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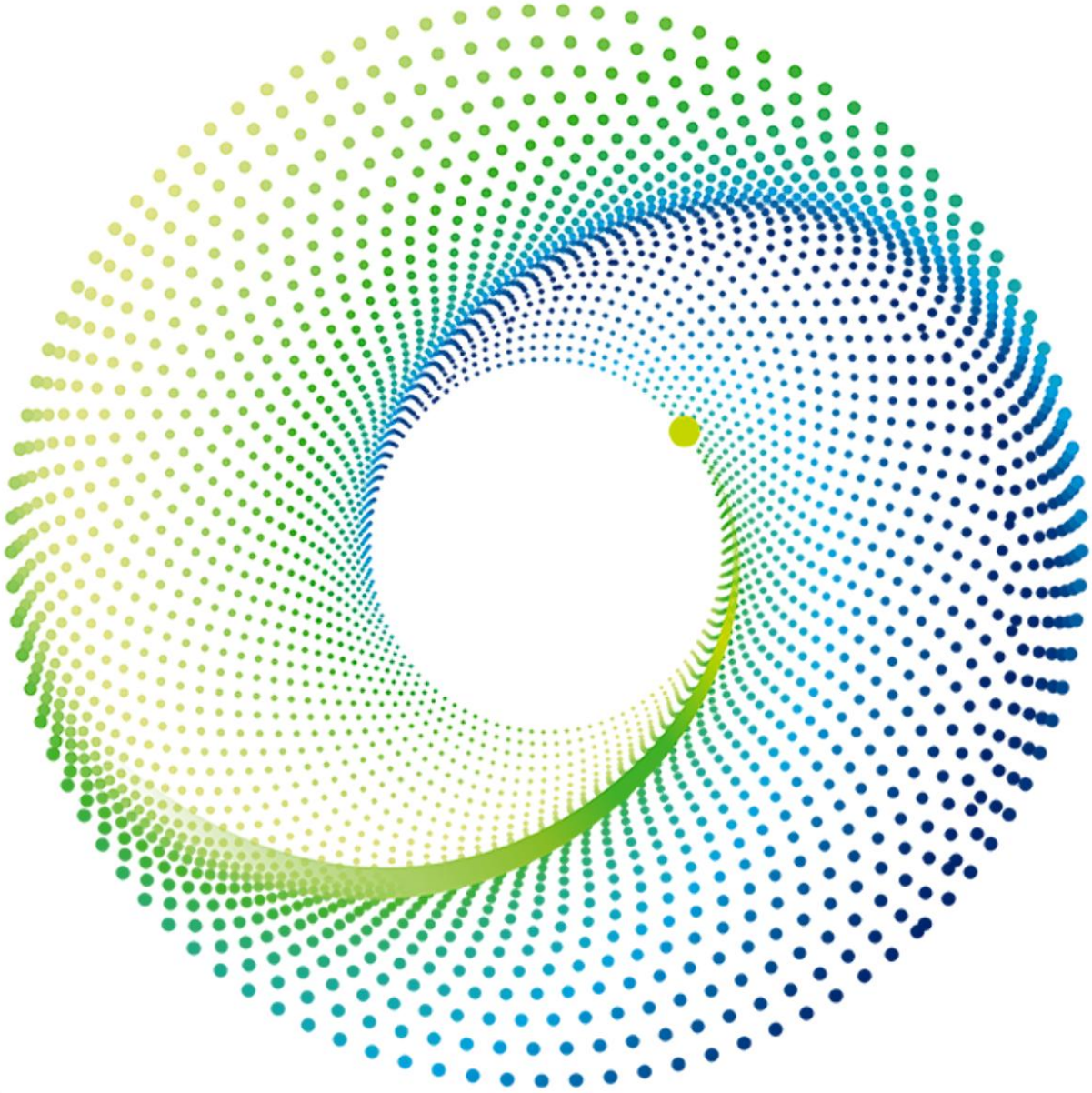

# Social and Economic Impact of Electronic Gaming Machine (EGM) Reform use in Tasmania

Department of State Growth

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Deloitte Access Economics

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## Context

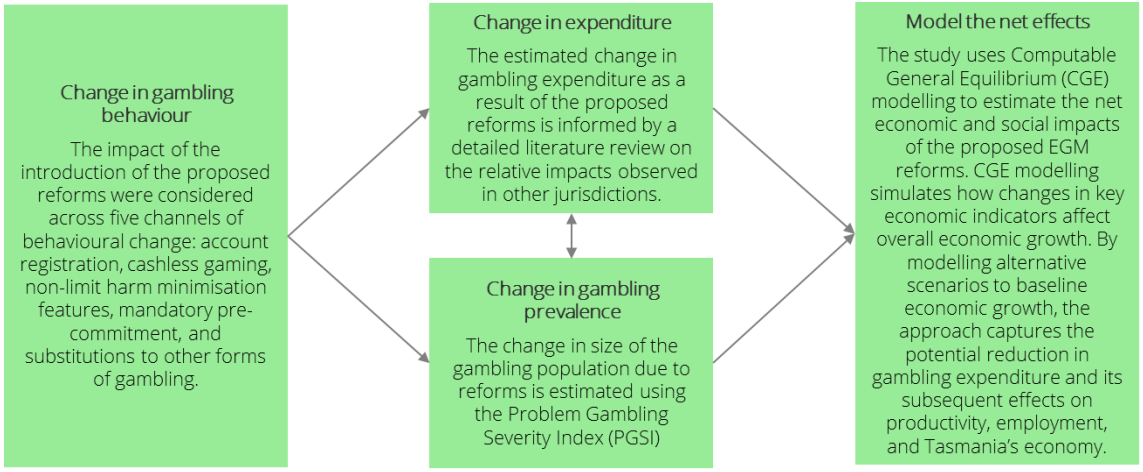
The Tasmanian Government is planning reform to Electronic Gaming Machine (EGM) use in Tasmania, detailed in a consultation paper released on 9 September 2024 for feedback from interested parties.[1] The reform applies to Tasmanian hotels, clubs and casinos, and includes pre-commitment for player loss, breaks in play and optional commitment for time spent playing.

This study, conducted by Deloitte Access Economics, aims to assess the economic and social impacts of these reforms. The objectives include evaluating changes in gambling behaviour and subsequent economic and social impacts, including expected changes to gambling harm, and understanding the broader economic effects on stakeholders such as players, hotels, casinos, healthcare providers, and public services.

## Approach

The study uses Computable General Equilibrium (CGE) modelling to estimate the net economic and social impacts of the proposed EGM reforms. To capture these net effects, the following steps were taken:

Figure i: Illustrative representation of methodology to capture net effects of the reforms




Source: Deloitte Access Economics (2024)

Three scenarios have been used to assess the potential economic and social impacts of the proposed reform. Each scenario varies the assumptions that relate to three variables: substitution effects, spending impacts of cashless gaming and spending impacts of harm minimisation features. An overview of the scenarios is found below:

1. Significant substitution – seeks to understand the impacts associated with a large substitution effect from EGM gambling to other forms of gambling due to upfront friction associated with registering for a card.
2. Central scenario – assumes most players register for a card. Some players reduce their EGM spending due to harm minimisation features and experience reduced gambling harm as a result, while some players increase their EGM spending due to the cashless aspect of the reform, thereby increasing their exposure to gambling related harm.
3. Maximum cashless effects – reflects a maximum increase in EGM expenditure due to behavioural drivers of cashless gaming and the anchoring effect of spending limits.

This report utilises information published in the *Fifth Social and Economic Impact Study of Gambling in Tasmania (Fifth SEIS) 2021* to understand the existing state of EGM participation and expenditure in Australia and as the baseline for which change occurs. The impact of the reforms are based on literature surrounding the effects of cashless gambling and harm minimisation features from previous changes in EGM setting in Australia, the results of small-scale pilots in Australian venues and research on comparable reforms internally. For example, Norway made reforms to introduce mandatory player cards and default loss limits in 2007. Other jurisdictions have followed suit, such as Finland, with mandatory authentication and loss limits. These studies were used to

inform assumptions made related to the different effects of the reform seen in the illustrative methodology above, including changes in gambling behaviour, expenditure and prevalence, as well as potential substitution effects.

## Impact on gambling expenditure

Changes to gambling expenditure under the reforms is driven by two opposing factors. Firstly, the reforms introduce cashless gambling (card-based EGMs) which removes some barriers to gambling and therefore makes the behaviour more likely. These barriers are diverse and nuanced, ranging from mental accounting of session losses to physically retrieving cash from an ATM to gamble. On the other hand, the reforms introduce harm minimisation features such as mandatory loss limits and session time limits which are expected to reduce gambling expenditure. These two opposing processes are modelled throughout this report and are expected to affect varied cohorts of gamblers differently.

The reforms are estimated to reduce EGM player gambling expenditure by 23% – 46% under the modelled scenarios. The change captures both the decrease in EGM expenditure and any increase in non-EGM gambling expenditure. The results demonstrate that the harm minimisation features of card-based gambling have the largest impact on total gambling expenditure, particularly for those at moderate to high risk of gambling harm. While cashless gambling does substantially increase the amount players spend in some scenarios, almost all this increase is offset by players hitting mandatory pre-commitment limits.

### Impact of card-based EGM gaming on player expenditure

Based on available evidence, the introduction of cashless gaming is anticipated to make it easier for players to spend more money on EGMs, and therefore increase the amount they lose. The literature notes that from a behavioural perspective, introducing cashless gambling removes mental and physical barriers that may moderate gambling spend. Moving from a cash- to card-based EGM ecosystem is, in the absence of harm minimisation features, likely to increase player losses, particularly for those at moderate to high risk of problem gambling.

However, this effect may not be observed for everyone. The additional time and effort required to register for a player card is likely to reduce EGM participation within non-problem and low-risk gambler cohorts who are more likely to be occasional EGM gamblers. This is because their motivation to gamble does not exceed the additional effort burden of registering for a player card.

### Impact of harm minimisation features

Harm minimisation features are intended to remedy this increased expenditure impact by introducing features to limit gambling expenditure and harness gambling behaviour. Overlaid with expenditure impacts from card-based EGM use, the results of the scenarios demonstrate that the harm minimisation features of the cashless card have the largest impact on total gambling expenditure, especially the mandatory limits. Cashless gambling does substantially increase the amount players spend in some scenarios, but almost all of the increase is offset by players hitting mandatory pre-commitment limits. The majority of the impacts of harm minimisation features is for moderate to high-risk gamblers.

## Net economic impact

The reforms are projected to cause a decline in activity and employment at venues, but this is more than offset by increases in activity and employment in other sectors. This trend is consistent across regions, but the magnitude is larger in regions with more EGMs.

While there may be a reduction in revenue for venues operating EGMs, the broader economic benefits include improved labour productivity due to reduced gambling-related absenteeism, enhanced household disposable income and reduced costs to government associated with delivery of healthcare, mental health support, homelessness programs, policing, courts, and corrections. The table below outlines additional economic activity for each scenario.

Table i: Net present value of additional economic activity, 2024-2030

| Scenario | Additional GSP | Additional jobs |
|---|---|---|
| Significant substitution | $240 million | 238 |
| Central scenario | $230 million | 209 |
| Maximum cashless effects | $153 million | 126 |

Source: Deloitte Access Economics (2024)

The largest economic uplift is expected under the *significant substitution* scenario, which sees EGM use fall mostly sharply, reducing costs to government and creating social benefits that support higher labour productivity, more available workers, and more productive government services. By contrast, the *max cashless effects* scenario sees GSP grow more modestly, underscored by higher ongoing EGM participation and expenditure, and fewer benefits from the reduction of gambling harm. In between these two bounds, the *central scenario* shows the economic impacts of a moderate decline in EGM use.

The proposed reforms are expected to lift Tasmania's GSP and net employment, relative to the State's economic baseline. This finding holds across each of the three scenarios.

The social outcomes of the reform are anticipated to be largely positive; an effectual consequence of the reform considering gambling related harm is not confined to problem gamblers. Firstly, the study shows that a meaningful reduction in gambling-related harm is expected, particularly among problem gamblers, moderate-risk gamblers, and their communities. This reduction is then expected to lead to decreased demand for public health and social support services, decreased costs for justice and policing, improved productivity, and overall improvements in community wellbeing.

### Impact on Tasmania's industries

All industries are expected to benefit from the proposed reforms, with the exception of the EGM sector and the hospitality sector. In each scenario, higher economic activity stems from a combination of more available workers at higher productivity levels, due to a reduction in gambling among the workforce, and the substitution of EGM spending for consumption of other goods and services.

The EGM and hospitality sectors are expected to contract under all modelled scenarios. In the *central scenario*, the economic value added by the EGM sector falls by $432 million, while substitution of other goods and services partially offsets the impact on the hospitality sector by $37 million. The net impact on the hospitality sector is a reduction in economic activity of $395 million.

However, across the rest of the economy overall (excluding EGMs and hospitality), economic activity is lifted by $625 million, resulting in $230 million higher GSP (net present value, 2024-2030).

This study assessed the impacts of the reforms at an aggregate level – as such the impacts of the reforms on any individual business depends on that business' unique revenue profile (relative proportion of hospitality and gambling income). Anecdotally, stakeholders noted the use of EGMs contributed to increased food and beverage sales, which suggests hospitality revenue will be lower for venues which lose EGM activity under the reforms. On the other hand, higher household incomes and increased net employment could contribute to increased food and beverage sales for some venues.

### Impact across Tasmania's sub-regions (LGAs)

All Tasmanian LGAs are expected to experience a neutral or positive deviation in gross regional product (GRP) as a result of the proposed reforms. The impacts are not uniformly distributed, with larger spending regions that have labour-intensive industries and a more diverse economic structure expected to receive the greatest economic uplift.

Launceston, Hobart and Glenorchy are expected to experience the greatest deviation in GRP, primarily attributable to their comparatively larger economies. The impact on smaller LGAs is expected to vary based on local factors, but none experience a net economic loss.

# 1 Introduction and background

## 1.1 Electronic gaming machines in Tasmania

EGMs are a popular form of gambling and recreation in Tasmania, with 3,282 licensed EGMs across the State,[2] and approximately 51,000 individual users each year (9% of adult Tasmanians).[3] The most common settings for EGM use are hotels, followed by casinos and clubs.[4] (Table 1.1)

Table 1.1: EGM users by venue type

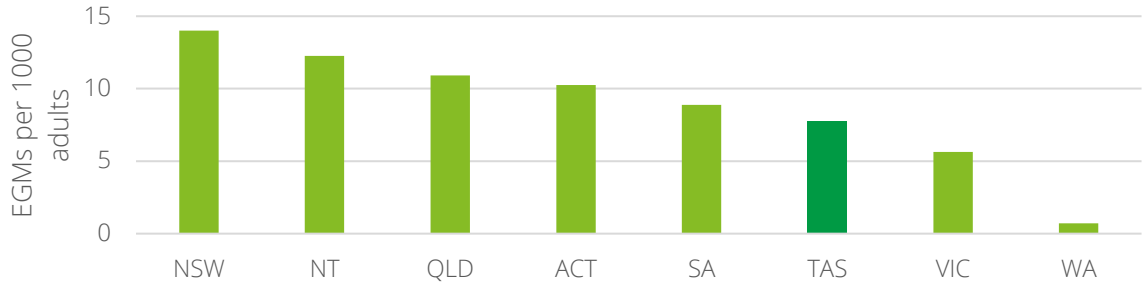
| Venue type | Detail | Share of EGM users |
|---|---|---|
| Hotel | Pubs and general licensed venues | 60% |
| Casino | Two casinos (Hobart and Launceston) | 47% |
| Club | Sporting, RSL and other special purpose clubs | 16% |

*Note: Percentages do not sum to 100% as some EGM users attend multiple venue types. Source: Tasmanian Government Department of Treasury and Finance*

### 1.1.1 Prevalence of EGMs

Despite their popularity, EGMs are less prevalent in Tasmania than other States and Territories. In jurisdictions where EGMs are widely available, only Victoria has a lower share of EGMs relative to its adult population, while Western Australia limits EGMs to casinos only (Chart 1.1).

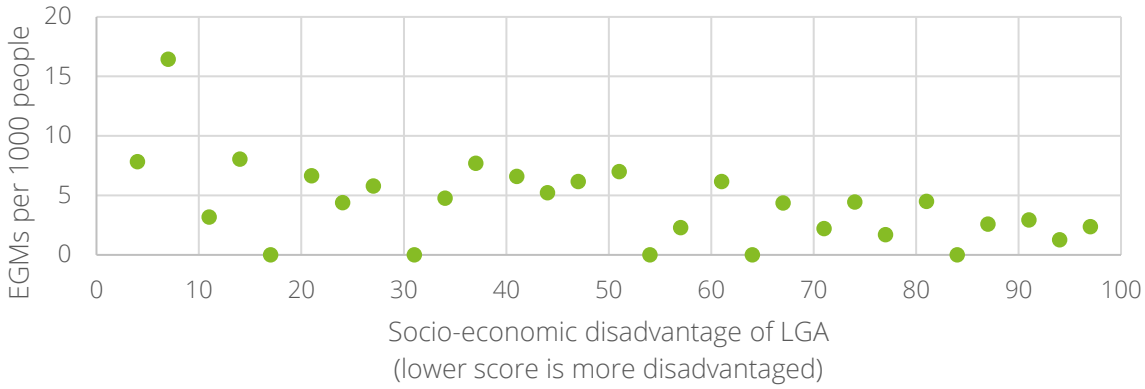
Chart 1.1: Prevalence of EGMs by State/Territory, 2021




*Source: Australian Bureau of Statistics and Queensland Government Statistician's Office*

Within Tasmania, EGMs tend to be distributed in line with population, with the exception of the two casinos which jointly hold 30% of EGMs in the State. At the local government level, non-casino EGMs range from zero (five LGAs have no EGMs), to 16 EGMs per 1000 people in West Coast. There is correlation between socio-economic disadvantage, and the presence of more EGMs in an area (Chart 1.2).

Chart 1.2: EGMs per capita by LGA against SEIFA IRSD rank within Tasmania




*Note: Excludes casinos*
*Source: Tasmanian Government Department of Treasury and Finance and Australian Bureau of Statistics*

### 1.1.2 Users of EGMs

Gambling prevalence in Tasmania is well-understood, with eight dedicated surveys undertaken since 1994. The most recent study, the *Fifth Social and Economic Impact Study of Gambling in Tasmania (Fifth SEIS) 2021*, found there is a range of demographic characteristics that predict higher EGM use.[5]

Tasmanian EGM users are most commonly young people aged between 18 to 34 years with less than a university level of education attainment. EGM use is also significantly higher among people of Aboriginal and/or Torres Strait Islander descent, and those who only speak English at home.

While EGM users tend to be younger, the cohort of older EGM users typically gambles more frequently (over 65s use EGMs an average of 23 times per year, as opposed to 8 times per year among the 18-24 group). Gender is not found to be a significant factor in EGM use.

### 1.1.3 Economic and social impacts

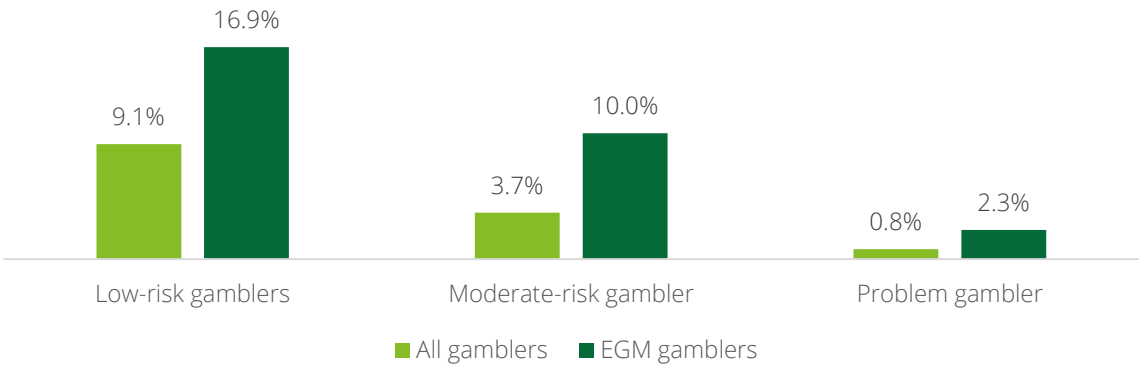
EGMs have complex and interdependent economic and social impacts. In the 2023-24 financial year, total expenditure on EGMs in Tasmania was approximately $170 million,[6] which contributes to direct employment in the gaming industry, generates income for hospitality venues, and, through the Community Support Levy, funds sport and recreation clubs, charitable organisations, gambling research, and gambling support services.[7] EGMs also generate positive spillovers for local businesses. While patrons are gambling, they may spend money on complementary goods such as food and drink at hotels and clubs, and in turn support local employment.

However, EGMs also contribute to economic losses and social harm. While most gamblers can participate in gambling activities as a non-disruptive form of entertainment and recreation,[8] approximately 14% of gamblers in Tasmania fall into one of three risk categories under the Problem Gambling Severity Index (PGSI) (see Box 1.1 for a detailed summary of the PGSI):

- Low-risk gamblers (9.1%)
- Moderate-risk gamblers (3.7%)
- Problem gamblers (0.8%)

For Tasmanian EGM users, in contrast to the population of all gamblers, the share of problem gamblers is significantly higher, with 12% of EGM users classified as either moderate-risk or problem gamblers (Chart 1.3).

Chart 1.3: Share of Tasmanian gamblers categorised as problem gamblers, by gambler type




*Source: Department of Treasury and Finance (2021)*

According to the *Fifth SEIS (2021),* younger Tasmanians are more likely to be moderate-risk or problem gamblers, with the share of those aged 25 to 34 years being almost four times as likely as those aged 65 years and over to be classified as such.[9] Other demographics that correlate with problem gambling include being single, having a vocational qualification (such as a trade certificate) and speaking only English at home.[10]

The Socio-Economic Impact of Gambling (SEIG) Framework establishes a taxonomy of gambling-related impacts, including the negative of effects of gambling on problem gamblers. These include physical and mental health conditions (such as depression, anxiety, cognitive distortion and cardiovascular disorders), poorer economic outcomes arising from lower productivity and human capital depreciation, and the use of debt, the sale of possessions, and crime to fund gambling behaviour.[11] Many of these impacts also harm others in a person's social network, with 5.8% of Australian adults report being personally affected by somebody else's gambling.[12]

## 1.2 Purpose and scope of this study

As part of a commitment to reducing the social harm caused by gambling, in 2021, the Government directed the Tasmanian Liquor and Gaming Commission to investigate the potential of facial recognition technology and player card gaming for EGMs in casinos, hotels, and clubs to mitigate gambling harm. The Commission was tasked with providing a report on its findings and recommendations for effectively implementing these technologies.

In response to this, the Commission submitted a report in 2022,[13] recommending the introduction of a mandatory registered card system for EGMs across all Tasmanian hotels, clubs, and casinos. The proposed system includes a mandatory state-wide pre-commitment functionality for all players.

In this context, Deloitte Access Economics has been engaged by the Tasmanian Government to assess the economic and social impact of a mandatory account-based cashless card system for Electronic Gaming Machine (EGM) play in Tasmania.

This analysis is intended to build on existing research, aiming to quantify the potential reduction in social harm from the EGM reform. This potential reduction in social harm will then be netted against any negative impact on the operations of hotels, restaurants, and casinos to estimate the net impact of the reform on the Tasmanian economy.

Specifically, this analysis aims to assess:

- The impact of the proposed reform on gambling behaviour - what effect the reform is likely to have on reducing the use of EGMs, and to what extent there is a move towards other forms of gambling?
- The impact on minimising harm – given what is known about the potential impact on gambling behaviour, what effect the reform is likely to have on gambling harm?
- The economic impact of the reform – what would be the economic impact of the reform on players? How would the reform impact other stakeholders such as hotels, casinos, healthcare providers and public services?

### 1.2.1 Summary of proposed reforms

As outlined in the *Player Card and Cashless Gaming Public Consultation Paper*[14], the key features of the EGM reform include:

- a unified statewide player account system for all EGM play, applicable across all venues (hotels, clubs, and casinos)
- default pre-commitment limits with an easy process to adjust limits up to a defined threshold
- a robust process for setting limits above the predefined threshold
- statewide implementation of cashless gaming.

Under this reform, EGM players will preload funds into their player accounts and establish loss limits. Default loss limits are set at $100 per day, $500 per month, and $5,000 per year, with players able to select lower or higher limits upon registration. Players can lower their limits anytime or increase them by demonstrating their capacity to sustain losses. Once a limit is reached, the player will be unable to continue gaming until the next limit period begins.

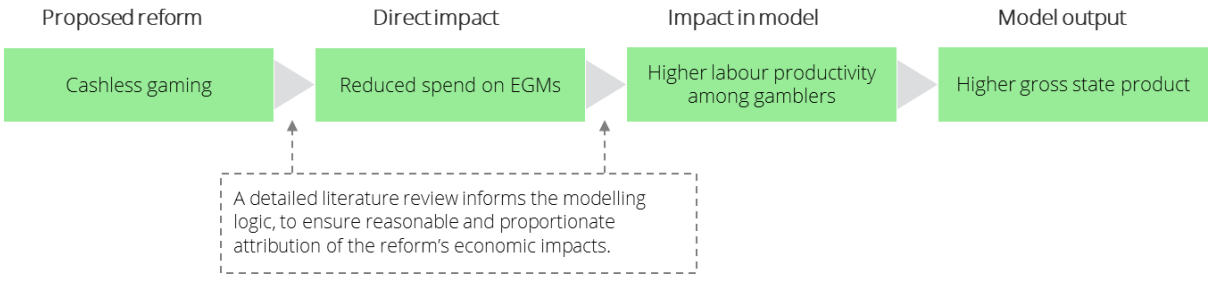
Players will have access to their gaming activity through online or in-venue activity statements. These measures are designed to minimise harm to at-risk players while having minimal impact on recreational gamblers. The rest of this report assesses the potential impact of this reform on the behaviour of players, the social harm caused by gambling, and the Tasmanian economy.

### 1.2.2 Approach overview

To estimate the net economic and social impacts of the proposed reform, this study uses Computable General Equilibrium (CGE) modelling. The approach captures the impacts of the proposed reforms by changing key economic indicators, which are then modelled as an alternative scenario to baseline economic growth. For example, if the proposed reforms lead to lower expenditure on EGMs, this has flow-on consequences for workplace absenteeism and labour productivity among gamblers, and ultimately Tasmania's gross state product (see Section 3 for a detailed explanation of modelling approach and complete set of impact channels).

In recognition of the novel and uncertain nature of this work, three player response scenarios have been modelled based on the spectrum of evidence available. Each scenario (significant substitution, central and max cashless) reflects the different ways that behaviour may be influenced by the policy. The process by which each scenario has been developed is shown in Figure 1.1. Outlined in Figure 1.2 is the economic framework that has been developed to map behavioural changes to economic and social outcomes.

Figure 1.1: Illustrative logic for the economic analysis (one impact channel)



### Developing the economic framework

The introduction of a statewide mandatory player card system for EGMs in Tasmania has the potential to alter players' behaviour. With features allowing individuals to track their playing activities and limit their losses, the reform has the potential to reduce EGM and overall gambling spend.

A reduction in gambling spend can help reduce harm to players and their communities. For some players, gambling worsens their financial situation, creating stress for themselves and their families. Additionally, gambling activities and the stress they cause may distract players and families from their work or study, further worsening their financial situations.

The harm of gambling is not only borne by players and their communities but society as a whole. Gambling-related crimes, such as fraud and theft, impose significant costs on justice and social systems, as individuals seek to fund their gambling habits.

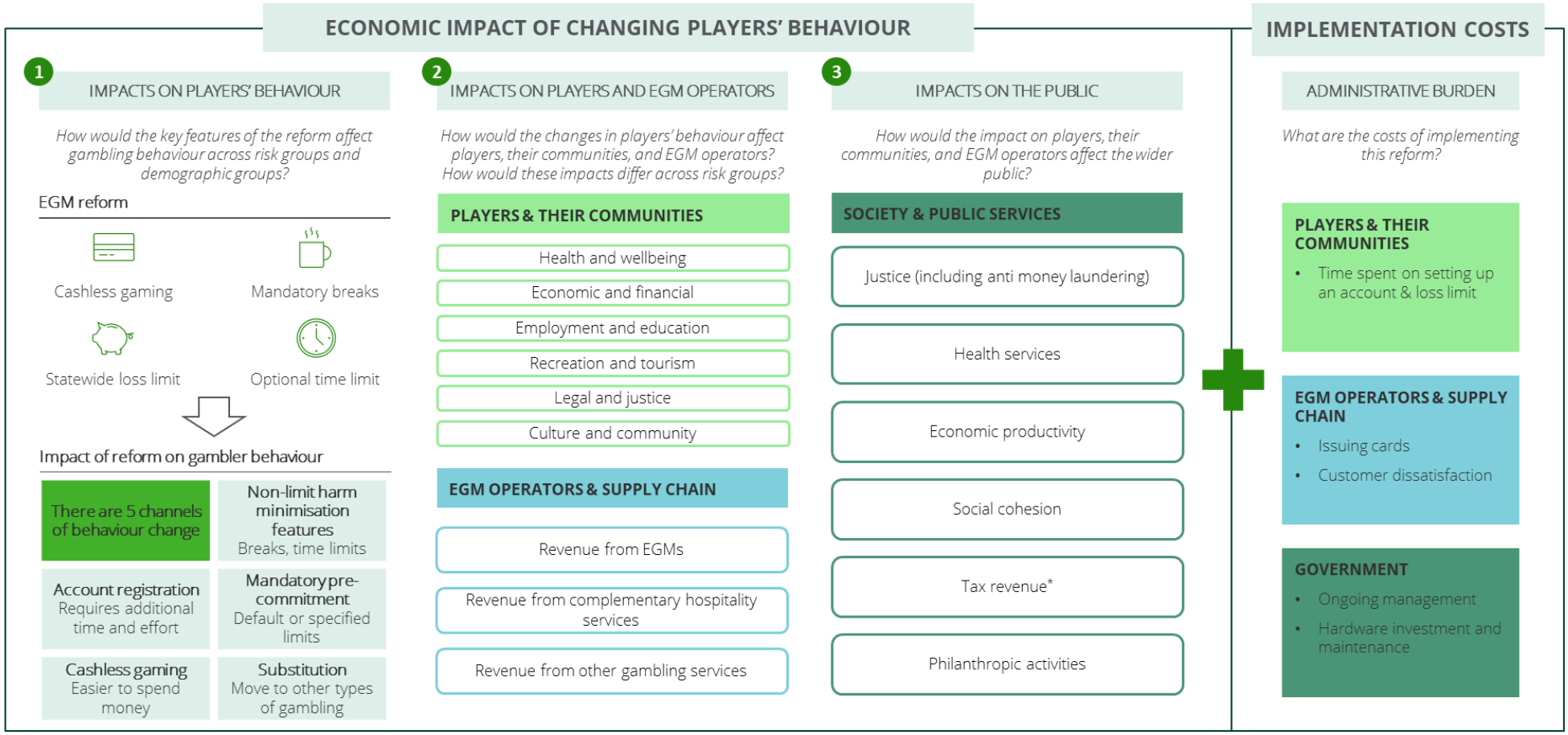
At the same time, businesses and the broader economy bear the costs of reduced labour productivity due to absenteeism, job loss, and diminished work performance among problem gamblers. These cumulative impacts make gambling not just a personal issue but a societal challenge, necessitating comprehensive measures to mitigate its harm. A reduction in gambling will not only reduce the harm to individuals and their communities but also reduce the health and justice system costs and increase labour productivity.

However, these changes may also reduce revenue for venues operating EGMs, with potential ripple effects on the businesses and their workforce. As players adjust to the new system, the reduced spend on EGMs could impact local economies, particularly in regions where the revenue from gaming machines plays a significant role in venue profitability. For small and medium-sized venues, a decline in EGM revenue might lead to decreased investment, job losses, or challenges in maintaining community support activities. While the aggregate impact of the reforms on EGM expenditure and the impacts of employment by region are considered in this study, the specific impact on licence holders and venues themselves are not estimated. However, balancing the reform's economic and social impacts with other distribution considerations will be essential to managing these broader effects.

The proposed reforms would impose implementation costs on government and EGM operators. However, these costs are outside the scope of this exercise, which focuses on the economic impact of the reforms themselves. Similarly, a decrease in EGM revenues would have an impact of government tax revenue but this is also outside the scope of this study.

Outlined in the framework in Figure 1.2 is the proposed approach to incorporating the above economic and social impacts of EGMs into an economic framework that can support whole of economy modelling. This economic framework assesses the impact of the reforms to EGM use in Tasmania in three steps by investigating the impact of the reforms on gambling behaviours, and then the economic and social impact of a change in gambling behaviour.

Figure 1.2: Economic framework to estimate the impact of EGM reforms in Tasmania




Note: The impact on tax revenue is not in the scope of this analysis

### 1.2.3 Data sources

A range of data inputs have been used to estimate the impact of the proposed reforms. Key amongst these sources is the *Fifth SEIS (2021)*, which serves as the basis for defining the proportion of Tasmanian EGM gamblers experiencing problem gambling, and the average per session and per year losses. The impact of the reforms has been informed by a detailed literature review which includes Australian studies and meta-studies on the impact of EGM harm minimisation and cashless gaming measures in Australia. Key sources include:

- A series of studies undertaken by the Australian Institution of Family Studies on EGM pre-commitment features.[15, 16]
- Evaluation reports of pilot programs of cashless card with voluntary pre-commitment in Australian pubs and RSLs, including in Queensland and South Australia.[17, 18]
- Studies assessing the literature on cashless gaming potentially increasing gambling spend, in the absence of other measures.[19]
- A prior literature review commissioned by the Tasmanian Liquor and Gaming Commission.[20]

Where Australian data was not available, typically due to the lack of comparable reforms implemented in Australia, international studies of similar region-wide measures were considered. These include:

- A study investigating how restrictions on EGMs in Norway from 2006 to 2009 impacted gambling turnover and likely gambling harm.[21]
- A study into the effects of Norway's 2007 EGM ban on gambling participation, frequency, problem gambling and substitution to other gambling forms among former EGM gamblers.[22]
- A study examining the impact of COVID-19-related availability restrictions and the introduction of mandatory precommitment for EGMs in Finland on overall gambling expenditure and potential substitution between gambling products.[23]

It is important to note that while the studies of international reforms have similar elements to the proposed reforms in Tasmania. There are both key differences in the nature of the reforms and in gambling behaviour across countries. As such, while the studies provide indicative evidence on the potential impact of the proposed reforms, there are limitations around the extent to which the findings translate into the Tasmanian context. In addition, some reforms, including those in Norway, occurred some years ago and as a result if implemented today could result in different impacts. A summary of the key reforms assessed in this study is provided in Appendix A.

Translating the impact of the proposed reforms on gambling losses to problem gambling prevalence relied on a study aimed at estimating the shape of gambling risk-curves (i.e., the relationship between gambling expenditure and risk of gambling related harm) for gamblers in Tasmania.[24]

The change in the cost to government and cost of productivity loss and work impacts due to the proposed reforms are calculated based on a report by the Victorian Responsible Gambling Foundation (VRGF) and are converted to Tasmanian specific values using appropriate local measures.[25]

A detailed summary of the key data sources used throughout the analysis and their specific applications is provided in Appendix A.

# 2 Impact of the reform on the economy

This Section outlines the methodology and approach to estimating the impacts of the proposed reforms on the economy alongside the results of the modelling.

## 2.1 Overview of approach

To estimate the net economic and social impacts of the proposed reforms, this study uses Computable General Equilibrium (CGE) modelling. The approach captures the impacts of the reforms by changing key economic variables, which are then modelled as an alternative scenario to baseline economic growth. The CGE modelling approach follows a four-step process (Figure 2.1):

1. **Define scenarios:** A core starting assumption is that the proposed reforms will reduce expenditure on EGMs – both overall, and by the highest-spending cohort of problem gamblers. Given uncertainty around the change in expenditure that can be expected under the reforms, three scenarios are modelled to account for the sensitivity of this assumption (refer to Section 3.2.1).
2. **Determine change in costs:** Lower EGM expenditure under each scenario is linked with reductions in economic and social costs, based on academic literature and stakeholder consultation. Costs are broadly grouped into those borne by individuals and businesses, and those borne by government.
3. **Model 'shocks':** The expected change in each cost category is transformed into a 'shock' to a key economic variable in the CGE model. For example, lower workplace absenteeism costs have a positive impact on labour productivity.
4. **Report impacts:** The net impact of the 'shocks' is reported for each scenario as a deviation from Tasmania's economic baseline.

### 2.1.1 Step 1: Scenario definition

Three scenarios are used to represent the range of potential impacts the proposed reforms could have on the level of EGM activity. These scenarios account for variation in two competing effects:

- **New barriers to EGM activity:** Upfront registration and ongoing harm minimisation features reduce participation and total spend.
- **Lower friction for users:** Users, once registered, spend more due to the ease of a cashless system, and may perceive default limits as a spending target.

Table 2.1: Overview of scenario impacts

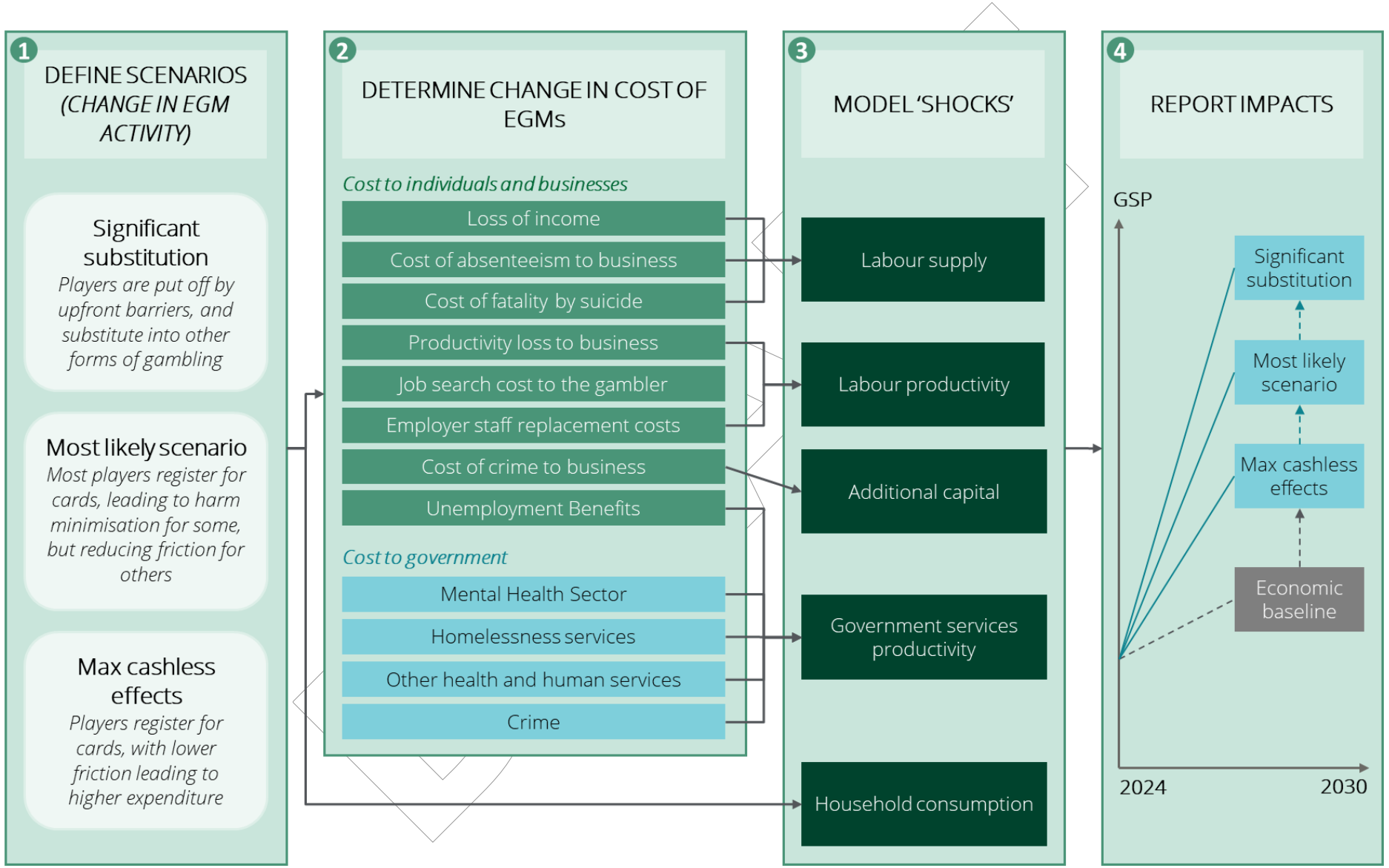
| | Account registration | Cashless gaming impact | Harm Minimisation features | Substitution to other gambling | Gambling Spend |
|---|---|---|---|---|---|
| Significant substitution | Decrease | No impact | Decrease | Increase | Decrease |
| Central scenario | Decrease | Increase | Decrease | Increase | Decrease |
| Max cashless effects | Decrease | Increase | Decrease | Increase | Decrease |

*Strength of effect*

Source: Deloitte Access Economics (2024)

Detailed scenario definitions and assumptions are outlined in Sections 3 and 4.

Figure 2.1: Modelling the economic impact of the reforms



### 2.1.2 Step 2: Change in costs of gambling

The costs of gambling are modelled on per-gambler-by-PGSI level and aggregated to a total annual cost for Tasmania. Costs are broadly grouped into those borne by individuals and businesses, and those borne by government based on work by the Victorian Responsible Gambling Foundation (VRGF).[26] These costs, while based on Victorian estimates, are adjusted to Tasmanian equivalent costs using data outlined in Table 2.2 below with a full overview of the process provided in Appendix C.

The process for estimating the aggregate change in the costs of problem gambling is undertaken by:

1. Calculating the per gambler cost of by gambler type to individual and businesses, and government by PGSI level (summarised in Table 2.3 and Table 2.5). This cost is an aggregation of each individual cost category by stakeholder.
2. Calculating the change in cost under each scenario by applying the per gambler cost to the estimated change in the number of gamblers in each PGSI category (aggregated in Table 2.4 and Table 2.6.).
3. The monetary change for each PGSI type is summed by cost category and scenario to obtain an aggregate impact figure representing the shock to each economic variable in the CGE model.

Table 2.2: Summary of cost categories (individuals and businesses)

| Stakeholder | Cost category | Key data source |
|---|---|---|
| Cost to Government (health and human services) | Mental health sector | AIHW (2023)<br>*[Data from Victoria and Tasmania]* |
| | Homelessness services | Productivity Commission (2024)<br>*[Data from Victoria and Tasmania]* |
| | Other health and human services systems | Productivity Commission (2024)<br>*[Data from Victoria and Tasmania]* |
| Cost to Government (crime) | Police system cost | Productivity Commission (2024)<br>*[Data from Victoria and Tasmania]* |
| | Court system cost | Productivity Commission (2024)<br>*[Data from Victoria and Tasmania]* |
| | Corrections systems cost | Productivity Commission (2024)<br>*[Data from Victoria and Tasmania]* |
| Costs to businesses and individuals | Productivity loss to business | ABS (2024)<br>*[Data from Victoria and Tasmania]* |
| | Cost of job loss<br>Loss of income<br>Job search cost to the gambler<br>Employer staff replacement costs<br>Unemployment benefits | ABS (2024)<br>*[Data from Victoria and Tasmania]* |
| | Cost of absenteeism to business | ABS (2024)<br>*[Data from Victoria and Tasmania]* |
| | Cost of crime to business | ABS (2024)<br>*[Data from Victoria and Tasmania]* |

Source: Deloitte Access Economics (2024)

#### 2.1.2.2 Cost to individuals and businesses

The modelling approach identifies eight categories of cost to individuals and businesses, including productivity loss, staff replacement costs and crime costs to business. These costs were estimated to have totalled $38 million in Tasmania in 2024.

Problem gamblers contribute the largest share of costs to individuals and businesses (53%), followed by moderate-risk gamblers (37%) and low-risk gamblers (10%). The high concentration of costs among problem gamblers stems from the cohort's higher costs per person, despite problem gamblers making up a small proportion of gamblers overall. The cost of a problem gambler is more than 55 times higher than the cost of a low-risk gambler (Table 2.3).

Table 2.3: Cost to individuals and businesses, per gambler, by gambler type (PGSI)

| Gambler type (PGSI) | Cost per gambler |
|---|---|
| Low-risk gamblers | $194 |
| Moderate-risk gamblers | $1,869 |
| Problem gamblers | $11,217 |

Source: Deloitte Access Economics (2024)

Higher EGM activity is associated with (often exponentially) higher costs, as such, the modelling approach assumes that reducing EGM activity will lower these costs. Table 2.4 provides an estimate of the current annual costs of gambling to individuals and businesses in Tasmania, along with projected annual costs under the three scenarios. The methodology used to calculate these estimates is detailed in 0.

The three scenarios each represent a meaningful cost saving, with *max cashless effects* achieving an annual saving of approximately $5.0 million, and both the *central scenario* and *significant substitution* both achieving over $7 million in savings.

Table 2.4: Estimated current cost and projected future costs under policy reform scenarios of the individual- and business-related impacts of gambling in Tasmania, by PGSI category ($2024)

| | Low-risk gamblers (PGSI 1–2) | | Moderate-risk gamblers (PGSI 3–7) | | Problem gamblers (PGSI 8+) | | Total gambling problems | |
|---|---|---|---|---|---|---|---|---|
| | No. of gamblers | Total cost | No. of gamblers | Total cost | No. of gamblers | Total cost | No. of gamblers | Total cost |
| Current state | 19,189 | $3,716,795 | 7,586 | $14,180,644 | 1,785 | $20,023,120 | 28,561 | $37,920,559 |
| Significant substitution | 17,456 | $3,380,997 | 6,487 | $12,125,196 | 1,348 | $15,117,319 | 25,290 | $30,623,511 |
| Central scenario | 19,249 | $3,728,338 | 6,997 | $13,078,429 | 1,225 | $13,739,880 | 27,471 | $30,546,648 |
| Max cashless effects | 19,211 | $3,721,073 | 7,439 | $13,904,758 | 1,365 | $15,316,398 | 28,016 | $32,942,229 |

Source: Deloitte Access Economics (2024)

#### 2.1.2.3 Cost to government

The remaining four cost categories capture increased spending on services including healthcare, mental health support, homelessness programs, policing, courts, and corrections. These services are estimated to have cost the Tasmanian Government $88 million in 2024.

Compared to costs individuals and businesses, which are mostly attributable to problem gamblers, government incurs greater significant costs from gamblers at lower risk levels on the PGSI. While problem gamblers retain the highest cost per person (Table 2.5), this effect is outweighed by the **higher prevalence of lower-risk gamblers**, and the **relatively higher cost of low-risk gamblers to government**, than to individuals and businesses within the economy. Low-risk gamblers therefore contribute the largest share of costs to government (51%), followed by moderate-risk gamblers (30%) and problem gamblers (18%).

Table 2.5: Cost to government, per gambler, by gambler type (PGSI)

| Gambler type (PGSI) | Cost per gambler |
|---|---|
| Low-risk gamblers | $2,357 |
| Moderate-risk gamblers | $3,505 |
| Problem gamblers | $9,057 |

Source: Deloitte Access Economics (2024)

Reducing participation in gambling is similarly expected to lower these costs, generating savings across government. Table 2.6 provides an estimate of the current cost of gambling to the Tasmanian Government and projected costs under the three scenarios. Details of the methodology used to calculate these estimates can be found in Appendix D.

Each scenario achieves a cost saving to the Tasmanian Government, with *max cashless effects* representing the smallest improvement with an annual $4.2 million in savings, and *significant substitution* the largest, with $11.0 million in savings.

Table 2.6: Estimated current cost and future costs under policy reform scenarios of gambling to the Tasmanian government, by PGSI category ($2024)

| | Low-risk gamblers (PGSI 1–2) | | Moderate-risk gamblers (PGSI 3–7) | | Problem gamblers (PGSI 8+) | | Total gambling problems | |
|---|---|---|---|---|---|---|---|---|
| | No. of gamblers | Total cost | No. of gamblers | Total cost | No. of gamblers | Total cost | No. of gamblers | Total cost |
| Current state | 19,189 | $45,228,914 | 7,586 | $26,588,315 | 1,785 | $16,166,365 | 28,561 | $87,983,594 |
| Significant substitution | 17,456 | $41,142,655 | 6,487 | $22,734,407 | 1,348 | $12,205,495 | 25,290 | $77,014,513 |
| Central scenario | 19,249 | $45,369,381 | 6,997 | $24,521,693 | 1,225 | $11,093,372 | 27,471 | $80,984,446 |
| Max cashless effects | 19,211 | $45,280,970 | 7,439 | $26,071,036 | 1,365 | $12,366,229 | 28,016 | $83,718,235 |

Source: Deloitte Access Economics (2024)

### 2.1.3 Step 3: Estimating CGE model shocks

To understand how the Tasmanian economy would be different under the proposed reforms, Deloitte Access Economics' in-house CGE model, DAE-RGEM, estimates an alternative growth path for the economy relative to the State's economic baseline. Estimated cost savings are converted into changes in key economic variables, which make up the difference between the base case and the proposed reforms (Table 2.7). These are presented as 'shocks' which are percentage deviations from the baseline state of Tasmania. For example, the sum of all cost categories within the labour supply economic variable reflect an 0.01% to 0.02% deviation from Tasmania's baseline.

Table 2.7: Cost–variable concordance table

| Cost category | Change | Economic variable | Shock (% change in variable) |
|---|---|---|---|
| Loss of income | $1.0m to $1.5m | Labour supply | 0.01% to 0.02% |
| Workplace absenteeism | $0.25m to $0.5m | | |
| Fatality by suicide | $100k to $290k | | |
| Productivity loss to business | $2.7m to $3.9m | Labour productivity | 0.03% to 0.04% |
| Employer staff replacement cost | $330K to $440K | | |
| Cost of crime to business | $140K to $270K | Additional capital | 0.001% to 0.003% |
| Unemployment benefits | $100K to $140K | Government services productivity | 0.05% to 0.18% |
| Mental health sector | $1.7m to $3.7m | | |
| Homelessness services | $180K to $410K | | |
| Other health and human services | $1.3m to $9m | | |
| Crime | $890K to $1.6m | | |

Source: Deloitte Access Economics (2024)

## 2.2 Results

### 2.2.1 Overview of results

The significant substitution scenario reflects the largest deviation in Gross State Product (GSP) in net-present value terms. This is driven by EGM participation and expenditure falling the most of all scenarios due to players being more likely to both not register for a player card and to substitute towards other, less harmful, forms of gambling. In addition, the reduction in overall gambling expenditure (i.e., both EGM and non-EGM gambling) is greatest under this scenario, resulting in the largest positive impact on other sectors. The table below summarises the economic impacts across the three scenarios. General observations across all three scenarios:

#### Statewide economic impact

- Across all scenarios, reforms are expected to lift Tasmania's GSP and net employment, relative to the State's economic baseline.
- The drivers of the gain are the social benefits resulting from EGM-related harm – reduced costs for government, more labour productivity, increased workforce participation, and more productive capital.

#### Sector Impact

- All industries are positively impacted by the proposed reforms, with the exception of the EGMs sector, due to the substitution of consumption towards those sectors, and a greater availability of workers at higher productivity levels.

#### Regional economic Impact

- All areas are expected to experience a neutral or positive deviation in GRP.
- Launceston, Hobart, and Glenorchy in that order are expected to experience the greatest increase in GRP, as they have a larger share of the economic activity compared to other LGAs in percentage terms.

Table 2.8: Overview of scenario impacts on the economy

| Scenario | Net changes in EGM participation, harm and associated costs | GSP impact | Sector Impact |
|---|---|---|---|
| Significant substitution | Largest reduction in EGM participation, harm and costs | $240 million | Largest decline to EGM sector, largest positive impact to other sectors |
| Central scenario | Moderate reduction in EGM participation, harm and costs | $230 million | Moderate decline to EGM sector, moderate positive impact to other sectors |
| Max cashless effects | Smallest reduction in EGM participation, harm and costs | $153 million | Smallest decline to EGM sector, smallest positive impact to other sectors |

*Strength of effect*

The proposed reforms are expected to lift Tasmania's GSP and net employment, relative to the State's economic baseline. This finding holds across each of the three scenarios, with the largest economic uplift expected under the *significant substitution* scenario, in which Tasmania's economy could be $240 million larger over the period to 2030, with an average additional 238 jobs.

The drivers of the gain noted above outweigh the adjustment cost associated with a decline in EGM-related activity which, by itself, would see a modest decline in GSP over the same period, although employment would be higher as the diverted consumption flows to more labour-intensive sectors.

By contrast, the *max cashless effects* scenario sees a more modest boost to the economy of $153 million over the same period, and 126 additional jobs, underscored by higher ongoing EGM participation and expenditure, and lower harm reduction. The *central scenario* sits between these two in terms of reduced EGM usage and associated harm minimisation, with an expected boost to the economy of $230 million and 209 additional jobs created (Table 2.9).

Table 2.9: Net present value of additional economic activity, 2024-2030

| Scenario | Additional GSP | Additional jobs |
|---|---|---|
| Significant substitution | $240 million | 238 |
| Central scenario | $230 million | 209 |
| Max cashless effects | $153 million | 126 |

Note: GSP figures are the net present value (NPV) of additional GSP over the period 2024-2030; jobs figures are the average additional FTE jobs over the period 2024-2030. Jobs figures cannot be cumulative over multiple years.

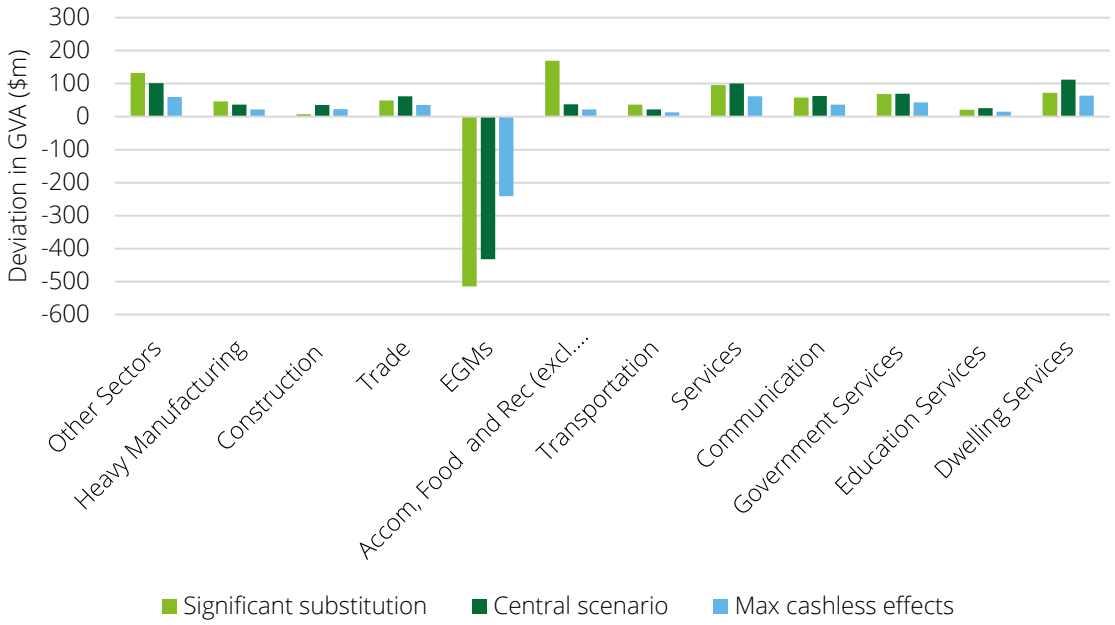
Source: Deloitte Access Economics (2024)

The largest economic impacts of the proposed reforms are expected to occur immediately, as additional labour supply lifts GSP in the first year. Further incremental benefits are realised over time, as higher productivity and additional capital benefit production across Tasmania's industries.

### 2.2.2 Impact of the reforms by industry

All industries are positively impacted by the proposed reforms, with the exception of the EGMs sector (which has been carved out from the broader Accommodation, Food and Recreation Services industry). In each case, industries collectively add more value to the economy relative to the economic baseline, due to the substitution of consumption towards those sectors, and a greater availability of workers at higher productivity levels (Chart 2.1). This is particularly true for services industries, which are relatively more labour-intensive compared to capital-intensive industries, such as manufacturing and transport. The Significant substitution scenario experiences a relatively stronger uplift in Accommodation, food and recreational services compared to the Central and Max cashless scenarios. This is due to concentration of substituted expenditure flowing directly to other forms of gambling under the scenario.

Chart 2.1: Economic uplift by industry (gross value added, net present value to 2030)



Box 2.1: Impact of the reforms on hospitality

Much discussion of the proposed reforms is focused on the potential impacts for Tasmania's hospitality sector, captured in the CGE model as the Accommodation, Food and Recreation Services industry. The ultimate impact on hospitality principally depends on the size of three effects.

1. Lost gambling income: Venues currently profit from hosting EGMs on their premises and risk a decline in these earnings under the proposed reforms.
2. Induced hospitality spend: Some stakeholders report that EGMs contribute to higher consumption of food and beverage, by attracting patrons to a venue they would otherwise not attend without the presence of EGMs. These stakeholders argue that reducing EGM activity could reduce this associated spend on core food and beverage products. However, evidence for the induced spend is mixed, with other stakeholders reporting no / minimal effect of EGMs on food and beverage.
3. Income effect: Under the proposed reforms, lower gambling expenditure is expected to lift effective household disposable incomes, which in turn will lead to greater consumption of non-gambling products, including food and beverage.

The modelling undertaken for this study accounts for the first and third effects, with lost gambling income captured in the decline of the EGMs sector, and the income effect captured in the economic dividend received by the Accommodation, Food and Recreation Services Industry (Chart 2.1). The induced hospitality spend is captured through the existing substitution parameters within the CGE model, which are sector wide and represent typical consumer behaviour at that level. Any specific relationship between EGM gambling expenditure and other in-venue expenditure is not incorporated, however there is limited evidence to suggest it is likely to be substantially different from the parameters in the model.

As a dynamic model of the State's economy, the CGE model is not designed to measure the impact of policy decisions on the profitability of an individual business; rather the model accounts for changes in industry activity (measured by each industry's gross value added, or its contribution to GSP). Under the modelling framework, hospitality venues that host EGMs are effectively operating across two industries, with the EGMs sector capturing gambling income, and the Accommodation, Food and Recreation Services industry capturing the sale of food and beverage. The impact of the proposed reforms on any given venue therefore depends on that business' unique revenue profile (relative share of hospitality income and gambling income) and should be assessed at the individual business level.

Overall, the modelling finds that the Accommodation, Food and Recreation Services industry would expand (in net terms), driven primarily by higher consumption due to the income effect. This is seen both in terms of Gross Value Added (GSP by industry), but especially employment. The sector has a higher labour intensity – with a historical estimate suggesting that 8.3 jobs are associated with every $1 million of food and beverage sales, compared with only 2.3 jobs for every $1 million in gambling revenue.[27] By contrast, the EGMs sector contracts, with the contraction predominantly felt by the direct recipients of gambling income.

### 2.2.3 Impact of the reforms by sub-region (LGA)

The reforms are projected to cause a decline in activity and employment at venues, but this is more than offset by increases in activity and employment in other sectors. This trend is consistent across regions, but the magnitude is larger in regions with more EGMs.

Venues see a decline in EGM revenue and the associated employment (gaming attendants, floor managers, etc). The non-EGM part of venues, (the Accommodation, Food and Recreational services sector) is projected to expand, with the money that was spent on EGMs being redirected based on existing consumption patterns. But the net impact of these two things is negative, as shown in Table 2.10 and Table 2.11.

The impact on smaller LGAs is expected to vary based on local factors, but none experiences a net economic loss. Table 2.10 and Table 2.11 show the sectoral impact across Tasmanian sub-regions for venues and all other sectors.

Table 2.10: Net present value of additional Gross Value Added ($m) by region and sector (Central scenario) 2024-2030

| Region | EGMs | Rest of Accom, Food and Rec | Venues (total) | All other sectors | Total impact |
|---|---|---|---|---|---|
| Burnie | -18 | 1 | -18 | 27 | 9 |
| Central Coast | -19 | 1 | -18 | 28 | 9 |
| Clarence | -26 | 3 | -22 | 34 | 13 |
| Other LGAs (Combined) | -57 | 8 | -46 | 67 | 19 |
| Devonport | -27 | 2 | -26 | 41 | 15 |
| Dorest | -4 | 0 | -3 | 5 | 2 |
| Glenorchy | -50 | 4 | -46 | 71 | 24 |
| Hobart | -78 | 8 | -69 | 112 | 45 |
| Launceston | -124 | 7 | -121 | 195 | 76 |
| Northern Midlands | -5 | 1 | -4 | 5 | 1 |
| Rest of Tasmania | 0 | 0 | 1 | 0 | 1 |
| Sorell | -9 | 1 | -8 | 12 | 4 |
| Waratah-Wynyard | -13 | 1 | -13 | 21 | 7 |
| West Tamar | -3 | 1 | -2 | 6 | 5 |
| West Coast | -0 | 0 | -0 | 1 | 1 |
| **Total** | **-432** | **37** | **-395** | **625** | **230** |

Note: Venues includes EGMs, Accommodation, Food and Recreational services

Source: Deloitte Access Economics (2024)

The EGMs sector encompasses activities involved in the operation and use of electronic gaming machines. This covers the direct activity of the machines; consumer expenditure on this service is recorded as net gaming losses. Direct EGM activity includes intermediate inputs such as labour and capital required to operate the machines. These inputs are captured within the EGM industry and separated from the parent Venues sector as shown in, so the portion of labour attributable to attending gaming machines is reflected in the sector's production inputs.

Figure 2.2: Venue industry components


Source: Deloitte Access Economics (2024)

Table 2.11: Average additional Employment (FTEs) by region and sector (Central scenario) ,2024-2030

| Region | EGMs | Rest of Accom, Food and Rec | Venues (total) | All other sectors | Total impact |
|---|---|---|---|---|---|
| Burnie | -2 | 1 | -1 | 12 | 11 |
| Central Coast | -3 | 2 | -1 | 14 | 12 |
| Clarence | -2 | 1 | -1 | 10 | 9 |
| Other LGAs (Combined) | -6 | 4 | -3 | 34 | 32 |
| Devenport | -4 | 2 | -2 | 20 | 18 |
| Dorest | -1 | 0 | -0 | 3 | 3 |
| Glenorchy | -6 | 3 | -2 | 27 | 24 |
| Hobart | -4 | 3 | -2 | 23 | 22 |
| Launceston | -13 | 7 | -5 | 64 | 57 |
| Northern Midlands | -1 | 0 | -0 | 3 | 3 |
| Rest of Tasmania | -0 | 0 | -0 | 1 | 1 |
| Sorell | -1 | 1 | -0 | 5 | 5 |
| Waratah-Wynyard | -2 | 1 | -1 | 8 | 7 |
| West Tamar | -0 | 0 | -0 | 0 | 0 |
| West Coast | -0 | 0 | -0 | 3 | 4 |
| **Total** | **-44** | **26** | **-19** | **227** | **209** |

Note: Venues includes EGMs, Accommodation, Food and Recreational services

Source: Deloitte Access Economics (2024)

### 2.2.4 Comparison to the Fifth Social and Economic Impact Study of Gambling in Tasmania 2021

The *Fifth SEIS (2021)* assessed the net social and economic impact of gambling, finding that as "most of the plausible range is positive, it is likely that gambling delivers a net benefit for the Tasmanian community".[28] This finding is based on a consideration of:

- The positive social impacts of gambling through the enjoyment consumers receive from consuming gambling services over and above the cost paid (i.e., consumer surplus).
- The taxation revenue received by the state government from gambling activities.
- An adjustment to the taxation revenues received to account for the excess spending by problem gamblers.
- The social cost of problem gambling including financial, social, psychological, work related and criminal social costs.

High and low estimates of each of these items are outlined in Table 2.12 below.

Table 2.12: Net social and economic impacts of gambling, annual

| Item | Low estimate ($ million) | High estimate ($ million) |
|---|---|---|
| Consumer surplus | 94.8 | 179.3 |
| Taxation revenue | 87.9 | 87.9 |
| Minus excess spending by problem gamblers | -59.4 | -59.4 |
| Total benefits | 123.3 | 207.8 |
| Total social cost | 159.6 | 48.9 |
| **Net benefit** | **-36.3** | **158.9** |

Source: Department of Treasury and Finance (2021)

In addition to these results, the *Fifth SEIS (2021)* estimates that the economic impact of eliminating problem gambling would result in an initial temporary decline in employment, consumption and real GDP, before the flow-on effects increase these measures to a higher level than under the no action baseline.[29] Based on the results, the authors suggest that if the social benefits of eliminating "problem gambling in Tasmania exceeds a net present value of $260 million or $7 million per annum, [it] will be advantageous to the state."

The results of this study are not directly comparable to those of the *Fifth SEIS (2021)*. Importantly, while the *Fifth SEIS (2021)* study considers the impact of problem gambling in its totality, this study is limited to the potential impact of proposed reforms to EGM gambling. Additionally, while the 2021 study individually assesses the social cost and economic impact of problem gambling, this study models them in an integrated fashion that allows their combined impact to be assessed. Table 2.13 presents a comparison of the items modelled in each study.

Table 2.13: Comparison of modelled

| Item | Fifth Social and Economic Impact Study of Gambling | This study |
|---|---|---|
| Consumer surplus | Yes | No |
| Taxation revenue | Yes | Out of scope |
| Social cost | Yes – Individual assessment | Yes - Integrated assessment |
| Economic impact | Yes – Individual assessment | Yes - Integrated assessment |

Source: Deloitte Access Economics (2024)

# 3 Impact on player behaviour

This section outlines the behavioural changes of players that are likely to result from the reform and presents the impact of those changes on aggregate gambling expenditure.

## 3.1 Five channels of behaviour change

Features of the reform will impact player behavior in different ways. This includes the number of people who play EGMs, how frequently they play and how much they spend. This section analyses five channels of behavior change that the reform seeks to address: account registration, cashless gaming, non-limit harm minimisation features, mandatory pre-commitment, and substitutions to other forms of gambling.

Figure 3.1: Anticipated behavioural response of EGM gamblers


Source: Deloitte Access Economics (2024)

### 3.1.1 Channel 1: Account registration

Under the proposed reforms, players will need a player card to use EGMs. To ensure only one card is issued per person, they will need to register to receive a unique player identification, which will be done online or at any gaming venue statewide. The registration process will involve identity verification and a check against the Tasmanian Gambling Exclusion Scheme.

The additional time and effort required to register for a player card is likely to reduce EGM participation within some player cohorts. It is expected that this impact is confined to non-problem and low-risk gamblers who are much more likely to be occasional EGM gamblers.

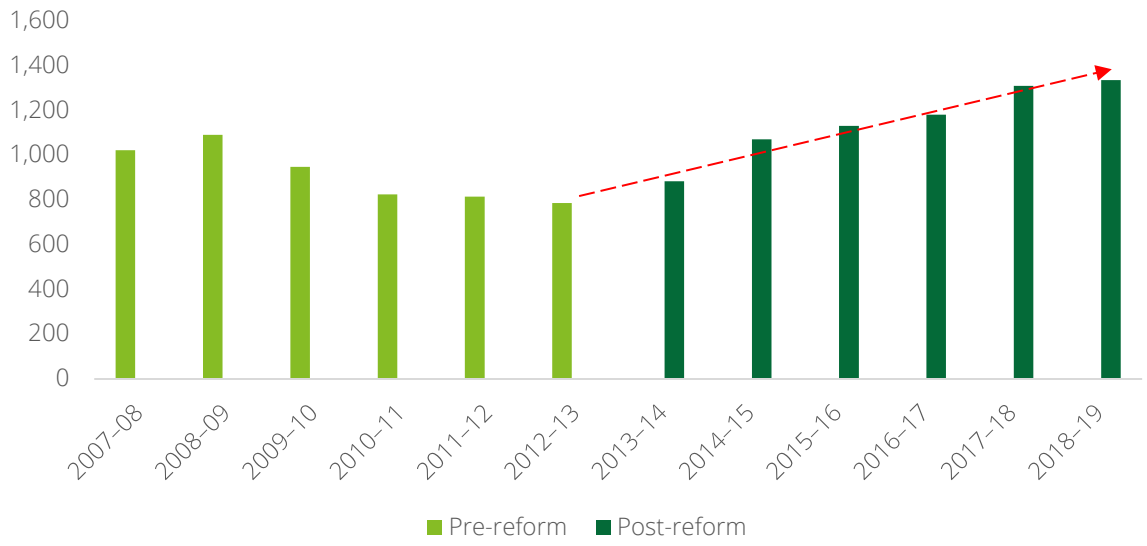
The best comparison for assessing whether different types of EGM players are likely to register for a mandatory player card is other jurisdictions that require mandatory pre-registration. In Norway, which banned EGMs then replaced them with less harmful machines that required registration to use, **EGM participation fell from 19% two years prior to the reform to 2% five years post-reform.** The reform in Norway also involved a substantial reduction in the type, number, and location of gaming machines. Therefore, the extent of reduced participation is not solely due to registration and extending this effect to the Tasmanian context would result in likely overstatement.

Longitudinal surveys of gamblers in Nova Scotia suggest that approximately 20% of surveyed EGM gamblers never gambled three years after the introduction of responsible gambling reforms.[30] However, a general reduction in gambling participation is expected among a given cohort of gamblers over time, with more granular analysis of the results suggesting **a 10% decrease in EGM participation in the survey period immediately after the introduction of reforms**.[31, 32]

### 3.1.2 Channel 2: Cashless gaming

Under the proposed reforms, EGMs will become cashless, meaning players will use a player card instead of cash. The introduction of cashless gaming is anticipated to make it easier for players to spend more money on EGMs, and therefore increase the amount they lose. Moving from a cash- to card-based EGM ecosystem is, in the absence of harm minimisation features, likely to increase player losses. Increases in losses may occur due to funds being more readily accessible, players needing to leave the machine less often, some players experiencing more difficulty tracking their spending, and losses becoming less salient.[33]

Chart 3.1: Annual EGM expenditure in the Northern Territory, $m FY23




Source: Queensland Government Statistician's Office (2024)

Anecdotal accounts support the view of cashless gaming increasing player losses.[34] For example, in one survey of UK gamblers, **79% of players reported that paying with cash generally helped them to feel in control of their spending and 70% reported that paying with cash made it easier to set limits on spending**.[35] On the other hand, studies also find that players believe cashless cards help them better manage their spending and do not increase the amount gambled.[36]

Many studies do not or cannot assess the direct impact of cashless gaming on player expenditure because cashless systems are often introduced alongside other harm minimisation features. However, one trial in Queensland RSLs provides a useful comparison, as a cashless gaming card was introduced with voluntary harm minimisation features including loss limits. The trial found that cashless card users who set a limit decreased their expenditure by 8.2%, while those who did not set limits increased their expenditure by 5.6%.[37] Accounting for trends among a control group, **the study found a 4.2% increase in spending associated with cashless gaming cards when used without limits**.

### 3.1.3 Channel 3: Non-limit harm minimisation features

The proposed reforms include additional gambling harm minimisation features, including:

- **Mandatory breaks –** A required 10-minute break occurring after every two hours of continuous play, during which the player card will be suspended from enabling play on any EGM machine.
- **Player activity statements –** A summary of EGM gambling activity, provided either online, through the player portal or via a request at a venue.
- **Time limits –** An option for players to set a maximum time they spend continuously playing an EGM.

These harm minimisation features act to disrupt the 'flow state' that gamblers may enter while gambling and increase the salience of their losses. These effects are likely to reduce the amount that players spend.[38] [39]

Research on the impact of harm minimisation features generally finds that targeted measures have the potential to support harm reduction, including that:

- Mandatory breaks appear to lead to decreases in gambling.[40]
- Pop-up messages lead to increases in the number of sessions terminated early.[41]
- Personalised communications or feedback (e.g., spend relative to limit) have been associated with subsequent decreases in gambling.[42]

While individual features can be effective, the research suggests that **interventions are most effective when implemented as part of suits of changes and that their effectiveness often depends on implementation consideration, such as whether they are mandatory, simple to use and easy to understand**.[43] [44]

There are a limited number of studies that allow for the assessment of harm minimisation features separate from limit setting. However, an evaluation of the PlaySmart trial in South Australia, which incorporated voluntary loss limits into an existing loyalty card system, found that **non-problem gamblers decreased their spend by an average of 5%**.[45] As this cohort can be considered the group least likely to sustain excessive loses, the decline may reflect the impact of the non-limit setting components of the card. However, it must be noted that the trial was across a small cohort of players.

### 3.1.4 Channel 4: Mandatory pre-commitment

Under the reforms, players will be subject to mandatory pre-committed loss limits. They may either use the default limits provided ($100 per day, $500 per month, $5,000 per year), or adjust them.

Mandatory loss-limits will decrease the maximum financial loss experienced by players. Most players will be unaffected as they spend less than the proposed limits. However, higher risk gamblers will face new constraints on how much they can spend and lose during both an individual period, across a month and across the year. For example, the median problem EGM gambler currently loses an estimated $200 per session, meaning a $100 daily limit will halve the loss experienced by these players.[46]

The literature finds that pre-committed loss limits are an effective way of reducing gambling harm.[47] Australian trials of voluntary pre-commitment systems have found large reductions in EGM losses among participants who set limits. For example:

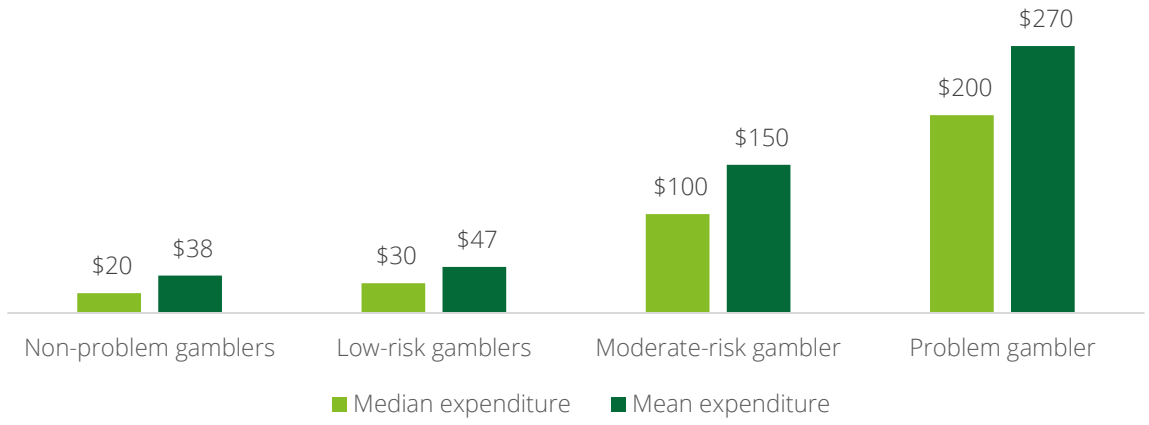
- A trial in South Australia found that **moderate-risk gamblers decreased their expenditure by around 49% and problem gamblers decreased their expenditure by 56% when using limit setting features.** However, the expenditure of non-problem gamblers and low-risk gamblers only decreased by 5% and 12% respectively.[48]
- Another trial found an increase in expenditure among participants using a gaming card with voluntary pre-commitment features. However, further analysis found that the increase was only observed among users not setting limits, with those setting limits decreasing their losses by an average of 8%.[49]

**While voluntary pre-commitment features are demonstrated to reduce losses among those who set limits, rates of voluntary limit setting are low** across all studies. As such, the literature does not support voluntary pre-commitment as an effective tool for reducing population wide levels of loss. The evidence for mandatory pre-commitment is stronger, with studies from Norway and Finland finding that their introduction significantly reduced EGM participation and losses.[50, 51, 52 53] **In addition, there is a possibility that mandatory limits have an undesirable effect and act instead as spending targets, increasing spend and loss for some gamblers.**

Under this scenario, most players register for cards. While the harm minimisation features limit losses for some, this is counteracted by the reduced friction associated with cashless gambling and the mandatory limits acting as spending targets, which increase what some others lose.

The impact of mandatory limits in the Tasmanian context depends on the current level of spend and the level of the mandatory limits. Results from the *Fifth SEIS (2021)* reveal that the mean and median per session EGM expenditure by non-problem and low-risk gamblers are both below the $100 daily limit, meaning that the vast majority of these players are unlikely to ever be constrained by the daily limits (Chart 3.2). On the other hand, moderate-risk and problem gamblers typically spend at least $100 in an EGM session, meaning they are likely to regularly reach the default limit.

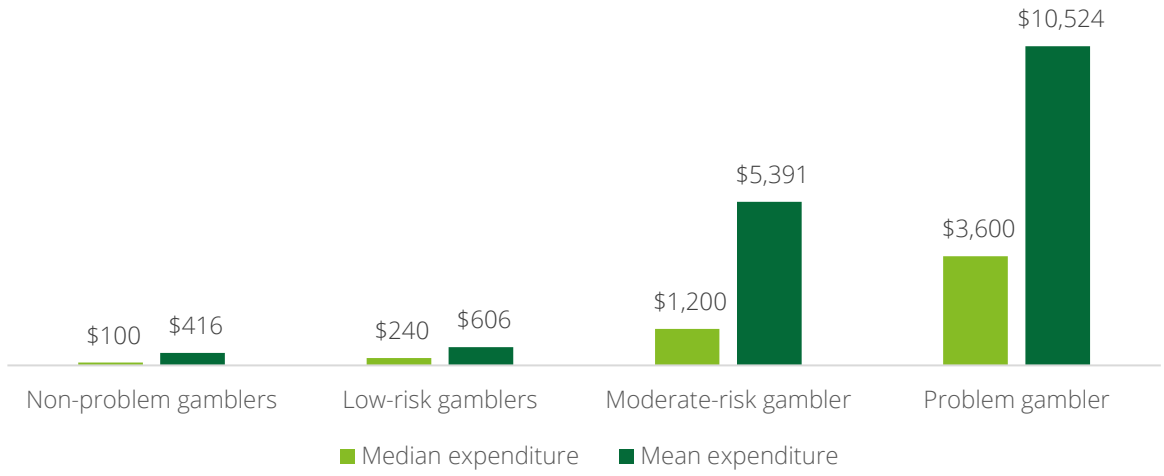
Chart 3.2: Per session EGM expenditure by Tasmanian gamblers, by gambler type




Source: Department of Treasury and Finance (2021)

At the annual level, the median moderate-risk and problem EGM gambler spends well below the $5,000 annual limit, but the mean moderate-risk and problem EGM gambler spends more (Chart 3.3). This result suggests that a small share of gamblers within these groups lose a disproportionately large amount of money gambling on EGMs. Similarly, the median gambler within these groups could still increase the amount they lose. However, as these players are expected to be constrained by the daily limits, an increase in annual expenditure would require a significant increase in gambling frequency.

Chart 3.3: Annual EGM expenditure by Tasmanian gamblers, by gambler type




Source: Department of Treasury and Finance (2021)

### 3.1.5 Channel 5: Substitution to other forms of gambling

Restrictions on EGM participation and spend will decrease EGM expenditure, but they may also lead to an increase in spending on other non-EGM forms of gambling.[54] A full assessment of the reforms must consider the extent of any such substitution.

Studies assessing the impact of large-scale gambling reforms in overseas jurisdictions generally find no attributable substitution effect. One study surveying gamblers 3 to 5 months before and after the total ban of EGMs in Norway found no indication of the development of an illegal EGM market or of the substitution of EGM with other types of gambling.[55] In fact, the authors found a decrease in non-EGM gambling and suggest there may be a synergistic effect of decreasing EGM on other forms of gambling.[56]

Other studies assessing the longer-term impact of the Norwegian reforms have found small increases in some non-EGM gambling expenditure. For example:

- One study found a 5.8% decline in total gambling participation in the 5 to 8 years post-reform but a 3.9% increase in foreign gambling website participation.[57]
- Another study found the equivalent of an 8% substitution effect between EGM and non-EGM gambling expenditure after the banning of note acceptors on machines, and an approximately 16% substitution effect after the total ban of EGMs.[58]

The authors suggest that while this increase can partly be explained as a substitution of one type of gambling for another, it also reflects a broader global trend of rising gambling globally. Similar results are observed in Finland, where one study found that declines in land-based EGM sales following reforms were not offset by online alternatives or other close substitutes.[59] However, the study also found that during the first wave of Covid-19 lockdowns, there was an observable substitution of land-based table games for online alternatives and land-based horse betting and possibly sports betting for online horse betting.

Another form of substitution could include cross-border substitution of gambling from Tasmanian EGMs to EGM gambling in other Australian jurisdictions. For example, US research finds that the introduction of casino sports betting in one US state increase casino revenue in that state and decreased casino revenues in an adjoining state.[60] While such as an impact may be possible, it is likely a relatively small effect compared to potential substitution to other forms of gambling within Tasmania or online.

Substitution effects are important because the research illustrates that different forms of gambling are not equal when it comes to risks of problem gambling and associated harms. A key to understanding harms in this regard is whether harm is primarily due to the product itself, or due to the product being attractive to vulnerable users.[61] Further detail is provided in 0.

## 3.2 Estimating the impact on gambling spend

The literature review on behavioural changes in Section 3.1 provides a basis for estimating the impact of the reform on EGM expenditure. The following sections provide an overview of how these findings have been applied to the Tasmanian context (i.e., introduces the modelled scenarios) and presents the associated change in EGM expenditure.

### 3.2.1 Modelled scenarios

There are a range of possible responses to each channel of behavioural stage outlined in 3.1 and a high degree of uncertainty as to both their individual and combined effect. To account for this uncertainty, results have been estimated across three scenarios. These scenarios reflect potential outcomes based on their input but are not necessarily equally likely to materialise.

To explore the whole of economy impacts, three scenarios have been defined below.

- Significant substitution: Under this scenario, players are put off by the upfront friction associated with registering for a card, leading many to opt out of EGM gambling all together and shift to other forms of gambling as a substitute. The remaining players experience a small reduction in spending due to mandatory limits and other harm minimisation features.
  - This scenario seeks to understand the whole of economy impacts associated with a large substitution effect that is primarily in response to the account registration reform element. This substitution occurs in two ways:
    1. Some players exit the gambling system entirely due to the friction associated with registering for a card, thereby removing their expenditure and reducing the associated harm with EGMs.
    2. Some players switch to other forms of gambling, where there are (lesser) associated harms observed.
  - Where players do acquire a card, assumptions against the remaining reform elements align to the behavioural impacts identified in the literature.
- Central scenario: Under this scenario, most players register for cards. While the harm minimisation features limit losses for some, this is counteracted by the reduced friction associated with cashless gambling and the mandatory limits acting as spending targets, which increase what some others lose.

  - This scenario seeks to understand the economic impacts associated with the following competing behavioural changes in response to the reform:
    1. Some players reduce their EGM spending due to harm minimisation features and experience reduced gambling harm as a result.
    2. Some players increase their EGM spending due to the cashless aspect of the reform, thereby increasing their gambling related harm (more detail outlined in the max cashless effects scenario).
- Max cashless effects: Under this scenario, players register for cards and the reduced friction and 'pain of payment' associated with cashless gambling, as well as mandatory limits acting as spending targets, mean that a large majority increase their expenditure to their limit.
  - This scenario seeks to understand the economic impacts of a significant increase in EGM spending, primarily in response to the cashless aspect of the reform. The literature identifies four factors that contribute to this behavioural change:
    1. Cashless gambling reduces transaction friction, making EGMs faster and more seamless to use.[62]
    2. Players feel less "pain of payment" which increases willingness to spend.[63]
    3. Players may lose track of spending, as with credit cards, because they shift the mental effort to digital devices.[64]
    4. Mandatory loss limits may encourage players to gamble more, seeing losses below the limit as acceptable.[65]
  - These players are expected to experience increased harm from EGMs due to their increased expenditure.

### 3.2.2 Estimated impact on aggregate gambling expenditure

The reforms are estimated to reduce EGM player EGM gambling expenditure by 27% – 58% under the modelled scenarios (Table 3.1). Once accounting for any increase in non-EGM gambling expenditure, the decline in total gambling expenditure moderates to between 23% - 46%.[1]

The results demonstrate that the harm minimisation features of the cashless card have the largest impact on total gambling expenditure. Cashless gaming does substantially increase the amount players spend in some scenarios, but almost all the increase is offset by players hitting mandatory pre-commitment limits. A breakdown of projected expenditure resulting from the reforms under each scenario is seen in Chart 3.4, Chart 3.5 and Chart 3.6.

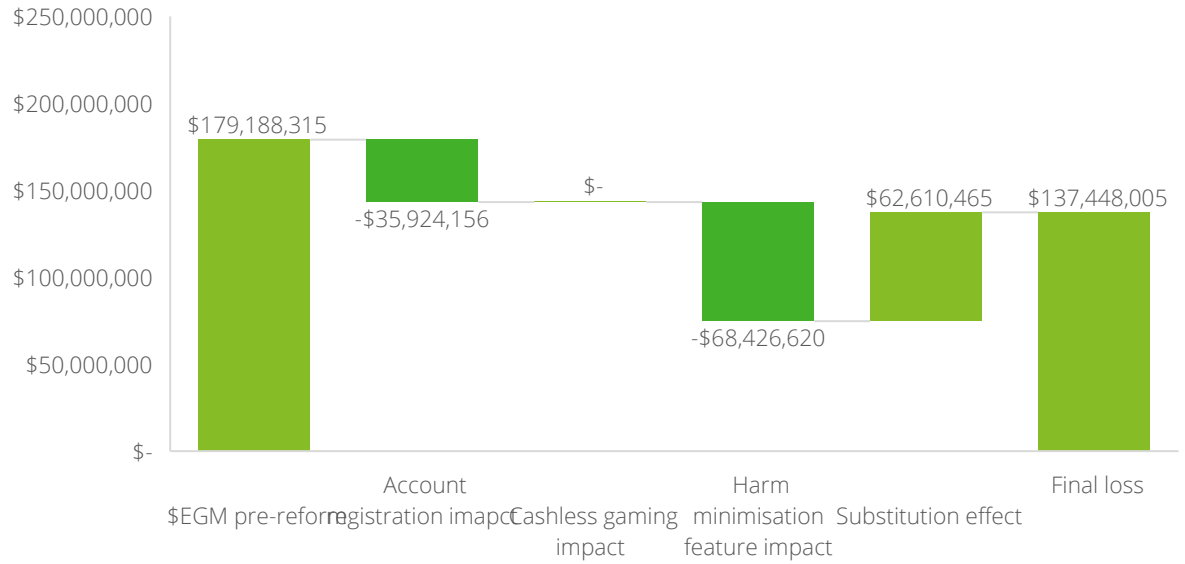
Table 3.1: Impact of mandatory pre-commitment on EGM player gambling spend

| Scenario | Change in EGM gambling expenditure | Change in total gambling expenditure | Change based on 2023-24 expenditure ($m) |
|---|---|---|---|
| Significant substitution | -58% | -23% | -41.7 |
| Central scenario | -49% | -46% | -82.8 |
| Maximum cashless effects | -27% | -25% | -44.9 |

Source: Deloitte Access Economics (2024)

[1] The percentage change is based on the existing level of EGM expenditure and does not incorporate existing non-EGM gambling expenditure.

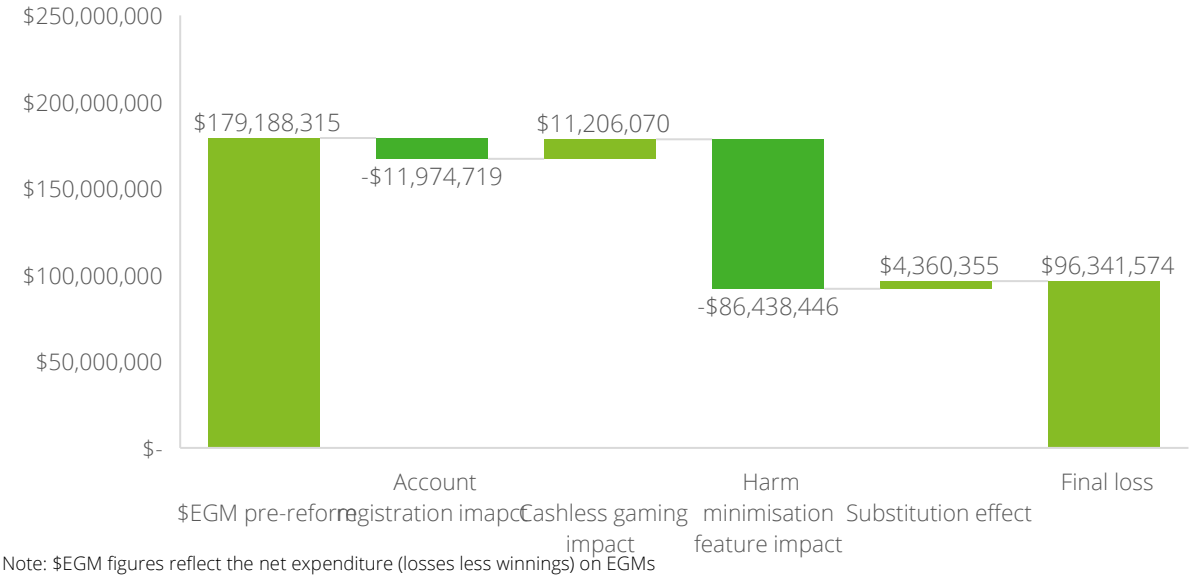
Chart 3.4: Notional impact of the reform if implemented in FY2023-24 (Significant substitution)




Note: $EGM figures reflect the net expenditure (losses less winnings) on EGMs

Source: Deloitte Access Economics (2024)

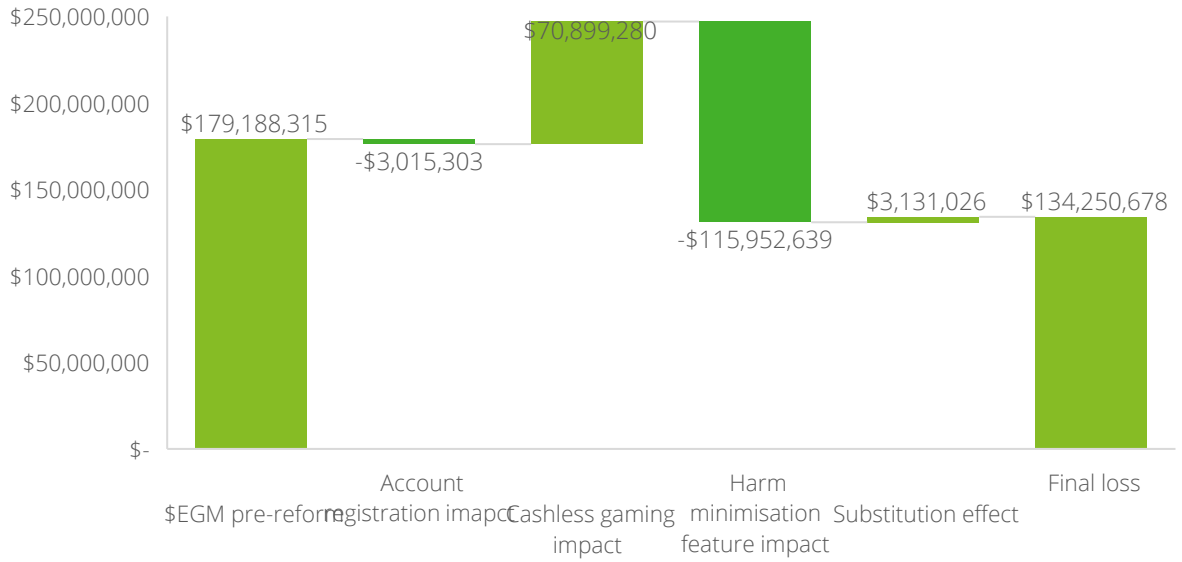
Chart 3.5: Notional impact of the reform if implemented in FY2023-24 (Central scenario)




Note: $EGM figures reflect the net expenditure (losses less winnings) on EGMs

Source: Deloitte Access Economics (2024)

Chart 3.6: Notional impact of the reform if implemented in FY2023-24 (Max cashless effects)




Note: $EGM figures reflect the net expenditure (losses less winnings) on EGMs

Source: Deloitte Access Economics (2024)

# 4 Impact on harm

EGM play is both a form of recreation and a cause of harm. Gambling harm is not restricted to only problem gamblers. Where the previous section provided an overview of how specific reform elements may influence player behaviour, understanding the way in which these changes in behaviour will impact economic and social outcomes requires an understanding of the extent to which harm from gambling can be minimised.

Therefore, this section presents the analytical framework that has been used to articulate how changes in behaviour (and associated expenditure) as a result of the reform could influence gambling harms experienced under each scenario.

## 4.1 Measuring gambling harm

Research on gambling has often examined problem gambling, rather than harm. Problem gambling refers to a behaviour which leads to harm, although the definition of problem gambling is more restrictive than the definition of harm.[66] For example, in Victoria Australia, it was found that 85% of gambling harm was attributed to low-risk and moderate-risk gamblers.[67]

Gambling harm is the term used to refer to any negative consequences from gambling that occur for the individual, their family and friends, or the community more broadly. Research has identified a wide variety of harms from gambling that could affect a person's wellbeing, to varying degrees, spanning financial, emotional or psychological, relationship, criminal etc. harms.[68] Conceptual frameworks classify harms into three categories:[69]

1. general harms – low level and immediate harm such as a reduction in available spending money or reduced quality time with family due to gambling
2. crisis harms - harms of significance that occur at a point in time, such as losing capacity to buy essential goods, loss of major assets or extreme psychological or emotional distress
3. legacy harms - harms that continue to occur, or emerge, even if engagement with gambling ceases such as bankruptcy, ongoing reliance on welfare or ongoing mental health problems.

Screening and diagnostic tools to assess gambling intend to measure experiences of gambling and associated harms. In the fifth edition of the Diagnostic and Statistical Manual (DSM-5), gambling disorder (GD) has been classified as a substance-related disorder; a psychiatric condition characterised by persistent, recurrent maladaptive patterns of gambling behaviour.[70] GD is in turn associated with impaired functioning, reduced quality of life, and high rates of bankruptcy, divorce, and incarceration.[71]

There are now over 30 different instruments that assess disordered gambling.[72, 73] Screening instruments in the field of gambling studies were initially developed to establish past-year and lifetime population prevalence rates of problem and disordered gambling. Initially, the best known and most widely used of these measures is the South Oaks Gambling Screen (SOGS), which was based on the DSM-III.[74] However, measurement in the field of problem gambling is moving away from solely measuring population prevalence and psychiatric disorder and toward targeting the specific mechanisms that underlie problem gambling and barriers to recovery.[75]

The Problem Gambling Severity Index (PGSI) is a widely used tool designed to measure the severity of gambling problems within a population.[76] It was developed based on psychometric criteria, capturing seven negative consequences (harms) and two behavioural indicators related to gambling. It was specifically developed for use among the general population rather than within a clinical context, which makes it suitable for prevalence studies.[77, 78]

While numerous studies have shown that the PGSI has good psychometric properties in terms of its reliability and validity, several limitations have been identified.[79] Like all population-level tools, the PGSI relies on self-reported measures of gambling behaviour, which can lead to underreporting of expenditure and losses.[80] Furthermore, consultation feedback has suggested categorising gamblers into groups can oversimplify the diversity of gambling experiences and harm. The experiences of two individuals both labelled 'at moderate risk of problem gambling' may differ in line with their subjective circumstance. For example, gambling losses need to

be understood in the context of income and wealth to understand the personal financial harm of absolute gambling losses. Limitations suggested by consultations suggest the PGSI tool does not account for this subjective experience of gambling and harm.

Despite these limitations, the PGSI remains one of the most widely used and trusted tools for estimating problem gambling prevalence and understanding the impacts of gambling at a population level. As a result, it has been used throughout this analysis to estimate harms as a result of the reform, however we recognise that experiences of gambling harms are highly subjective and based on individual factors.

The PGSI tool consists of 9 questions, as shown in Box 4.1.

### Box 4.1 Overview of the Problem Gambling Severity Index (PGSI)

The Problem Gambling Severity Index (PGSI) is a short self-report questionnaire used to identify the extent an individual is at risk of problem gambling behaviour.[81] The Canadian Centre on Substance Abuse developed the PGSI for use among a general population. Instead of being used in clinical context, researchers and counsellors use the PGSI to measure the prevalence of problem gamblers in the general population and to determine whether further screening and intervention are required.

Since its development, the PGSI has been used widely by governments and researchers to measure problem gambling in a general population, and it is generally accepted to be a reliable and standardised measure of at-risk behaviour in problem gambling.[82]

The PGSI consists of nine items, each assessed and scored on a four-point severity scale ranging from never (= 0), sometimes (= 1), most of the time (= 2) and almost always (= 3). Items one to four assess problem gambling behaviour and items five to nine assess adverse consequences of gambling.

Respondents are asked to reflect on their gambling behaviour over the past 12 months. Items are summed with a possible total score ranging from 0 to 27.

The PGSI classifies individuals into four levels of risk:

| Non problem gambling | Low risk problem gambling | At moderate risk of problem gambling | Problem gambling |
|---|---|---|---|
| 0 | 1 – 2 | 3 – 7 | > 8 |

See below for the list of questions asked in the PGSI:
*Thinking over the last 12 months…*

- *Have you bet more than you could really afford to lose?*
- *Have you needed to gamble with larger amounts to get the same feeling of excitement?*
- *When you gambled, did you go back another day to try to win back the money you lost?*
- *Have you borrowed money or sold anything to get money to gamble?*
- *Have you felt you might have a problem with gambling?*
- *Has gambling caused you any health problems, including stress or anxiety?*
- *Have people criticised your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?*
- *Has your gambling caused any financial problems for you or your household?*
- *Have you felt guilty about the way you gamble or what happens when you gamble?*

## 4.2 Impact of gambling harm to players and their communities

This section explores the type and nature of gambling harms. Changes to gambling behaviour and expenditure will ultimately impact the extent to which these harms are present for individuals and the community.

The harms of gambling are far-reaching and extend beyond the direct financial impact on the individual gambler. The Socio-Economic Impact of Gambling (SEIG) Framework provides a guide for assessing the quantitative, qualitative, and monetary costs and benefits of gambling, covering six impact domains, including:[83]

1. health and wellbeing,
2. economic and financial,
3. employment and education,
4. recreation and tourism,
5. legal and justice, and culture and community impacts.

These can occur sequentially or in parallel.

Note, while all these domains are associated with a cost to society or the economy, only some have been quantified regarding their impact on the economy (refer to Section 2). Categories that represent costs to the individual, or do not directly contribute to Tasmania's total economic production, or Gross State Product (GSP), are not in-scope for the CGE modelling and therefore have not been included in the impact of the reform on the economy. The table below outlines the CGE modelling inclusions and exclusions for relevant impact domains.

Table 4.1: Impact inclusions in CGE modelling

| Impact domain | Included in CGE modelling |
|---|---|
| Health and wellbeing – cost to government | ✓ |
| Health and wellbeing – individual impacts | ✗ |
| Economic and financial – broader revenue/economy impacts | ✓ |
| Economic and financial – individual impacts | ✗ |
| Employment and education | ✓ |
| Recreation and tourism | ✓ |
| Legal and justice | ✓ |
| Culture and community impacts | ✗ |

Source: Deloitte Access Economics (2024)

As a result, modelling the impact of the reform on the economy is likely to be a conservative estimate of the cost to society as a whole, as it does not include broader costs noted above. The following sections detail the harms and subsequent cost to the individual or society more broadly, grouped by SEIG framework domain.

### 4.2.2 Health and wellbeing

Gambling is an important public health issue, with recent estimates ranking it as the third largest contributor of disability adjusted life years lost to ill-health in Victoria, following major depression and alcohol abuse and dependence.[84] The research shows disordered gambling often co-occurs with psychiatric and substance use disorders, and identifies associations with problem gambling and mental health. [85,86]

Gambling can have significant negative physiological impacts. Research has shown that pathological gamblers experience a greater risk of hypertension, sleep deprivation, cardiovascular disease and peptic ulcer cancers.[87] Gamblers tend to have poorer diets and sedentary lifestyles. For example, pathological gamblers report gambling sessions that can last from several hours to two or three days, often without food or sleep.

Research shows problem gamblers are at a greater risk of suicide, depression, anxiety and emotional distress. Between 22% and 81% of problem gamblers have reported feelings of suicide while between 7% and 30% have attempted to take their life.[88] Feelings of shame and fear of judgement are key barriers to help-seeking behaviour, further prolonging harmful gambling behaviour. One literature review of 11 studies, found that mood and anxiety disorder comorbidity were present in 37.4% of problem gamblers.[89]

Gambling can be detrimental to family and spousal relationships, ranging from heightened risk of tension and stress to domestic and family violence. Families and partners are also proximally exposed to financial harm borne by the gambler themselves.[90]

A recent Australian study found that 6% of the adult population reported experiencing emotional, financial, health, relationship or work and study harms because of another person's gambling in the previous 12 months, meeting the definition of concerned significant other (CSO).[91]

The financial burden of gambling such as rising debt, loss of income, and loss of property may lead to strained relationships.[92] Lying and engaging in deceit to hide financial losses can lead to lost faith and trust in relationships. Gambling also reduces time and attention given to partners, children and family responsibilities, which may lead to unequal household responsibilities, and result in declining parent-child relationships.[93] Research has shown also that problem gambling is associated with greater rates of domestic and family violence.[94] One survey found that 55.6% of problem gamblers reported perpetrating intimate partner violence in the previous 12 months and 59.7% reported being victims of such violence.[95,96]

To assess the cost of health and wellbeing harms to the individual, research utilises a disability adjusted life year (DALY) approach. DALYs have two components: premature mortality, measured in years of life lost due to premature death (YLL); and morbidity, measured in years of healthy life lost due to disability (YLD).

Figure 4.1: Calculation methodology for disability adjusted life years (DALY)


Source: Australian Institute of Health and Welfare (AIHW) 2023

YLDs are calculated using disability weights, where the disability weight of a health condition reflects a relative health state. A weight of 0 represents a perfect year of health and a weight of 1 represents death. Using this methodology in Tasmania, researchers estimated the cost of gambling-related psychological harm to individuals and their families was $13.6 million in 2020.[97]

Costs to the Tasmanian Government associated with gambling related health and wellbeing impacts are discussed in Section 4 It is important to acknowledge that while reducing gambling-related harm will improve public health outcomes and reduce these costs, the relationship is not one-to-one, as many associated health impacts are influenced by multiple factors beyond gambling alone.

### 4.2.3 Economic and financial (household)

Each year, Australians lose approximately $25 billion on legal forms of gambling, averaging $1,068 per person, but reaching higher values for problem gamblers.[98] This makes Australia the country with the highest per capita gambling losses in the world. A crucial aspect of the impact of problem gambling is the extent to which it represents a large or small share of total income with the literature showing the proportion of gambling expenditure to income is very high among problem gamblers relative to those of recreational gamblers.[99]

The financial harms from gambling generally occur at three levels: reduced surplus income (e.g., the inability to purchase luxury items and the erosion of savings), activities to manage short-term cash flow (e.g., selling items or borrowing money), and reduced ability to meet essential expenses (e.g., inability to pay for housing or food).[100] As noted in 4.2.2, these harms can impact both the individual who gambles as well as others around them, such as family or friends. Affected others may experience financial harms because they are dependent on

or share finances with the gambler, use personal funds to repay their debts, or cover essentials such as rent and food.[101,102,103,104]

In Tasmanian contexts, research from 2020 estimates the cost to individuals who identify as experiencing severe financial distress (including bankruptcy) due to gambling as $5.5 million across approximately 700 gamblers.[105] These estimates are conservative, as they do not account for any future reduced earning capacity for problem gamblers that may result from being declared bankrupt.

### 4.2.4 Employment and education

Research identifies a spectrum of societal harms from problem gambling in the workplace, ranging from a loss of productivity to embezzlement.[106,107] Societal costs in this regard are explored through impacts on productivity, absenteeism, business profitability, net job creation, and unemployment. Such impacts are driven through behaviours such as sick days off for gambling, extended lunch hours, leaving early to gamble, and returning late after gambling.[108] Research shows between 21% and 36% of problem gamblers in treatment reported losing a job because of gambling.[109] Further, increasing unemployment has subsequent costs associated with social welfare.

For high school and university students, gambling can lead to reduced study time, poor mental health, and low attendance and engagement, all of which may negatively affect academic performance.[110,111] However, while many studies have found a link between gambling and poor academic outcomes, the direction of causation remains uncertain.[112,113]

Notwithstanding, these impacts may be substantial given the literature notes individuals with higher levels of education have higher-paying jobs, better general health, and a lower likelihood of engaging in crime.[114] Research in Australia from 2014 shows, on average, adult male Australians whose highest attainment was Year 10 earned $1,182 per week, whereas school completers with a three-year bachelor degree earned approximately $1,808, or 1.5 times the earnings of early leavers.[115]

The cost of productivity loss and other work impacts from gambling is discussed in Section 4.3.

### 4.2.5 Recreation and tourism

Some frameworks cite public benefits in the way of tourists who identify gambling as a primary reason to visit the region or as a contributing factor.[116] In Tasmania, gambling plays a minor role in tourism expenditure activity, with tourists only accounting for an estimated 1.5% to 4% of total gambling expenditure.[117]

It is recognised that the details of out of state registration are still being finalised in the reform. However, tourists are likely to be the most vulnerable to participation impacts and the least likely to register for player gaming, as they have minimal long-term benefit of player registration compared to residents and may not be able to use their player card on return to their home state.

Despite this, the real impact to the recreation and tourism industry from the reforms can be interpreted with regard to the changes in tourist numbers to Tasmania and subsequent economy revenue impacts as a result of the reforms, rather than the expected gambling spend of tourists following the reform.

The expected impacts of gambling reforms on tourism expenditure are discussion in Section 4.3.

### 4.2.6 Legal and justice

The literature suggests there is a relationship between problem gambling and crime, with some gamblers engaging in non-violent illegal activities to recover financial losses caused by their gambling, however researchers note in some instances the causal relationship remains uncertain.[118]

Legal and judiciary impacts from gambling primarily relate to costs associated with criminal justice and policing costs associated with gambling-related crime. Empirical studies also show that problem gamblers consistently have high rates of debt and declare bankruptcy at much higher rates than lower-risk gamblers and non-problem gamblers, leading to costs for creditors and the legal system.

Further, research demonstrates that EGMs are heavily involved with money-laundering. The NSW Crime Commission Inquiry into Money Laundering via Electronic Gaming Machines in Hotels and Clubs (the Inquiry) in

October 2022 found EGMs constitute a money laundering risk because they primarily accept cash and because cash continues to be the primary method by which criminals obtain wealth from dealing in illicit commodities.[119] The Inquiry assessed that billions of dollars gambled in NSW in the year to 30 June 2021 was dirty money and the first recommendation was the mandatory introduction of cashless gambling to minimise EGM money laundering.[120]

The cost of police, court and corrections services attributable to gambling, as well as other costs to the Tasmanian Government, are discussed in Section 4.3.

### 4.2.7 Culture and community impacts

EGMs are a source of revenue for operators which can be contributed towards philanthropic ventures, namely gambling revenue contributions to government social program spending, grant programs, and organisations (e.g., schools).[121]

In some states such as Victoria, EGM venues licensed as hotels are required to pay 8.33% of their net gaming revenue as, in effect, an additional tax to the Community Support Fund (CSF), noting exceptions subject to community benefit statements (CBS).[122]

The associations of social cohesion and gambling have also been examined in some literature, finding poorer social connectedness and leisure activities were found to be associated with increased gambling risk although this study does not determine causality insofar as to conclude gambling leads to decreased social cohesion.[123]

There is some benefit utility in the entertainment value of gambling, shown by assessing attitudes and perceptions towards gambling. Tasmanian studies show 10% of gamblers reported gambling has made their life a lot or a little more enjoyable.[124] However, the same study also showed that 61% of problem gamblers endorsed gambling had made their life a little or a lot less enjoyable.[125]

Regression analysis clustering perceptions towards the impacts of a casino shows positive perceptions of social impact include traditional/cultural preservation and community spirit.[126] This finding is echoed in research abroad, where researchers found a strong positive relationship between the presence of pubs and higher levels of community cohesion.[127] This social value may be more pronounced in rural and remote communities where there is less availability of public social venues.

Despite this, historical research in Australian contexts shows respondents were generally moderately in favour of harm reduction, gambling reforms and greater legislative control of gambling products and advertisements.[128]

## 4.3 Impact of the reforms on the prevalence of gambling harm

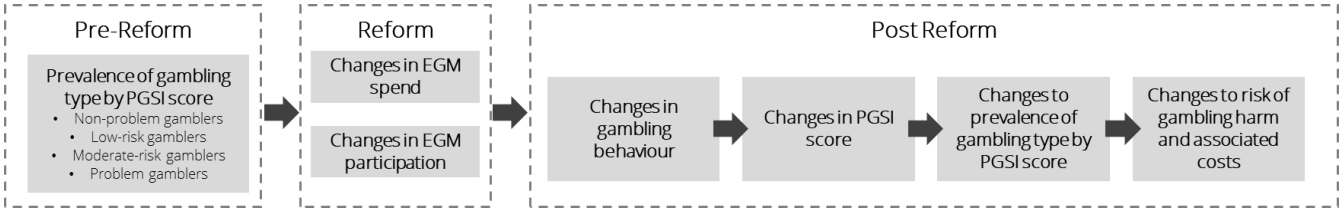
Given the literature establishing PGSI as a tool in epidemiological studies used to estimate the prevalence of problematic gambling, the impact of the reform on SEIG impact domains has been used to capture the expected changes in PGSI scores and distribution across gambler classification types.

Expected changes in PGSI scores following the reforms were assessed in two ways :

1. Changes in the number of EGM players (participation rate)
2. Changes in the amount of money spent on EGMs (reflecting a shifting down the PGSI scale for some players).

Both these factors influence gambling behaviour, risk of experiencing gambling harms and associated cost impacts. An illustrative conceptual framework is presented below and it reflects the use of PGSI scores as a suitable proxy to understand the risk of an individual experience gambling related harms.

Figure 4.2: Impact of the reform on prevalence of gambling by PGSI type




Source: Deloitte Access Economics (2024)

The relationship between expected changes in PGSI scores, gambling behaviour and risk of harm, and therefore the impact of reform, was informed by Section 3.1. The results presented in Table 4.2 suggests that that the central scenario will result in the largest decline in problem gamblers, but that the significant substitution scenario will result in the largest decline of all other types of gamblers. This is due to the central scenario seeing a larger decrease in total (EGM and non-EGM) gambling revenue among problem gamblers who, in the significant substitution scenario, somewhat increase their expenditure in other, less harmful, forms of gambling.

Table 4.2: Aggregate net change in EGM participation, by gambler type (number of gamblers)

| Gambler type (PGSI) | Current state | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|---|
| Non-problem gamblers | 45,750 | -10,454 | -3,485 | -1,742 |
| Low-risk gamblers | 19,189 | -1,734 | 60 | 22 |
| Moderate-risk gamblers | 7,586 | -1,100 | -590 | -148 |
| Problem gamblers | 1,785 | -437 | -560 | -420 |

Source: Deloitte Access Economics (2024)

Further detail on the specific impacts of changes gambling prevalence due to changes in EGM spend and EGM participation is discussed in Appendix E.

# Appendix A Model inputs

## A.1 Model inputs and data sources

A detailed summary of the key data sources used throughout the analysis and their specific applications is provided in Table A.1 below.

Table A.1: Modelling inputs and data sources

| Calculation | Value | Use in calculation | Source |
|---|---|---|---|
| EGM gambler current spending and gambling behaviour | Mean EGM expenditure by gambler type | To estimate mean annual gambling expenditure pre- and post-reform | Department of Treasury and Finance, Tasmania (2021) *[Data from Tasmania]* |
| | Mean annual number of EGM sessions | To estimate mean annual gambling expenditure pre- and post-reform | Department of Treasury and Finance, Tasmania (2021) *[Data from Tasmania]* |
| Estimation of the impact of reforms on EGM expenditure | Share of existing players electing to register for a player card | To estimate how many players cease EGM gambling, by player type | Centre for the Advancement of Best Practices (2016) *[Data from Canada]* |
| | Per cent change in mean EGM expenditure due cashless gaming reducing gambling frictions (in the absence of other measures) | To estimate the increase in EGM expenditure due to cashless gaming making it easier to gamble, by player type | Schottler Consulting (2009) *[Data from Queensland]* |
| | Per cent change in mean EGM expenditure due to non-limit harm minimisation features | To estimate the decrease in mean EGM expenditure due to non-limit setting features such as mandatory breaks and transaction history provision. | Schottler Consulting (2021) *[Data from South Australia]*<br><br>Schottler Consulting (2009) *[Data from Queensland]* |
| | Per cent change in non-EGM gambling expenditure due to substitution effects | To estimate the increase in non-EGM gambling expenditure due players substitution towards other forms of gambling, by player type. | Jonny Engebo, Torbjorn Torsheim and Stale Pallesen (2021) *[Data from Norway]*<br><br>Ingebord Rossow and Marianne Hansen (2016) *[Data from Norway]* |
| Estimation of the impact of reforms on the prevalence of PGSI gambler type | Relationship between gambling consumption and gambling-related harm | To estimate the impact of reduced gambling consumption on gambling related harm and resulting PGSI score | Greenwood, Youssef, Merkouris, and Dowling (2021) *[Data from Tasmania]* |

| | | | |
|---|---|---|---|
| Estimation of the total government and productivity cost per gambler of gambling in Tasmania | Total cost to Victorian Government | As a starting point for the estimation of total cost to the Tasmanian Government. | VRGF (2017) *[Data from Victoria]* |
| | Total number of gamblers in Victoria | To convert 2014/15 total cost to cost per capita. | VRGF (2017) *[Data from Victoria]* |
| | Consumer Price Index (CPI) for Melbourne | To adjust Victorian 2014/15 cost per capita to 2024 cost per capita. | ABS (2024) *[Data from Melbourne]* |
| | Expenditure on specialised mental health services per capita in Victoria and Tasmania | Ratio of Victorian to Tasmanian expenditure on specialised mental health services per capita used as scaling factor to adjust Victorian mental health sector costs to Tasmanian mental health sector costs. | Productivity Commission (2024) *[Data from Victoria and Tasmania]* |
| | Expenditure on homelessness services per capita in Victoria and Tasmania | Ratio of Victorian to Tasmanian expenditure on homelessness services per capita used as scaling factor to adjust Victorian homelessness services costs to Tasmanian homelessness services costs. | Productivity Commission (2024) *[Data from Victoria and Tasmania]* |
| | Expenditure on health services per capita in Victoria and Tasmania | Ratio of Victorian to Tasmanian expenditure on health services per capita used as scaling factor to adjust Victorian health services costs to Tasmanian health services costs. | AIHW (2023) *[Data from Victoria and Tasmania]* |
| | Expenditure on police services per capita in Victoria and Tasmania | Ratio of Victorian to Tasmanian expenditure on police services per capita used as scaling factor to adjust Victorian police services costs to Tasmanian police services costs. | Productivity Commission (2024) *[Data from Victoria and Tasmania]* |
| | Expenditure on court system per capita in Victoria and Tasmania | Ratio of Victorian to Tasmanian expenditure on court system per capita used as scaling factor to adjust Victorian court system costs to Tasmanian court system costs. | Productivity Commission (2024) *[Data from Victoria and Tasmania]* |
| | Expenditure on corrections system per capita in Victoria and Tasmania | Ratio of Victorian to Tasmanian expenditure on corrections system per capita used as scaling factor to adjust Victorian corrections system costs to Tasmanian corrections system costs. | Productivity Commission (2024) *[Data from Victoria and Tasmania]* |
| | Weekly earnings in Victoria and Tasmania. | Ratio of Victorian to Tasmanian average weekly earnings used as scaling factor to adjust Victorian productivity losses to Tasmanian productivity losses. | ABS (2024) *[Data from Victoria and Tasmania]* |

## A.2. International reforms

A small number of overseas jurisdictions have introduced more stringent regulation of EGM operations including mandatory identification and pre-commitment, loss limits and cashless gaming . These reforms provide an opportunity to assess the impact of measures similar to those announced for Tasmania. Key international reforms assess for this study includes those in:

- Norway where authorities introduced a series of restrictions over time including a ban on banknote acceptors (2006), restricting EGM use after midnight (2007), and placing a 1.5- year ban on all EGMs (2007). Following the ban, EGMs were reintroduced through a government monopoly with machines considered less harmful than previous machines as they had fewer audio-visual stimuli, automatic game breaks, did not use cash, and had forced loss limits per day and month.
- Finland where the monopoly operator Veikkaus, in anticipation of government action, introduced mandatory identification in land-based non-casino EGMs in January 2021 and in land-based arcade EGMs

in June 2021. Following identification measures, mandatory precommitment in the form of loss limits was extended to EGMs in September 2021.

Studies of the Norwegian reforms indicate that changes in the access to EGMs, harm minimisation features and mandatory loss limits can reduce gambling participation and losses. Specifically:

- One study uses a longitudinal survey to assess the impact shortly before and after the introduction of the EGM ban finds and finds that gambling participation, gambling frequencies and gambling problems were reduced after EGMs disappeared from the market. Reduced gambling participation was observed even among the most active EGM gamblers, and at risk gamblers, suggesting the change is not the result of solely reducing the participation of occasional or casual gamblers.[129]
- The same study also finds that a reduction in the proportion of survey participants classified as experiencing problem gambling from 1% to 0.4%. Further, calls to a gambling helpline decreased substantially and referrals for gambling treatment participation decreased after the restrictions. However, the baseline number of calls and referral were relativity low to begin with.[130]
- Another study finds that the introduction of a ban on note acceptors in Norway reduced EGM revenue by 17% compared the prior year. They also find the number of referrals to treatment for gambling problems decreased by 23% during the first 6 months after the ban on banknote acceptors and by an additional 57% during the first 6 months after the ban on EGM.[131]
- Several studies examine the substitution effects (i.e., increase participation or expenditure in other forms of gambling) flowing from the reforms. One study found a 5.8% decline in total gambling participation in the 5 to 8 years post-reform but a 3.9% increase in foreign gambling website participation.[132] However, expenditure effects where smaller with another study finding the equivalent of an 8% substitution effect between EGM and non-EGM gambling expenditure after the banning of note acceptors on machines, and an approximately 16% substitution effect after the total ban of EGMs.[133]

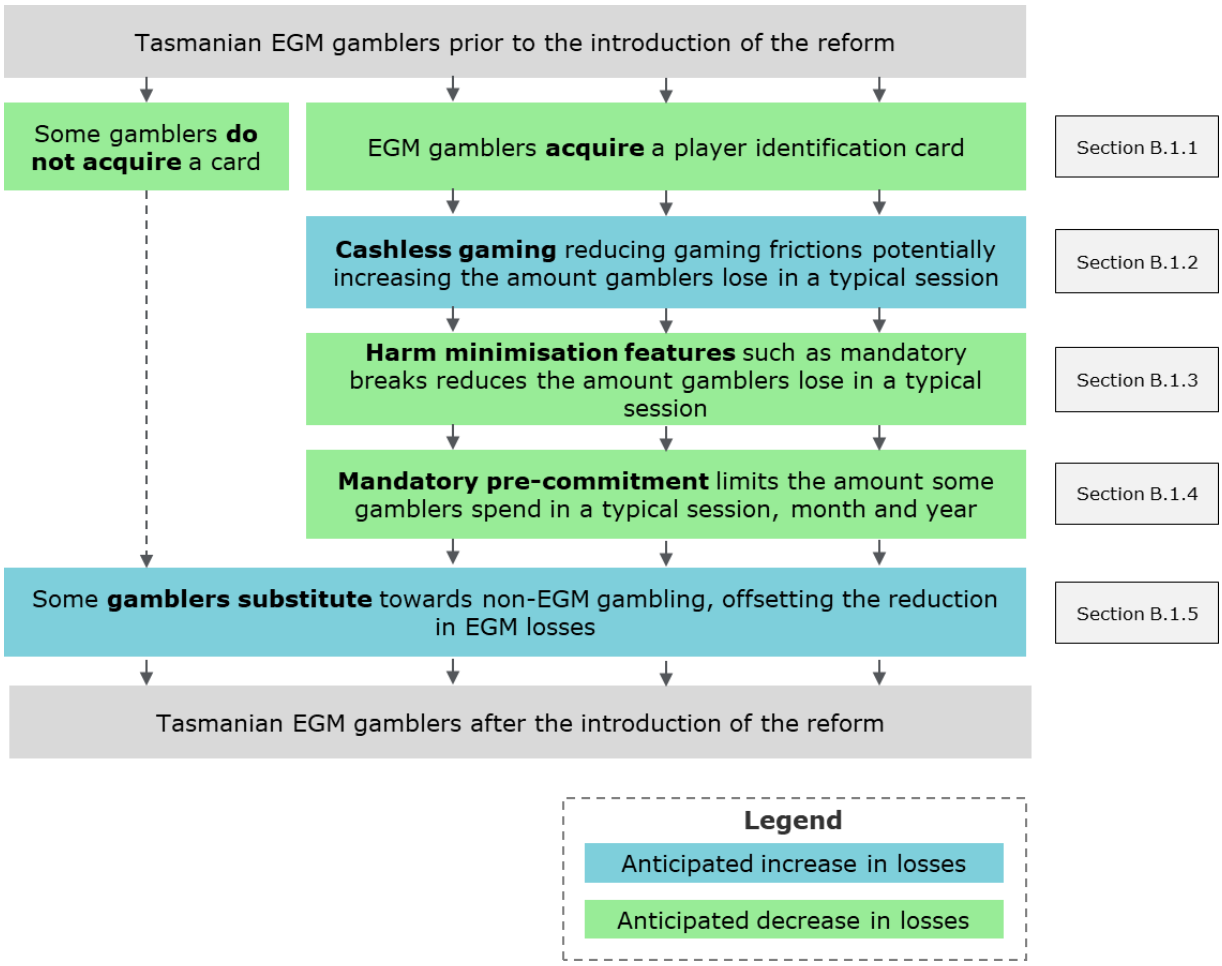
Studies of the Finnish reforms find broadly comparable results with one study using longitudinal gambling company sales data from the Finnish gambling monopoly to assess the impact of reforms finding that that EGM availability restrictions and mandatory precommitment reduced gambling related harm.[134] The study also found that declines in land-based EGM sales following reforms were not offset by online alternatives or other close substitutes.[135] However, the study also found that during the first wave of Covid-19 lockdowns, there was an observable substitution of land-based table games for online alternatives and land-based horse betting and possibly sports betting for online horse betting.

# Appendix B Player behaviour

## B.1 Methodology and assumptions

The impact of the behavioral response of EGM players outlined in Section 3.1 on aggregate gambling losses is modelled as presented in Figure B.1, with the impact of each stage differing across scenarios. The sections below present the range of inputs used across each scenario as indicated by Figure B.1. The range of each input has been developed based on the literature.

Figure B.1: Overview of calculations within each scenario




Source: Deloitte Access Economics (2024)

### B.1.1 Account registration

There is a high degree of uncertainty as to the extent of decreased participation resulting from a mandatory player card in the Tasmanian context. Based on the literature outlined in Section 3.1, a credible range of impacts is presented in Table B.2.

Declines in the share of moderate-risk and problem gamblers reflect comments from stakeholders that some problem gamblers may use the introduction of mandatory registration to cease EGM gambling by not acquiring a card.

Table B.2: Change in share of players gambling on EGMs post-reform, by gambler type

| Gambler type (PGSI) | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Non-problem gamblers | -30% | -10% | -5% |
| Low-risk gamblers | -30% | -10% | -5% |
| Moderate-risk gambler | -15% | -5% | 0% |
| Problem gambler | -15% | -5% | 0% |

Source: Deloitte Access Economics (2024)

### B.1.2 Cashless gaming

The impact of cashless gaming remains an open question in the literature. As discussed in Section 3.1.2, gamblers have different views as to its impact and merits. EGMs outside Tasmania's casinos currently operate with $1 coins as their sole loading method. As such, it is possible that the move to a cashless system could significantly increase average spend.

The inputs used are outlined in Table B.3. They assume that higher risk gamblers increase their expenditure by more than other gamblers.

Table B.3: Change gambling losses due to cashless gaming in the absence of harm minimisation features, by gambler type

| Gambler type (PGSI) | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Non-problem gamblers | 0% | 4.0% | 20% |
| Low-risk gamblers | 0% | 4.0% | 20% |
| Moderate-risk gambler | 0% | 8.0% | 50% |
| Problem gambler | 0% | 8.0% | 50% |

Source: Deloitte Access Economics (2024)

### B.1.3 Non-limit harm minimisation features

The impact of harm minimisation features such as mandatory breaks and transaction history provision are discussed in Section 3.1.3. Based on that discussion a range of feasible inputs are applied as outlined in Table B.4.

Table B.4: Change due to non-limit harm minimisation features, by gambler type

| Gambler type (PGSI) | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Non-problem gamblers | -10% | -10% | -5% |
| Low-risk gamblers | -10% | -10% | -5% |
| Moderate-risk gambler | -10% | -10% | -5% |
| Problem gambler | -10% | -10% | -5% |

Source: Deloitte Access Economics (2024)

### B.1.4 Mandatory pre-commitment

Pre-commitment is demonstrated to be effective at reducing EGM gamblers' losses (see Section 3.1.4). Estimating the impact of the reforms in the Tasmanian context requires consideration of the level of the limits (Table B.5) and the current level of EGM players losses (Table B.6).

Players setting limits different from the defaults are not considered in the analysis. International experience suggests that only a small number of gamblers are likely to increase their default limits and, due to the reform requiring gamblers to establish that they can afford to set higher limits, additional losses are likely to be unrelated to harm.[136]

Table B.5: Default mandatory limits

| Period | Default limit |
|---|---|
| Daily | $100 |
| Monthly | $500 |
| Annually | $5,000 |

Source: Department of Treasury and Finance (2024)

Table B.6: EGM expenditure, by gambler type

| Gambler type (PGSI) | Session | | Annual | |
|---|---|---|---|---|
| | Median | Mean | Median | Mean |
| Non-problem gamblers | $20 | $38 | $100 | $416 |
| Low-risk gamblers | $30 | $47 | $240 | $606 |
| Moderate-risk gambler | $100 | $150 | $1,200 | $5,391 |
| Problem gambler | $200 | $270 | $3,600 | $10,524 |

Source: Department of Treasury and Finance (2021)

Based on the current limits and profile of losses, it is likely that non-problem and low-risk gamblers will generally be unaffected by the introduction of mandatory pre-commitment, as their levels of spend are below the default limits. The majority of moderate-risk and problem gamblers, however, are likely to have their losses regularly constrained by the limits, as both the median and mean per session losses are at or above the $100 threshold.

At the annual level, the median losses of moderate-risk and problem gamblers are currently below the annual $5,000 threshold, indicating the potential for these players' annual losses to increase over the course of a year. As the losses of these players are constrained at the session (daily) level, an increase in annual losses must result from an increase in frequency of play. On the other hand, some players may gamble less frequently due to a diminished player experience.

The response of Tasmanian EGM gamblers to hitting mandatory pre-commitment limits is uncertain. To account for the range of possible responses, the scenarios reflect the following considerations:

- The significant substitution scenario captures a significant exit from EGM gambling due to the upfront friction associated with registering for a player card and a substitution towards other kinds of gambling. No change in gambling frequency is modelled.
- The central scenario captures an increase in spending for some gamblers and a decrease for others. Like in significant substitution, no change in gambling frequency is modelled.

Under this scenario, most players register for cards. While the harm minimisation features limit losses for some, this is counteracted by the reduced friction associated with cashless gambling and the mandatory limits acting as spending targets, which increase what some others lose.

- The max cashless effects scenario captures a significant increase in gambling expenditure due to the reduced friction associated with the cashless aspect of the reform. Under this scenario, non-problem and low-risk gamblers slightly increase their frequency of gambling while moderate-risk and problem gamblers increase their frequency more significantly.

The assumes response of EGM gambler are outlined in Table B.7.

Table B.7: Number and change in mean annual EGM sessions, by gambler type

| Gambler type (PGSI) | Mean annual EGM sessions | Change in mean annual EGM sessions | | |
|---|---|---|---|---|
| | | Significant substitution | Central scenario | Max cashless effects |
| Non-problem gamblers | 11 | 0% | 0% | 10% |
| Low-risk gamblers | 13 | 0% | 0% | 10% |
| Moderate-risk gambler | 36 | 0% | 0% | 40% |
| Problem gambler | 39 | 0% | 0% | 40% |

Source: Deloitte Access Economics (2024)

Mean annual losses post-reform are calculated by:

1. Taking the mean pre-reform per session losses for each gambler type,
2. Applying the changes in losses from cashless gaming and non-limit harm minimisation features,
3. Capping per session losses at the daily loss limit, where applicable,
4. Calculating the average annual losses by multiplying the adjusted per session losses by mean annual number of EGM sessions, adjusting for changing frequency where applicable,
5. Capping annual losses at the annual loss limit where applicable.

The results of this calculation are presented in Table B.8.

Table B.8: Average annual EGM spend, by gambler type

| Gambler type (PGSI) | Current | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|---|
| Non-problem gamblers | $657 | $591 | $615 | $824 |
| Low-risk gamblers | $956 | $860 | $895 | $1,199 |
| Moderate-risk gambler | $8,508 | $3,600 | $3,600 | $5,000 |
| Problem gambler | $16,609 | $3,900 | $3,900 | $5,000 |

Source: Deloitte Access Economics (2024)

Note: Current mean annual spend is higher than that reported in the Fifth SEIS as it has been weighted as discussed in Section A.2.

### B.1.5 Substitution to other forms of gambling

Significant restrictions on EGM use may either slightly increase other gambling expenditure, as players substitute away from EGMs, or reduce overall gambling expenditure due to synergies between EGM use and

broader gambling (refer to Section 3.1.5). The evidence suggests that if there is gambling substitution, the extent is likely to be small and flowing towards types of gambling that are generally less harmful than EGMs.[137]

The range of possible responses of players are captured across the modelled scenarios, with significant substitution capturing the high substitution case and scenarios 2 and 3 capturing the low substation case. The relevant inputs are outlined in Table B.9.

Table B.9: Change due to substitution towards other forms of gambling, by gambler type

| Gambler type (PGSI) | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Non-problem gamblers | 60.0% | 5.0% | 5.0% |
| Low-risk gamblers | 60.0% | 5.0% | 5.0% |
| Moderate-risk gambler | 60.0% | 5.0% | 5.0% |
| Problem gambler | 60.0% | 5.0% | 5.0% |

Source: Deloitte Access Economics (2024)

The impact of substitution effects is important, as different forms of gambling are associated with varying degrees of harm. Importantly, EGMs are the single largest contributor to gambling problems in Australia.[138] The literature finds that EGM gambling is the strongest predictor of problem gambling after controlling for other gambling forms.[139] In nationally representative Australian surveys, individuals experiencing gambling harm most frequently nominated EGMs as their most problematic gambling form.[140, 141] Further, most gambling help service clients also report EGMs as causing them most harm.[142]

Structural and situational differences between various forms of gambling contribute to variations in the risk of developing gambling problems.[143] For example, forms of gambling that involve high event frequency and continuous play, such as EGMs, tend to have a higher potential for promoting gambling-related problems.[144] In contrast, other forms of gambling, such as lotteries, offer less immediate reinforcement schedules, with days or weeks between placing a bet and learning its outcome.[145] In this way, numerous structural characteristics of EGMs are thought to facilitate persistence and dependency, particularly the unpredictable frequency of rewards, which encourages rapid uptake and continued repetitive behaviour.[146] Other EGM gambling characteristics are also associated with heightened risk, including visual and auditory cues, price and prize structures, tokenisation, features, and losses disguised as wins.[147,148]

## B.2 Data limitations

A key limitation of the data on Tasmania EGM participation and expenditure in the *Fifth SEIS (2021)* is that the total EGM expenditure implied by the study sample is less than half of the losses recorded by administrative data in the corresponding period.[149] Adjusting for estimated interstate gambling expenditure reduces the discrepancy, but still leaves a significant gap between the figures. This suggests that the survey sample either:

1. Underestimates the prevalence of EGM gambling in Tasmania, or
2. Underestimates the average losses of Tasmanian EGM gamblers.

Biases in either factor are feasible.

EGM gambling prevalence could be understated due to the survey for the *Fifth SEIS (2021)* being fielded during the pandemic. While questions were framed to collect data on the pre-pandemic period, reduced gambling during the initial lockdown period may have impacted the results.[150] A substantial decline in EGM participation from 19% to 9% between the Fourth and *Fifth SEIS (2021)* may indicate an understatement, with a more recent but smaller national survey finding EGM participation in Tasmania was 19% (the same as the *Fourth SEIS*).[151]

An understatement in average losses is possible, if not likely, considering well established research has found that self-reported data generally underrepresents gamblers actual losses.[152] Further, the degree of underreporting is larger the more that gamblers lose.[153]

Given the uncertainty, equal weighting has been applied to the prevalence and mean losses in the model (Table B.10). The application of the weights increases EGM participation from 9.2% to 14.5% in the model and mean annual EGM losses from $1,180 to $1,862.

Table B.10: Sample weights used for reported results

| Weights | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Losses | 1.58 | 1.58 | 1.58 |
| Prevalence | 1.58 | 1.58 | 1.58 |
| **Total** | **2.49** | **2.49** | **2.49** |

Source: Deloitte Access Economics (2024)

The choice of weights significantly influences the estimated change in losses under the reform. A greater weight on average losses results in more offsetting by mandatory pre-commitment limits. Sensitivity analyses for various weight combinations are provided in Table B.11.

Table B.11: Impact of weighting sensitivities on decrease in average EGM gambling losses

| Gambler type (PGSI) | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Only weighting losses | -45% | -56% | -68% |
| Equal weighting (report results) | -33% | -46% | -59% |
| Only weighting prevalence | -17% | -32% | -47% |

Source: Deloitte Access Economics (2024)

Note: Percentage changes at the individual EGM player level are less than the aggregate decrease due to not accounting for the decrease associated with gamblers opting out of EGM gambling entirely.

# Appendix C Harm reduction assumptions

## C.1. Estimation of benefits and costs due to changes in harm

The cost to government and cost of productivity loss and work impacts from gambling in Tasmania were calculated using results from a report by the Victorian Responsible Gambling Foundation (VRGF).[154] This report estimated the total cost of gambling for several key categories, as well as subcategories, in 2014/15. The three categories and their subcategories relevant to this analysis are presented in Table C.1below.

Table C.1: Relevant cost categories and subcategories per the VRGF report

| Category | Subcategory |
|---|---|
| Cost to Victorian Government | Mental health sector |
| | Homelessness services |
| | Other health and human services systems |
| Crime – cost to the Victorian justice system | Police system cost |
| | Court system cost |
| | Corrections systems cost |
| Productivity loss and work impact | Productivity loss to business |
| | Cost of job loss |
| | Loss of income |
| | Job search cost to the gambler |
| | Employer staff replacement costs |
| | Unemployment benefits |
| | Cost of absenteeism to business |
| | Cost of crime to business |

Source: Victorian Responsible Gambling Foundation (2017)

The following methodology was used to adjust costs in line with the consumer price index (CPI) and to reflect the Tasmanian context:

1. Collapsing categories - The 'Crime – cost to the Victorian justice system' subcategories were added to the 'Cost to the Victorian Government' category, as they were identified as also being borne by the state government. This left two categories: 'Cost to the Victorian Government' and 'Productivity loss and work

impact'.

2. Converting total costs to unit costs - The 2014/15 Victorian costs from the VRGF report were converted to unit costs, i.e., the cost per gambler. This was done by dividing the total cost by the number of gamblers in Victoria, sourced from the same report. After this step, the values represented the cost to the Victorian government of gambling and the productivity loss of gambling, per gambler in Victoria, in 2014/15.

3. Converting 2014-25 costs to 2024 costs - These 2014/15 unit costs were then adjusted to 2024 unit costs using the CPI for Melbourne to account for inflation.[155] Note the Australian Bureau of Statistics (ABS) only releases CPI for capital cities and not states, so the CPI for Melbourne was used to approximate the inflation experienced by Victoria. Following this, unit values represented the cost to the government of gambling and the productivity loss of gambling per gambler, in Victoria as at 2024.

4. Converting Victorian costs to Tasmanian costs - The 2024 Victorian unit costs were adjusted to Tasmanian unit costs using relevant scaling factors for each sub-category, as shown in Table C.2. These scaling factors were multiplied by the 2024 Victorian unit costs to find the 2024 Tasmanian unit costs.

Table C.2: Scaling factors to adjust Victorian gambling unit costs to Tasmanian gambling unit costs

| Category | Subcategory | Scaling factor |
|---|---|---|
| Cost to Victorian Government | Mental health sector | Ratio of Victorian to Tasmanian expenditure on specialised mental health services per capita[156] |
| | Homelessness services | Ratio of Victorian to Tasmanian expenditure on homelessness services per capita[157] |
| | Other health and human services systems | Ratio of Victorian to Tasmanian expenditure on health services per capita[158] |
| | Police services | Ratio of Victorian to Tasmanian expenditure on police services per capita[159] |
| | Court system | Ratio of Victorian to Tasmanian expenditure on crime and civil court services per capita[160] |
| | Corrections systems | Ratio of Victorian to Tasmanian expenditure on corrections services per capita[161] |
| Productivity loss and work impact | Productivity loss to business | Ratio of Victorian to Tasmanian average weekly earnings[162] |
| | • Cost of job loss<br>• Loss of income<br>• Job search cost to the gambler<br>• Employer staff replacement costs<br>• Unemployment benefits | Ratio of Victorian to Tasmanian average weekly earnings |

| Category | Subcategory | Scaling factor |
|---|---|---|
| | Cost of absenteeism to business | Ratio of Victorian to Tasmanian average weekly earnings |
| | Cost of crime to business | Ratio of Victorian to Tasmanian average weekly earnings |

Following this, the unit values represent the cost of gambling per gambler in Tasmania in 2024.

5. Calculating number of gamblers in Tasmania - The number of Tasmanian gamblers in each PGSI category in the current state and under the three scenarios was calculated using the method outlined in 0.

6. Calculating total cost in Tasmania - The number of Tasmanian gamblers in each PGSI risk category in the current state was multiplied by the 2024 Tasmanian unit costs to find the total cost for each category in Tasmania in 2024 by PGSI risk.

Similarly, the 2024 Tasmanian unit costs were multiplied by the number of gamblers under each reform scenario to find the total cost impact in Tasmania by PGSI classification.

Note, only low-risk, moderate-risk and problem gamblers have been included in the social impact analysis. This is because non-problem gamblers generally experience very low levels of gambling related harm, with the *Fifth SEIS (2021)* finding that less than 0.5% of non-problem gamblers experienced financial, psychological relationship, physical health or work/ study harm as a result of gambling.[163] It was therefore considered that the overall social impact on non-problem gamblers would be negligible.

# Appendix D Impact of the reform on prevalence gambling harm

As discussed in Section 4.3, expected changes in PGSI scores due to the reforms are assessed in two ways:

1. Changes in the number of EGM players (participation rate)
2. Changes in the amount of money spent on EGMs.

Each of these channels are explored in the sections below.

## D.1 Impact of a change in EGM participation on the prevalence of PGSI gambler type

As a result of the channels of behaviour change discussed in Section 3.1, some players are expected to no longer use EGMs due to friction and additional effort which makes it less likely they register to play. The impact on the number of players by gambler types are summarised in the Table D.1 below. In some scenarios these players increase their non-EGM gambling expenditure.

For example, with reference to the table below, it can be observed because of changes to EGM participation, there are 224 fewer problem gamblers in the significant substitution scenario.

Table D.1: Change in EGM participation, by gambler type (number of gamblers)

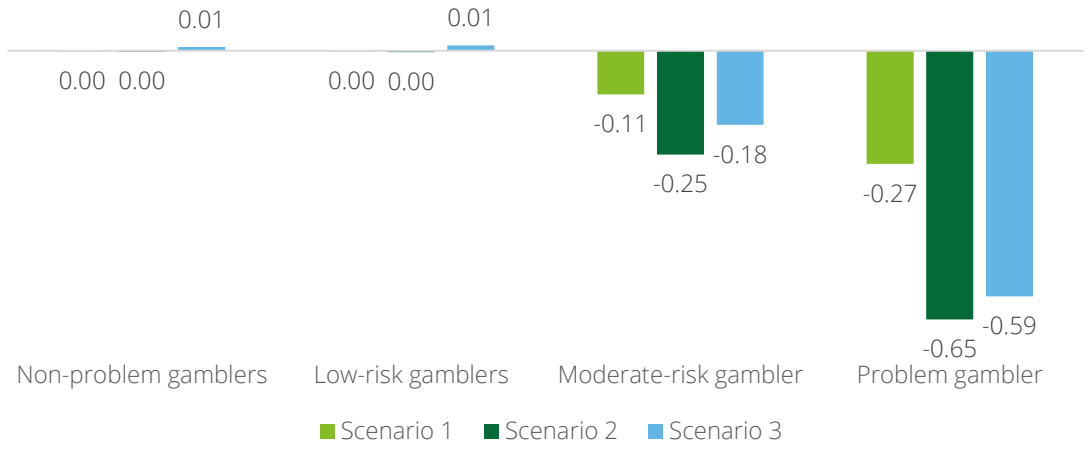
| Gambler type (PGSI) | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Non-problem gamblers | -10,454 | -3,485 | -1,742 |
| Low-risk gamblers | -2,301 | -767 | -545 |
| Moderate-risk gamblers | -746 | -249 | - |
| Problem gamblers | -224 | -75 | - |

Source: Deloitte Access Economics (2024)

## D.2 Impact of a change in gambling expenditure on the prevalence of PGSI gambler type

The literature demonstrates an association between gambling expenditure and PGSI scores.[164] In Australian studies, researchers have performed regression analysis to quantify the relationship. This relationship was used to assess, firstly, how changes in spend would impact changes in PGSI scores and secondly, how changes in PGSI scores would impact the prevalence of Tasmanian gambler types and subsequent representation of gambling related harm. Based on this approach, the average change in PGSI score for each group of problem gamblers is as outlined in the Chart D.1Chart 2.1 below.

Chart D.1: Average change in PGSI score for gambler types, by scenario




Source: Deloitte Access Economics (2024)

The change in average PGSI score for all gambler types is less than 1, meaning that only those gamblers notionally close to the edge of a gambler type classification are expected to become reclassified. A distribution of Tasmanian EGM gamblers by PGSI score was used to estimate the number of gamblers where a change in PGSI classification may apply. Applying the average changes estimated above to this distribution results in a net change in problem gamblers as outlined in the table below. The values corresponding to the significant substitution scenario below can be interpreted as the reform results in 213 fewer problem gamblers in Tasmania because of expenditure impacts.

Table D.2: Change in the number of gamblers due to expenditure impacts, by scenario

| Gambler type (PGSI) | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Non-problem gamblers | 0 | 0 | 0 |
| Low-risk gamblers | 567 | 827 | 567 |
| Moderate-risk gamblers | -354 | -341 | -148 |
| Problem gamblers | -213 | -485 | -420 |

Source: Deloitte Access Economics (2024)

**Relationship between gambling spend and PGSI scores** *(Greenwood, Youssef, Merkouris, and Dowling 2021)*

Research in Tasmania examined gambling frequency and gambling expenditure risk-curves to understanding the degree to which indices of gambling consumption are associated with gambling-related harm. The authors concluded gambling risk-curves in Tasmania appear not to be J-shaped, but rather suggest that the risk of gambling-related harm increases with even small increases in gambling consumption. Regression analysis concluded **that for every standard deviation increase in spend on gambling, there was an associated 0.4 standard deviation increase in PGSI scores**, underlying the relationship between gambling spend and indices of problem gambling.

## D.3 Aggregate impact of the reform on the prevalence of PGSI gambler type

To assess the overall change in prevalence of PGSI gambler type following the reform, the net impact of changes in gambling expenditure and changes in EGM participation were determined. This overall change is outlined in the Table below.

Table D.3: Aggregate change in EGM participation, by gambler type (number of gamblers)

| Gambler type (PGSI) | Significant substitution | Central scenario | Max cashless effects |
|---|---|---|---|
| Non-problem gamblers | -10,454 | -3,485 | -1,742 |
| Low-risk gamblers | -1,734 | 60 | 22 |
| Moderate-risk gamblers | -1,100 | -590 | -148 |
| Problem gamblers | -437 | -560 | -420 |

Source: Deloitte Access Economics (2024)

Using the prior examples to demonstrate the aggregate impacts we can observe the example Figure below.

Figure D.1: Illustrative example of change to problem gambler prevalence

Changes in problem gamblers due to participation impacts **(- 224)**
**+**
Changes in problem gamblers due to expenditure impacts **(-213)**
**=**
Total change in problem gamblers due to aggregate impacts **(-437)**

Source: Deloitte Access Economics (2024)

# Appendix E Approach to modelling the economic impact of the reform

## E.1 DAE-RGEM and approach to CGE modelling

CGE modelling provides the most reliable and respected basis of determining the net impact of changes affecting the economy. These changes may be external shocks, like a slowdown in global demand for a given commodity or service; they may be policy changes, like the introduction of a carbon tax; or they may be a new project or investment, like a road or sporting stadium.

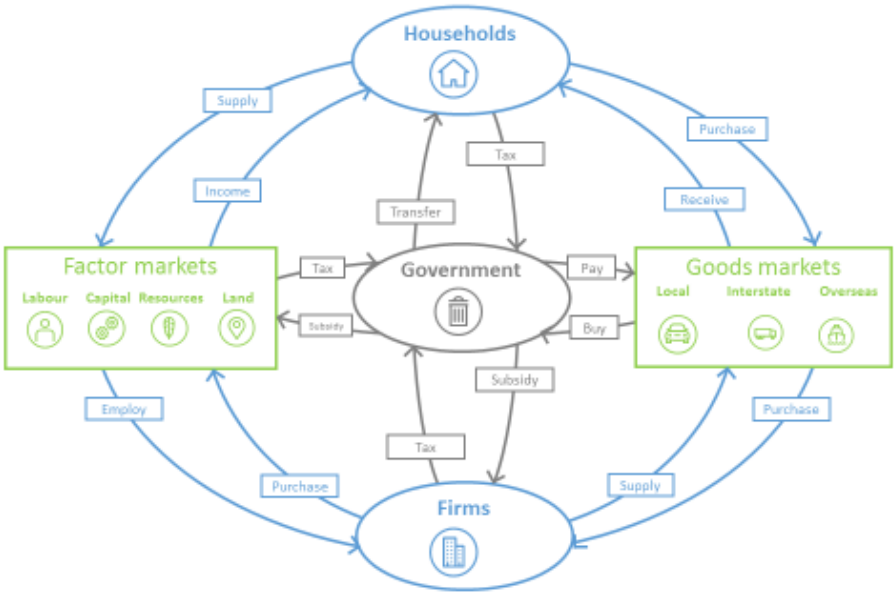
It is a framework that supports bespoke scenario analysis in a single, robust, integrated economic environment, enabling an assessment of the net impact on key macroeconomic indicators such as GDP and employment, and key sectoral measures like industry output. CGE modelling is the preferred framework for gauging the impacts of large, multi-year projects throughout the economy, and is widely recognised by all levels of government. But like all modelling, there is a right and a wrong way to do CGE analysis. Deloitte Access Economics uses approaches to CGE modelling that have been honed through years of experience, and in collaboration with government economic agencies. We bring a trusted and proven approach to this complex area of modelling.

DAE-RGEM encompasses all economic activity – including production, consumption, employment, taxes and trade – and can run scenarios through time involving multiple regions, industries and commodities. It is a model that can be customised for specific purposes, whether that be an unorthodox industry definition, a unique regional perspective or multi-faceted policy or project evaluation. For this project, the model database was built to explicitly represents Tasmania's local government areas (LGA), to capture the nuances in economic impacts across the state, in addition to the total state impacts. As such, results can be presented for each LGA, providing a holistic overview of this policies potential impacts, to help inform government decisions.

DAE-RGEM can also be customised to represent specific industries or sectors. For this work, electronic gaming machines (EGM) were defined as their own industry. This industry was split out from both the Accommodation and Food Services industry and Sports and Recreation. Accommodation and Food Services represent pubs, clubs, restaurants and RSLs which may house EGMS, and casinos fall under Sports and Recreation. In order to reflect that EGMs are present across multiple industries, they were split out from their parent sectors. Having EGM as its unique industry allowed for the introduced policy shocks to specifically target this industry in each region.

Figure E.1 gives a stylised representation of DAE-RGEM, specifically a system of interconnected markets with appropriate specifications of demand, supply and the market-clearing conditions that determine the equilibrium prices and quantity produced, consumed and traded.

Figure E.1: Stylised representation of DAE-RGEM




*Source: Deloitte Access Economics*

The model rests on the following key assumptions:

- All markets are competitive and all agents are price takers
- All markets clear, regardless of the size of the shock, within the year.
- It takes one year to build the capital stock from investment and investors take future prices to be the same as present ones as they cannot see the future perfectly
- The supply of land and skills are exogenous. In the business as usual case, the supply of natural resources adjusts to keep its price unchanged; productivity of land adjusts to keep the land rental constant at the base year level.
- All factors sluggishly move across sectors. Land moves within agricultural sectors; natural resource is specific to the resource using sector. Labour and capital move imperfectly across sectors in response to the differences in factor returns. Inter-sectoral factor movement is controlled by overall return maximizing behaviour subject to a Constant-Elasticity-of-Transformation (CET) function. By raising the size of the elasticity of transformation to a large number we can mimic the perfect mobility of a factor across sectors and by setting the number close to zero we can make the factor sector-specific. This formulation allows the model to acknowledge the sector specificity of part of the capital stock used by each sector and also the sector-specific skills acquired by labour while remaining in the industry for a long time. Any movement of such labour to another sector will mean a reduction in the efficiency of labour as a part of the skills embodied will not be used in the new industry of employment.

DAE-RGEM is based on a substantial body of accepted microeconomic theory. Key features of the model are:

- The model contains a 'regional household' that receives all income from factor ownerships (labour, capital, land and natural resources), tax revenues and net income from foreign asset holdings. In other words, the regional household receives the gross national income (GNI) as its income.
- The regional household allocates its income across private consumption, government consumption and savings to maximise a Cobb-Douglas utility function. This optimisation process determines national savings, private and government consumption expenditure levels.
- Given the budget levels, household demand for source-generic composite goods is determined by minimising a CDE (Constant Differences of Elasticities) expenditure function. For most regions, households can source consumption goods only from domestic and foreign sources. In the Australian regions, however, households can also source goods from interstate. In all cases, the choice of sources of each commodity is determined by minimising the cost using a CRESH (Constant Ratios of Elasticities Substitution, Homothetic) utility function defined over the sources of the commodity (using the Armington assumption).

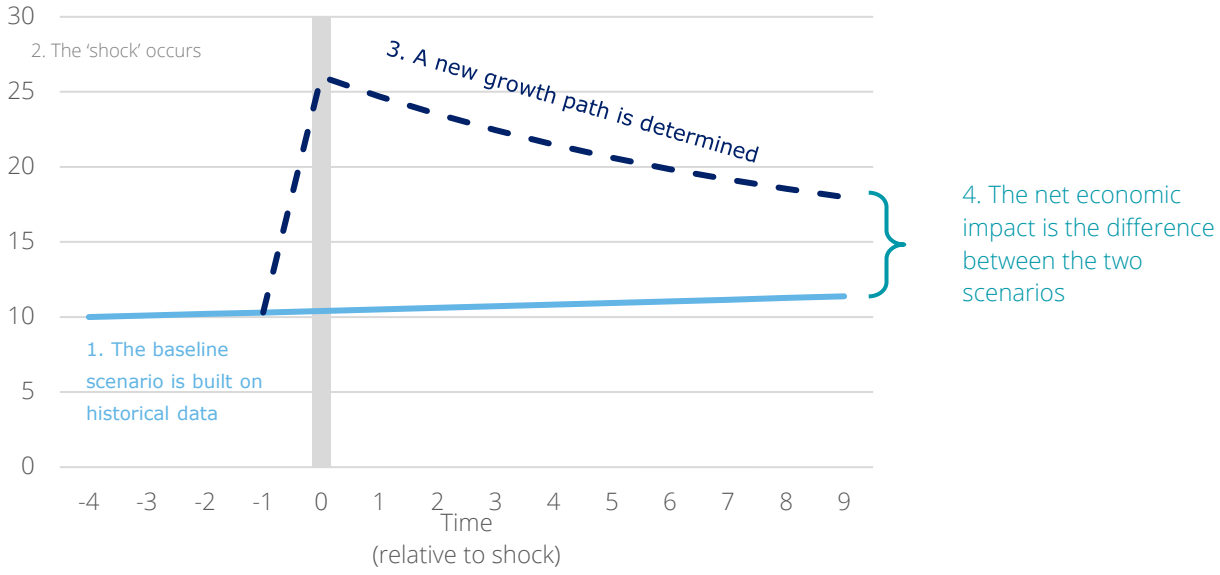
- Government demand for source-generic composite goods, and goods from different sources (domestic, imported and interstate), is determined by maximising utility via Cobb-Douglas utility functions in two stages.
- All savings generated in each region are used to purchase bonds from the global market whose price movements reflect movements in the price of creating capital across all regions.
- Financial investments across the world follow higher rates of return with some allowance for country-specific risk differences, captured by the differences in rates of return in the base year data. A conceptual global financial market (or a global bank) facilitates the sale of bond and finance investments in all countries/regions. The global saving-investment market is cleared by a flexible interest rate.
- Once aggregate investment level is determined in each region, the demand for the capital good is met by a dedicated regional capital goods sector that constructs capital goods by combining intermediate inputs in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these intermediate inputs subject to a CRESH aggregation function.

Producers supply goods by combining aggregate intermediate inputs and primary factors in fixed proportions (the Leontief assumption). Source-generic composite intermediate inputs are also combined in fixed proportions (or with a very small elasticity of substitution under a CES function), whereas individual primary factors are chosen to minimise the total primary factor input costs subject to a CES (production) aggregating function.

## E.2 Estimating economic impacts using a Computable General Equilibrium framework

CGE models estimate economic impacts by comparing a policy scenario against a baseline. Here the baseline refers to a world without the construction or operation of Project Piston and is built off historical data with the economy assumed to grow as per 'business as usual' Chart E.2.

Chart E.2: Stylised representation of economic impact modelling using a CGE framework




The policy scenario is developed by introducing data on the Project as a shock to the baseline scenario. The shock to the baseline for this economic impact analysis consists of the project's capital expenditure and operational expenditure as outlined in the body of this memo.

CGE models then solve for the market-clearing (equilibrium) levels of demand and supply across all specified goods and factor markets in the economy. This effectively created a new path for the economy over time. This new path is typically referred to as the policy scenario and here it describes a world where the proposed reforms EGMs are implemented in Tasmania. Comparing this new policy path to that of the baseline (where the change does not occur), shows the economic impact of the scenario.

# Limitation of our work

## General use restriction

This report is prepared solely for the internal use of Department of State Growth, Tasmanian Government. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose set out in the engagement letter dated 4th October 2024. You should not refer to or use our name or the advice for any other purpose.

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