consumption would add 0.23 of a percentage point to Gross State Product and 0.3 of a percentage point to total employment.

While this is not large in the context of the wider Tasmanian economy, it results from a simple redirection of the gambling expenditure by poker machine players in a relatively small number of hotels and clubs. The results are a conservative indication of the deadweight loss associated with

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[9] Refer to footnote 17 for definition, but this essentially means the economic cost from a misallocation of resources.

[10] Full definitions in Appendix 1 - definition of economic impact measures.

this form of gambling and are achieved after taking full account of potential shifts in the taxation revenue of the State. The result also supports the ACIL-Allen (2011) finding that domestic gambling expenditure in Tasmania may represent an opportunity cost (negative net returns) to the State's economy. Their later study (2014) reversing this finding and suggesting a small positive impact to gambling in the Tasmanian economy excluded direct consideration of the social costs, particularly on Government, that accompany gambling activity.

In Scenario 1, the modelling of the deadweight loss to the economy associated with poker machine expenditure in hotels and clubs, even when an unrealistically low social cost of gambling is imputed, shows the inherent economic inefficiency associated with gambling as a consumer practice.

Scenario 2

In this scenario, 20 per cent of current poker machine spending in hotels and clubs is transferred to casinos and 80 per cent to the wider economy, and distributed into general consumption based upon patterns of consumer spending by Tasmanians according to the Australian Bureau of Statistics (ABS) findings. Estimated social cost savings are seen as an injection to public funds and impacted through the public administration and safety sector. Once again there is a positive benefit to the Tasmanian economy from this redirection of consumer spending out of gambling and into general consumption. It is notable that such a shift would still support an additional 546 FTE jobs.

- $74 million *annually* in gross output/turnover
- $50 million *annually* in net additions to GSP
- $31 million *annually* in wages , profits and dividends
- 546 FTE jobs across the economy**.**

Scenario 3

In Scenario 3, the leakage out of gambling and into the wider economy is reduced to 50 per cent and 50 per cent of the previous poker machine spending in hotels and clubs flows to the casinos. Applying this scenario to the model produces the following results:

- $33 million *annually* in gross output/turnover
- $21 million *annually* in net additions to GSP
- $11 million *annually* in wages, profits and dividends
- 183 FTE jobs across the economy.

The results, though still positive, are smaller. The lesson here is that the more spending is retained in some form of gambling, the lower the benefits to the economy from redirecting poker machine spending from hotels and clubs.

A number of behavioural and quantitative assumptions have been made in the analysis, but based on plausible and conservative logic, it is clear that the proposal to remove poker machines from hotels and clubs has the potential to bring economic benefits to the Tasmanian economy. This is demonstrated in all three scenarios modelled.

These results are slightly at odds with the ACIL-Allen Consulting report (2014) that found that gambling provided a small positive benefit to the economy in comparison to alternative uses. Economic models differ in terms in terms of construction and scope and therefore some differences

in results are to be expected. However, an important difference in our approach is the specific inclusion in the modelling of the social costs (and therefore the net drain on public funds) associated with gambling. The ACIL-Allen Consulting (2014) analysis did not do this.

Numerous studies, including the recent report by the Canadian Consortium for Gambling Research,[11] have argued strongly for the inclusion of social cost considerations in any comprehensive assessment of economic impacts associated with the gambling industry. Given the widespread acceptance that gambling does produce social costs (negative externalities, in the language of economists), the only likely reason for excluding them from consideration would be difficulty in quantification. In this study, this issue was largely avoided by adopting a conservative estimate of social costs, which may understate the real costs.

As a result, the three scenarios modelled here show positive gains from re-directing poker machine revenue away from the relatively small number of hotels and clubs in Tasmania that have poker machines.

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[11] Cited above

1. Introduction

Anglicare Tasmania are seeking to have electronic gaming machines (hereafter referred to as poker machines) removed from hotels and clubs in Tasmania and restricted to licenced casinos. They do this in the belief that the social harm and its quantifiable economic costs, especially to the most vulnerable in Tasmanian society, caused by the widespread and easily accessible poker machines in Tasmania outweighs any economic benefits that may accrue to the State. In this they were supported by ACIL-Allen Consulting (2011) that found the economic impact of gambling on the State, net of online gambling, may actually be negative[12].

The economic negativities associated with gambling arise in a number of ways. First, money spent on gambling is money displaced from other activities such as retail and recreation, almost all of which have been found to have greater positive economic impact than gambling[13]. Moreover, studies have established that moderate to heavy gamblers use not only the discretionary parts of their income for gambling but also divert money away from essential items in the household budget, such as grocery shopping, medical and education expenses and even mortgage repayments. The resultant costs, both private and societal, are well established (SACOSS 2016).[14]

Counter balancing these considerations are the economic benefits that are often claimed for gambling, such as supporting investment in tourism-related development, employment in gambling venues and increased taxation benefits. The final consideration in evaluating the gambling industry is the rights of Australian citizens to enjoy any lawful activity they wish.

However, the economic benefits associated with gambling are often controversial and difficult to measure. In economic theory net economic benefits are created from exogenous activity. That is, they are generated outside of an economic system and therefore add to the size of that system, rather than displacing other activity already present in the economy (endogenous spending). For example, foreign investment into Australia that creates new economic activity and does not displace existing activity or distort the established legislative regime (taxes and charges) is clearly exogenous and a net benefit to the economy. However, the same level of investment used to purchase an existing activity may or may not add to the size of the economy, depending on the actions of the investor after the take-over (Ramey, 2007).[15]

Within the Tasmanian economy, the initial impacts of gambling were arguably primarily exogenous, with the creation of new infrastructure, the provision of a limited number of jobs and, particularly with regard to Wrest Point, a short-term boost in tourism numbers and the provision of limited taxation revenue. However, in its mature state gambling in Tasmania, especially at the level of hotels and clubs, where the clients are predominantly domestic, is endogenous. It displaces economic activity away from other activities towards gambling. Its role as an inducement to tourism has been eroded by the growth of casinos all across the Australian and Asian mainland. Under these

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[12] The later ACIL- Allen Consulting Report (2014) found small positive impacts from gambling as a whole but did not include in their modelling the social costs that are associated with gambling

[13] See Productivity Commission 2010, p. 6.27; SACES 2005, p. 51.

[14] See, South Australian Council of Social Services (2016) "Losing the Jackpot; South Australia's Gambling Taxes", Adelaide for a summary of societal costs associated with gambling.

[15] See, Ramey, G. (2007) "Exogenous versus Endogenous Separation",
http://www.faculty.ucr.edu/~chauvet/ucrconference_files/ramey.pdf

circumstances, the correct test of the value of gambling to the Tasmania economy would be if it could be demonstrated that spending on gambling produced better economic outcomes than the equivalent spending in other areas.

However, unlike most consumer-based industries, gambling is associated with social problems that impact upon Government spending and reduce any economic benefits that attach to the gambling industry[16]. In this sense comparison can be drawn to the cigarette industry, where community concern over the negative externalities (mainly health-related) and the associated public costs involved in ameliorating these costs has led to severe restrictions on the use and marketing of cigarettes within Australia. Hampered by the deadweight[17] of accompanying social costs it is difficult to see how spending on gambling could provide superior economic outcomes for the economy than spending on other consumer activities, such as other forms of entertainment, where there are no or few social costs involved.

The issue of structural change in the Tasmanian gambling industry would be more open to debate if it could be shown that clear and significant economic benefits, sufficient to offset the associated social costs and provide a positive net return to Government, exist and that Tasmania is achieving returns to gambling comparable with other States, but this does not seem to be the case:

- Poker machine gambling in Tasmania accounts for less than one per cent of total Government income, with hotels and clubs accounting for just over half of this, and five per cent of total taxation revenue. This is less than other States.[18]
- ACIL-Allen Consulting (2011, p.1), found that the net impact of domestic-based gambling in Tasmania was likely to be negative
- Tourism data shows that "gambling" is not a major reason to visit Tasmania.

Part of the reason why gambling in Tasmania returns such (apparently) low returns to the State is the unique structure of the gambling industry in the State. By providing a quasi-monopoly to one company, successive governments have reduced any potential benefits that might flow from a competitive market in gambling, while at the same time being required to service the resultant social costs (Owen 2017).[19]

Given that the Tasmanian economy receives so little in the way of economic benefit from internal gambling, the Government is in an ideal position to implement effective gambling market reform without being concerned about short-run economic harm.

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[16] See, Williams, R. and Rehm, J (2011) "The Social and Economic Impacts of Gambling" Final Report for the Consortium for Gambling Research, consisting of the Alberta Gaming Research Institute Canadian Centre on Substance Abuse Gaming Policy and Enforcement Branch of British Columbia Manitoba Gaming Control Commission Ministère de la Sante et des Services Sociaux du Québec Gambling Awareness Foundation of Nova Scotia Ontario Problem Gambling Research Centre.

[17] "Deadweight" is a descriptive term used in economics. It normally refers to situations where resources are used less efficiently than where they are currently being used, leading to resource misallocation and "deadweight loss".

[18] Source: http://www.treasury.tas.gov.au/Documents/2015-16-Treasurers-Annual-Financial-Report.pdf

[19] See, Owen, J (2017) "Tasmanian Gaming Review" Submission by Tasmania Hotels Association to the Joint Select Committee on Future Gaming Markets , which is critical of the current market structure http://www.parliament.tas.gov.au/ctee/Joint/Submissions/JSC%20FGM/JSC%20FGM%20141%20Tasmanian%20Hospitality%20Association.pdf

1.1 The purpose of the current study

This study seeks to examine the economics of the removal of poker machines from hotels and clubs in Tasmania and their restriction to licenced casinos only, through the use of economic analysis and economic modelling. The analysis will require a combined approach. The first stage is to construct scenarios which set out a range of possible adjustment paths of relevant groups in the economy that will be impacted by these suggested changes in the structure of gambling (i.e. firms, consumers, Government). These scenarios will be grounded in economic theory, especially consumer behaviour theory, and supported by empirical evidence of the impacts from structural adjustment (short-term and long-term) in gambling and/or related industries.

Once the behavioural assumptions are established, they can be quantified using economic modelling. The model to be used is a non-linear input output model of Tasmania. This model has been successfully used in a number of studies of the Tasmanian economy and provides quantitative economic impacts across four economic measures:

- Impact on gross output or turnover values
- Impact on value added or net additions to Gross State Product
- Impact on wages, profits and dividends
- Impact on full time equivalent employment.

Specifically a number of considerations need to be investigated, including:

- Potential employment impact on hotel and club employees and the suppliers of services to these organisations following a relocation of poker machines
- Economic impacts on related industries, either as complementary or substitutes
- Potential impacts on public finance
- Overall impact on the Tasmanian Economy.

2. The gambling market in Tasmania

The gambling market in Tasmania differs from other States principally in the quasi-monopoly status afforded to one company, the Federal Group, the effective absence of community-based clubs, and the low number of poker machines per venue (no more than 30, compared to much higher numbers on the mainland).

Poker machines were introduced to Wrest Point Casino in 1986 but they were not introduced into the broader community until 1997. Under an agreement reached with the Tasmanian Government, Federal Group have exclusive rights to conduct casino operations and poker machines in clubs and hotels until 2018. The licence then reverts to a 5-year rolling term, with a requirement of four years' notice to end or change the deed. As such the year 2018 becomes an important time for the future direction of the gambling industry in Tasmania.

As part of the current agreement Federal Group undertook to spend $25 million on tourism accommodation venue at Coles Bay on the East Coast. As well, some restrictions attach to the extent to which the company may own hotels in which poker machines are situated.

The limit on the number of poker machines State-wide has been extended from the original agreement to the current limit of 3680, with a maximum of 30 for any one hotel and 40 for clubs (noting that none of the seven clubs with poker machines have the maximum number allowed). Casinos have no limits on the number of poker machines they may house as long as that number is compatible with the overall State-wide limit. At present, poker machine use and other gambling at hotels and clubs represent the largest form of gambling (by revenue) followed by casinos and lotteries. Table 1 shows the distribution of player expenditure by year, type of venue and form of gambling.

Table 1: **Player expenditure on gambling by venue/type – Tasmania 2011-2016* $m**

Venue/Type	2011/12	2012/13	2013/14	2014/15	2015/16
Casinos	106.1	92.5	90.6	92.6	89.8
Hotels & clubs	142.7	139.6	140.6	140.0	147.6
Lotteries	36.3	44.1	37.5	37.5	40.3
Total	285.1	276.2	268.7	274.1	277.7
% hotels & clubs	50.05	50.54	52.33	51.08	53.15

*Data on internet gambling not available. Source: Data from Tasmanian Liquor and Gaming Commission Annual Report 2015/16.

It can be seen that hotels and clubs hold the largest share of player expenditure and that this share has gradually increased over the period 2011-2016. Casinos include table games (losses approximately $10 m per annum) plus poker machines and Keno. Hotels and clubs include poker machines and Keno. Table 2 disaggregates the data to show player expenditure on poker machines alone. This shows that hotels and clubs remain the dominant source of player expenditure and their dominance, when poker machines alone are considered, has increased to approximately 60 per cent (2016).[20]

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[20] This percentage of poker machine expenditure is similar to that is other States, with South Australia reporting 62%.

Table 2: Player expenditure on poker machines by venue type, $'000

Venue Type	2012	2013	2014	2015	2016
Casinos	93,179	80,586	79,140	79,770	76,869
Hotels & clubs	115,164	113,337	111,049	113,896	114,244
Total	208,343	193,923	190,190	193,666	191,113
% Hotels and clubs	55.28	58.44	58.39	58.81	59.78

Source: Data from Tasmanian Liquor and Gaming Commission (2015/16)

Poker machines are distributed across hotels and clubs and casinos with two ferries servicing the Melbourne-Devonport route. Expenditure on the ferries is included with the casinos. The distribution of poker machines in hotels and clubs is shown below in Table 3.

Table 3: The distribution of poker machines in hotels and clubs in Tasmania by venue 2011-2016

	Hotels		Clubs		Totals	
	No of Venues	No of Machines	No of Venues	No of Machines	No of Venues	No of Machines
30th June 2011	90	2220	10	173	100	2393
30th June 2015	86	2183	7	127	93	2310
30th June 2016	90	2248	7	127	97	2375

Source: Tasmanian Gaming Commission Annual Report 2015/16 and Tasmanian Department of Treasury and Finance (2016) p. 29.

Inspection of the data shows that poker machine numbers in hotels and clubs has remained stable since 2011, as have been the number of hotel venues. The other notable feature is the dominance of hotels over clubs as venues for poker machines, with the number of clubs acting as outlets falling by 30 per cent since 2011.

Overall, the picture is of a mature industry with little if any real growth in either outlets or revenue and a small growth in the relative importance of hotel-based poker machines.

It is accepted that the gambling industry produces social costs. But the logic prevailing in most Australian States is that the economic benefits in the form of employment and contribution to State taxes outweighs these social costs to yield a net positive contribution to the economies of these States. This argument seems somewhat convoluted. It would seem far preferable to achieve economic benefits from industries where there were minimal or no social costs rather than encouraging an industry that produces known social costs and then using part of the revenue to reduce it.

Moreover, Tasmania appears to be the State that achieves least economic benefit from its gambling industry, with private returns (that is, profits to owners) heavily outweighing net social or public returns (government income). The ACIL-Allen Consulting report (2011) into the Social and Economic Costs of gambling in Tasmania states: *"Estimates of the contribution of gambling to GSP range from*

0.5% to 1% but this is due mainly to the export of gambling services TOTE and Betfair- if not for them- then negative" (p. 1).

The current situation provides the Government significant room to consider reforms to the Tasmanian gambling industry with a view to minimising social harm, without the fear of significant economic loss. The observed lack of economic benefit under the current system may encourage the Tasmanian Government to change the tax mix of gambling in Tasmania and increase taxes on Keno and on poker machines in casinos.

2.1 Removing poker machines from hotels and clubs

The goal of governments, once a decision is taken to allow gambling, should be to devise a gambling structure that minimises social harm while at the same time securing economic benefits. In essence this means devising a system where the reduction in problem gambling is the unequivocal goal of public policy, because it is this form of gambling that produces most of the social costs and reduces any nett economic benefits that may accrue. The Allen Consulting study (2014) found that: *"Consistent across cost estimates the poker machines tend to be associated with higher participation by problem gamblers."*[21] It is in this context that the plan to relocate poker machines to casinos takes shape and becomes rational economic and social policy from a State-wide perspective.

The principle aim behind the suggested relocation of poker machines is to reduce the social harm associated with poker machines without causing long-term harm to the Tasmanian economy or infringing the rights of Tasmanians to gamble. If successfully implemented, such a move may benefit State revenue by both increasing economic activity and therefore repatriated GST revenue as well as reducing the deadweight loss to society resulting from problem gambling and from the monopoly status of the current industry.

Empirical evidence shows that the extent and intensity of use of poker machines is influenced by a number of locational features including:

- The size of the facility and in particular the size and relative importance of non-gambling areas[22]
- The density of gamblers in the room[23]
- Controls on gambling machine limits and on ready access to funds via ATMs[24]
- The density and prevalence of gambling locations[25]
- The distance people need to travel to use poker machines[26]
- Incentives and inducements to gamble.

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[21] See Section 2.3 of this report for a wider discussion of the characteristics of problem gamblers.
[22] See, Rockloff, M (2010) "The Impact of an audience and venue size on poker machine gambling" Institute for Health and Social Science research Central Queensland University, Central Queensland University.
[23] Rockloff, M (2010) (p.5).
[24] See Productivity Commission (2010) Section G.
[25] See Submission by Federal Hotels (1993) and TASCOSS (2016) (p.3).
[26] See, Productivity Commission (2010) Section G "Access to Cash and Credit".

Removing poker machines out of hotels and clubs and restricting them to casinos has an impact on most of these gambling triggers. In general, casinos have large non-gambling areas, allowing patrons to be relatively free of a direct gambling pressure should they choose to do so. By contrast, in many hotels in particular, patrons find it difficult to be away from a gambling environment and are therefore more likely to engage in impulse gambling. Similarly, because of reduced space, people in hotels and clubs tend to have more direct contact with other people gambling, which also influences their level of gambling. Removing poker machines from hotels and clubs would reduce the number of venues with poker machines in Tasmania from 100 to 2 (on current numbers), significantly increase the distance to travel and effort required to engage in gambling on poker machines for many Tasmanians, and thereby reduce the incidence of impulse gambling on the machines.

For all these reasons the suggested shift in the location of poker machines would move gambling away from being a random, quasi-impulse act to a planned activity, with a subsequent reduction in those elements of problem gambling that are spurred on by location and ease of access. A submission by Federal Hotels to the Tasmanian Government (1993) seems to agree with this concept. In their submission they claimed: "We believe the proliferation of machine gambling throughout Tasmania offering direct access to the majority of Tasmanians would be a disastrous for a large number of businesses which compete for their share of declining disposable income" (Federal Hotels 1993, p4.).

TASCOSS (2016) expressed similar views when they recently argued:

> "The two casinos are located in areas that require a conscious decision to travel by car or public transport to that destination whereas machine in hotels and clubs will be easily accessed by a large number of people in the suburbs, some of whom cannot afford to gamble." (TASCOSS, 2016, p3.)

2.2 Gambling and the economy

In Australia and elsewhere, the gambling industry is presented as a source of economic benefit and while it is acknowledged that some social costs attach to the industry it is assumed that these costs are outweighed by the benefits, although the cost/benefit exercises designed to support this are rarely if ever undertaken (ACIL-Allen Consulting 2014). In their place are statements, often from industry sources, relating to the number of persons employed in the gambling industry and the amount of tax raised from gambling activities.

However, economic benefits derived from one source of activity should not be evaluated independently of the rest of the economy. There is an opportunity cost (alternative use cost) to all economic activity, particularly endogenous activity, where spending on the activity is displacement activity and comes at the expense of other activity in the economy. In the case of gambling the opportunity costs are expressed in terms of the loss of income to competing activities such as spending on retail, entertainment, travel, investment etc.

In this instance, the real benefits of gambling are limited to the net economic gains that accrue after taking account of alternative use benefits. Moreover, even where expenditure is exogenous (new to the economy) and emanating from an external source such as tourist expenditure, it is not

necessarily the best use of that expenditure in terms of overall economic benefit and use of scarce resources. In the language of economists, society benefits most when resources are put to their best (most efficient) use. In this sense the relevant question becomes "would consumer spending devoted to gambling be more beneficial to the economy if diverted elsewhere?"

2.3 Social costs of problem gambling in Tasmania

ACIL-Allen Consulting (2014) estimated that approximately 0.5 per cent of the adult Tasmanian population are "problem gamblers" together with an additional 1.8 per cent which they classified as "moderate risk gamblers" and 3.9 per cent classified as "low risk gamblers".[27] Using the data from the Third Social and Economic Impact Study of Gambling in Tasmania and from the 2011 Census, Anglicare calculates there are:

- 2,000 adult Tasmanians considered to be "problem gamblers"
- 6,000 adult Tasmanians who are "moderate risk gamblers"
- 15,000 adults Tasmanians who are "low risk gamblers".

These figures are supported by the Tasmanian Liquor and Gaming Commission's submission to the Parliamentary Inquiry. By way of further definition ACIL-Allen Consulting (2014) characterised the 8,000 persons who were problem or moderate risk gamblers as people who are:[28]

- more likely to use poker machines at a hotel or club than at a casino
- participate in more than 80 sessions of gambling in a year
- lose $3000 or more to gambling each year
- problem gamblers specifically have 3 to 4 sessions of gambling a week with losses averaging $14,000 a year.

Perhaps surprisingly, the ACIL-Allen Consulting Report characterised as being low risk gamblers, persons who lost on average $3,000 per year on poker machines[29]. Nevertheless, when taken collectively losses by moderate risk and problem gamblers constitute about 40 per cent of the total spent on gambling and are responsible for almost all of the social costs associated with gambling[30].

Recent estimates of the social cost of gambling are difficult to obtain. The estimate of $4.7 billion annually across the whole of Australia was first put forward by the Productivity Commission Report (2010) and referred to 2008 data[31]. This dated estimate is still being cited in 2016 despite the rapid growth in online and sports gambling during the period 2008-2017 and, due both to this and the impact of price inflation over the period, must be regarded as a highly conservative estimate[32]. The

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[27] ACIL-Allen Consulting 2014, vol. 2, p. 74-75.
[28] ACIL-Allen Consulting 2014, vol. 2, p. 74-75.
[29] ACIL-Allen Consulting 2014, p. 74.
[30] This means that every year, approximately 8,000 Tasmanians collectively lose $90 million to the poker machines (Tasmanian Gaming Commission 2016).
[31] See, Productivity Commission (2010) "Gambling, Productivity Commission Inquiry Report No.1, Canberra, www.pc.gov.au/projects/gamblingo2009/report
[32] See, Scott, J and Walsh, S. (2016) "Gambling is killing one Australian a day but it rakes in billions in tax" Sydney Morning Herald, 28/9/2015.

reason this estimate has not been updated, despite the growth in other forms of gambling, is because the elements associated with social costs are diverse and difficult to quantify[33].

The social costs of gambling are an amalgam of private and social costs and include suicide, depression, relationship breakdown, lower work productivity, job loss, bankruptcy and crime[34]. These costs extend to the families and associates of problem gamblers, with the Sydney University Gambling Clinic estimating up to ten other persons are impacted per problem gambler[35]. Some State-based estimates of the social costs of gambling are available. The Victorian Competition and Efficiency Commission (2012) estimated social costs in that year at $1.4 billion for Victoria alone.

The ACIL-Allen Consulting Report (2014) detailed the incidence of gambling-related social costs in Tasmania but was unable to quantify these costs[36]. One means of obtaining an approximate estimate of the social costs of problem gambling in Tasmania is to assume that Tasmanians have the same propensity to become problem gamblers as the average Australian and use pro-rata national estimates on a population basis. Using the dated, and almost certainly conservative, estimate by the Productivity Commission (2010),[37] this method yields an annual social cost of gambling to the Tasmanian economy of approximately $101 million. Arguably, with average per capita income in Tasmania being significantly lower than the national average, gambling losses would be proportionately more severe in Tasmania and as a result the incidence of gambling required to create a budgetary problem would be higher. The figure of $101 million in annual social costs falls in the mid-range of calculations made in 2011 by Allen Consulting for their "moderate scenario" of modelling the likely costs associated with gambling problems in Tasmania (Allen Consulting 2011, vol. 1, p. 136).

Social cost estimates provided are generally net of private costs, largely because most private costs that don't necessitate recorded public support (spending) are very hard to quantify.[38] Therefore the incidence of these social costs is split between the State Government and the Commonwealth Government, with the State Government costs relating to health, criminal justice, education and elements of workforce productivity and bankruptcy, and Commonwealth costs relating to unemployment, together with some health issues and loss of income tax.

In the absence of any better method of decomposition or of any published studies, we assume that the social costs of gambling in Tasmania are equally split between State Government-funded costs and Commonwealth Government-funded costs, making the State Government costs approximately

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[33] Online gambling is the fastest growing gambling segment, growing at 15% per annum, with over $1.4 billion gambled online each year, see, https://www.dss.gov.au/communities-and-vulnerable-people/programmes-services/gambling

[34] See, University of Sydney(2012) , "Gambling Facts and Figures in Australia" http://www.psych.usyd.edu.au/gambling_treatment_clinic/resources/Facts_and_Figures%2

[35] Sydney University (2012).

[36] See, ACIL-Allen Consulting (2014) "Third Social and Economic Impact Study of Gambling In Tasmania; Report to the Tasmanian Government Department of Treasury and Finance", especially pp 39-41 http://www.treasury.tas.gov.au/Documents/20150109SEISVolume1FINAL.PDF

[37] With Tasmania having 2.15% of the Australian Population.

[38] For example, in the case of where a family is deprived of adequate diet because of gambling, this would not become apparent until one or more of the household present for medical treatment and even then the cause of this illness would be unlikely to be pinpointed in medical records.

$50 million per annum[39]. It is likely that the State's share of social cost abatement is higher than 50 per cent, but in the interests of keeping the estimates (and subsequent modelling) conservative and because we are unware of any superior data, the 50 per cent assignment of social cost abatement to the State is maintained in the modelling.

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[39] Given the expansion of online and sports gambling this should be seen as a highly conservative estimate. Moreover it is likely that the bulk of these costs would be borne by the State Government because of their prime responsibility for Health, Justice and Education services.

3. Impacts of the removal of poker machines from hotels and clubs

This analysis is undertaken under the following caveats and assumptions:

- Impacts on hotels and clubs are modelled within standard industry codes 5720 - Pubs, Taverns and Bars and 5740 Clubs - Hospitality as the impacting sectors[40] (see appendix for definitions).
- Impacts on casinos are modelled within standard industry codes 9321- Gambling Services, 9322- Casinos, and 9329 - Gambling Services (NEC) (see appendix for definitions).
- Transfers of player spending outside of gambling are distributed to sectors of the model according to Australian Bureau of Statistics survey of all persons consumer spending for Tasmanians.

Table 4 shows the predicted distribution of spending of the expenditure previously used in poker machines.

Table 4: Consumer expenditure patterns of Tasmanians

Broad expenditure group	% Share of total expenditure
Current housing costs (selected dwelling)	19.9
Domestic fuel and power	4.3
Food and non-alcoholic beverages	19.1
Alcoholic beverages	1.7
Tobacco products	1.3
Clothing and footwear	2.6
Household furnishings and equipment	5.7
Household services and operation	5.2
Medical care and health expenses	5.3
Transport	14.7
Recreation	11.2
Personal care	1.7
Miscellaneous goods and services	7.3
Total goods and services expenditure	**100**

Source: Australian Bureau of Statistics "Household Expenditure Survey and Survey of Income and Housing" Cat. 6503

There is strong evidence that removing poker machines from hotels and clubs, through the observed effect of location and ease of access on problem gambling, will reduce the expenditure on poker machines. It is assumed that any such reduction will be spent on consumption in the general economy.

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[40] There would be some argument to suggest that as the Hotels in question also have gambling that some part of their expenditure loss should be applied as ANZSIC 9329- "Gambling Services", however it was felt it was better to stick to strict ABS classifications.

Three scenarios of the aggregate impacts of the removal of poker machines from hotels and clubs are modelled:

- In Scenario 1, all player expenditure previously spent on poker machines in hotels and clubs is transferred to the wider economy on the basis of ABS consumption patterns for Tasmania. This is a test of the opportunity cost of poker machine gambling in hotels and clubs and the ACIL-Allen Consulting conclusion that domestic gambling may give negative returns when compared to alternative spending in other areas of the economy.
- In Scenario 2, 20 per cent of previous poker machine player expenditure in hotels and clubs is absorbed by casinos and 80 per cent is transferred to the wider economy.
- In Scenario 3, 50 per cent of previous poker machine player expenditure in hotels and clubs is absorbed by casinos and 50 per cent is transferred to the wider economy.

In each of the scenarios, conservative estimates of social costs borne by the State Government are added in and impacted through the Public Administration and Public Safety Sector. The deadweight loss associated with expenditure on poker machines in hotels and clubs is greatly increased when conservative estimates of social costs reduction are added into the modelling.

3.1 Scenario 1

In this scenario we test the opportunity cost to the Tasmanian economy by diverting all player expenses to the wider community, based on the consumption patterns shown in Table 4[41]. Other modelling assumptions apply:

- The full amount of estimated player expenditure (based on a 5-year average 2012-2016) is $113.50 million per annum. This is transferred to sectors in the TNLM reflecting the consumption patterns shown in Table 4. Taxes and Community Support Levy (CSL) payments are not deducted (as this is part of the actual expenditure of the players and represents the opportunity cost of gambling to them).
- Poker machine related taxes are now not paid by hotels and clubs and represent a saving to that sector.
- Similarly, tax receipts previously accruing to the Government represent a negative impact on Government revenue and enter the Public Administration and Public Safety sector as a negative entry and are impacted by the Public Sector multiplier.
- CSL payments are reduced (by a proportion of 60 per cent in the first instance) to reflect the relative remedial expenditure on social problems of former hotel or club based poker machine users,[42] although some expenditure will still be required for casino patrons and those who use other forms of gambling. This represents a net gain to the Government and in a small way counteracts the loss of tax revenue.

These data are applied to the TNLM and the following results are shown in the table below:

Table 5: Scenario 1: Economic implications for the Tasmanian economy of removing poker machines from hotels and clubs (with social cost saving adjustment) assuming all expenditure redirected to the wider economy, $ million

Impact measure	Direct effect	Industrial effect	Consumption effect	Total economy effect
Gross output / turnover (p.a.)	30.06	8.13	52.89	91.08
Net additions to GSP (p.a.)	22.69	4.23	33.76	60.68
Wages, profits & dividends (p.a.)	16.54	2.01	26.19	44.74
Employment *	184	39	447	670

Source estimated from Tasmanian Non-Linear Model (2015) *No. of full-time equivalent jobs.
Note: direct effects arise initially after the intervention; industrial effects arise from impacts on other industries; consumption effects arise through income, wages and profits on consumption spending.

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[41] This assumes that gamblers have the same consumption propensities as the average consumer; however this may not be true.
[42] CSL is currently only collected from poker machines in Hotels and Clubs. Following a shift of poker machines the Government may choose to levy CSL on poker machines in casinos to fund the social cost abatement.

This scenario, including social costs reduction and allowing for a readjustment period, finds the State economy would improve by:

- $91 million *annually* in gross output/turnover
- $61 million *annually* in net additions to GSP
- $45 million *annually* in wages, profits & dividends
- 670 FTE jobs across the economy.

To place this impact in context, the redirection of current spending on poker machines to alternative consumption, as described above, would add 0.23 of a percentage point to Gross State Product and 0.3 of a percentage point to total employment. While this is not large in the context of the wider Tasmanian economy, it results from a simple redirection of gambling expenditure on poker machines in a relatively small number of hotels and clubs. It represents a conservative indication of the deadweight loss associated with this form of gambling and is achieved after taking full account of initial taxation losses to the State.

3.2 Scenario 2

In this scenario, 20 per cent of player expenditure on poker machines in hotels and clubs flows directly to the casino sector and 80 per cent to other sectors in the economy. Estimates of social cost reduction were adjusted proportionately. The results appear below in Table 6.

Table 6: Scenario 2: Economic implications for the Tasmanian economy of removing poker machines from hotels and clubs (with social cost saving adjustment) and assuming a 20 per cent transfer of player expenditure shift to casinos and an 80 per cent redirection to alternative consumption, $ million

Impact measure	Direct effect	Industrial effect	Consumption effect	Total economy effect
Gross output / turnover (p.a.)	24.50	6.62	43.11	74.33
Net additions to GSP (p.a.)	18.50	3.45	27.51	49.45
Wages, profits & dividends (p.a.)	13.48	1.64	21.35	36.46
Employment *	150	32	364	546

Source estimated from Tasmanian Non-Linear Model (2015) *No. of full-time equivalent jobs.
Note: direct effects arise initially after the intervention; industrial effects arise from impacts on other industries; consumption effects arise through income, wages and profits on consumption spending.

This scenario, including social costs reduction and allowing for a readjustment period, finds the State economy would improve by:

- $74 million *annually* in gross output/turnover
- $49 million *annually* in net additions to GSP
- $36 million *annually* in wages , profits and dividends
- 546 FTE jobs across the economy.

It is notable that such a shift would still support an additional 546 FTE jobs.

3.3 Scenario 3

In this scenario, 50 per cent of player expenditure on poker machines in hotels and clubs flows directly to the casino sector and 50 per cent to other sectors in the economy. Estimates of reduced social costs are adjusted proportionately. The results are shown below in Table 7.

Table 7: Scenario 3: Economic implications for the Tasmanian economy of removing poker machines from hotels and clubs (with social cost saving adjustment) and assuming a 50 per cent transfer of player expenditure shift to casinos and a 50 per cent redirection to alternative consumption, $ million

Impact measure	Direct effect	Industrial effect	Consumption effect	Total economy effect
Gross output / turnover (p.a.)	18.00	2.62	12.78	33.40
Net additions to GSP (p.a.)	11.30	1.34	8.49	21.12
Wages, profits & dividends (p.a.)	3.94	0.51	6.51	10.96
Employment *	59	14	109	183

Source estimated from Tasmanian Non-Linear Model (2015) *No. of full-time equivalent jobs.
Note: direct effects arise initially after the intervention; industrial effects arise from impacts on other industries; consumption effects arise through income, wages and profits on consumption spending.

This scenario, including social costs reduction and allowing for a readjustment period, finds the State economy would improve by:

- $33 million *annually* in gross output/turnover
- $21 million *annually* in net additions to GSP
- $11 million *annually* in wages, profits & dividends
- 183 FTE jobs across the economy.

These results show positive results for the Tasmanian economy, but the positive gains available from the redirection of spending away from poker machines in hotels and clubs reduce the more these funds are kept within the overall gambling environment and not re-allocated to alternative consumption.

3.4 Conclusions on economy-wide impacts

The modelling of the deadweight loss to the economy associated with poker machine expenditure in hotels and clubs, even when an unrealistically low social cost of gambling is imputed, has shown the inherent economic inefficiency associated with gambling as a consumer practice. It is clear that the proposal to remove poker machines from hotels and clubs has the potential to bring economic benefits to the Tasmanian economy, depending upon the distribution of player spending. This is demonstrated in all three of the scenarios modelled.

A major contribution of the research is that, for the first time, the social costs associated with gambling have been explicitly included into the economic analysis. The need to include social cost considerations in those areas of private consumption such as gambling, cigarette consumption and other areas of substance abuse that are known generators of social costs has been widely recognised, but difficulties in quantifying these costs has often prevented their formal inclusion in economic modelling. In this report we have minimised this issue by using published and widely accepted national estimates of the social costs and by using these as a basis to derive estimates of the social costs of gambling in Tasmania likely to be faced by the State Government and saved by the reform of the gambling market. The direct inclusion of social costs into the analysis accounts for the small differences in results from this study and some other studies undertaken into the net economic value of gambling to the Tasmanian economy.

3.5 Sectoral issues, particularly employment

The above section dealt with the aggregate impacts of the proposed shift in the location of poker machine gambling to casinos. Fortunately the results from Tables 5-8 can be used to focus on the potential impacts on employment in the gambling industry as a whole and specifically the hotels and clubs industry.

It should be remembered that the aggregate analysis using ABS data and ANZSIC codes disguises the specific arrangements governing the gambling industry in Tasmania, in particular the unique position of the Federal Group in controlling the licencing of poker machines and having substantial ownership of poker machine venues and the role played by its wholly-owned Network Gaming, which controls and monitors gambling in hotels and clubs.

Up until 2023, the Federal Group will still exercise control over poker machines in casinos as well as the operational aspects of casinos. If the amount of expenditure on poker machines remains unchanged following any shift in their location the individual owners of hotels and clubs would be impacted but not the Federal Group (except through the hotels they own).

With this in mind, a consideration of the aggregate modelling results show that even under the most pessimistic scenario, the employment impact is positive. The net impact within the gambling sector taken collectively across all the modelled scenarios would range from an increase of 183 (Table 7) to an increase of 670 (Table 5), depending on the degree of leakage from the sector and the extent of social cost reduction that would be achieved. These scenarios have been modelled independently of any diversification plans by the impacted hotels and clubs.

Those jobs most likely to be impacted are the "special employees" that handle the poker machine trade. These include Gaming Machine Attendant or Supervisor, although these employees are all likely to be trained and have worked in other areas of the hospitality industry, and Technician Class A or B, who are employees of Network Gaming.

It is estimated that there are approximately 200 FTE equivalent "special employees" currently in the Tasmanian hotels and clubs sub-sector[43] servicing gambling in those venues and some of these are likely to be affected by the removal of poker machines from hotels and clubs. The differing employment propensities in the relevant sectors of the TNLM suggest that not all hotel and club special employees could hope to be directly absorbed into the Arts and Recreation sector. However these employees also do other work within the hotels and club work and are generally employable across a range of hospitality and service based industries.

Earlier in the analysis the prospects of the current Tasmanian economy was shown to be on the upswing. Within the labour market there was strong projected growth to 2020 in accommodation and food services (12.0%), rental, hiring and real estate services (11.9%), professional, scientific and technical services (14.8%), education and training (13.0%), health care and social assistance (16.4%) and arts and recreation services (10.8%). These are precisely the sectors where any displaced hotel and club workers would be seeking employment.

Nevertheless the suggested changes in poker machine location will impact individual venues differently. It is not possible, in a micro sense, to model the potential impacts on each separate venue. This would require detailed information on revenue streams, the proportion made up from poker machine revenue and any diversification plans that may be enacted to compensate for poker machine losses. Moreover, it should not be imagined that all hotels and clubs will be directly impacted. Of the 189 clubs in Tasmania only seven have Poker machines and of the 338 hotels only 89 have poker machines.

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[43] This estimate of the number of employees for gambling services in hotels and clubs is based on a wage bill of 7 per cent of poker machine expenditure. State-wide, expenditure on poker machines in hotels and clubs is $113 million, which leads to a State-wide wages bill of $8 million directly attributable to poker machine duties. An average wage of $40,000 is used for this analysis.

4. Policy implications and conclusions

Many authorities and social commentators believe that Australian States have built up an unhealthy reliance on gambling revenue at the cost of a growing and essentially unfunded social cost. The rapid growth in online, particularly sports betting, is likely to extend this social cost while at the same time making the revenue sources less certain. As a State, Tasmania has the luxury of not having an over-reliance on gambling revenue. The current Parliamentary review provides an ideal opportunity to implement a socially responsible gambling structure. The aggregate modelling in all three of the scenarios studied in this paper suggests that impacts from the Anglicare proposal can be economically positive.

The overall conclusion from this report is that the proposed restructuring of the gambling industry to remove poker machines from hotels and clubs would be beneficial to the Tasmanian economy.

Appendix 1: Economic modelling

Economic modelling may proceed from a number of perspectives, with the principal difference being the decision to model industry-specific activities (partial equilibrium) or to take a simultaneous approach (general equilibrium); with the latter modelling outcomes as net welfare gains across the economy. However, in most cases the two approaches should be seen as complementary, rather than alternatives. For example, the general approach allows consideration of the net benefit of a range of alternative activities and may be seen as the best means of (ex-ante) resource allocation planning. Conversely, consideration of specific activities, such as the specific operations of a manufacturing or processing plant, are often more suited to partial economic modelling. This is because the issue under consideration is not whether the original decision to build the plant was the most efficient use of scarce resources but, rather having made the decision to construct the plant, what economic benefit does it bring to the host economy?

These types of issues are reflected in methodological differences in the construction and interpretation of economic models, ranging from traditional input output (IO), through econometric IO to Computable General Equilibrium models (CGE)[44]. Taken to extremes, a general equilibrium approach would only estimate a positive economic value from the operations of the plant if it represented the most efficient use of these scarce resources in comparison to other potential uses, because such methods seek to allocate resources efficiently across an economy. For this reason, CGE is often the preferred method used by Government, for making investment decisions designed to maximise economic welfare across the economy as a whole.

By contrast, traditional IO analysis is primarily interested in the impact of each specific project taken separately and after recognising that the initial investment decision is taken as given. Whilst this may seem a more direct way of attempting to provide economic measurement, the traditional IO method has a number of weaknesses. The principal of these is that, once a decision is made to consider a project in isolation, those factors that operate in the real world (such as the competition among other economic agents for scarce materials), are not considered. For example, constraints on economic activity such as supply imbalances, lack of demand for the product or non-linearities in economic production, are assumed not to exist. In this sense, the output from a traditional IO analysis gives the best (or maximum) result from an economic activity, on the assumption that there are no barriers in the rest of the economy that may constrain this maximum result from occurring. Whilst for small localised projects that have no great impact on the economy this may be a reasonable assumption, for larger projects, or projects that take place in an expanding economy, these assumptions can be misleading.

However, modifying traditional IO by the introduction of non-linear assumptions goes a long way to reducing a number of these constraints and, for specific project evaluation, offers the best way of obtaining an accurate economic evaluation[45]. The other advantage of this method is that it employs the use of marginal coefficients rather than average coefficients. In this sense it approximates the

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[44] The ACIL-Allen Consulting report (2014) used CGE modelling

[45] The properties of Non-Linear models are shown in appendix 2. see also, Murphy, T. (2003) "The Economic Significance of the Charles Stuart University", WRT for a supporting view on the merits of marginal coefficients IO models. He argues that the application of marginal coefficients to IO tables provides a more accurate representation of the flow-on effects of tourist related stimuli than would be possible using a linear model. The use of marginal coefficients largely overcomes the overestimation of impacts that can result from using the linear approach".

results of CGE modelling where it is used in an impact context. A well-known example of the suitability of non-linear IO modelling to modelling the economics of economic activity, is the study by Gamage and West (2001) of the macro economic effects of tourism in the Victorian Economy.[46]

The Tasmanian Non-Linear (Marginal Coefficients) Input-Output table

Originally supplied by KPMG[47], this was modified to have non-linear properties by the use of the IO-8 (originally) and IO-9 software developed by Guy West from the Centre of Economic Policy Modelling (CEPM) at the University of Queensland[48]. The table was updated to reflect latest Australian Bureau of Statistics Census employment data and, more recently, supplemented by labour force data supplied by the Australian Bureau of Statistics. It was further modified by the addition of new sectors including the Port Transport sector. Finally, it has been revamped in 2015 to take account of new estimates of output, income and employment elasticities recently made available at the University of Queensland[49]. In an essentially static model, the way in which non-linearities can be included, is by the interaction of estimated elasticity coefficients upon the multipliers, particularly the employment and factor income multipliers[50].

Definitions of Economic Impact Measures

The primary economic impact measures used in this study are as follows:

- Gross Output (regional turnover) - refers to the gross value of increased production from an additional economic activity. Within this gross value is included the value of raw materials that, in most cases, have already been counted as part of gross output from earlier production. Therefore there is a tendency for Gross Output figures to include some double-counting. As a result, more concentration is placed upon incremental (additional output created) *or value added.* Nevertheless, the concept of Gross Output should not be abandoned because it is a good indicator of the level of turnover in the economy and its capacity to accommodate increased economic activity. As a result, it is a useful measure of the total level of economic activity.
- Value Added - refers to added or net output. Value Added is equivalent to the Gross State / Regional Product as used by the Australian Bureau of Statistics. It is the measure usually preferred when measuring economic impact. It measures the added value placed on intermediate products (raw materials) from the productive process. It is made up of margins, wages, profits and transfers.

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[46] Gamage, A and West, G (2001) "Macro Effects of Tourism in Victoria" *Journal of Travel Research* 40, 101-109.

[47] The original IO table has been updated a number of times to reflect growth and structural change in the Tasmanian Economy and new estimates of elasticities in the Australian Economy, most recently in 2014.

48 Some assumptions had to be made concerning elasticity coefficients for some industries. Where exact data was not known, the Rest of Australia (minus NSW) estimates were used.

[49] As a result of this reason there are now some minor differences between sectoral results obtained within the current version and those obtained in earlier studies.

[50] See Appendix 2 for a formal description of the modeling process.

- Factor Income - relates to the share of value added (and Gross Output) which is directly paid to individuals or firms in the form of wages and/or profits. By definition it is a percentage of value added and cannot exceed value added.
- Jobs - relates (usually) to the amount of labour required for the level of production. Depending upon the type of activity, job numbers measure either the use of existing labour (continuing jobs) or hiring new staff. Full Time Equivalent (FTEs) employment refers to the number of full time person-years of employment generated by a particular project or event. This avoids overstating the level of job growth due to the stimulus.
- Government taxes and charges estimated though the indirect taxes and charges within the IO Framework.

Appendix 2: Non-Linear Input Output Models[51]

The Non-Linear Input-Output Model (NLIO) seeks to remove one of the major limitations of standard input-output analysis by removing the assumption of linear coefficients for the household sector and allowing marginal income coefficients adjustment. This is because, as is widely known, the household sector is the dominant component of multiplier effects in an input-output table. As a result using marginal income coefficients for the household sector will provide a more accurate, and empirically more valid, estimate of the multiplier effects, which in turn, provides results closer to those of a computable general equilibrium (CGE) model. The transactions flows in the input-output table can be expressed in matrix equation form as:

$$\mathbf{T}(\hat{\mathbf{X}}^{-1})\mathbf{X} + \mathbf{Y} = \mathbf{X}$$

That is, for each industry, total industry sales equals intermediate sales to other industries for further processing plus sales to final users, where T is the matrix of intermediate transactions, X is the column vector of sector total outputs and Y is the column vector of aggregate final demands. This can be rewritten as:

$$\mathbf{AX} + \mathbf{Y} = \mathbf{X}$$

where A is the matrix of direct coefficients which represents the amounts of inputs requires from sector *i* per unit of output of sector *j*. Thus, for a given direct coefficient matrix, it is possible to solve the set of simultaneous equations to find the new sector production levels X which will be required to satisfy a potential or actual change in the levels of sector final demands Y. By rearranging and converting to differences, this equation can be rewritten as:

$$\Delta\mathbf{X} = (\mathbf{I} - \mathbf{A})^{-1}\Delta\mathbf{Y}$$

where $(\mathbf{I} - \mathbf{A})^{-1}$ is termed the total requirements table, Leontief inverse matrix or general solution, and represent the direct and indirect change in the output of each sector in response to a change in the final demand of each sector. ΔY can incorporate any element of final demand expenditure, including household expenditure, government expenditure and capital expenditure.

This model is a linear model in which the A matrix represents a (constant) matrix of average input propensities. Normally, the A matrix endogenises[52] the household sector so that household consumption induced effects can be measured. This is referred to as the Type II model; the alternative Type I model is where households are treated as exogenous to local economic activity. Generally speaking, the consumption-induced effects are the largest component of the total multipliers. This is because consumer driven consumption (and income) to a large extent dominates local economic activity.

Total inputs are equal to intermediate inputs plus primary inputs (labour and capital). In the conventional input-output model, the inputs purchased by each sector are a function only of the level of output of that sector. The input function is assumed linear and homogeneous of degree one, which implies constant, returns to scale and no substitution between inputs. A more reasonable

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[51] The description of the Non-linear model properties is taken from CEPM model descriptions (West 2003).
[52] That is, household income varies with the level of intersectoral activity.

assumption is to allow substitution between primary factors. If there is an expansion in economic activity, say due to a development project, employers will attempt to increase output without corresponding proportional increases in employment numbers, particularly in the short term, e.g. construction projects, where there are economies of scale in getting the existing workforce to work longer hours rather than employ additional persons. This occurs for two reasons.

First, there is evidence in Australia that labour productivity (output per employee) is increasing over time. Secondly, as companies strive to reduce costs and satisfy the micro-economic reform processes imposed on all States by the National Competition Policy, there is evidence of a shift in primary factor use from labour to capital. This implies that the conventional input-output model has a tendency to overestimate impacts, in particular the income and employment impacts. Therefore, a more realistic approach to modelling impacts is to replace the average expenditure propensities for labour income by employers with marginal input propensities. In other words, the household income row in the A matrix, which are average input coefficients, should be replaced by income elasticities of demand. Note that, as in the CGE model, the linear coefficients assumption between intermediate inputs, and also total primary inputs, and total inputs is retained.

One problem associated with this approach is that the solution procedure is now more complex. Now the income impacts will be a function of ΔX but the income coefficients are included in the A matrix which determines ΔX. Therefore the equation set becomes recursive; ΔX depends on A and A depends on ΔX. Solving the input-output equation therefore requires an iterative procedure, a common method being the Gauss-Seidel method.

The income and employment flow-ons from the initial impact also need to be modified. In the conventional input-output model, income and employment flow-ons are calculated as linear functions of the output flow-ons, but in the revised model the parameters relating income to output are no longer constant. The impact on household income needs to be calculated as the difference between the base (i.e. before impact) income levels and the post impact income levels. It can be shown that this is equivalent to using the matrix equation:

$$\Delta \mathbf{Inc} = \hat{\mathbf{X}}_0^{-1}(\Delta \hat{\mathbf{X}})\hat{\mathbf{L}}\mathbf{U}_0$$

where U is a vector of household income flows and L is a vector of sectoral household income elasticities of demand. The zero subscript denotes the base level values and the hat denotes a diagonal matrix formed from the elements of the corresponding vector. This equation simply states that, for each sector, the change in household income payments equals the proportional change in output times the base level income payments multiplied by the income elasticity of demand. These income elasticities of demand can be shown to be equal to:

$$l_j = \eta_{WX} + \eta_{EX}$$

where ηWX is the elasticity of wage rate with respect to output, and ηEX is the elasticity of labour demand with respect to output; that is, they are made up of two components, the wage price component and the labour productivity component.

Similarly, the change in sectoral employment can be calculated as the change in the sectoral wage bill times the wage rate:

$$\Delta Emp = \hat{H}_0^{-1}\hat{P}_0^{-1}\Delta Inc$$

where H is a vector of average household income coefficients and P is a vector of coefficients representing average output per employee.

There are several implications arising from the use of this model, compared to the conventional input-output model. Firstly, while the output multipliers and impacts should not be significantly different between the two models, we would expect the income and employment impacts to be smaller in the marginal coefficient model. This is because many industries, especially those which are more capital intensive and can implement further productivity gains, can increase output, particularly in the short run[53], without corresponding proportional increases in employment and hence income payments.

Secondly, unlike the conventional input-output model in which the multiplier value is the same for all multiples of the initial shock, the multiplier values from the marginal coefficient model vary with the size of the initial impact. Thus larger changes in final demand will tend to be associated with smaller multipliers than small changes in final demand. Therefore, the differential impacts of the marginal coefficient model are not additive, unlike the conventional (linear) Leontief model and CGE model. Overall, within the confines of a static model, the major improvements brought by the non-linear model are to improve the overall accuracy of the factor income and employment impact projections.

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[53] The term 'short run' here does not refer to any specific time period; rather it will vary from industry to industry. It is used here in the conventional economic sense to mean that the full adjustment from any shock has not had time to occur, i.e. the system has not yet returned to full, long run, equilibrium.

Appendix 3: Defining the Gambling Industry as used in Economic Models

The Australian Bureau of Statistics measures gambling across a range of standard industry classifications[54]

- 5720- Pubs, Taverns and Bars
- 5740 – Clubs - Hospitality
- 9321- Gambling Services
- 9322- Casinos
- 9329- Gambling Services (NEC).

Those with 4 digit numbers starting with 5 are clustered within the Accommodation and Food Services Category and those with 4 digit numbers starting with 9 are a sub-group within the Arts and Recreation sector. Therefore the Australian Bureau of Statistics regards casinos as being in a distinct economic sector to hotels and clubs and groups their activities in different ANZSIC groupings. Hotels and clubs with large gambling components have some difficulty in correctly fitting into these standard ANZSIC codes and it is arguable that at least some of their economic activity should more correctly be housed with casinos within the Arts and Recreation sector. However, most are also dependent on bottleshop trade so they are best left in the hotels and clubs sector. If both hotels and clubs (with substantial gambling) were lodged in the same sector as casinos it would not be possible to distinguish between the impacts of economic flows (either inwards or outwards) into either sector.

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[54] See gov.au/ausstats/abs@.nsf/DOSSbyTopic/67623B66AD9C1CF4CA256BD00027E345?OpenDocument

Appendix 4: Brief Review of the Tasmanian Economy [55]

To provide important context for this analysis and to place the significance of the gambling industry in perspective, this section will examine the recent performance of the Tasmanian economy, the structure of the Tasmanian economy and the potential significance of restructuring in the gambling and recreation industry along the lines of the Anglicare Tasmania suggestions.

The Gross State Product of Tasmania is currently around $26.05 Billion. The Tasmanian economy as a whole, some of its industries, as well as its labour market, have not performed well either in an absolute sense or relative to the rest of the Australian economy over the last decade. The table below lists the recent GSP performance of Australia and the Australian States.

Table 9: Gross State Product (GSP) and GSP per capita Australian States and Territories 2015/2016

State	GSP ($m)	% change from 2014/15	GSP per capita ($)	% change from 2014/15
New South Wales	531,323	3.5	69,266	2.0
Victoria	373,624	3.3	67,308	1.4
Queensland	314,569	2.0	65,416	0.7
South Australia	101,096	1.9	59,371	1.2
Western Australia	255,214	1.9	98,012	0.7
Tasmania	**26,039**	**1.3**	**50,327**	**0.9**
Northern Territory	23,648	2.7	96,906	2.3
ACT	36,225	3.4	92,173	2.0
Australia	**1,661,739**	**2.8**	**69,241**	**1.4**

Source: Australian National Accounts: "State Accounts" ABS Cat. 5220

However, things appear to be improving both in an absolute and relative sense. The Commonwealth Bank "State of the States" Report recently ranked the Tasmanian economy 4th in its ranking of the States (2017). The key indicators identified are listed in Table 10.

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[55] Summary of Tasmanian economy from Mangan (2017) and drawn from Tasmanian Department of Treasury and Finance, The Australian Department of Treasury and Commonwealth Bank "State of the States" series.

Table 10: Tasmanian Economy 2016/17 Leading Indicators

Key Categories	Level in 2nd quarter 2017	Compared with decade average
Dwelling Commencements	495	-23.6%
Unemployment	5.8%	-5.0%
Population Growth	0.50%	-14.4%
Economic growth	$32.439m	10.3%
Equipment Investment	$130m	-28.0%
Housing finance	1,010	6.1%
Retail spending	$1,489m	8.9%
Construction work	$596m	-0.3%

Source: Commsec "State of the States" **https://www.commsec.com.au/stateofstates**

The data in the table above indicates that the Tasmanian economy is in the initial phases of an upturn, albeit from a low base. Economic growth is now on or near the long term growth path with a predicted GSP growth 2017/18 of 2.5% and a growth of 2% across the forward estimates[56].

Finally, the Tasmanian Department of Treasury and Finance has made the following predictions, summarised in Table 11.

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[56] Building Tasmania's Future - Tasmanian Budget 2017-18.

Table 11: Tasmanian Economic Estimates, Forecasts and Projections[57]

	2014-15 Actual	RER[1] 2015-16 Estimate	Budget 2016-17 2015-16 Estimate	2016-17 Forecast	2017-18	2018-19	2019-20
						Projections	
Gross State Product	1.6	2½	2½	2¼	2	2	2
State Final Demand	0.6	1¾	2	2¼	2¼	2¼	2¼
Employment	2.9	½	0	½	1	1	1
Labour Force Participation Rate	61.1	61	60½	60½	60½	60½	60½
Unemployment Rate	6.8	6½	6¾	6¾	6¾	6¾	6¾
Consumer Price Index (Hobart)	1.1	1¾	1½	1¾	2¼	2¼	2¼
Population	0.3	0.5	0.5	0.6	0.6	0.6	0.6

Source: Data - ABS; Estimates, Forecasts and Projections – Tasmanian Department of Treasury and Finance.
Notes: The *Revised Estimates Report 2015-16 (including December Quarterly Report)*, which was released on 14 February 2016.

The predictions in the table above are in line with those made by the Commonwealth Bank. Prospects for Tasmanian GSP therefore seem good, particularly relative to the rest of the Australian economy. However, the labour market is predicted to remain sluggish with labour force participation actually falling (marginally) into 2019/20 and unemployment remaining stubbornly in the upper 6 per cent range. The labour force will expand slightly with a small positive change in population growth. Moreover the projected changes in employment across industries is mixed – see Table 12.

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[57] http://lmip.gov.au/default.aspx?LMIP/GainInsights/EmploymentProjections

Table 12: Employment Projections by Sector 2015-2020 for the Tasmanian Labour force

Industry	Projected employment growth – five years to November 2020	
	('000)	(%)
Agriculture, Forestry and Fishing	-9.4	-3.1
Mining	-31.9	-14.1
Manufacturing	-45.7	-5.3
Electricity, Gas, Water and Waste Services	0.8	0.6
Construction	87.0	8.3
Wholesale Trade	3.1	0.8
Retail Trade	106.0	8.4
Accommodation and Food Services	98.8	12.0
Transport, Postal and Warehousing	52.2	8.5
Information Media and Telecommunications	8.8	4.0
Financial and Insurance Services	37.4	8.5
Rental, Hiring and Real Estate Services	25.8	11.9
Professional, Scientific and Technical Services	151.2	14.8
Administrative and Support Services	32.6	7.8
Public Administration and Safety	51.2	7.0
Education and Training	121.7	13.0
Health Care and Social Assistance	250.2	16.4
Arts and Recreation Services	24.5	10.8
Other Services	25.5	5.3
All Industries	**989.7**	**8.3**

Source: http://lmip.gov.au/default.aspx?LMIP/GainInsights/EmploymentProjections

The projected sectoral growth in employment predicts declines in the traditional strong areas of Agriculture (-3.1%); Mining (-14.1%) and Manufacturing (-5.3) but strong growth in Accommodation and Food Services (+12.0%), Rental, Hiring and Real Estate Services (+11.9%), Professional, Scientific and Technical Services (+14.8%) Education and Training (+13.0%), Health Care and Social Assistance (+ 16.4%) and Arts and Recreation Services (+10.8%).

This pattern of projected growth paints a reasonably bright picture for those staff in service industries who may be temporarily impacted by changes in the structure of the gambling industry.

Appendix 5: Sources of Value from Economic Activity

Economic models are driven by what is called 'shifts in final demand'. By this it is meant that new expenditure on finished products represents a stimulus to economic activity. If this new expenditure is exogenous (i.e. originates from outside the economy it is spent in), it is particularly valuable to the local economy because it represents additional new investment not just displacement from other areas of past spending within that economy. This amount of exogenous expenditure on final demand products is often increased or "multiplied" to provide an estimate of the total impact on the economy, because demand for final demand products also requires a boost in demand for intermediate products used in their production. The higher the percentage of intermediate goods the higher is this multiplied effect. This multiplied effect often shows up in significantly expanded Gross Output/Regional Turnover. However, this data is often partially discounted due to concerns over possible double-counting during the estimation process. Despite this, Gross Output or Turnover effects remain a legitimate source of economic knowledge, particularly in terms of defining the capacity of an economy to undertake large projects.

In contrast, the economic value of a particular activity to an economy is often measured through its value added or additions to Gross Regional Product (GRP) per Gross State Product (GSP). When the Government says the Tasmanian economy grew by 3 per cent per annum they mean that the GSP of Tasmania increased by 3 per cent[58], where GSP is the increment added to the sum of the value of intermediate products resulting from the sale of the final demand products. This process is illustrated in Figure 1, which shows that value added is a sub-component of Gross Output, which in turn may be subdivided into its labour component (wages and other income such as dividends), Gross operating surplus, which includes company profits and production generated taxes and charges. Gambling taxes and levies are in the category 'production taxes less subsidies'.

Figure 1: Stylised Economic activity accounting framework
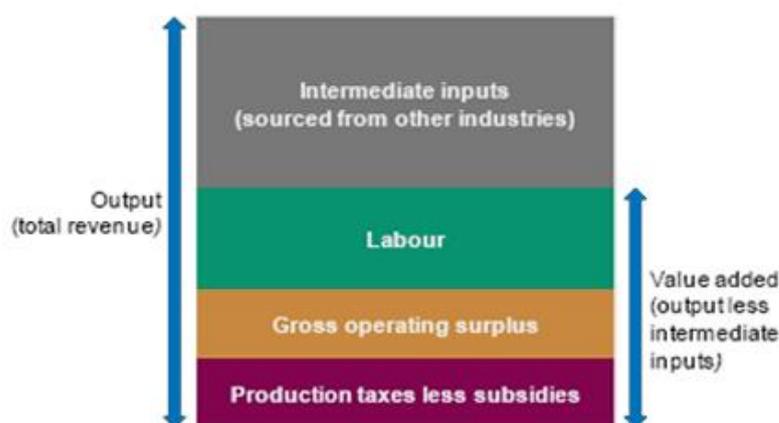
Source: adapted from Access Economics (2009).

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[58] This suggests that turnover increased by 5%-6% but some of this was double-counted.