AUCKLAND COUNCIL

Economic Impact of Non-Casino Electronic Gaming Machines

FINAL REPORT

m.e spatial

Report

Economic Impact Assessment of Non-Casino Electronic Gaming Machines in Auckland

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SUMMARY

The Auckland Council (AC) is currently developing their Non-Casino Electronic Gaming Machine Venue Policy and has commissioned Market Economics to undertake an economic impact assessment of the sector. This report quantifies the net economic impact of NCEGMs in Auckland focusing principally on the money gamed and how this money flows through the economy. Some social costs and externalities are beyond the scope of this study, including: cost incurred by families due to family disruptions caused by problem gaming and societal costs due to crimes[1] committed by problem gamblers e.g. fraud or theft to fund the gambling. Assessing these externalities is normally undertaken using a Benefit-Cost Approach as opposed to an EIA.

We combined various data sources to size Auckland's NCEGMs. For the 2011 year there were 4,171 NCEGMs operating in Auckland. The NCEGM sector derives its income from gamers and for every $1 played between $0.900 and $0.905 is returned in the form of winnings. The remaining $0.100 is the Gaming Machine Profit and is used to cover levies, taxes and operating expenses. These machines generated gaming machine profits or GMP of close to $250m. Levies, taxes and social dividends account for over half of GMP:

- At least 37.12% of GMP is redistributed to communities in the form of authorised expenditures. The actual proportion returned varies between 37% and 52%.
- The Gaming Machine Duty attracts twenty three percent (23%) of the GMP, and
- Three percent of the GMP is paid as levies and fees e.g. the Problem Gambling Levy.

The main points about the sector are:

- NCEGMs are concentrated close to the CBD and in lower socio-economic areas.
- The majority (64.1%) of NCEGMs are owned by 11 public societies
- Waitemata Local Board (which encompasses the CBD) has the highest number of NCEGMs. This Local Board has the third highest GMP ($22.1m), while the highest GMP is recorded in Maungakiekie-Tamaki ($22.9m) followed next by Howick ($22.2m).
- Manurewa and Otara-Papatoetoe show the highest GMP per machine. Henderson-Massey, Puketapapa and Waitekere Ranges round out the top 5, and along with Mangere-Otahuhu all have GMP of over $70,000 per machine. The average GMP per machine for Auckland is $57,330 and the median is $60,685
- In Manurewa and Otara-Papatoetoe the GMP/machine is 49.9% and 29.3% respectively above the city-wide average.

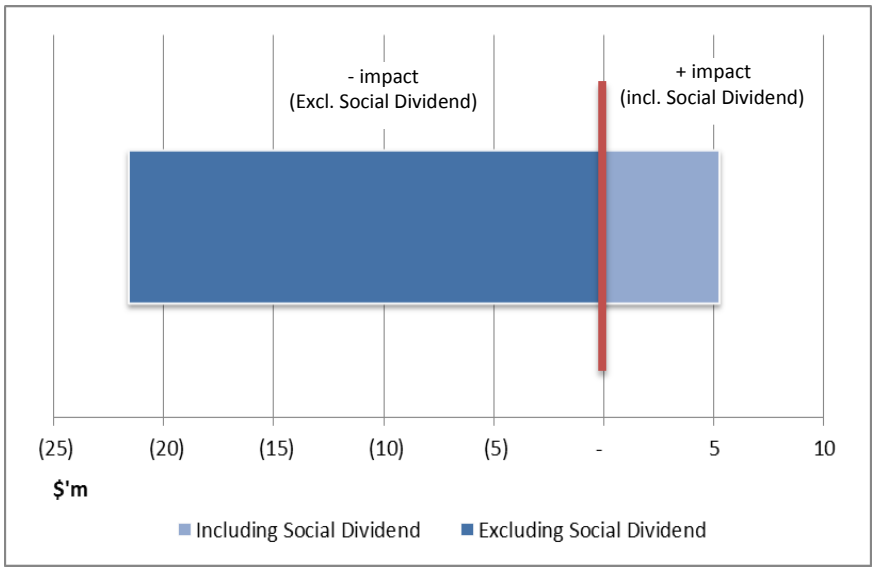
IMPACTS

Total GMP for the sector is estimated at $247.2m in 2011. The sector, via its linkages and spending generates total gross output of $459.7m and total value added of $216.1m. The sector's main transactions are with sport and recreation, business services, finance, interest groups and machinery and equipment wholesaling.

Expressing the sectors impacts against the opportunity cost (using an alternative spending profile) suggests that overall the sector has a small positive impact on the economy. If 100% of GMP was removed i.e. if no NCEGM spending took place. The net impact of the NCEGM sector on the Auckland economy is $5.2m. Therefore the VA gain to the economy is around 2.3% of GMP. This is the same order of magnitude as Christchurch City Council's (CCC) estimates of sector's impact on Christchurch (2.44%).

[1] This includes all the costs ranging from detecting and investigating the crime through to prosecuting, sanctioning and rehabilitating problem gamblers.

The net impact result implies that NCEGMs have a positive impact on the economy. However by breaking down the source of the impacts, it is clear that more than ten percent of NCEGMs impacts come from the social dividend (see the accompanying figure). This is because social dividends are a part of the sector's cost structure. The social dividends flow impact adds around $26.9m to the sectors impact, pushing impacts into positive territory.



SCENARIO 1: SKYCITY

This scenario looks at the potential effects of adding four hundred gaming machines at SkyCity on the wider NCEGM sector. Depending on how the scenario[2] is framed, the effect on NCEGMs is relatively small, reducing the city-wide spending by 4.21% or $10.4m$_{2011}$. By reducing the level of activity (level of in the money gamed) in the NCEGM sector the value of funds available for social dividends decreases (by at least $3.6m). This change will result in an overall negative impact ($0.68m). SkyCity is required to distribute part of its income to social projects. SkyCity distributes 2.5% of its on-site net profit[3] to SkyCity Trust to manage and oversee the allocation of these disbursements.

SCENARIO 2: REDUCING NCEGMS

The second hypothetical scenario reflects the likely impact of reducing Auckland's NCEGMs. A target of 2.0 machines per 1,000 capita per local board was set[4]. Introducing this cap will reduce the number of NCEGMs by around a third (34.3%) to 2,783. However, reducing machines by a third will not necessarily lead to a similar decrease in GMP. Instead, the target will reduce GMP by 13% - this is due to individuals seeking out other venues and problem gamblers continuing to gamble at similar levels. The total economic impact of removing the NCEGMs is estimated to reduce city-wide VA by $0.7m.

The overall impact of the policy is relatively small considering the wider benefits to society, which are not covered in this study.

KEY POINTS

This assessment suggests that the social dividend, funded out of gaming profits, is largely responsible for any positive impact the NCEGM industry. Any policy regarding changes to the NCEGM industry will need to carefully assess the impacts it will have in order to maximise what is the best outcome for society. This is because community, sport, heritage and other community projects are funded by the social dividend.

[2] This scenario is subject to a range of assumptions and does not assess the economic impact of SkyCity or its gaming machines. It provides a very basic assessment and should be interpreted with caution.
[3] Compared to NCEGM's 37.12% of GMP.
[4] It is stressed that this is not an official Council target and this target has not been discussed with any Council representative.

Reducing the amount of GMP generated, by reducing the number of NCEGMs or by restricting operating hours, will decrease the economic value that society derives via its social dividend. An unintended consequence of reducing size of the social dividend (by reducing the total GMP) could be that community operations relying on grant funding could collapse giving rise to wider (negative) social consequences.

The analysis revealed that the large societies have the lowest proportion of social dividends. Increasing the payout ratio could increase the overall impact of the sector.

Additional research is required to address gaps and limitations of this assessment in addition to gaps identified during the assessment process. The research needs and gaps, in no particular order, are:

- Details about the operational costs of not-for-profit trusts and public societies covering the spatial distribution of grants. There is also minimal information available about where GMP was generated and where grants were channeled to i.e. spatially.
- The level of problem gaming (on NCEGMs) and the cost of managing, addressing and rehabilitating these gamers focusing specifically on the trusts' roles and responsibilities.
- The financial implications on trusts resulting from increasing the required social dividend (i.e. the pay-out ratio)
- The wealth transfer between households
- A full analysis of the costs and benefits of NCEGMs
- A full analysis of SkyCity's gaming machine activities and the associated economic impacts.
- Survey work to enrich the assumptions used in this report.

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ABBREVIATIONS

AC	Auckland Council
AUT	Auckland University of Technology
BCA	Benefit Cost Analysis
DIA	Department of Internal Affairs
EFM	Economic Futures Model
GMP	Gaming Machine Profits
IO	Input-Output model
M.E	Market Economics Limited
NCEGMs	Non-Casino Electronic Gaming Machines
MRIO	Multi-regional Input-Output
RSA	Returned and Services Associations
VA	Value Added

1 INTRODUCTION

The Auckland Council (AC) is currently developing their Non-Casino Electronic Gaming Machine Venue Policy. In order to help inform its policy development process, Council commissioned Market Economics to undertake an economic impact assessment of Non-Casino Electronic Gaming Machines (NCEGMs) in the Auckland region. This report quantifies the net economic impact of NCEGMs in Auckland focusing principally on the money gamed and how this money flows through the economy. Impacts associated with social externalities are beyond the scope of this study including: cost incurred by families due to disruptions caused by problem gaming and societal costs due to crimes[5] committed by problem gamblers e.g. fraud or theft to fund the gambling.

1.1 CONTEXT

Gambling is a form of entertainment, but it is well documented that it can also have negative impacts on individuals, families and society as a whole. An important aim of any policy relating to gambling must be to minimise the harm on society as a whole. Territorial Authorities (TA) are required to have a policy for Class 4: Non-Casino Electronic Gaming Machines (NCEGM) venues and these policies have to be reviewed every three years. Auckland Council is developing a NCEGM venue policy for the region as a whole. Council has, as part of its policy development process, considered the social impacts[6] of gambling. In addition, Council has commissioned research into the economic impact of NCEGMs.

Studies of NCEGM's economic impacts in other communities have reported mixed results. A 1999 report by Australia's Productivity Commissioner into the country's Gambling Industry has found that the net benefit of the *total* industry is between negative A$1.2bn and positive A$4.3bn. However this report is based on a 'cost and benefit' approach and interprets the net position as the impacts – it is stressed that this is <u>not</u> the economic impact. In 2011 Christchurch City Council updated its venue policy and updated the accompanying economic impact report. This report found that, depending on the variable used, NCEGMs had a negative or slightly positive economic impact.

NCEGMs are controversial due to their impact on society. The negative impacts are often associated with problem gambling. Research suggests that the relative ease of using NCEGMs and their accessibility contributes towards the potential harm they cause. Conversely, some argue that NCEGMs are a form of leisure and the regulatory environment aims to minimise the negative impacts via wider social benefits caused by returning some of the sector's profits to the community by way of grants. These grants support a wide range of community activities ranging from sporting groups, cultural groups, art activities and other activities. In New Zealand, the level of funding that is returned to the community is stipulated in the *Gambling Net Proceeds Regulations (2004)* – currently, a minimum of 37.12% of GMP must be re-distributed via an authorised purpose.

[5] This includes all costs ranging from detecting and investigating the crime through to apprehending, prosecuting, sanctioning and rehabilitating problem gamblers.

[6] Council has engaged the Gambling and Additions Research Centre at Auckland University of Technology to investigate the social impacts of gaming machines and TAB gambling in Auckland. The centre's report is titled: Brief Literature Review to Summarise the Social Impacts of Gaming Machines and TAB Gambling in Auckland.

This report focuses on the economic impacts of NCEGMs caused by the sector's economic flows and its linkages. Importantly, this is not a benefit-cost analysis (BCA) and the social costs and wider externalities of NCEGMs are beyond the scope of this assessment.

1.2 PROJECT AIM AND OBJECTIVES

This study was set up to provide insights into the economic impact of NCEGMs on Auckland's economy. These insights were used to inform and assist Auckland Council in its policy development process. The study outlines the economic impacts of the sector on the economy by shedding light on different impact streams. The impacts are contextualised using an alternative spending profile designed to reflect the opportunity cost of NCEGMs. The research objectives were to quantify the sector's main impacts, including:

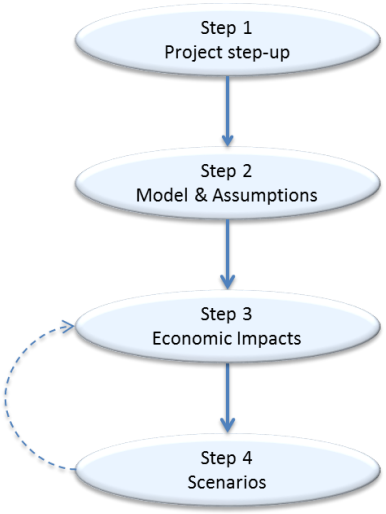
- The direct economic transactions and flows associated with non-casino electronic gambling machines including the 'revenues' received by NCEGMs and the costs incurred to operate the machines.
- The indirect and induced economic flows generated and supported by NCEGMs covering:
  - The economic 'ripple effect' including, for example, additional labour and household effects.
  - The economic effects of the social benefits and transfers – this relates to how NCEGM revenues are redistributed to communities. These transfers also cause economic ripples through the economy. Recipients of these transfers are typically in sports activities, social and community services, leisure clubs and heritage and conservation with different economic linkages and characteristics.

Next the research estimated the ***net effect*** of NCEGMs – comparing the sector's estimated impacts with that of an alternative spending profile. The economic impacts associated with an alternative (hypothetical) spending profile were used to reflect the opportunity costs of spending on NCEGMs. The nature and scale of this alternative spending profile reflects different spending propensities across different household types and income levels.

1.3 METHODOLOGY

The research was undertaken in four steps outlined below (see Figure 1-1).

Figure 1-1: Project Steps



Step 1: Project Set-up

The project started with an inception meeting where the project scope was finalised. Relevant information and documents were identified and collated during this step.

Step 2: Model and Assumptions

This step delivered the economic impact model. In setting up the model the data and information (collated during step 1) was analysed and structured into an integrated model. The model was based on the Auckland region economic accounts estimated using M.E's Multi-Regional Input-Output model (MRIO)[7] that has been updated with the latest available information. A special 'NCEGM' sector was created within the MRIO table to capture and

[7] M.E has capability in regional Computable General Equilibrium models and the firm is using an in-house model to estimate the economic impact of last year's Rugby World Cup. However a CGE model would not be appropriate in this case. CGE model provide insight into the long run impacts (at the new equilibrium point).

reflect the sector's economic interdependencies. These linkages include the sector's own spending, links to the household sector, as well as the social dividend. Importantly, this approach provides more detailed insights into the sector's linkages than the standard approach where 'weighted average' multipliers[8] are estimated. The resulting modified MRIO was then used to estimate a complete set of multipliers for the sector (Appendix 1 offers an outline of multipliers.

Step 3: Economic Impacts

In this step the economic impacts of NCEGMs, its activities and the alternative spending profile were estimated. The direct, indirect and induced impacts were estimated for the following indicators:

- Gross Output,
- Value Added (similar to GDP),
- Employment, and
- Income.

Step 4: Scenarios

A number of scenarios were defined to provide additional insight into the economic impacts of the sector under different conditions. The scenarios were designed in consultation with Auckland Council staff. The scenarios were designed to provide additional insight into the economic impacts of different (potential) policy positions.

1.4 KEY ASSUMPTIONS, LIMITATIONS AND CAVEATS

Sizing the sector relied on information from the Department of Internal Affairs (DIA). It was assumed that all machines in an area generate similar Gaming Machine Profits (GMP). The DIA dataset lists all venues, and the number of machines at each venue. This dataset clusters venues into fifty five suburbs. A separate DIA dataset offers the total GMP per suburb. Combining these sets yields the ability to estimate the average GMP per machine on a per Local Board basis. The total (Auckland wide) GMP and average GMP estimates inform the economic impact analysis because the economic impact is estimated using total (city-wide) GMP.

Our analysis is based on available and published information. We assumed that this data is a true and accurate reflection of the sector. If a detailed sector engagement process is embarked upon, then it would be possible to refine how the sector is presented.

One part of the sector's interaction with the rest of the economy takes place in the form of social dividends i.e. grants returned to the community. The *Gambling Net Proceeds Regulations 2004* sets the minimum amount to be returned to communities at 37.12%. Some trusts are returning more than the minimum level. Based on an assessment a range of recent financial statements the percentage returned varies between 37% and 46%[9]. The

[8] The standard approach followed is to 'map expenditure profiles' to specific IO sectors and then estimated a weighted average multiplier based on the sector mapping.

[9] This is for public societies; in the case of clubs this proportion increases to over 50%.

exact percentage returned to the community varied according to how it was calculated[10]. This research used a 'modelled' estimate which was marginally higher than the proportion returned identified during a review of grant data. The modelled approach was selected to maintain data comparability and consistency. This introduces a risk of potentially overstating the impacts of the social dividend but the risk is mitigated by a consistent application and interpretation of the financial statements.

With reference to the alternative spending profile, a hypothetical profile was developed considering factors such as household type, income levels, and propensity to spend. The alternative spending profile integrates a behaviour change component as well as a retained leisure component. The weighting of these two components are based on M.E's own interpretation and would need to be confirmed as part of further research.

A table showing the main assumptions can be found in Appendix 2.

As with any economic impact study, it is necessary to make some assumptions which influence the uncertainty in the model. We caution against viewing the results as absolute values but recommend viewing the results as indicative and for information purposes.

Limitations

Model type

The Auckland region Input-Output (IO) model was used to estimate the economic impacts of NCEGMs. IO modelling is relatively easy to use and is useful for identifying and understanding the nature of relationships within an economy. However IO modelling has some drawbacks – it is static assuming that relationships among industries remain stable. In the real world, however, technical relationships change reflecting new technologies, price shifts, product and input substitutions, and new industries forming. Further, it also assumes that there is sufficient capacity (labour, land and capital) to sustain any growth or change, and that growth in one industry does not constrain growth in others for example, through competition for labour or capital, affecting the supply and/or price of these. We used the Auckland region IO model and not the IO tables underpinning the Auckland Council Economic Futures Model – A-EFM. The regional IO model is based on eighty eight sectors compared to the A-EFM's forty eight sector. However this means that we treat the Auckland economy as an individual, 'one region' system[11].

Externalities

NCEGMs generate several externalities. Some of these externalities sit at the society-economy nexus. Examples of these costs are:

- Entertainment value – the value that a gamer derives from engaging in NCEGM activities.
- Social costs – the cost on families (monetary and social) due to a family member's gambling activities, particularly if the person is a problem gambler.
- Correction (prison) costs – these are costs faced by society in order to support a prisoner who has been incarcerated due to their gambling activities. This may also include lost revenue and productivity from an individual being out of the workforce.

[10] There are several reasons that could explain this disparity, these include: differences in how grants have been coded; the omission of clubs from the grant database; when a grant is recorded it could be recorded in a previous fiscal year, thereby understating total grant funding. This mismatch was discussed with Auckland Council staff who indicated that they felt comfortable with the difference

[11] This reflects interregional and international imports and exports at an aggregate level but does not capture the inter-regional flows and the impacts of changing NCEGM activity in Auckland on the rest of the North Island or the rest of New Zealand (and how these impacts flow back into the Auckland economy)

Focusing on the sector from an 'economic perspective' implied that the delineation excluded the social or societal features. Arguably these features are connected to the economy but they are beyond the scope of this study. Quantifying externalities requires the costs and benefits to be monetised as is normally done for Benefit-Cost Assessments. Further these are normally multi-year costs and benefits requiring some sort of discounting e.g. Net Present Value analysis.

Interregional transfers

Little data about interregional transfers exist. Anecdotal evidence suggests that in some instances social dividends flow between regions – between regions e.g. Nelson and Auckland and between communities e.g. South Auckland and North Shore. The scale and direction of these flows are unknown but it could have a substantial effect on spatial distribution of the sector's economic impacts.

Use of grant funding

Some entities, notably clubs, use the revenues generated by NCEGMs to supplement their income and any downward shift in NCEGM revenue could impact on their financial sustainability and viability. The overall scale and wider impact due to a consolidation in the number of clubs and/or the increase in member subscription fees are not included in the assessment.

Other

Other areas not covered by this assessment include:

- Direct recommendation to Council in terms of its venue policy, measurement options, risks and mitigation strategies.
- The social and societal impacts and effects of NCEGMs particularly the externalities.
- The effects of NCEGMs on Auckland's centres via impacts associated with alcohol outlets (on-site liquor licenses), and NCEGM locations and crime rates.
- The level of household harm caused by NCEGMs.

The above themes are not exclusively 'social' or 'community' based and are linked to economic forces. However these wider effects are beyond the scope of this research. Once the social and community themes have been researched it might be possible to include them into comprehensive analysis (if the findings can be monetised) of the wider effects and impacts of NCEGMs on Auckland's communities.

Problem gamblers are reportedly responsible for approximately 50% of the total money spent on NCEGMs. Decreasing the number of NCEGMs, although it will have some impact, is not likely to be reflected by an equivalent decrease in spending on NCEGMs. This is because problem gamblers are likely to 'relocate' to the remaining venues. Reducing the accessibility of NCEGMs to problem gamblers, e.g. through restricting times of operation, number of machines, etc., is likely to have a more direct effect on the amount of money they spend.

The AUT report on the location of NCEGMs suggests that there is a relationship between how close a person lives to a NCEGM venue and the probability of them having played a NCEGM. For this reason the relative proximity of machines (i.e. ease of access) as well as the density (i.e. level to which a community is services in terms of the number machines per number of residents) should be considered by Council when reviewing its venue policy.

1.5 REPORT STRUCTURE

The balance of the report is structured as follows:

- Section 2 describes the NCEGM sector in terms of its spatial distribution and revenue patterns. Some observations about the sector are provided in this section.
- Section 3 describes results of the economic impact assessment, the alternative spending profile and the scenarios.
- The report concludes with Section 4 in which some conclusions are drawn. In this section some general observations about the NCEGM sector are also provided.

2 NCEGMs IN AUCKLAND

This section describes Auckland's NCEGM sector by looking at the spatial distribution of machines through the city, the spending per machine and ownership patterns. Next the focus shifts to the social dividend, its make-up, application, and scale. The section concludes with a description of the alternative spending profile, how it was derived and some observations about it.

The NCEGM sector derives its income from gamers and for every $1 played between $0.900 and $0.905 is returned[12] in the form of winnings. The remaining $0.100 (or $0.095) is the Gaming Machine Profit (GMP) and is used to cover levies, taxes and operating expenses. Levies, taxes and social dividends account for over half of GMP and is made up as follows:

- At least 37.12% of GMP is redistributed to communities in the form of authorised expenditures,
- The Gaming Machine Duty attracts twenty three percent (23%) of the GMP, and
- Three percent of GMP is paid as levies and fees e.g. the Problem Gambling Levy.

2.1 DISTRIBUTION AND USAGE ACROSS AUCKLAND

For the year ending 31 December 2011, there were 4,171 operating NCEGMs in Auckland. These were distributed across 323 different venues. Based on a pay-out ratio of $0.900 the machines attracted gaming of $2.49bn, redistributed winnings of $2.4bn and retained some $249,6m.

Using a higher pay-out ratio of $0.905 equates to a total spend on NCEGMs of around $2.63 billion and $2.38bn returned to players. This is the total value of all separate transactions that go through NCEGMs in Auckland, i.e. money played, returned as winnings, and then played again is counted twice.

Figure 2-1: Distribution of NCEGMs & GMP

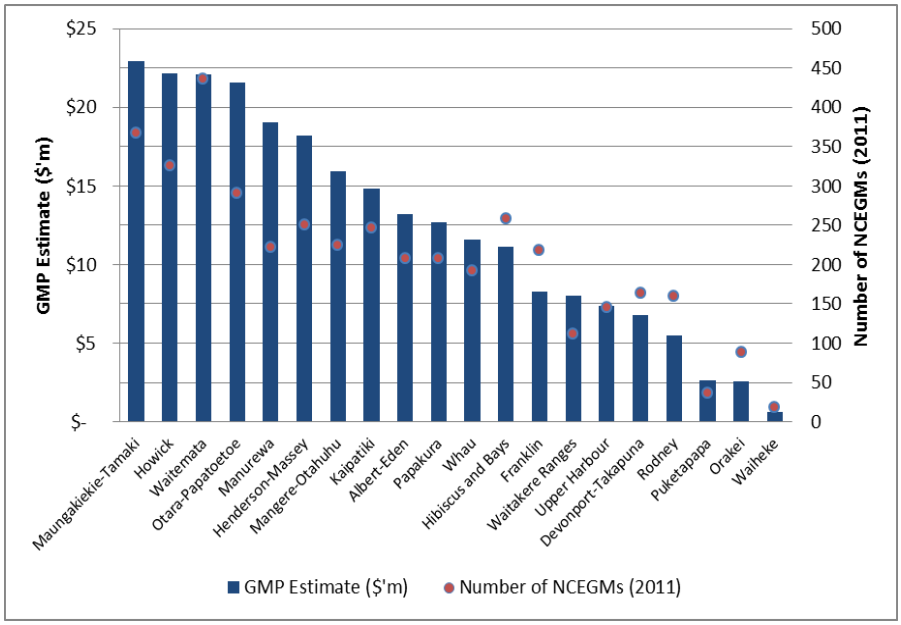


Figure 2-1 shows the GMP and number of NCEGMs per local board area. Waitemata has the highest number of NCEGMs. This Local Board has the second highest GMP, while the highest GMP is recorded in Maungakiekie-Tamaki, followed by Howick and Waitemata. Otara-Papatoetoe also has a high GMP and number of NCEGMs.

[12] DIA dataset

The number of machines in an area provides an indication of the relative access to NCEGMs that a particular community has. The degree to which communities use NCEGMs can be measured using indicators such as:

- The GMP per machine,
- The number of machines per capita, and
- GMP per capita.

These measures indicate the usage intensity and machine availability. Each Local Board's spending per machine (expressed using GMP per Machine) is shown in Figure 2-2.

Figure 2-2: Average NCEGM GMP per Local Board

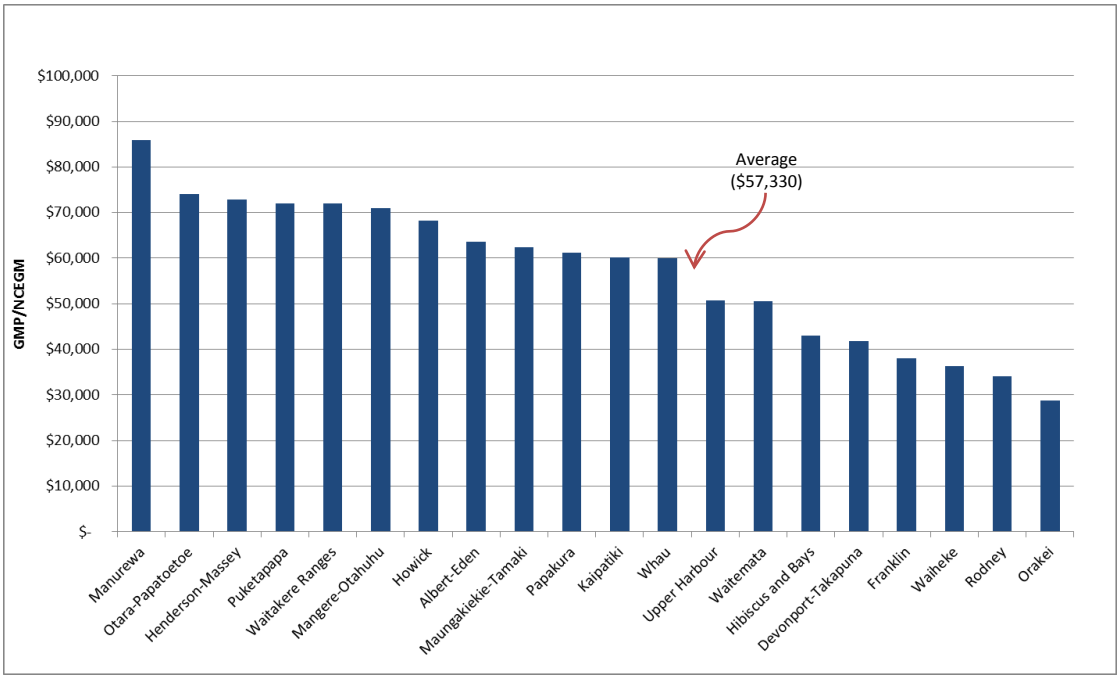
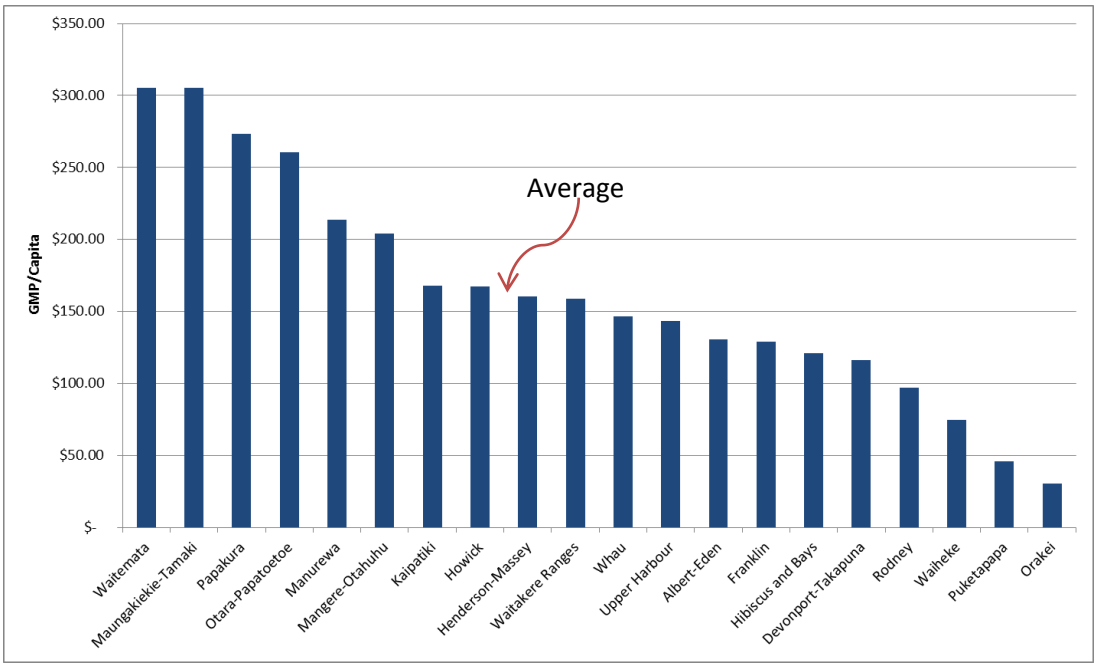


Figure 2-2 shows the expenditure per machine. Manurewa and Otara-Papatoetoe show the highest GMP per machine. Henderson-Massey, Puketapapa and Waitekere Ranges round out the top 5, all having GMP of over $70,000 per machine. The average GMP per machine for Auckland is $57,330 and the median is $60,685 meaning that machines in Manurewa and Otara-Papatoetoe communities generate GMP that is 49.9% and 29.3% above the city-wide average.

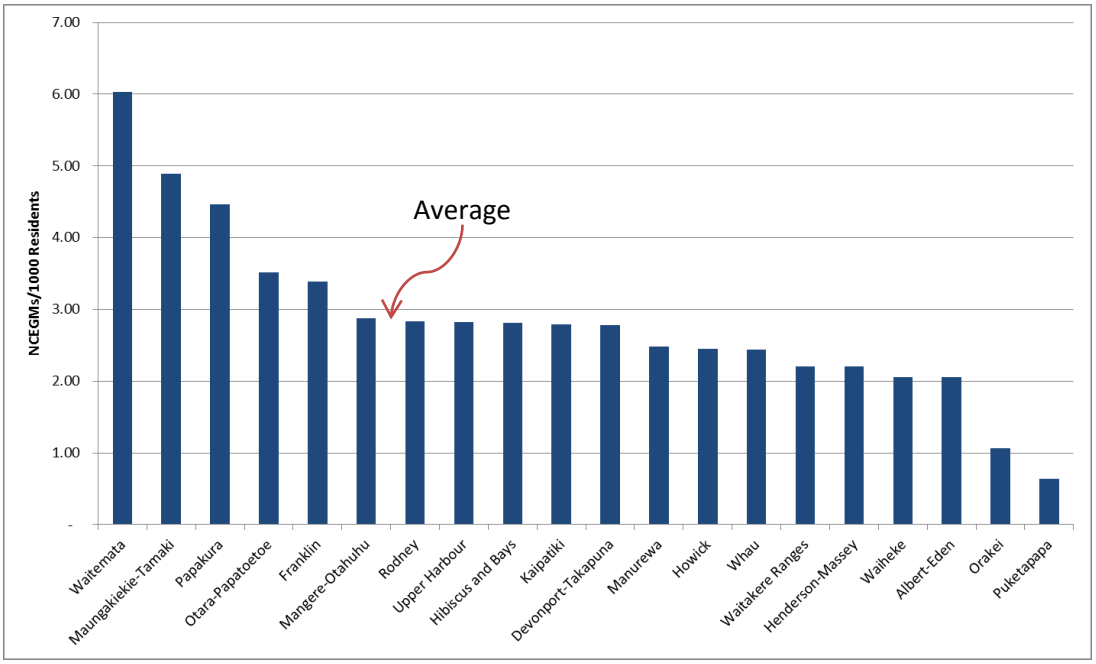
Expressing the GMP generated in each area in terms of the number of people in each Local Board provides an indication of usage levels i.e. expenditure (GMP) per person. Figure 2-3 shows the GMP per capita. At $305.38 and $305.29 GMP per person respectively, Waitemata and Maungakiekie-Tamaki have the highest expenditure per person. This is slightly less than double the city-wide average of $162.51. These local boards are followed by Papakura ($273.53), Otara-Papatoetoe ($260.33), which are also higher than the Auckland-wide average.

Figure 2-3: Spending (GMP) per Capita per Local Board



This poses the question of whether NCEGMs are more 'readily available' in these Local Boards compared to other Local Boards. One way to examine[13] this is to look at the number of NCEGMs servicing each Local Board in terms of the number of people in that Local Board. Figure 2-4 expresses the number of NCEGMs in each Local Board area in terms of its residents – more specifically, the number of NCEGMs per 1000 residents. This indicator shows the machine-population density within each Local Board.

Figure 2-4: NCEGM-Population Density



[13] Another way is to investigate where machines are located relative to residential areas and to estimate the number of people living within 500m from a NCMG venue. This could be done as part of further research into the NCEGM sector. In this report we used NCEGMs per 1000 population.

Waitemata, Maungakeikei-Tamaki, Papakura, Otara-Papatoetoe and Franklin have the highest relative densities. Waitemata Local Board has over 6.04 machines for every 1,000 residents – more than double the city-wide average (2.84). Maungakeikei-Tamaki, Papakura, Otara-Papatoeto, and Franklin have between three and five NCEMGs for every 1,000 residents.

2.2 NCEGM OWNERSHIP & SOCIAL DIVIDEND

Auckland's NCEGMs are owned by one hundred and fourteen entities. These entities can be structured into two main groups: public societies or clubs. Table 2.1 illustrates the distribution and market share of each structure using different variables.

Table 2.1: Relative Share Per Ownership Structure

Type/Scale		Count	Number of Venues	Number of NCEGMs	% of Total NCEGMs	GMP ($'m 2011)	% of Total GMP	GMP per NCEGM
Society	Large*	11	195	2,675	64.1%	**158.2**	64.0%	$59,140
	Medium**	14	37	498	11.9%	**31.4**	12.7%	$63,052
	Small***	3	3	43	1.0%	**2.5**	1.0%	$58,140
Club	Sport	38	40	327	7.8%	**20.4**	8.2%	$62,385
	Chartered	18	19	261	6.3%	**13.7**	5.6%	$52,490
	RSA	29	29	369	8.8%	**21.0**	8.5%	$56,911
Total		**113**	**323**	**4,171**	**100.0%**	**247.2**	**100.0%**	

*Large – Operate NCEGMs in more than 15 venues (nationally)
**Medium – Operate NCEGMs in between 2 and 15 venues (nationally)
***Small – Operate NCEGMs out of a single venue (in Auckland)
Note: this table reflects the situation in Auckland

Over three quarters of NCEGMs are owned by public societies, with the bulk of NCEGMs being owned by societies owning more than 100 NCEGMs. Eleven societies own 64.1% of NCEGMs generating $158.2m of GMP. Based on available data, the largest public society owns roughly one in five (19%) machines. In total, 11 public societies had more than 100 NCEGMs each, twelve entities (11 public societies, 1 club) had between 30 and 99 NCEGMs, while 90 entities (6 public societies, 84 clubs) had less than 30 machines. Appendix 3 illustrates the cumulative distribution of GMP and number of NCEGMs owned.

In general, public societies generate more GMP per machine than machines operated by clubs. This may be down to the fact that they operate the NCEGMs in public areas, making their machines more accessible than they would be in clubs, which are typically member focused.

It is important to distinguish between the ownership structures because they differ in terms of:

- How they interact with the economy i.e. they have different input structures.
- How they redistribute the social dividends.

A short summary of each ownership structure follows.

2.2.1 PUBLIC SOCIETIES

Public societies own machines but do not own or run the venue from which machines operate. In most cases, public societies operate in more than one venue. Societies lease space from venue operators and receive the GMP and are responsible for paying operating costs, taxes, levies, etc. out of the GMP.

Appendix 4 summarises the cost structure of societies. An average cost structure was derived for large, medium and small societies based on a review of recent and publically available financial statements. With reference to the large societies six[14] societies' financial statements were reviewed. Four of a possible fourteen medium societies' financial statements were included in the review. However, very little information about small societies could be found so we used the medium societies' profile and made some adjustments to it. The main cost elements across societies are:

- Venue (14-16%)
- Operating expenses (9-17%)
- Compliance and regulatory costs (3%)
- Gaming Machine Duty (23%).

2.2.2 CLUBS

In contrast to societies, clubs tend to own and operate the machines. There are three different club types; sport clubs, chartered clubs and Returned and Services Associations (RSA). Clubs generally use GMP to help with operational costs including items such as mortgage payments, expanding and maintaining facilities and infrastructure, supporting member events and activities. Appendix 5 outlines clubs' expenditure profile. On average clubs put around half of GMP towards authorised purposes and the balance is used to meet administrative and regulatory obligations (i.e. taxes and levies).

2.2.3 SOCIAL DIVIDEND

The social dividend is an important part of the sector's interaction with the wider economy. The social dividend creates demand in other parts of the economy and the scale of this demand is determined by the level of GMP returned. Table 2.2 shows the percentage of GMP returned by each ownership structure.

Large public societies re-distribute 37.12% and medium sized societies redistribute around 39% of GMP. Clubs distribute around half of GMP generated by their machines which is used for 'internal purposes'. In other words this money is not necessarily distributed to the wider community[15] but is spent on a community asset and its operations.

In 2011 *public societies* distributed just over $72m in grants. 'Sport and physical activities' and 'social and community services' received the bulk of this spending. Sport and physical activities received 47% of the funding compared to 40% for social and community services. The breakdown of recipients (by type) is shown in Figure 2-5 and the value received by each type is shown in Table 2.3. This re-distribution and subsequent spending creates additional economic flows and impacts. Appendix 6 summarises the link between the social dividend and the IO sectors.

[14] Out of a possible eleven

[15] This is an important point because it means that these transactions are already captured in the sector's input structures. By distributing the funds to be spent elsewhere in the economy additional demand in non-gaming activities is supported

Table 2.2: Percentage Returned		
Owner/Operator	**Owner/Operator Type**	**% GMP Distributed as Grants**
Public Society	Large	37%
	Medium	39%
	Small	46%
Club	Sport	52%
	Chartered	50%
	RSA	50%
Source: Own calculations based on financial statements and DIA		

Figure 2-5: Distribution of Social Dividend (Public Societies)

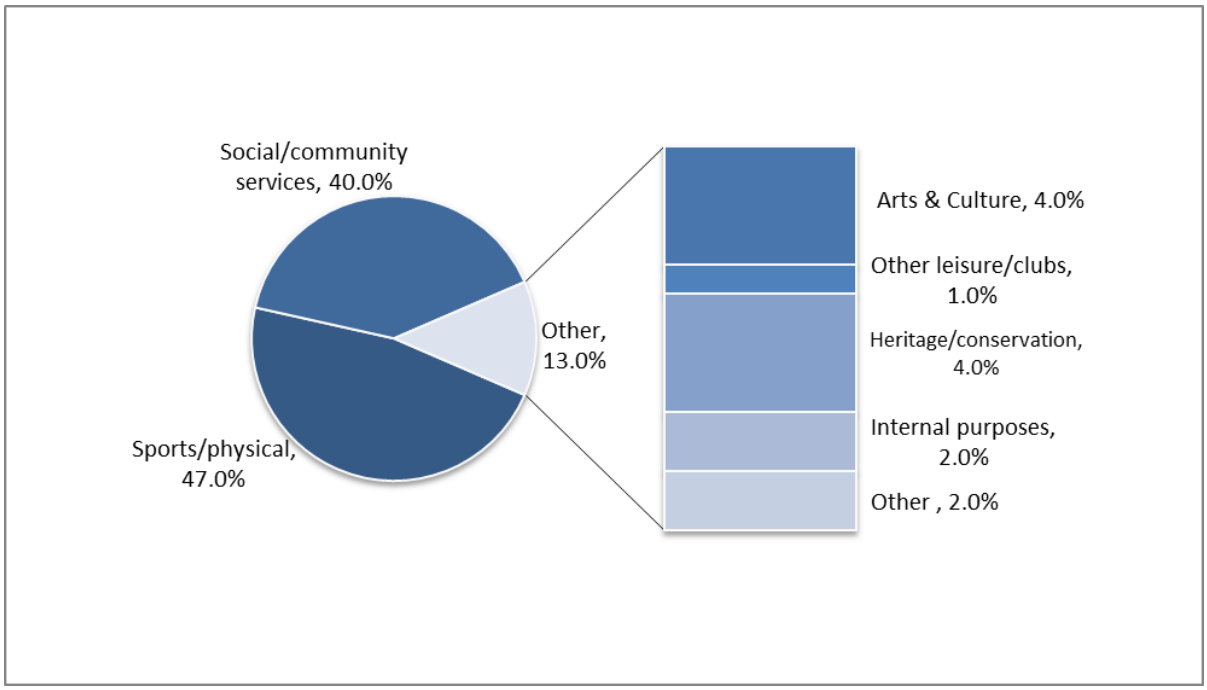


Table 2.3: Value of Re-distribution (by type of activity; $'m)	
Recipient type	S'm
Sports/physical activities	$33.90
Arts & Culture	$2.88
Other leisure/clubs	$0.72
Social/community services	$28.85
Heritage/conservation	$2.88
Public societies (own purpose)	$1.44
Other	$1.44
Total	$72.12

It is stressed that any change in gaming policy that influences the level of gaming, or the level of funds returned to the community, will have an impact on the recipients of social dividends/grants. The flow on effects of recipients' spending (social dividend) is captured in this assessment. However if a policy change results in some of the clubs or societies dissolving then the economic impact would be greater than impact as estimated here. This is because the clubs and societies have economic linkages which are independent of gaming activity.

2.3 ALTERNATIVE SPENDING - COUNTERFACTUAL

As with any impact assessment it is important to express the 'economic shock' in *net terms* and in the case of NCEGMs such a net position can be established by estimating the economic impact associated with the 'opportunity costs' of gaming. Changing the environment within which gaming takes place will lead to different changes but the opportunity cost is concerned with the following questions:

- How the money gamed could have been spent otherwise?
- What would the economic impact be if the gaming money (specifically NCEGM spending) was spent in a different way?

For the purpose of this assessment an alternative spending profile was developed based on a reallocation of money spent on NCEGMs to other households spending categories. The alternative spending profile covers forty seven household types and forty products. Removing one product (i.e. NCEGM) means that households now have additional funds to spend on the remaining products. Households can allocate this to the remaining products by *changing their behaviour* i.e. spend money on items which are not associated with NCEGMs, entertainment or something similar. Another response could be to retain a *'leisure focus'* i.e. spend the money at similar venues (i.e. bars and restaurants). For the purpose of this assessment we assumed that some of the households would change their behaviour and some of the households would retain a leisure focus.

Households were grouped according to their income levels (into low, medium and high)[16]. This grouping was necessary because households with different income levels will respond in different ways to a change in NCEGM availability. Appendix 7 illustrates the level of change associated with each household type and the combined/overall shifts under the alternative spending profile.

2.4 SECTION SUMMARY

For the 2011 year there were 4,171 NCEGMs operating in Auckland generating an estimated total GMP of $247.2m. NCEGMs are concentrated close to the central business district (CBD) and in lower socio-economic areas. The majority (64.1%) of NCEGMs are owned by the 11 largest public societies that operate machines in Auckland, generating 64.0% of GMP. Clubs in comparison generate just over 20% of total GMP with 23% of the machines. Clubs use the GMP for their own authorised purposes, such as club operating costs. It is interesting to note that clubs use over 50% of GMP for authorised purposes compared to larger public societies that distribute 37.12% to the communities via grants. As a result, any policy change seeking to enhance or increase the scale of GMP return and the efficiency of how GMP is transferred (and ultimately the overall economic impact) to the community, would need to be designed in a way that minimises its impact on clubs and smaller operators.

[16] This was done using Census information about age and income.

3 ECONOMIC IMPACT ANALYSIS

This section describes the economic impacts created by the NCEGM sector. The description covers the impacts caused by the sector's interactions with the wider economy. This impact is put into context by considering the impact against the opportunity cost of the expenditure. In addition the sector's impact net of (excluding) social dividends is highlighted. The section concludes with an overview of the likely impacts of two hypothetical scenarios.

M.E's Auckland region Input-Output tables and economic accounts were used to assess NCEGMs' economic impacts. This model was customised by adjusting the transaction tables underpinning it to reflect NCEGMs economic linkages. This adjustment created an individual sector covering NCEGMs and its interactions. In turn this was used to calculate the sector's multipliers allowing a detailed assessment of the sector's impacts. Type I (direct and indirect) and Type II (direct, indirect and induced) multipliers were derived for the following variables.

- **Gross Output (GO):** This is the broadest measure of economic impacts. It is equivalent to the total value of all goods and services traded within the economy regardless of where they might have been produced. It is included in the assessment for completeness but it is not recognised as an appropriate measure of how the sector contributes towards Auckland's economy.
- **Value Added (VA):** VA captures all payments to factors of production and including profits, depreciation, and 'wages and salaries'. Value Added is a key measure of economic impact as it represents the size of the impact generated within or felt within the economy. [Value Added is similar to Gross Domestic Product (GDP)].
- **Employment**: Employment is measured in employment counts (number of employees). It is important to remember that employment is an equivalence measure rather than an actual count of new jobs. Employment impacts could be made up by people with existing jobs working longer hours, or temporary staff employed for the duration of the additional activity rather than new permanent positions being created.
- **Income**: Income is the sum of salaries and wages paid during the production process. It is part of value added but is reported separately because it provides an indication of how much money is returned to households in return for their labour.

Of the above economic variables, Value Added (VA) is the most important measure of an economic activity's impacts. The following discussion and tables show gross output and value added. The direct, indirect and induced impacts were calculated (see Appendix 8).

3.1 NCEGM IMPACTS

The sector's economic impacts are described in 2011 terms. Total GMP for the sector is estimated at $247.2m[17]. The sector's impacts are presented in Table 3.1. The sector, via its linkages and spending, generates total gross output of $459.7m and total value added of $216.1m. Table 3.2 lists the main sectors impacted (as the impacts flow through the economy).

[17] The current situation and impacts were calculated in 2011 terms, before being depreciated to 2007 to run through the model, for which the latest available data is in. Results were then inflated back to 2011 terms.

Table 3.1: Main Impacts

$'m	Type 1 Output	Type 2 Output	Type 1 VA	Type 2 VA
NCEGM Impacts	459.7	461.9	215.0	216.1

The sector's main transactions (and therefore impacts) are with 'sport and recreation', 'business services', finance, interest groups and 'machinery and equipment wholesaling'.

Table 3.2: Sectors impacted (Total Impacts)

Sector	Value Added ($'m)	% of Impact
Sport and recreation	47.8	22.1%
Finance	23.1	10.7%
Other business services	22.7	10.5%
Electricity generation and supply	13.8	6.4%
Local government administration	9.3	4.3%
Religious organisations and interest groups	7.8	3.6%
Construction trade services	6.9	3.2%
Machinery and equipment wholesaling	5.8	2.7%
Legal and accounting services	5.8	2.7%
Communication services	5.8	2.7%
Personal and private household services & household employed staff	5.0	2.3%
Motor vehicle retailing and services	4.3	2.0%
Libraries, museum and the arts	4.1	1.9%
Real estate	3.9	1.8%
Supermarkets, grocery stores and furniture, houseware appliances and recreational goods wholesaling	3.7	1.7%

Based on the Closed Leontief Inverse Matrix, showing the total and percentage of the impacts felt by the sector.
Note: this table does not represent all the impact and only shows the 15 largest sectoral impacts.

Importantly, the above table shows sectors' business linkages and does not reflect the impact of money spend (by households) on NCEGMs but how the NCEGM sector's spending flows through the economy (i.e. the above values show the total value as the spending flows through the economy). It is observed that the sport and recreation sector has comparatively strong links with the NCEGM sector.

It is, however, necessary to express the above impacts in a balanced way by considering an alternative spending profile. Reducing household's spending on NCEGMs and assessing the impact of reallocating that spending to the rest of the economy (using the alternative spending profiles) and then comparing the results with the sectors impacts gives a better indication of the sectors economic impact.

As indicated above, the direct spending on NCEGMs is $247.2m. The economic impact of reallocating this spending to other parts of the economy, based on the alternative spending profiles, yields the economic impacts outlined in Table 3.3.

Table 3.3: Alternative spending - Main Impacts				
$'m	Type 1 Output	Type 2 Output	Type 1 VA	Type 2 VA
Alternative Spending	378.0	378.6	210.6	210.9

The alternative spending profile generates total value added of $210.9m. Table 3.4 outlines the sectoral distribution of impacts across the economy. Personal and private household services capture the bulk of the impact. This is, in part, due to how the alternative spending profile has been structured. A portion of the alternative spending profile assumes that households will continue to seek leisure utility therefore spending the money on personal and private household services (this sector includes recreation and cultural services). Another sector capturing a large share of the impacts is 'supermarkets, grocery stores and furniture, houseware appliances and recreational goods wholesaling'. This is followed by other retailing and restaurants and bars.

Table 3.4: Sectoral distribution of Impacts (Alternative Spending Profile)		
Sector	Value Added ($'m)	% of Impact
Personal and private household services & household employed staff (Including Recreation Services)	99.7	47.3%
Supermarkets, grocery stores and furniture, houseware appliances and recreational goods wholesaling	64.3	30.5%
Other personal and household good retailing	15.6	7.4%
Department stores	9.9	4.7%
Restaurant and bars	7.4	3.5%
Specialized food and liquor retailing	7.3	3.5%
Builders supplies wholesaling	4.8	2.3%
Motor vehicle retailing and services	1.0	0.5%
Food, drink and tobacco wholesaling	0.35	0.2%
Personal and household goods wholesaling	0.17	0.1%
Unprocessed primary product wholesaling	0.14	0.1%
Machinery and equipment wholesaling	0.14	0.1%
Motor vehicle wholesaling	0.03	0.01%
Petroleum, metal and chemical wholesaling	0.01	0.003%
Total	**210.9**	100.0%
Source: M.E Calculations		

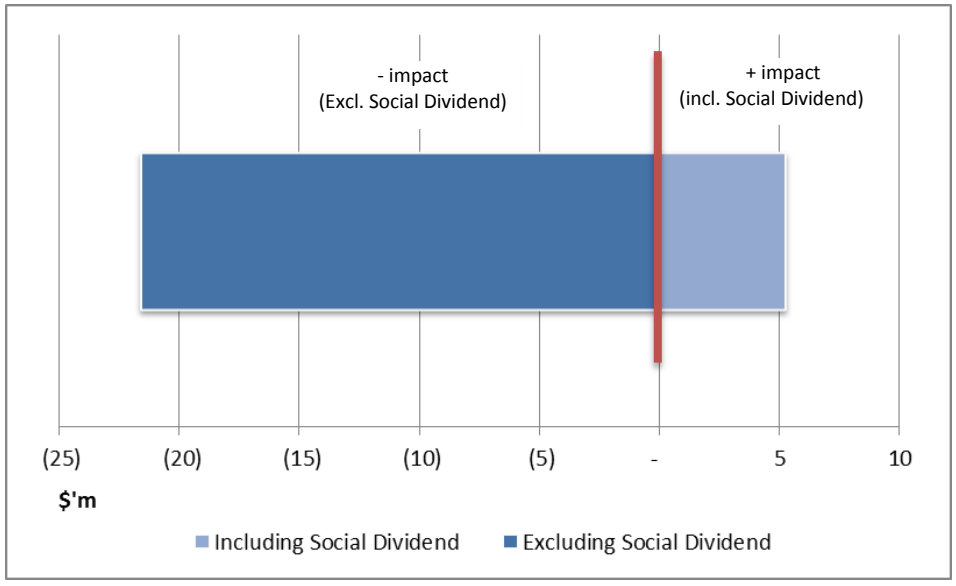
The net impact of NCEGMs on the Auckland economy can be viewed as the difference between the value added by the NCEGM sector and the value added estimated for the alternative spending profile. The results of the sector's impacts and the impacts calculated for the alternative spending profile have been combined in Table 3.5.

Table 3.5: Net Impact

$'m	Type 1 Output	Type 2 Output	Type 1 VA	Type 2 VA
NCEGMs	459.7	461.9	215.0	216.1
Alternative Spending	378.0	378.6	210.6	210.9
NET POSITION	81.7	83.3	4.4	**5.2**

The net impact of the NCEGM sector on the Auckland economy is $5.2m meaning that the VA gain to the economy is around 2.3% of GMP[18]. Crucially, this includes effects attributable to the social dividend. The social dividend is an important part of the sector's impacts and should not be viewed in isolation. The net impact result implies that NCEGMs have an overall positive impact on the economy. However, by breaking down the source of the impacts, it is clear that more than ten percent of NCEGMs impacts come from the social dividend. Figure 3-1 puts the size of the social dividend into perspective.

Figure 3-1: Effect of the Social Dividend



Importantly, it is not accurate to say that the sector's impacts are negative when the social dividends are excluded. This is because social dividends are a part of the sector's cost structure. The social dividend's impact accounts for around 12% of the VA impact, pushing NCEGMs total impacts into positive territory. If the need to

[18] This is same order of magnitude as Christchurch City Council's (CCC) estimates of the impact on the City. The CCC uses GDP as indicator returning a ratio of around 2.44%. However the employment values are slightly different. The CCC study estimates that around 630 jobs are lost compared to Auckland's loss of around 2,400. This has to be viewed in terms of the difference in GMP/job – in the CCC report GMP/job is around $130,160 compared to Auckland's $100,670.

return a portion of GMP to the community is no longer required then that money could be allocated (by the sector) to other uses such as investments or returned to stakeholders[19].

3.2 SCENARIOS

Two hypothetical scenarios were examined aiming to shed light on the considerations under different development pathways. Two basic scenarios have been formulated – one revolving around an increase in gaming machines at SkyCity and a second focusing on the impacts of reducing access to NCEGMs by removing some machines out of the community.

It is stressed that these scenarios are meant to provide insights into the type and direction of change/impacts that can be expected relative to the existing NCEGM situation, and have not been designed as stand-alone impact assessments. Further research is needed to understand each scenario in detail.

3.2.1 SCENARIO 1: SKYCITY

The initial concept to develop an international convention centre in Auckland requires an increase in the number of gaming machines at SkyCity. This scenario looks at the potential effects of adding gaming machines at SkyCity on the wider NCEGM sector. The scenario is from the NCEGM perspective[20] focusing on how that sector might be impacted. Importantly this is neither an economic impact assessment of the Convention Centre nor a detailed[21] assessment of the economic impacts associated with the casino based machines. This scenario assumes that four hundred machines will be added to SkyCity's existing offering. The main assumptions for this scenario are:

- Increasing casino machines will capture a share of existing NCEGM spending. The scale is expected to be relatively small due to issues of access and the distance travelled by gamers to venues[22]. The impact is likely to be felt in the immediate areas (Local Boards) by reducing spending and therefore GMP in these areas. For this scenario it is assumed that only Local Boards close to the CBD will see a change in NCEGM GMP, and any change is likely to be relatively minor. The following local boards have been adjusted:
    - Waitemata down 40%
    - Albert-Eden down 10%
    - Orakei down 10%
- The overall effect is a reduction in NCEGM spending of 4.21% or $\$10.4m_{2011}$. This reflects a 'new market position' after the market has adjusted to the new offering.
- The SkyCity effects are based on the Sport and Recreation sector's multipliers as captured in the Auckland Region IO table. Importantly, this assessment does not include other impacts arising from expanding the casino such as tourism effects. The effects presented here capture only one dimension i.e. the effects of reducing the NCEGM spending by transferring it to SkyCity.

[19] In reality if the social dividend was removed from the sector's required spending then it would be treated as a 'surplus'. In the first instance it would increase the sectors gross operating profit. This is because the social dividend is part of the sector's cost structure. This would change the sectors structure leading to secondary impacts. Such impacts are beyond the scope of this assessment.

[20] Quantifying the economic impacts of providing additional gaming machines at SkyCity is beyond the scope of this assessment. Such an assessment would need to include the wider context covering tourism, the casino as a whole, its interaction with clients and the additional spending it generates via its restaurants etc.

[21] This assessment uses some very basic assumptions to test some initial thinking about the development

[22] Based on comments made in the AUT report (2012). This supports comments from the Australian Productivity Commissions report into Gambling (1999)

Table 3.6 summarises the economic impacts due to the shift from NCEGMs to the SkyCity gaming.

Table 3.6: Impact via NCEGM

$'m	Type 1 Output	Type 2 Output	Type 1 VA	Type 2 VA
NCEGMs	19.35	19.45	9.05	9.10
SkyCity	16.89	16.91	8.41	8.42
Net Position	(2.46)	(2.54)	(0.64)	(0.68)

The above suggests that adding machines to SkyCity will lower gaming levels at NCEGMs. In turn, this will reduce GMP generated by NCEGMs, lowering its economic impact. Reducing NCEGM's GMP, the size of the social dividends decreases by at least $3.6m (GMP times at least 37.12%). However SkyCity distributes part of its income to the SkyCity Trust, which supports social projects[23]. However, SkyCity needs to distribute 2.5% of profit to the trust[24] compared to at least 37.12% of non-casino machines' GMP. Again, it is stressed that the above is not an economic impact assessment of an increase in gaming machines at SkyCity; this comparison reflects the comparative effects of shifting a proportion of NCEGM activity to SkyCity.

3.2.2 SCENARIO 2: REDUCING NCEGMS

The second hypothetical scenario reflects the likely impact of reducing Auckland's NCEGMs. A target of 2.0 machines per capita was set based on the current concentration of machines across the city's Local Boards. This target reflects the 20th percentile[25]. *It is stressed that this is not an official Council target and has been selected for this hypothetical scenario.* Reducing the number of machines per 1000 capita in each Local Board to 2.0/1000 capita will reduce the number of NCEGMs by around a third (32.7%) to 2,807.

This scenario tests the impacts of reducing the number of NCEGMs and does not include any assessment of the transition pathways, Council costs (regulatory, legal or enforcement cost), or cost of removing the machines.

Local Boards with the highest ratio, and hence are most likely to be affected by any change include:

- Waitemata (67% reduction),
- Maungakiekie-Tamaki (59% reduction),
- Papakura (55% reduction), and
- Otara-Papatoetoe (43% reduction).

This assumes that by reducing the number of machines, ease of access is reduced which in turn reduces the total spending on NCEGMs. This reduction will manifest in one of two ways. Some households will reduce their NCEGM expenditure and re-allocate spending to other household spending items (similar to behaviour change described in Section 2.3). Secondly, some households will seek out the remaining gaming machines and continue their spending. We assumed that removing 32.7% of machines reduced the overall GMP by 12.73%.

[23] According to Auckland Council, SkyCity is required to distribute 2.5% of net annual profit (not gross revenues from gaming), or a minimum of $500,000, to the community. Attempts to estimate the potential profit from the change in gaming machines were unsuccessful meaning that the SkyCity's impacts are potentially understated.

[24] This does not necessarily imply that 2.5% of gross profits are returned to the community, as the SkyCity Trust will have its own operating costs and expenses.

[25] The 20th percentile is 1.97 machines. This was rounded to 2.0 for use in the scenario.

This assumes problem gamblers (see Appendix 9) will continue to gamble at current levels thereby capturing the effects of gamers relocating to other venues.

Table 3.7 shows the spatial distribution (by Local Board) of setting a cap on the number of machines per capita – the table shows the number of NCEGMs that will need to be removed as well as the resulting GMP. Capping the number of NCMGs at 2.0/1000 capita and reducing the number of machines accordingly will have the largest effect in Maungakiekie-Tamaki, Otara-Papatoetoe and Waitemata.

Table 3.7: Spatial Distribution of Limiting NCEMGs

Local Board	New GMP $'m 2011	NCEGMs Removed
Albert-Eden	13.1	6
Devonport-Takapuna	6.0	46
Franklin	6.9	89
Henderson-Massey	17.5	23
Hibiscus and Bays	9.8	74
Howick	20.5	60
Kaipatiki	13.2	70
Mangere-Otahuhu	14.0	69
Manurewa	17.6	43
Maungakiekie-Tamaki	17.5	217
Orakei	2.5	0
Otara-Papatoetoe	17.9	125
Papakura	9.9	115
Puketapapa	2.6	0
Rodney	4.8	47
Upper Harbour	6.5	42
Waiheke	0.6	0
Waitakere Ranges	7.7	10
Waitemata	16.1	292
Whau	10.7	35
Total (m_{2011}$)	215.7	1,364
Difference from Original (m_{2011}$)	31.5	
% of Original GMP Generated	**87.27%**	
% of GMP Removed	12.73%	

Reducing the number of NCEGMs will translate into a lower GMP (a $31.5m[26] reduction). This sector spending VA impact is estimated at $27.5. However by removing some machines, households adjust and change their economic behaviour generating another set of impacts. This reallocation generates a VA impact of some $26.8m (i.e. the alternative spending of households). The effect of the alternative spending profile is shown in Table 3.8.

[26] This is the amount 'removed' by reducing access to NCEGMs

Table 3.8: Impact of Alternative Spending	
Main Sectors	Value Added ($M)
Personal and private household services & household employed staff	12.69
Supermarkets, grocery stores and furniture, houseware appliances and recreational goods wholesaling	8.19
Other personal and household good retailing	1.99
Department stores	1.26
Restaurant and bars	0.94
Specialized food and liquor retailing	0.93
Builders supplies wholesaling	0.61
Motor vehicle retailing and services	0.13
Food, drink and tobacco wholesaling	0.04
Personal and household goods wholesaling	0.02
Unprocessed primary product wholesaling	0.02
Machinery and equipment wholesaling	0.02
Total Value Added of *Alternate* Spending	26.8
Value Added by *equivalent* spend on NCEGMs	27.5
Net impact of Scenario 2: Policy to Reduce	-0.7

The overall impact of such a policy is relatively small considering the constraints and limitations of this study. **It is likely that the wider benefits to society of implementing such a policy would outweigh the value added loss of $0.7m**. By designing a policy that would lead to a reduction in machines and combining it with other policy measures to mitigate the 'total social costs' it would be possible to mitigate against any negative economic impacts.

3.3 SUMMARY

This section described the economic impacts caused by the NCEGM sector. The central observation is that overall the sector is making a positive economic contribution. It appears that the key reason for this is the sector's social dividend and how it impacts on the economy. This feature permeates the impact assessment and the scenarios. The scenarios reflect different situations and potential policy positions. While the scenarios are only conceptual in nature, they suggest that care should be taken when designing a policy that merely reduces gaming and therefore GMP. This is because some community projects, initiatives and interest groups rely on the social dividends as a key funding stream.

4 CONCLUDING REMARKS

Every year Aucklanders game billions of dollars via NCEGMs, with the net money lost on machines (amount played less the amount paid back as winnings) being estimated at $\$247.2m_{2011}$. NCEGMs are concentrated in Auckland's poorer communities. This implies that a disproportionate share of the sector's revenue is generated in these communities. Tight controls around problem gambling are imperative to help ensure that families and society are not adversely affected and that any problem gamblers are identified early.

Overall, the non-casino gaming machine industry has a positive economic impact on the Auckland economy. This assessment suggests that the social dividend, funded out of GMP, is largely responsible for any positive impact the NCEGM industry. Any policy regarding changes to the NCEGM industry need to carefully assess the impacts it will have in order to maximise what is the best outcome for society because community, sport, heritage and other community projects are funded by the social dividend.

By reducing the amount of GMP generated (for example: by restricting operating hours), will decrease the social dividend. An unintended consequence of reducing the total level of gaming (and consequently the level of social dividend that is available) could be that community operations that relying on this funding stream could collapse due to financial pressures giving rise to wider (negative) social consequences. However this raises important questions about the use and application of social dividends. Specifically, issues around equity and efficiency emerge.

- The equity component is concerned with the 'who pays' and 'who benefits' question. It is not clear if the areas where GMP is generated (where the gaming takes place) is related to the areas where the social dividends are spent. One would expect the bulk of the social dividend to be spent in the poorer communities because this is where most machines are located and where most gaming takes place. It is, however, not known if spatial equity exists (i.e. the social dividend is spent in the areas where it is generated). Determining the actual extent to which this is the case is beyond the scope of this study, but it is an important point and would benefit from further research.
- The efficiency of the funding source i.e. social dividend compared to any alternative funding mechanisms e.g. a council lottery. Further research would be required in order to determine whether NCEGM gambling (and the resulting social dividend) is the most efficient way of funding activities. This will need to be compared against alternative funding mechanisms such as a council lottery or a targeted rate. Any alternative mechanism would need to consider issues such as:
    - Equity and fairness (of the alternative mechanisms),
    - Ability to pay,
    - User pays, and
    - Causation and benefit characteristics.

The analysis revealed that the large societies redistribute the lowest proportion of GMP as social dividends (importantly, the total dollar value is the highest). This suggests that a policy could be designed around leveraging additional positive economic impacts off the large public societies. However any policy intervention would need to make sure that it is fair and equitable across all operators. Further, increasing the payout ratio could increase the sector's overall impact but such a shift would need to be considered in terms of the potential implications on societies' financial positions.

Additional research is required to some of the address gaps identified during this study while also overcoming some of the limitations of this assessment. The research needs and gaps, in no particular order, are:

- Details about the operational costs of not-for-profit trusts and public societies covering the spatial distribution of social dividends and grants.
- The level of problem gaming (on NCEGMs) and the cost of managing, addressing and rehabilitating these gamers focusing specifically on trusts' roles and responsibilities.
- The financial implications on trusts resulting from increasing the required social dividend (i.e. the pay-out ratio)
- A full analysis of the costs and benefits of NCEGMs.
- A full analysis of SkyCity's gaming machine activities and the associated economic impacts.
- Survey work to enrich the assumptions used in this report.

Appendix 1: Overview of Multipliers

A major extension of the input-output model is the derivation of multipliers. Multipliers are a summary measure of the economic interdependence produced as a result of secondary benefits. Specifically, an increase in final demand for any sector has repercussions throughout the whole economy, causing increases in output beyond the initial change in demand. This is known as the multiplier effect.

Multiplier Definitions

In general, multipliers are capable of measuring output, income, value added and employment generated from economy activity within a region. Three types of multiplier are conventionally used:

- **Output Multipliers.** These show the relationship between an additional unit of spending and changes in the level of output.
- **Employment Multipliers.** These show the relationship between an additional unit of spending and changes in the level of employment.
- **Value Added Multipliers.** These show the relationship between an additional unit of spending and changes in the level of value added.

There are two different types of output, employment and value added multiplier commonly used:

- **Type I Multiplier.** This multiplier attempts to explain indirect effects initiated from second and subsequent round effects as successive waves of necessary output increases occur in the economy. It is expressed as the ratio of the direct and indirect change to direct change.
- **Type II Multiplier.** This multiplier explains induced effects initiated through consumer expenditure i.e. this includes the effect of household expenditure generated by wages and salaries resulting from variations in demand in a given sector. It is expressed as the ratio of direct, indirect and induced change to direct change.

Multiplier Derivation

The transactions table may be converted into a table of technical coefficients. These are calculated by dividing the elements of the columns of the transactions table by the respective column total. These coefficients are often termed 'direct', 'input-output', or 'technical' coefficients, they are usually noted as A_{ij}. They represent the first round inputs from each sector *i* (row) following a unit increase in output of any sector *j* (column) i.e. $a_{ij} = X_{ij}/X_j$. However, this only shows the direct purchases from a sector *i* per unit of output produced by sector *j*.

To account for indirect effects, and to calculate Type I multipliers, it is necessary to subtract the quadrant I matrix from an identity matrix ((I - A), or Leontief matrix) and to invert the result, resulting in the Leontief inverse matrix, or $(I - A)^{-1}$. Mathematically, this may be expressed in matrix terms as:

$$X = AX + Y$$

By transposition,

$$X (I - A) = Y$$

By solving the above system we derive the general solution:

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

$(I - A)$ is termed the Leontief matrix

$(I - A)^{-1}$ is termed the Leontief inverse matrix

where:- A = (n x n) matrix of quadrant I technical coefficients

X = (n x 1) matrix of gross inputs

Y = (n x 1) matrix of final demand

I = (n x n) identity matrix

To account for direct, indirect and induced effects, and to calculate Type II multipliers, it is necessary to expand the quadrant I matrix to include the households coefficients (A*) then to subtract this matrix from the identity matrix ((I - A*), Leontief* matrix) and to invert the result, resulting in the Leontief* inverse matrix, or $(I – A^*)^{-1}$. This treats household inputs and household consumption as sectors, producing income and requiring inputs from other sectors.

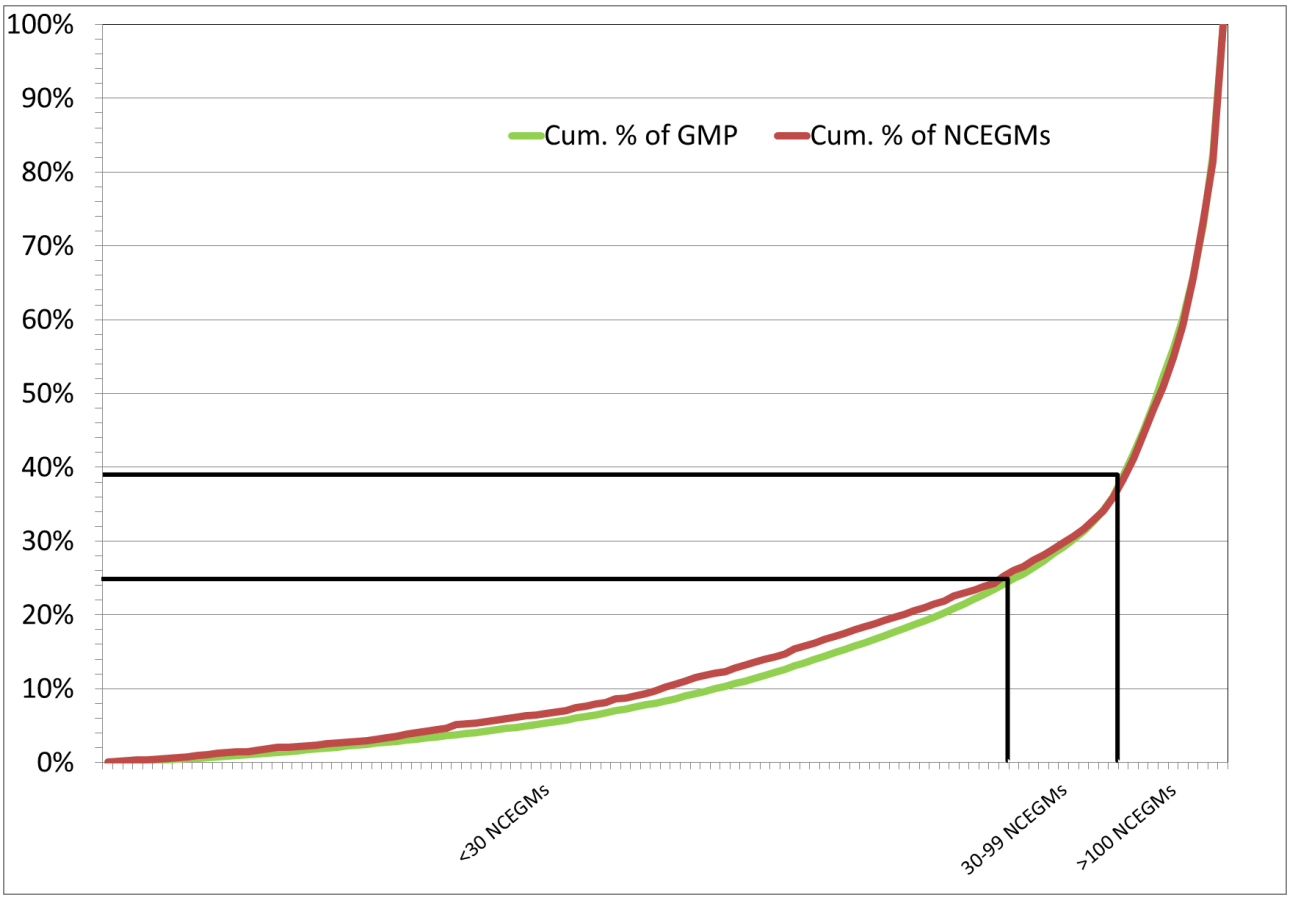
The indirect effect for any sector can be calculated simply as technical coefficient element minus corresponding Leontief inverse matrix element. The induced effect for any sector can be calculated simply as Leontief inverse matrix element minus the corresponding Leontief* inverse element.

Appendix 2: Summary of Assumptions – Input Structure

Main Inputs (Only Selected Sectors are shown), $'m	NCEGMs	Households
Total	173.2	**225**
Construction trade services	3.5	
Machinery and equipment wholesaling	3.6	
Personal and household goods wholesaling	0.8	
Supermarkets, grocery stores and furniture, house-ware appliances and recreational goods wholesaling	2.3	
Other personal and household good retailing	0.2	
Motor vehicle retailing and services	1.6	
Road transport	0.6	
Finance	11.9	
General Insurance	0.4	
Legal and accounting services	1.5	
Other business services	8.2	
Local government administration	6.0	
Other education	0.6	
Community care services	0.5	
Libraries, museum and the arts	2.5	
Sport and recreation	33.0	
Personal and private household services & household employed staff	3.0	
Religious organisations and interest groups	5.2	
Primary Inputs	48.7	52.9

Appendix 3: Cumulative Distribution of NCEGMs and GMP per Size

The figure below compares the number of owners, the amount of machines they own, and the cumulative share of they operate. The large trusts (own more than 100 NCEGMs) capture the largest share of the market.



Appendix 4: Cost Structures – Societies

	% of Total GMP		
	Society Size		
Item	Large	Medium	Small
Gaming Machine Duty			
Taxes paid to government	23.0%	23.0%	23.0%
Payments to Venue			
Labour	4.7%	4.7%	4.7%
Electricity	0.8%	0.8%	0.8%
Management fees	1.6%	1.6%	1.6%
Rent/Lease payments	4.7%	4.7%	4.7%
Insurance	0.8%	0.8%	0.8%
Interest	0.8%	0.8%	0.8%
Security	0.8%	0.8%	0.8%
Maintenance	1.6%	1.6%	1.6%
Compliance & Regulatory			
Problem Gambling Levy	1.7%	1.7%	1.7%
Licence Fees	1.0%	1.0%	1.0%
Electronic Monitoring System	0.3%	0.3%	0.3%
Other Expenses (Admin, operating)			
Wages	2.1%	3.0%	1.3%
employee benefits	0.3%	0.5%	0.2%
Legal fees	0.3%	0.4%	0.2%
Advertising	0.1%	0.1%	0.1%
Consulting	0.4%	0.6%	0.3%
Travel	0.2%	0.2%	0.1%
Staff Training	0.2%	0.2%	0.1%
Lease/rent	1.3%	1.8%	0.8%
Building maintenance	0.9%	1.2%	0.5%
Machine Maintenance	0.9%	1.2%	0.5%
Electricity	0.1%	0.2%	0.1%
Water	0.0%	0.1%	0.0%
Phone/internet	0.0%	0.1%	0.0%
Director fees	1.0%	1.4%	0.6%
Audit fees	0.2%	0.2%	0.1%
Stationary	0.0%	0.1%	0.0%
Bank charges	0.0%	0.1%	0.0%
Interest fees	0.1%	0.1%	0.1%
Computer costs	0.1%	0.1%	0.1%
Cleaning	0.1%	0.1%	0.1%
Vehicle expenses	0.2%	0.2%	0.1%
Freight	0.0%	0.1%	0.0%

Appendix 5: Cost Structures – Clubs (allocation of GMP)

Note: Clubs spent 97% of gaming machine profits on their own (authorised) purpose - remaining 3% distributed as grants to wider community.

Type	% of GMP
Sports	5%
Club premises*	43%
Mortgage repayments	19%
Members welfare	5%
Courtesy vehicles	2%
Club Charitable/welfare activities	1%
Other**	26%

* includes rates, building repairs, maintenance, rent
**includes administration (e.g. office wages, postage, printing), power, insurance

Appendix 6: Social Dividend – Relationship to IO sectors

Social Dividend Distribution to IO Sector						
Purpose of Grant	Value ($'m)	Libraries, museum and the arts	Sport and recreation	Personal and private household services & household employed staff	Religious organisations and interest groups	Community care services
Sports/physical activities	$33.90	0%	95%	0%	5%	0%
Arts & Culture	$2.88	95%	0%	0%	5%	0%
Other leisure/clubs	$0.72	33.33%	0%	0%	33.33%	33.33%
Social/community services	$28.85	5%	0%	5%	45%	45%
Heritage/conservation	$2.88	50%	0%	0%	40%	10%
Public societies (own purpose)	$1.44	50%	50%	0%	0%	0%
Other	$1.44	20%	20%	20%	20%	20%
Source: Own calculations based on DIA and Financial Statement Reviews						

Appendix 7: Spending Profiles

Alternate spending profiles were developed in order to re-allocate the money that would otherwise be spent on the NCEGM sector. A key assumption here is that all money that would have been spent on NCEGMs is spent on another economic sector. The profiles developed split this reallocation of spending to different sectors in different amounts. Some of the money is apportioned to maintain a leisure focus while other money is allocated to be spent on more basic living costs type. In the RSDM model used there are 47 household types, this is based on age, number of occupants/family type and income levels. Each of these 47 households has a distinct spending profile. For the purpose of this study the households were split into low, medium and high income types. The proportion of spending reallocation for the alternative spending profile was assumed to be the same for households in the same income category. Include in the original spending profile in the RSDM model is a 'games of chance' category. It was assumed that all money spent on NCEGMs by households came out of this category. This was then reallocated to alternative categories in order to define a new spending profile. It is important to note that the total spend by households did not change, but the pattern of their spending did. Spending categories were then allocated to IO sectors in order to determine the shock on the model.

	Behavior Change			Activity Change		
	L	M	H	L	M	H
Grocery food (including fruit and vegetables and meat)	40%	30%	30%	0%	0%	0%
Restaurant meals and ready-to-eat food	0%	0%	0%	5%	10%	20%
Alcoholic beverages	0%	0%	0%	20%	20%	15%
Cigarettes and tobacco	0%	0%	0%	5%	5%	5%
Clothing (including footwear)	20%	10%	20%	0%	0%	10%
Property maintenance	20%	20%	10%	0%	0%	0%
Furniture, furnishings and floor coverings	0%	10%	10%	0%	0%	0%
Other household supplies and services	10%	10%	10%	0%	0%	0%
Recreational and cultural services	10%	20%	20%	70%	65%	50%

Appendix 8: Direct, Indirect and Induced Impacts

Multipliers provide an indication of the direct, indirect and induced impacts.

- **Direct Economic Impact**: These are simply the effects of an increase in expenditure as felt by the businesses receiving the increased demand. In gross terms it is equivalent to the direct expenditure.
- **Indirect Economic Impact**: These are the effects felt by suppliers to businesses directly impacted by the increases in demand as a result of the sectors spending.
- **Induced Economic Impacts**: These are the effects of increased wages and salaries paid to workers in businesses that have been directly and indirectly impacted by the sector. Wage and salary earners spend a portion of increased pay packets through the economy generating a further round of effects.

Appendix 9: Problem gambling – assumptions

We used the Australian Productivity Commission's research to inform our assumptions about problem gambling. The main assumption was that around a third of or gambling industry's market comes from problem gamblers. Other ratios include:

- 1% of the adult population is estimated to have severe problems with gambling.
- 1.1% of the adult population is estimated to have moderate problems with gambling.

The Problem Gambling Foundation of New Zealand estimates that in New Zealand around 1-2% of the Population could be problem gamblers.

5 LIST OF REFERENCES

Annual Reports:

- Infinity Foundation (2011).
- Lion Foundation (2011).
- The North & South Trust Ltd (2011).
- NZ Community Trust (2011).
- The Trusts Community Foundation Ltd (2011).
- Pub Charity (2011).
- Bluegrass Holdings Ltd (2011).
- Grassroots Trust (2011).
- Pelorus Trust (2011).
- The Southern Trust (2011).

Brief literature review to summarise the social impacts of gaming machines and TAB gambling in Auckland. Gambling and Addictions Research Centre, Auckland University of Technology, Draft Final Report, 12 June 2012.

Department of Internal Affairs data sources:

- All Venues and numbers by TA.
- Gaming Machine Profits (GMP) Data.
- Gambling expenditure statistics.
- Society, Venue and Gaming Machine Numbers.
- Summary of expenditure by district.

DIA Report (2005): Where do gaming machine profits go? – A survey of the allocation for authorised purposes of non-casino gaming machine profits in 2005.

NZ Gambling Act 2003.

Productivity Commission 1999, Australia's Gambling Industries, Summary, Report No. 10, AusInfo, Canberra.

The economic impacts of NCEGMs on Christchurch City, prepared for Christchurch City Council (2011 update).

The Gambling Act (Class 4) Game Rules 2006.

Guidelines on Venue Costs under the Gambling Act 2003.