The Impact of Poker Machine Gambling on Low-Income Municipalities

A Critical Survey of Key Issues

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1 Introduction

This paper arises from current research sponsored by a group of Melbourne municipal councils: Brimbank, Greater Dandenong, Maribyrnong, and Moreland. The councils are concerned about the local area economic impact of the rapid growth in Victoria of gaming machine (poker machine or pokie) gambling, especially in low-income areas. The purpose of the project at this stage, however, is principally methodological. That is, the current project is examining critically how to define the main issues and to propose suitable approaches to research the subject rather than to complete the detailed practical research. Thus the outcomes reported in this paper are preliminary in this sense. Moreover, they are circumscribed by the focus outlined above, namely local economic impacts in low-income areas.

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Despite these limitations it has nevertheless been possible to evaluate some of the existing research on this and related subjects and to offer some criticisms. In particular, it will be argued that research claiming, for example, that 'Victoria has experienced significant and measurable net economic benefits flowing from increased gaming opportunities' and 'as a whole, the Victorian macroeconomy has benefited significantly' (VCGA 1998, p. 1) is based on a shaky premise. This premise is that increased gaming machine expenditure (or loss) from 1992 did not substitute for alternative forms of consumption, such as retail spending. Rather, according to this premise, gaming machine losses were effectively financed from saving. This, in turn, was reflected in a lower household saving ratio (NIEIR 1997a). We do not think that this proposition is sustainable.

It has also been possible to suggest a potentially fruitful alternative research approach. To illustrate this, we will present some example approximations showing a negative local area economic impact on local businesses and low-income households and communities. These estimates are based on industry data recording poker machine losses, as well as plausible arguments about spending and saving patterns in low-income areas. Two different types of estimate are given: the first is the diversion (or substitution) of potential consumption spending away from non-gambling local businesses, which in turn has consequences for employment; the second attempts to show how this may be translated into a measure of, in lieu of a better phrase, socio-geographic income redistribution. A simple local area model is presented in this paper to capture the two effects and,

Communications and Informatics and John Henshall of Essential Economics for their specialist advice. Of course, errors and omissions are entirely our own responsibility.

crucially, to point out where further research and better data are needed. While more sophisticated models may be developed as research progresses, the model given in these examples has the merit of being transparent, and the argumentation surrounding it is straightforward.

To begin the discussion section 2 will provide a snapshot of the broad economic indicators describing the growth of poker machine gambling in Victoria and locally.[2] We will use the data for the City of Maribyrnong throughout as an example. This snapshot will help to explain why low-income municipalities are concerned about the potential economic consequences of gaming machine gambling growth. Section 3 will then discuss a crucial problem with attempts to research the economic impact of gambling using 'demand-side' (spending) data obtained by surveying households or individuals. This is the problem known as 'under-reporting'. Under-reporting of the *extent* of gambling activity is especially noticeable in the Australian Bureau of Statistics (ABS) *1993-94 Household Expenditure Survey* (ABS 6530.0 1995; 6535.0 1996), a concern to which the ABS has itself drawn sharp attention (ABS 1998a). However, under-reporting is not restricted to this source alone. As the Victorian Casino and Gaming Authority notes on its web site, figures on perceived household 'outlays on EGMs' obtained from 'the three community studies undertaken by the Authority … can not be relied upon for accuracy' (VCGA 1998, p. 2). Section 4 will evaluate critically some of the existing research on the economic impact of gaming machine gambling growth in Victoria. In so doing it will criticise what may be called the

[2] It should be clear to the reader that we are using the terms gaming machine, poker machine, and pokie interchangeably. EGM (electronic gaming machine) is another term for the same thing.

'saving' hypothesis, which has been described above. Section 5 will contrast most of the existing research with an outline of how we may begin to use the accurate 'supply-side' (industry) data to construct a simple model of local area economic impact. The example estimates referred to above will be offered in this section.

The paper will contain comments throughout on its essential outcomes and, it should be noted, its own limitations. It will also suggest where additional research work and/or data[3] are required or where alternative approaches may be or have been fruitful. In the context of this research project the authors make a plea for transparency in putting data and research methodologies on the public record. We also wish to note here that for reasons of space this paper is incomplete in one important respect. If we are to embrace the full economic impact of this form of gambling, we need at least to describe the actual dollar costs to society as a whole as well as the financial and personal costs and benefits to individual machine users and their families. In the language of economics such costs are 'externalities', and they 'include the specific costs of support of problem gamblers by government and private charitable and community organisations, but also include a general cost in the form of damaged social infrastructure' (Johnson 1998, p. 44).

2 A Snapshot of Gaming Machine Gambling

Similarly, expenditure and losses are interchangeable terms. So, too, from the side of the proprietors, is net revenue.

[3] Some relevant data exist but, largely because of their 'commercial-in-confidence' status, are not on the public record.

We begin the discussion here with a snapshot of the broad economic indicators describing the growth of poker machine gambling in Victoria and locally. The City of Maribyrnong will be used throughout as an example, because it is both the lowest income municipality in Melbourne and it has the highest *per capita* number of poker machines outside central Melbourne (see, e.g., City of Maribyrnong 1998). Maribyrnong is thus cast in the role of the 'low-income municipality', and the points made about it may be generalised in a moderated form.

First it is necessary briefly to provide some Australian and Victorian data about gambling in general. This will help to set the discussion in context and, possibly, answer some inevitable questions. Readers should note that all aggregate Australian and State data are primarily from *Australian Gambling Statistics 1972-73 to 1997-98*, which is published by the Tasmanian Gaming Commission in association with the Centre for Regional Economic Analysis of the University of Tasmania (TGC 1999). These data are accurate and they are the most comprehensive time series available.[4] The information in this publication is provided to the Tasmanian body directly by the other State gambling authorities. The Australian Bureau of Statistics has also published two reports on *Australia's Gambling Industries* for two distinct years only, 1997-98 and 1994-95 (ABS 1999 8647.0 provisional[5]; ABS 1997 8684.0). The data in these publications correspond with the TGC (1999) figures at the level of 97 per cent, but they include other issues relating to gambling venues and use somewhat different definitions.

Tables 1 and 2 below compare the relative sizes of the components of gambling in Australia and Victoria. Figures for NSW, which is regarded as the 'premier state' for gambling, are presented for comparison. Table 1 is for aggregate expenditure, including expenditure as a proportion of household disposable income (HDI). Table 2 presents expenditure per head of population. Note that 'expenditure' means losses to the gambler and net revenue to the industry: i.e., it is equal to total bets or wagers, or 'turnover', less winnings. The striking features of the first table are the size of the industry and the size of gaming machine expenditure within it. It is the largest gambling activity, for NSW (66 per cent), Victoria (54 per cent), and Australia as a whole (52 per cent). These figures do not include expenditure on gaming machines in casinos, but these are shown in Table 3, which reproduces data from ABS (1999 8647.0; 1997 8684). The gaming machine proportions thus rise again, especially for Victoria. Note also that NSW, and now Victoria, lead the national averages.

Table 4 shifts the focus directly to Victoria and to gaming machines. It is important to get to the issue rather than dwell on the plethora of national and State figures available, all of which show significant trend increases in real gambling and real gaming machine expenditures for Australia, NSW, and especially for Victoria. Nonetheless the national and State data here are useful for comparison, and they should be kept in mind when the data are estimated for the City of Maribyrnong in Table 5. Readers will notice that we have calculated separate figures for expenditure in hotels and that in clubs. While the total Victorian

[4] The notes to this publication make the following comment on its gaming machine data: 'Gaming machines accurately record the amount of wagers played on machines so turnover is an actual

expenditure figure is given in *Australian Gambling Statistics 1972-73 to 1997-98* (TGC 1999), the split is not. The operators of gaming machines regard this as 'commercial-in-confidence', and there is no way to get the actual figures. The numbers of machines in Victorian hotels and clubs can be obtained from the VCGA web site, and we have obtained industry views that hotel based machines are 1.5 times more profitable than those in clubs (a 60:40 split). This view is also confirmed in evidence to the Productivity Commission inquiry and from a survey of hotel and club venues contained in a VCGA-sponsored report on the employment effects of gambling (Wunsch 1998, p. 542; NIEIR 1997, p. 49). From this information we have drawn our estimates, on the assumption that the Victorian average expenditure per machine is roughly equal to the average for a municipality, in this case Maribyrnong. Note, however, that we have not adjusted these data to account for a generally held view that machines in the country perform less well than do those in the city. Thus it may be that we have underestimated the Maribyrnong data.

A number of facts cry out to the reader from these tables. First, both Table 4 and Table 5 show just how rapidly gaming machine gambling has grown in Victoria and in Maribyrnong. From zero at the start of the 1990s, it now comprises more than half of the total gambling expenditure in Victoria (even with casino pokie gambling excluded). Second, the sums involved are large. Third, the sums per household and per gambler in Maribyrnong are more than twice the state average, reflecting the fact that more than twice the State average number of

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figure for each jurisdiction.' (TGC 1999, p. 5)

[5] The complete version is due in July 1999.

machines per head of population are located in the municipality. Maribyrnong has the highest gaming machine expenditure *per capita* of gambling-age population and per household of any metropolitan municipality (excluding the City of Melbourne proper).

This by itself is profound evidence of the regressive nature of gambling revenues in this local area, subsequently shared between State tax (33 1/3 per cent) and the Community Support Fund (8 1/3 per cent for hotels only), operators (33 1/3 per cent), and venues (25 per cent for hotels and 33 1/3 per cent for clubs).[6] Even more is this true because Maribyrnong's ranking among Melbourne municipalities on the ABS *Socio-Economic Indexes for Areas* is the lowest (ABS 1997a 2033.0). It also suggests, together with the evident growth from 1992-93 of expenditures (demand) in the wake of the number of machines (supply), that this is a 'supply-led' market with a working class demographic (see also Pentland 1997, p. 83; citing Goodman 1995, p. 180).

Answering a question from Commissioner Robert Fitzgerald during the Productivity Commission inquiry, the General Manager of Corporate Affairs for Tabcorp, Tricia Wunsch, said:

> 'I would say that there is – well, again, that we target where there is the demand and that there is a skew towards more – a tendency among blue-collar workers to be attracted to this product. So it's, I suppose, a bit chicken and egg. In fact we're putting machines where there is demand.' (Wunsch 1998, p. 534)

Fitzgerald had asked if 'areas of low socioeconomic circumstance are being specifically targeted'. In response to her reply he added:

> '... Some would say that prior to the introduction of EGMs, certainly to the extent that we now have them, there was no great outpouring by Australians to have more and more access to gambling facilities. In a sense what we've seen is demand being fed by supply.' (Fitzgerald 1998, p. 534)

TABLE 1

Gambling Expenditure: Australia, Victoria, and NSW 1997-98

Gambling type	**NSW** $m	**Victoria** $m	**Australia** $m	**NSW** % to total	**Victoria** % to total	**Australia** % to total
TAB	533.85	379.51	1437.44	11.79	11.88	12.69
On-course totalisator	59.90	35.92	142.51	1.32	1.12	1.26
On-course bookmaker	33.59	17.34	83.34	0.74	0.54	0.74
Off-course bookmaker	0.00	0.00	0.15	0.00	0.00	0.00
Sports betting (Racing)	5.07	0.39	20.26	0.11	0.01	0.18
Total Racing	*632.40*	*433.16*	*1683.70*	*13.97*	*13.56*	*14.86*
% of HDI	*0.50*	*0.47*	*0.47*	*n.a.*	*n.a.*	*n.a.*
Lottery	46.55	5.21	56.94	1.03	0.16	0.50
Lotto, tattslotto	250.29	268.82	923.42	5.53	8.41	8.15
Pools	3.57	1.24	7.70	0.08	0.04	0.07
Minor gaming	0.00	0.00	194.91	0.00	0.00	1.72
Gaming machines	2989.08	1711.29	5866.97	66.03	53.56	51.80
Casino	446.20	742.29	2232.04	9.86	23.23	19.71
Instant lottery	62.69	23.67	224.84	1.38	0.74	1.98
Keno	96.10	6.87	132.31	2.12	0.22	1.17
Sports betting (Gaming)	0.00	2.39	4.21	0.00	0.07	0.04
Total Gaming	*3894.49*	*2761.78*	*9643.33*	*86.03*	*86.44*	*85.14*
% of HDI	*3.09*	*3.02*	*2.72*	*n.a.*	*n.a.*	*n.a.*
Total All Gambling	*4526.89*	*3194.94*	*11327.03*	*100.00*	*100.00*	*100.00*
% of HDI	*3.59*	*3.49*	*3.20*	*n.a.*	*n.a.*	*n.a.*

Australian Gambling Statistics 1972-73 to 1997-98 Table A

[6] See also the comment in section 4 below on existing VCGA research, which confirms this view.

TABLE 2

Per Capita Gambling Expenditure: Australia, Victoria, and NSW 1997-98

Gambling type	NSW $	Victoria $	Australia $
TAB	113.59	109.40	103.91
On-course totalisator	12.74	10.35	10.30
On-course bookmaker	7.15	5.00	6.02
Off-course bookmaker	0.00	0.00	0.01
Sports betting (Racing)	1.08	0.11	1.46
Total Racing	*134.55*	*124.87*	*121.72*
Lottery	9.91	1.50	4.12
Tattslotto, lotto	53.25	77.49	66.76
Pools	0.76	0.36	0.56
Bingo and minor gaming	0.00	0.00	14.09
Gaming machines	635.98	493.31	424.13
Casino	94.94	213.98	161.36
Instant lottery	13.34	6.82	16.25
Keno	20.45	1.98	9.56
Sports betting (Gaming)	0.00	0.69	0.30
Total Gaming	*828.61*	*796.13*	*697.12*
Total All Gambling	*963.17*	*921.00*	*818.84*

Australian Gambling Statistics 1972-73 to 1997-98 Table B (gambling-age population 18+)

TABLE 3

Australian Bureau of Statistics Gambling Expenditure (Net Revenue): Australia 1994-95 and 1998-98

Total gambling and venue	1994-94 $	1997-98 $
Poker/gaming machines		
Clubs	2,621,000,000	3,431,800,000
Pubs, taverns, & bars	990,300,000	2,239,100,000
Casinos	343,600,000	700,100,000
Total poker/gaming machines	*3,954,900,000*	*6,371,100,000*
Total totalisator, TAB, & bookmakers		
On-course totalisator & off-course TAB	1,456,800,000	1,559,100,000
On-course & off-course bookmakers	44,200,000	69,000,000
Total totalisator, TAB, & bookmakers	*1,501,000,000*	*1,628,100,000*
Lotteries, lotto, pools, instant money, & club keno	1,344,600,000	1,602,600,000
Casinos		
Casino keno	25,500,000	33,400,000
Casino gaming tables	1,012,700,000	1,431,600,000
Total casino (including poker/gaming machines)	*1,381,800,000*	*2,165,100,000*
Total gambling	*7,838,700,000*	*11,066,800,000*

ABS (1999 8647.0; 1997b 8684.0)

TABLE 4

Gaming Machine Expenditure and Other Data: Victoria 1992-93 to 1997-98

Item	Unit /date	Year					
		1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Victorian aggregates and averages							
Total gaming machine expenditure	$m const	283.26	740.61	959.17	1,263.11	1,455.80	1,711.29
Total gaming machines in hotels	Jun-30	7,779	9,527	10,371	12,253	13,633	13,735
Total gaming machines in clubs	Jun-30	5,882	8,010	9,506	11,162	12,329	13,230
Total non-casino gaming machines	Jun-30	12,970	14,713	19,877	23,415	25,962	26,965
Expenditure per gaming machine in hotels	$ const	24,210	49,816	57,407	64,136	66,620	75,872
Expenditure per gaming machine in clubs	$ const	17,062	34,380	38,943	43,561	45,315	50,962
Expenditure per gaming machine	$ const	21,840	50,337	48,255	53,944	56,074	63,463

TABLE 4 (continued)

Gaming Machine Expenditure and Other Data: Victoria 1992-93 to 1997-98

Item	Unit /date	Year					
		1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Weekly measures							
Total gaming machine expenditure per week	$ const	5,432,737	14,204,284	18,396,133	24,225,325	27,920,924	32,821,059
Expenditure per gaming machine in hotels p.w.	$ const	464.32	955.42	1,101.02	1,230.07	1,277.71	1,455.16
Expenditure per gaming machine in clubs p.w.	$ const	327.23	659.38	746.90	835.47	869.09	977.40
Expenditure per gaming machine p.w.	$ const	418.87	965.42	925.50	1,034.61	1,075.45	1,217.17
Other Victorian data							
Population 18 years & over (18+)	#	3,338,248	3,356,801	3,385,521	3,425,734	3,468,786	3,520,077
Population all ages	#	4,472,387	4,487,570	4,517,387	4,560,155	4,605,210	4,660,885
Average household size	#	2.77	2.73	2.71	2.72	2.69	2.69
Total households	#	1,617,417	1,642,994	1,667,000	1,677,193	1,713,846	1,734,693
Gaming machine expenditure per capita (18+)	$ const	84.85	220.63	283.32	368.71	419.68	486.15
Gaming machine expenditure per capita	$ const	63.34	165.04	212.33	276.99	316.12	367.16
Gaming machine expenditure per household	$ const	175.13	450.77	575.39	753.11	849.43	986.51
Gaming machine expenditure per household per week	$ const	3.36	8.65	11.04	14.44	16.29	18.92
Gaming machines per 1000 popn. (18+)	$ const	3.89	4.38	5.87	6.84	7.48	7.66
Total gaming machine expenditure	$m curr	255	680	908	1,246	1,456	1,711
Gaming machine expenditure per household per week	$ curr	3.03	7.93	10.45	14.25	16.29	18.92
Total household disposable income (HDI)	$m curr	77,240	79,084	83,361	87,483	90,872	94,606
Total household final consumption expenditure (HFCE)	$m curr	65,113	67,163	71,131	75,593	79,278	84,947
Average household disposable income	$m curr	47,755	48,134	50,007	52,160	53,022	54,538
Average household final consumption expenditure	$m curr	40,257	40,878	42,670	45,071	46,257	48,969
Household consumption/ disposable income	%	84.30	84.93	85.33	86.41	87.24	89.79
Gaming machine expenditure/HDI	%	0.33	0.86	1.09	1.42	1.60	1.81
Gaming machine expenditure/HFCE	%	0.39	1.01	1.28	1.65	1.84	2.01

Australian Gambling Statistics 1972-73 to 1997-98, ABS 5204.0, VCGA web site and data supplied directly, City of Maribyrnong data supplied directly

TABLE 5

Gaming Machine Expenditure and Other Data: Maribyrnong 1992-93 to 1997-98

Item	Unit /date	Year					
		1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Maribyrnong aggregates and averages							
Total gaming machines in hotels	Jun-30	108	253	313	395	417	454
Total gaming machines in clubs	Jun-30	260	405	390	340	340	350
Total non-casino gaming machines	Jun-30	368	658	703	735	757	804
Total gaming machine expenditure in hotels	$const	2,614,660	12,603,395	17,968,374	25,333,573	27,780,436	34,445,828
Total gaming machine expenditure in clubs	$const	4,436,113	13,923,851	15,187,902	14,810,901	15,406,938	17,836,554
Total gaming machine expenditure	$const	7,050,773	26,527,246	33,156,276	40,144,474	43,187,374	52,282,383
Weekly measures							
Total gaming machine expenditure in hotels p.w.	$const	50,147	241,722	344,618	485,876	532,805	660,641
Total gaming machine expenditure in clubs p.w.	$const	85,081	267,047	291,291	284,060	295,492	342,090
Total gaming machine expenditure p.w.	$const	135,228	508,770	635,909	769,936	828,296	1,002,731
Other Maribyrnong data							
Population 18 years & over (18+)	#	48,687	48,684	48,680	48,677	47,968	48,185
Population all ages	#	61,987	61,767	61,548	61,329	60,567	60,961
Average household size	#	2.56	2.53	2.51	2.49	2.47	2.45
Total households	#	24,252	24,375	24,502	24,630	24,541	24,923
Gaming machine expenditure per capita (18+)	$const	144.82	544.89	681.11	824.71	900.34	1,085.03
Gaming machine expenditure per capita	$const	113.75	429.47	538.71	654.58	713.05	857.64
Gaming machine expenditure per household	$const	290.73	1,088.28	1,353.23	1,629.89	1,759.81	2,097.78
Gaming machine expenditure per household per week	$ const	5.58	20.87	25.95	31.26	33.75	40.23
Gaming machines per 1000 popn. (18+)	$const	7.56	13.52	14.44	15.10	15.78	16.69

Australian Gambling Statistics 1972-73 to 1997-98, ABS 5204.0, VCGA web site and data supplied directly, City of Maribyrnong data supplied directly

3 ‘Under-Reporting’ in ‘Demand Side’ Expenditure Surveys

This section discusses how users of electronic gambling machines have systematically ‘under reported’ in surveys the extent of their activity. It is an important concern for two reasons. First, under-reporting has affected the worth of existing research on the economic effects of electronic gambling machines. Under-reporting is insufficiently acknowledged as a problem, and its implications are rarely explained. Second, the discussion provides a warning that to contemplate surveying households and individuals on this subject in the future may be perilous for the quality of the results obtained. This section will also offer an explanation, based on qualitative and other research, of why under-reporting is likely to be an especially intractable worry for gambling research.

Literature on social research methods commonly contains a warning that answers to certain questions may be systematically distorted. Indeed research into survey responses has found that people tend to over report their being a good member of society, having a good home life, and being well informed, cultured, and responsible. However, they typically under report what may be regarded by others as socially undesirable traits and actions, including illness, illegal activity, sexual activity, drinking, smoking, drug use, and gambling (see, e.g., Newell 1993, pp. 106-07; Neuman 1991, pp. 230-31). They are also likely to be coy regarding the true nature of their financial status. The research also finds that different ethnic communities and social groups may be even less inclined to reveal information that they consider is sensitive or private (Fielding 1993, pp. 149-50).

Under-reporting here has a very specific meaning. It refers to the way in which people, consciously and/or unconsciously, distort the responses they give to researchers' questions by minimising the size or ranking of the variable measuring their responses. For example, they may give a lower dollar figure for the amount they lose on electronic gambling machines; or they may say that they play the pokies fewer times than they actually do; or they may rank themselves a moderate gambler when, compared with others, they may be among the most frequent users and highest losers. Other reasons for low reporting, as distinct from distorted under-reporting, also exist. People may under report because they do not understand the question being asked.[7] They also may have forgotten what they have done or how much they have lost, or they may not have bothered to keep even a mental record of their spending in the first place.[8] Two important issues for social scientific research method arise here: the validity (accuracy) and the reliability of the data generated by surveys.

All of these factors apply to poker machine gambling, raising concern from the outset that survey data will be inaccurate. Moreover, under reported data are likely to be both inaccurate and unreliable, unless one thinks improbably that people are bound to be reliably untruthful quantitatively as well as qualitatively. However, some of the factors may be easier to correct. A logbook can be used as an *aide memoir* and questions can be made clearer. However, conscious and/or unconscious distortion of answers about activities that may be regarded as socially undesirable is much harder to tackle. It is the core problem and should be

[7] See, e.g., the discussion in Blaszczynski, Dumlao, and Lange (1997) regarding confusion between 'turnover' and 'losses'. Of course, confusion does not necessarily predispose answers towards

recognised as such. Indeed, as the following will show, it should not be minimised (i.e., under reported) by social researchers.

The Household Expenditure Survey

The Australian Bureau of Statistics *Household Expenditure Survey 1993-94* (HES) (ABS 1995a 6530.0; 1997 6535.0) has been used widely in efforts to model the economic impact of gambling. Its attractiveness is partly explained by it being a large data set to which a range of statistical procedures may be applied. Such traits make it a seductive source of data for the modeller. However, as will be explained below, under-reporting seriously compromises the data provided at the level of gambling activity. The data are inaccurate and unreliable, and any analysis based on them must similarly be compromised. First, we will review the ABS's own attitudes to using the HES in relation to gambling. Second, we will provide our own estimates of under-reporting in the HES and argue why its gambling data should not be used in gambling research.

The Australian Bureau of Statistics submission to the still incomplete Productivity Commission Inquiry into Australia's Gambling Industries explains why the Household Expenditure Survey estimates of gambling losses are

under-reporting. It depends on how the question is framed.

[8] See also the discussion of Access Economics (1999) below.

problematic. It clearly points to the wide discrepancies between the HES data and the accurate industry data that record business revenues.[9] The submission states:

> 'There are a number of potential sources of differences between demand estimates (ie net expenditure on gambling services by households) as measured by HES and supply estimates (income by businesses providing gambling services) as measures by industry surveys. These include reporting issues (eg householders may have difficulty in recalling and isolating gambling expenditure separately from other forms of expenditure such as food, drink and entertainment and/or may more readily recall winnings as opposed to losses) and conceptual differences (eg HES excludes expenditure by overseas visitors to Australia whereas they are included in industry estimates). However, the supply estimates for 1993-94 of $6,972 [compared with the HES figure for the year of $1,784] as recorded in the Tasmanian Racing [sic] Commission publication 'Australian Gambling Statistics 1972-73 to 1996-97' *indicate a very significant degree of under reporting in the HES which is unlikely to be explained by the reporting errors mentioned above.* This clearly indicates that respondents are deliberately failing to report the full extent of their gambling activities. This may be due to a concern that they have that other members of the household and ABS staff will see the diary of

[9] Note again the following comment in the notes to the *Australian Gambling Statistics 1972-73 to 1997-98* regarding EGMs: 'Gaming machines accurately record the amount of wagers played on

> expenditures and may judge their gambling activities as excessive and/or anti social. These difficulties are demonstrated … to the extent that the HES estimates show households in NSW, SA, WA and NT all with negative expenditure (or all winnings) on the 'TAB, on course betting etc' for 1993-94.' (ABS 1998, pp. 4-5; emphasis added)

A number of points are being made here. However, the most important is that under-reporting, or 'respondents … deliberately failing to report the full extent of their gambling activities', is the main reason for the wide disparity between the HES estimates and the supply side data. Other reporting errors, from inaccurate memory by respondents to overseas visitors falling outside the scope of the survey, are less significant. Recall also that the 'supply side' data, given in *Australian Gambling Statistics 1972-73 to 1997-98* (TGC 1999) record gambling revenues received by the various parts of the industry (net of winnings by punters). These are regarded highly for their accuracy and reliability. Hence, on the 1993-94 figures presented by the ABS for the gambling industry as a whole, the actual figure was some 390 per cent higher than that which was reported in the HES. That is, the HES reports about one-quarter of the actual expenditure. This clearly means that the HES gambling data are inaccurate.

Moreover, the ABS submission also casts doubt on the reliability of the HES data. Within the HES significant items record net winnings (i.e., racing for NSW, SA, WA and NT). These clearly false results are incorporated in the aggregates for gambling overall. (See part (c) below, which discusses this and other issues.) Note

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machines so turnover is an actual figure for each jurisdiction.' (TGC 1999, p. 5)

also that the ABS submission identifies the same fundamental cause of the problem as did section 4.3.1, namely that of truthfulness. This is why it is pessimistic about whether the HES can ever provide a solution:

> ‘A further Household Expenditure Survey (HES) is being conducted in respect of 1998-99. The wording of the gambling items have been varied to try to improve the reporting of this item. However, these changes are unlikely to substantially improve the reporting of gambling expenditure, and there is no reason to believe that this survey will be any different to earlier HES collections in terms of reporting problems in respect of gambling losses. Unfortunately, within the broader scheme of a HES design, it is considered highly unlikely that such reporting problems can be fully addressed in a systematic fashion. The problems with accurate reporting of gambling expenses in HES are an international problem, not just restricted to Australia.’ (ABS 1998, pp. 7-8)

The ABS submission to the Productivity Commission inquiry concludes with a warning that ‘HES data on gambling is significantly under-reported and hence any analysis based on, for example income distribution, may be questionable’ (1998, p. 10). However, it adds that it ‘may be possible for the ABS to design and develop a household survey specifically focussed on gambling activity and its impact on individual and family well-being that may overcome some of the problems associated with the HES’ (1998, p. 10). We understand from

our discussions with ABS officers, however, that it may be appropriate to put the emphasis on the words 'may', 'possible', and 'some' in the above sentence and that the ABS is still cautious about whether such a specific survey can be successful. However, regarding the existing and forthcoming HES, which will be published in mid-2000, the advice obtained by the authors directly from a number of ABS officers was both consistent and firmly worded. In their view the Household Expenditure Survey gambling data is not really suitable for studying the economic impact of gambling.

There are further and particular reasons to be wary of using the HES to study poker machine gambling. The extent of under-reporting is huge. Moreover, the disaggregated data, on which Australia-wide or State average weekly household expenditure items are based, contain serious anomalies. These features indicate that the data are inaccurate and unreliable in this context.[10] Table 6 presents HES data for the past three surveys for the line item *583 Poker machines and ticket machines*. It then builds an aggregate figure by multiplying the weekly expenditure (losses) item by the appropriate number of households. Finally it juxtaposes the amount households have reported with the accurate industry data (TGC 1999) and calculates the proportions of the actual figure that are reported or not reported. Data for NSW are presented, in addition to those for Victoria and Australia, so that we may consider the level of reporting in a State that has had poker machines for a long time. Note that the earlier HES years shown were before Victoria

[10] We emphasise the phrase 'in this context'. The HES has many other important uses, especially when less sensitive data about household spending at a higher level of aggregation are involved.

introduced poker machines and that the 1993-94 survey occurred not long afterwards.

The numbers in the two right-hand columns speak for themselves. At most (for Australia in 1993-94) between 10 and 11 per cent of the actual losses were reported by respondents to the survey. In Victoria for 1993-94 the figure drops below 10 per cent, as do all figures for NSW and for Australia in 1984 and 1988-89. In general this represents a staggering proportion of the actual data not reported of more than 90 per cent. Simply, the data are extremely inaccurate. Indeed the actual 1993-94 weekly household expenditure (losses) should read, in 1993-94 dollars: Australia ($8.90), Victoria ($7.91), and NSW ($16.76).

TABLE 6

HES Under-Reporting of Poker Machine Gambling Expenditure

	1 HES average weekly reported expend-iture	**2 Number of house-holds**	**3 Reported annual household poker machine spending** = 1x2x52.14	**4 Actual annual gaming machine expenditure**	**5 Per cent of actual reported** = (4-5)/5	**6 Per Cent of actual not reported** = (5-4)/5
	$	#	$	$	%	%
Australia						
1984	0.26	5,039,200	68,313,411	717,916,680	9.52	-90.48
1988-89	0.29**	5,420,400	81,959,700	1,272,568,570	6.44	-93.56
1993-94	0.95	6,616,800	327,749,954	3,071,632,000	10.67	-89.33
Victoria						

1993-94	0.77	1,648,200	66,171,604	679,663,000	9.74	-90.26
NSW						
1984	0.52*	1,766,900	47,905,606	694,777,720	6.90	-93.10
1988-89	0.79**	1,837,400	75,683,608	1,220,440,000	6.20	-93.80
1993-94	1.51	2,231,800	175,712,739	1,950,044,668	9.01	-90.99

HES data supplied directly by the ABS, Australian Gambling Statistics 1972-73 to 1997-98

It would also be wrong to think that there is some level of consistency in the rate of under-reporting. To take the Australian data as an example, not only does the proportion reported drop and then increase but also the small size of the proportions means that the per cent changes are quite large. If, say, we were to take the 10.67 per cent reporting rate for 1993-94 as applying in 1988-89 we would multiply the reported losses of $81,959,700 by a factor of (100/10.67) to obtain an estimate of $768,132,146. However, the actual figure, reflecting a reporting rate of 6.44 per cent, was $1,272,568,570. That is, the result would have been under-reported by approximately 40 per cent. This also suggests that the HES data are unreliable over time.

The accuracy and reliability of the data are further compromised when it is realised that some of the elements that comprise the average weekly household expenditure data are plainly false. (See the reference in the quote above to the negative entries for racing for NSW, SA, WA and NT.) The aggregated HES data provided by the ABS include not only the 'all households' figure shown above but estimates for 'metropolitan', 'other urban', and 'rural' areas. For Victoria in 1993-94 the HES 'all households' amount for poker and ticket machines was 77 cents per week. However, while 'metropolitan' and 'other urban' recorded losses of 90 cents and 89 cents per week, respectively, 'rural' had a negative entry of 78 cents. That is, rural Victorians surveyed claimed to be winning on poker machines.[11]

One of the few reports to recognise and discuss seriously what it calls 'under-coverage' by the HES has been the Access Economics submission to the

Productivity Commission inquiry on behalf of Tattersall's (Access Economics 1999). A similar table to Table 6 above is presented that demonstrates clearly how much gambling data are distorted in the 1993-94 HES. This shows that lottery and lotto losses were over reported significantly, pokie and horse-racing losses were under reported massively, and that casino patrons recorded winning $132 million in aggregate when industry data explained that aggregate losses were $823 million.[12] This report offers a number of biases as possible reasons, in addition to strict under-reporting. For example, the first is 'attrition bias if gamblers, especially heavy gamblers, have a lower response rate than others do. This source of under-coverage is the problem of sample bias.' (Access Economics 1999, p. A5) However, this is regarded as minor. It then refers to 'observation bias', where people who record their expenses in the HES diary over a two week period, 'may abstain from incurring certain types of "controversial" types [*sic*] expenditure when they know the expense is supposed to be recorded in a dairy [*sic*]. *This observation bias* is not present in retrospective questionnaires where interviewees are asked about past expenditure.' (p. A5; original emphasis)[13]

For all of these reasons we think a valid question to ask is whether the HES poker machine expenditure data can be relied upon in any meaningful way to reflect the realities of this form of gambling or their relationship to other

[11] Note also that some of the entries in Table 6 are asterisked. This indicates an additional, statistical, problem of high relative standard error of the data, with the ABS cautioning against its use on this ground alone.

[12] The latter figure no doubt includes overseas gamblers' losses, but this hardly explains how we can place faith in figures that have Australian residents winning at casinos. It just does not add up.

[13] See section 4 below, which comments on the use of the HES by Access Economics despite its obvious misgivings (Access Economics, pp. A7-A31).

consumption patterns. We think, at least, that it is incumbent upon researchers who use these data to address such doubts thoroughly.

Why under-reporting may be an intractable problem

A number of techniques have been suggested to try to minimise under-reporting. We understand that the Productivity Commission is examining, for its forthcoming report on Australia's gambling industries, approaches that have been used overseas.[14] The VCGA's current research program will also be exploring the issue. The research literature suggests that telephone or postal surveys, which are more anonymous, may have a higher success rate (de Vaus 1990). However, each of these methods of survey administration brings its own basket of potential inaccuracies and doubts. At present nothing we have seen has diminished our pessimism about the survey approach in this area.

This is also true for another possible technique known as 'randomised response'. This is designed mainly to estimate the *proportion* of the population who may be involved in an under reported or illegal activity such as drug use. The respondent tosses a coin but the person conducting the survey does not know the result. If the coin comes up 'heads' the respondent is asked to answer truthfully. If it is 'tails' the answer will be to another question, such as 'did you attend the football in the past two weeks?' Assuming we know the proportion of the population who attended the football it is possible to calculate the proportion we

are interested in, without the interviewer ever knowing the respondents' real answers. However, a check of the statistical research literature reveals that, even if we could modify this approach for amounts lost on gambling and not just proportions participating, the results of the method are not encouraging. The main problem is that people do not understand the method and hence revert to distorting their answers.[15]

Overall, our pessimism about obtaining accurate data about *how much* people lose on gaming machines and how this may relate to their household spending patterns is reinforced by what we think is a deeper analysis of why people under report. For this understanding we think that it is necessary to leave the world of surveys and statistics and engage the predominately qualitative research on gambling activity. Here the work of social policy, psychology, and welfare researchers is of especial value, as is the work of economists who have delved into the structure of gambling losses (Quiggin 1998).

A useful starting point is to recognise that not all people use gaming machines. A figure of 42 per cent of people having used poker machines in the previous year is given in the VCGA-sponsored study of inner city municipalities (Johnson 1998, pp. 42-43; citing DHSA, MIAESR, & NIEIR 1997c and Market Solutions 1997). The most recent VCGA-sponsored *Sixth Survey of Community Gambling Patterns and Perceptions* (Roy Morgan Research 1999) reports that '[p]articipation in EGM gambling has declined over the past year, falling slightly to 31% in 1998 from 39% in 1997' (VCGA 1999). Although this seemingly goes

[14] The report is due in early- to mid-July.
[15] We would like to thank Dr Neil Diamond for the information in this paragraph.

against what we have just said about surveys, it is probably reasonable to think that, for gaming machine use if not for illegal drug use, the answers given to participation-type questions are likely to be more accurate and reliable than those to extent-type questions about frequency and amounts lost. At any rate these figures are what we might expect intuitively to be the case.

Now if we go a bit deeper the survey data are likely to become a bit woolly. However, it is clear from industry sources[16] and from the qualitative research that some people use machines very regularly ('regulars'). Some have been called 'problem gamblers'. It is also clear that not only do the heavier machine users gamble a lot, but they also lose a lot. In a submission to the Productivity Commission inquiry, Professor John Quiggin of James Cook University in Queensland presented results from a study of Queensland casino patrons (McMillen, Ryan, & Quiggin 1996). From this he maintained that it was possible to show that a 'small minority' of patrons was 'crucial to the profitability of the gaming enterprise'. His figures were that 2 per cent of heavy gamblers were responsible 'for more than 25 per cent of the casino's total income from machines. 13 per cent … account on table games for more than 50 per cent of total income from table games' (Quiggin 1998, p. 8).[17]

If anything like this applies to gaming machine expenditure in Victoria then it is clear that a big share of gambling losses are concentrated among a relatively small proportion of the population (first more than halved for non-users and then concentrated for heavy users). Indeed, the VCGA *Sixth Survey* says that there 'are

[16] This is based on our discussions with a number of industry representatives and, again, it seems intuitively obvious.

fewer people participating in EGM … gambling, but those that do, tend to play more often and outlay more money each time they play' (VCGA 1999). However, it is precisely the heavy users who are unlikely to be open and honest about the true extent of their gambling.

The term 'denial' is one that emerges forcefully from the welfare, social policy, and psychological literature to describe the behaviour of those experiencing gambling problems. 'People often don't disclose gambling difficulties' for reasons of 'stigma, embarrassment, denial' (Ayers-Wearne & Farnsworth 1999, p. 59). Often the extent of the problem is not revealed until well into counselling, and it is hidden from loved ones and friends to avoid embarrassment and shame. Unwillingness to speak about gambling can be especially acute for some cultures (see, e.g., Australian Vietnamese Women's Welfare Association 1998, pp. 2, 3; Brown & Coventry 1997, pp. 10-11; Brown, Johnson, Jackson, & Wynn 1999, pp. 12-13, section 3; Webster 1997, p. 3; Wesley Gambling Counselling Service 1998, pp. 30-31).

What all of this explains is that it will be difficult, because of the operation of forces that we have put here under the heading of 'denial', to obtain accurate and reliable information from surveys about the extent of gaming machine use and losses. As well as the general dilemma posed by under-reporting, we have the specific concern that those who gamble most are simply the least likely to reveal the extent to which they do.

[17] See also Dickerson *et al.* (1997) and points 1 and 2 in 'A positive case for substitution' in section 4 below.

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4 Existing Research and the 'Saving Hypothesis'

Why has it been necessary in section 3 to explore at length (perhaps to over report) information on under-reporting? Partly it is to explain why we have eschewed proposing a survey approach at the local level. It is also related to research sponsored by the Victorian Casino and Gaming Authority on the economic impact of increased gambling in Victoria, to which we drew attention in the introduction. This research has been influential. For instance, the main national gambling industry submission to the Productivity Commission inquiry, by ACIL Consulting, refers to it throughout to support its own arguments (ACIL 1999).[18] In contrast we maintain that the essential findings of this research are open to serious question. One reason is that these findings are based on econometric techniques that compare gambling versus non-gambling households as reported in the HES. However, the gambling and consumption patterns observed are heavily compromised by under- and false reporting, even if subsequent methods and assumptions are used to allow for the problem. Even more importantly, however, we will outline below why we think the findings of this research are 'causally' implausible and will present what we consider is a more plausible alternative.

[18] We will refer to a different view, which is expressed by Access Economics in its submission to the Productivity Commission on behalf of Tattersall's (Access Economics 1999). ACIL uses the HES raw data rather indiscriminately, even though it mentions under-reporting (1999, pp. 44-46).

VCGA-sponsored research into the economic impact of gambling

It is worth recalling what the VCGA-sponsored research findings are. First, its conclusion is that 'Victoria has experienced significant and measurable net economic benefits flowing from increased gaming opportunities' and 'as a whole, the Victorian macroeconomy has benefited significantly' (VCGA 1998, p. 1). Second, this view is based on the premise that increased gaming machine expenditure did not substitute for alternative forms of consumption, such as retail spending, but was effectively financed from household saving.

We will focus here on three reports: *The Impact of the Expansion in Gaming on the Victorian Retail Sector* (NIEIR 1997a); *The Effect of Gambling on Employment in Victoria* (NIEIR 1997b); and *Impact of Gaming Venues on Inner City Municipalities* (DHSA, MIAESR, & NIEIR 1997). The first two were prepared for the VCGA by the National Institute of Economic and Industry Research (NIEIR), while the third was the result of a joint effort by NIEIR and two other organisations, the Melbourne Institute of Applied Economic and Social Research and Deakin Human Services Australia. The latter contains separate sections written by each organisation, and it raises some significant questions that challenge whether the central conclusion of economic benefit can reasonably be applied at the local level (see, e.g., DHSA, MIAESR, & NIEIR 1997, p. 4).[19]

Readers are advised to examine these sources directly for the range of conclusions they contain. We do not provide here anything approaching a thorough review. Our interest is the central proposition as we have outlined it

above. However, to ensure that we are being fair in our presentation we will quote the sources directly. The employment report offers a clear summary:

> 'It will be noted … that the fundamental position adopted is that up to 1995-96 at least new gaming expenditure largely represents *new expenditures in the Victorian economy that would not otherwise have been made*. This is in contrast to earlier methodologies applied by NIEIR in gambling studies which argued that expenditures of Victorian residents on new gambling activities would largely represent displacement of other forms of expenditures. This led to domestic resident expenditures being ignored in the process of determining the employment impact. In this case the main positive influence of gambling on the economy comes from:
>
> (i) visitor expenditure in Victoria that is made because of the new gaming availability; and
> (ii) retained Victorian resident expenditure that would otherwise have been applied interstate on gaming activities.
>
> 'What has changed the methodological approach is the findings of the recent Authority's study "*The Impact of the Expansion in Gaming on the Victorian Retail Sector"*. This study found that the increase in expenditure on new gambling activities from 1991-92,

[19] Some questions over the differential effects in local areas are also raised in the retail report.

> from the state-wide perspective, was financed in the main by reduction in the Victorian savings ratio. This was especially true in the protection of retail expenditure from gambling activities.' (pp. 79-80; emphasis added)

Hence the employment report, based on the retail report, stated that '[n]ew gambling in Victoria by 1996 has increased Victorian employment by 34,700 persons taking into account both the positive and negative direct and indirect impacts' (NIEIR 1997a, p. i). This conclusion is re-endorsed in the inner city municipalities report. It must also be noted that the VCGA studies also acknowledge a downside to the 'saving hypothesis'. This is that 'long run effects of increased gambling activity on retail spending may be more severe' because lower saving today will likely become lower future consumption, especially during a recession (NIEIR 1997a, p. iii; see also DHSA, MIAESR, & NIEIR 1997, p. 15). The inner city report also added two further significant caveats. While the macroeconomic effect for Victoria might be positive, this could mask negative regional and local area effects and the nature of gambling tax and expenditure is regressive (DHSA, MIAESR, & NIEIR 1997, p. 2; Johnson 1998, pp. 43-44). The inner city report also acknowledged the problem of under-reporting, in relation to its own telephone survey of 200 people in each of the four municipalities studied, and referred to an unsourced view that about half of the true extent of gambling is reported (DHSA, MIAESR, & NIEIR 1997, p. 46).

Alas none of the reports take up thoroughly what should be a central concern: the implications of under- and false reporting of gambling expenditures

in the ABS Household Expenditure Survey 1993-94. The reason that this is so important is that the crucial retail study used the 1993-94 HES poker machine gambling data as a foundation on which to construct its analysis. The employment study then applied this approach and found employment benefits, and the inner city study raised more caveats but doffed its cap to the preceding analyses at the aggregate level. We (echoing the ABS) have said that there are serious methodological problems in using the HES poker machine data in this way, precisely because they are so faulty. We simply do not really know whether we can trust them in any meaningful way. This is so even if the data are adjusted to account for the much higher actual expenditures and/or certain assumptions are adopted to permit comparisons between the consumption patterns of reported gamblers and non-gamblers.

Implications of the argument over saving versus substitution

Why we have discussed the HES and under-reporting should now be clear. However, it is also important to have a framework for thinking about the alternative, or what may be called the counterfactual. That is, but for gaming machine expenditures consumption spending would have been higher. This will help to set up the argument below, in which we present a positive case for such substitution. It will also help to define aspects of the model to be used in section 5. David Johnson of the Melbourne Institute of Applied Economic and Social

Research, an author of parts of the VCGA inner city municipalities report, has summarised in a popular form some of the essential points:

> 'Households in the four municipalities spend $223 million on EGM gambling. The first round impact of the introduction of EGMs depends on whether household spending on them is at the expense of other retail activity or savings. If EGM spending were entirely at the expense of other retail activity there would be no net impact, merely a transfer from retailers to venue operators. Alternatively, if EGM growth is entirely at the expense of saving then in the short term all the spending would represent additional economic activity to the study region, of the order of $223 million per year. However in the long term households are likely to replenish their levels of saving and reduce consumption and the long term economic impacts are likely to be small.
>
> 'Within a region, there may be leakages of economic activity if tax, pub and gaming operator income is repatriated elsewhere and transfers of a similar magnitude into the area don't occur from somewhere else.' (1998, p. 44; see also DHSA, MIAESR, & NIEIR 1997, p. 4)

We might quarrel over the view that there would be no net impact of a realignment of spending between regular retailing and gambling, given the different structures of each industry and the consequent multiplier and other

income transfer effects. These can be highly significant in local areas. However, the general principles are clear. In particular, it is not possible to consider economic impacts without considering opportunity costs: the cost of the alternatives foregone. Indeed it is also clear that Johnson thinks that these must be considered:

> 'The strong growth in gambling has led to it becoming an important industry in Victoria. It does provide many jobs, it has led to strong growth in investment, and it is an important source of income at the local level. However much of the growth has been at the expense of industry—retailers, other forms of entertainment, other forms of gambling and so on. The gambling industry has no greater claim of importance than any other industry of the same size and accordingly should not receive greater acclaim. This view might be changed if it could be shown that gambling had positive externalities greater than other industries of equivalent size. However the evidence is the opposite—the externalities seem to be largely negative.' (1998, p. 44)

A positive case for substitution

So far we have argued negatively against the 'saving hypothesis', which *prima facie* seems implausible. Moreover, even if the HES poker machine data

were not flawed, the method used in the VCGA retail report is debatable for another reason. This is true also of the more simplistic approach that contrasts Australia's and Victoria's declining household saving ratios with increasing ratios of gambling and gaming machine spending to household disposable income (see, e.g., ACIL 1999, pp. 38-40). The criticism is straightforward: even if a valid association between variables is observed this does not show causation. Alternative or common factors could be at work on both variables. Correlation cannot replace a sound and plausible explanation. None is really offered, nor do the VCGA-sponsored reports address thoroughly the valid concerns raised over the HES gambling data.[20] Thus we are obliged to say that important aspects of the VCGA research into the economic impact of gaming machine gambling growth are flawed.

This line of criticism is supported by an understanding of the extremely complex, not to say sometimes paradoxical, nature of the factors driving consumption and saving actions and outcomes. Not only do we have to contend with multiple tendencies influencing what people do, but we also have to take into account the additional problems associated with aggregation (as Keynes *et al.* were at pains to explain). Recently the Reserve Bank of Australia has commented on Australia's declining household saving ratio: i.e., an increase in the proportion of household final consumption spending to household disposable income. It cites interest rate changes, asset price increases, and confidence due to an extended period of economic growth as influencing a shift in saving and consumption

[20] We also add that the ABS warns that the HES is not a good vehicle for studying saving in general (ABS 6350.0 1995a, p. 27, 37; 1995b, p. 33).

propensities (RBA 1999, pp. 16-18, 24-25). Similar but even more pronounced trends towards increased consumption have been seen in other OECD countries, most notably in the United States. It is to draw a long bow to associate these trends causally with an increase in gambling. It is quite possible to have an underlying trend increase in consumption ratios and, within consumption, a proportionate increase in gambling expenditure (i.e., substitution).[21]

For reasons such as these Access Economics, in its submission on behalf of Tattersall's to the current Productivity Commission inquiry, has implicitly disagreed with the view on saving in the VCGA-sponsored research. It concludes that 'the over-simplistic view that gambling offsets savings appears to have *no empirical support*' (Access Economics 1999, p. A31; emphasis added). In fact it undertook an econometric assessment of the 1993-94 HES gambling data to arrive at this view, the same data that were used to opposite effect in the VCGA research. It is worth noting again that Access Economics is aware of the problems with the HES (see above), and it warns its readers to weigh these in assessing its results. It also concludes that gambling has not been 'at the expense of an increase in other expenditure' (1999, p. A31). Note that this does not deny substitution. Spending on all items in a basket of consumption goods can increase, but if it were not for substitution it is possible that the non-gambling items would have increased by more.

Confused? However, Access Economics does explain that it is hard to infer much about the issues from the aggregate picture. Instead they suggest we look more closely at household decisions (1999, p. A24). They chose to do so through

[21] Readers may wish to re-examine the last seven rows of Table 3.

the HES, which we consider is problematic. We will look instead at some of the things we already know from quantitative and qualitative research about gambling in the City of Maribyrnong (acting in proxy as a limiting case for low-income municipalities in general). This will provide a positive plausible alternative to the 'saving hypothesis'. The main points can be summarised in a step-by-step argument:

1. Recall from section 3 above that (as a reasonable working figure) about 40 per cent or less of the population use poker machines in a year. Of these some are regular users and some are heavy users. These groups carry the burden of losses. (Again this is a reasonable working conclusion.)

2. Recall from the Maribyrnong data in section 2 that in 1997-98 the average household lost $40.23 per week or $2098 per year. Only about 40 per cent of households use machines, however, so the actual figure per gambling household is more like $100.58 per week or $5245 per year. Now consider the (modest) case that 50 per cent of losses are sustained by 25 per cent of gambling households.[22] That is, the weekly household loss rises for these households to $201.16, while the annual bill is $10,490. These are large enough figures for any household budget, but they need to be interpreted in the context of a low-income area. Note that this *is* a conservative estimate. Again, according to oral evidence to the Productivity

[22] Note also that the 'effect [of EGM tax] on low-income households is exacerbated because there is a higher probability that partners of EGM gamblers will also be EGM gamblers', explained Johnson in his summary of the inner city municipalities report (1998, p. 43).

Commission inquiry by Tricia Wunsch, General Manager of Corporate Affairs for Tabcorp:

> 'One thing I will say, just in terms of where the revenue comes from, is there's a general 80:20 rule, the idea that 80 per cent of your revenue comes from 20 per cent of your customers, and that's certainly true in our business. Obviously somewhere in that 20 per cent would fall anyone that might have problems with gambling but I couldn't say how much.' (Wunsch 1998, p. 539)

The 20 per cent of heavy EGM-using households would contribute about $20,000 each year on these figures.

3. Maribyrnong has the highest rate of socio-economic *dis*advantage recorded by the ABS *Socio-Economic Indexes for Areas* of any Melbourne municipality.[23] Its ranking is 887.68 (Brimbank is ranked fourth most disadvantaged at 946.389, Greater Dandenong second at 920.995, and Moreland fifth at 958.113). The 1996 Census has Maribyrnong's median weekly household income at about $250 (see also DHSA, MIAESR, & NIEIR 1997, p. 25), which (roughly) places it in the first-to-second quintiles of the HES 1993-94 income groups, though there is an obvious distribution of incomes within the municipality (see Department of Infrastructure 1998; using ABS Census Data). Tables 7-9 present various data to give an overview of income distribution and associated spending patterns in the

area (noting, of course, that the data are now becoming dated). Note the HES data given in Table 7 imply that saving is non-existent in the first and second quintiles. We acknowledge, however, that the ABS warns users of the HES that its income and expenditure estimates '…do not balance for individual households or for groups of households and the difference between income and expenditure cannot be considered to be a measure of saving' (ABS 6350.0 1995a, p. 37; 1995b, p. 37). Therefore this conclusion is merely indicative.

4. In the light of 1-3 above it is hardly conceivable that such spending on gaming machines could be derived from running down savings, neither in the form of eating into bank balances nor adjusting propensities. It is implausible that this level of losses could not have eaten substantially into the ongoing consumption spending of those who use gaming machines, either relative to what it would otherwise have been or absolutely. This is emphatically so if the sums are aggregated across the years since the introduction of machines in 1992. This longer run view, indeed, is also suggested by the VCGA research (as explained above), the absence of a recession notwithstanding. We dismiss the possible view that the losses may be explained to similar effect by increased and aggregated dissaving (borrowing and/or liquidating assets) for the same reasons. There must be a time when consumption spending is affected, at a minimum relative to that level it otherwise would have reached.

Our review of the qualitative social policy, welfare, and psychological literature also leads us to this assessment (see, e.g., Brown & Coventry 1997, pp.

[23] The rankings of disadvantage work from lowest to highest.

56-57, 65-68). When people lose their savings, which they do, the alternative consumption for which it was to be used is compromised. There is also a section of the results presented in the VCGA inner city municipalities report that seems to us to contradict the aggregate argument the report presents about savings. The following quote is drawn from the household telephone survey mentioned earlier (so we note that there may be problems of the sort we discussed under the heading of 'under-reporting'):

> 'We had planned to obtain information on the extent to which time and expenditure devoted to EGMs had been substituted for other activities but since it had been five years since the introduction of EGMs it was felt that any information relying on recollections of activities from five years before would be misleading and inaccurate. Instead we asked respondents to nominate how they would spend money and time freed up if EGMs were no longer available. We also sought to uncover whether the use of EGMs has led to financial problems for families/households... (p. 18).

- 'were EGM gambling no longer possible sixty-five pre cent of respondents indicated that they would not use any of the money currently devoted to EGMs, to savings. On the other hand 13 per cent indicated that they would devote all the money to savings. The remainder said that they would devote some of the money to

savings. On average it emerges that respondents indicated that they would devote about 20 per cent of the money to savings;

- ‘the responses for “other entertainment” were very similar, indicating that on average about 20 per cent of the funds would be devoted to other entertainment. A smaller proportion, about 15 per cent would be devoted to household necessities and much the same again to other personal items;

- ‘other gambling would not increase much at all with nearly 90 per cent saying that they would not spend any of the money on other gambling and under one half of one per cent saying that they would spend it all on other gambling; and

- ‘similarly very little of the time spent on EGMs would be used on other gambling. The two main activities that would gain are other entertainment outside the home and staying at home, although interestingly it was reported that there would be a slight increase in paid work.’ (DHSA, MIAESR, & NIEIR 1997, pp. 18, 45; see also p. 3)

TABLE 7

Income Distribution and Spending Patterns: Australia ($1993-94)

Average weekly household expenditure and other data from the 1993-94 HES	Lowest 20%	Second quintile	Third quintile	Fourth quintile	Highest 20%	All house-holds
Upper boundary of income quintile group	*266*	*457*	*741*	*1102*	..	..
Average weekly household income	*149.37*	*352.22*	*592.04*	*910.39*	*1610.38*	*723.37*
Broad expenditure group:commodity or service						
Current housing costs (selected dwelling)	46.95	63.23	82.56	97.99	121.21	82.43
Fuel and power	12.06	14.89	17.04	18.36	21.48	16.77
Food and non-alcoholic beverages	59.8	86.18	108.1	129.16	171.2	110.95
Alcoholic beverages	7.51	12.3	17.23	20.37	29.87	17.47
Tobacco	6.38	9.38	10.32	10.86	9.14	9.22
Clothing and footwear	13.78	18.58	30.4	41.42	64.38	33.72
Household furnishings and equipment	18.33	27.47	36.01	46.23	68.9	39.41
Household services and operation	19.87	26.03	30.78	35.69	45.59	31.61
Medical care and health expenses	14.8	18.36	24.27	32.59	45.73	27.16
Transport	40.26	63.22	88.13	105.2	157.2	90.86
Recreation	37.89	50.3	69.91	89.23	146.84	78.87
Personal care	5.54	8.07	10.69	13.43	19.06	11.36
Miscellaneous commodities and services	18.27	22.54	39.45	53.29	82.11	43.15
Total commodity and service expenditure	*301.44*	*420.55*	*564.89*	*693.82*	*982.71*	*592.98*
Average weekly household income less total commodity and service expenditure	*-152.07*	*-68.33*	*27.15*	*216.57*	*627.67*	*130.39*

ABS 6530.0

TABLE 8

Income Distribution and Spending Patterns: Australia (per cent)

Average weekly household expenditure and other data from the 1993-94 HES	Lowest 20%	Second quintile	Third quintile	Fourth quintile	Highest 20%	All house-holds
Upper boundary of income quintile group	88.24	108.67	131.18	158.83	..	..
Average weekly household income	49.55	83.75	104.81	131.21	163.87	121.99
Broad expenditure group:commodity or service						
Current housing costs (selected dwelling)	15.58	15.04	14.62	14.12	12.33	13.90
Fuel and power	4.00	3.54	3.02	2.65	2.19	2.83
Food and non-alcoholic beverages	19.84	20.49	19.14	18.62	17.42	18.71
Alcoholic beverages	2.49	2.92	3.05	2.94	3.04	2.95
Tobacco	2.12	2.23	1.83	1.57	0.93	1.55
Clothing and footwear	4.57	4.42	5.38	5.97	6.55	5.69
Household furnishings and equipment	6.08	6.53	6.37	6.66	7.01	6.65
Household services and operation	6.59	6.19	5.45	5.14	4.64	5.33
Medical care and health expenses	4.91	4.37	4.30	4.70	4.65	4.58
Transport	13.36	15.03	15.60	15.16	16.00	15.32
Recreation	12.57	11.96	12.38	12.86	14.94	13.30
Personal care	1.84	1.92	1.89	1.94	1.94	1.92
Miscellaneous commodities and services	6.06	5.36	6.98	7.68	8.36	7.28
Total commodity and service expenditure	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*

ABS 6530.0

TABLE 9

Household Income Distribution: Maribyrnong, Melbourne, Victoria (per cent)

Weekly income	Maribyrnong households	Melbourne households	Maribyrnong individual	Melbourne individual
	%	%	%	%
Nil or -ve	1.0	0.7	6.0	7.0
$1-$119	1.0	0.7	8.6	9.1
$120-$299	25.2	15.7	41.1	29.6
$300-$499	18.1	14.5	17.4	18.6
$500-699	13.6	13.1	10.4	13.9
> $699	30.8	44.3	8.5	15.3
Not stated	10.2	10.9	8.2	6.5
Total	*100.0*	*100.0*	*100.0*	*100.0*

Department of Infrastructure 1998; using ABS Census Data

5 Some Estimates of Local Area Economic Impact

The following outlines how we may attempt to use the available 'industry' data on gambling to estimate economic effects in local areas. Recall from section 2 that national and State figures for gaming machine expenditure are recorded electronically and are, for our purposes, accurate (TGS 1999, p. 5). Recall also how, using reasonable assumptions, information on the location of poker machines in pubs and clubs throughout Victoria can be used to calculate expenditure on poker machines in municipalities. However, it should be recognised that other 'supply-side' information is required to build a model of economic impact. Some of this information has to be regarded as provisional at this stage of the research. However, we think that the information and data below are reasonable to illustrate the points we will make, and we think also that the

assumptions used to support the argument are plausible. Data limitations and assumptions will be stated clearly as the model is constructed.

Two different types of estimate will be constructed. The first set will indicate the diversion (or substitution) of potential consumption spending away from non-gambling local businesses. This, of course, will provide the basis for subsequent assessments of broad employment effects. The second will look more closely at the income of the municipal residents. It will offer examples of how we might measure the hitherto neglected effect of socio-geographic income redistribution.

Using 'supply-side' data in examples of possible local area effects

At the outset it is important to record that regional economics throws up complex problems. These are magnified if the region is relatively small and contained within a city. Economists often will be heard to groan when asked even to consider such problems. Such difficulties are recognised (see, e.g., DHSA, MIAESR, & NIEIR 1997, pp. 19-20), but they should not stop us from trying to propose successively better and more accurate answers. This means that it is inevitable that assumptions will have to be adopted, while over time attempting to anchor such assumptions by improving the data and concepts on which they may be based.

So the model, which we think can be useful in future research, here is based on the following assumptions, foci, and steps. We will number these so that all of

the influences are transparent and, therefore, easier to track (and criticise[24]). Some of the influences were mentioned in the previous section in point form; others were covered in the passage quoted there (Johnson 1998, p. 44; see also DHSA, MIAESR, & NIEIR 1997, p. 4). More general assumptions and foci are:

1. We will consider only flows per annum of expenditures in Maribyrnong, as a limiting case of low-income municipalities in general). That is, our focus is the ongoing nature of gambling activity and its alternative(s) in this low-income municipality.

2. This approach excludes the effect of new investment spending, which is likely to be less significant over time at any rate. Investment, arguably, also applies to both gambling businesses and to the alternative activity of non-gambling businesses. If the latter were to consider that additional relative increases in ongoing sales gave cause to buy more equipment, expand, or refurbish their buildings, then their investment would similarly rise (see DHSA, MIAESR, & NIEIR 1997, p. 15 n. 2).

3. The approach also excludes any impact of the sums derived from gaming machine gambling by government through tax (and the Community Support Fund), as well as the operators of the gambling machines (Tattersall's and Tabcorp), which escapes from the local area in the model. It could be argued that

[24] We are far from claiming that our examples, or this paper in general, are definitive. Constructive criticism is always welcome and helps to enhance knowledge of this complex question.

this part of gambling spending in Victoria (and Australia) flows back in some measure, e.g., *per capita* for the State, to the local area. However, a similar thing may be said about the spending generated outside the area by the alternative activity, such as escape spending and via the wages and salaries of employees, etc. Indeed if, as has been argued, the government share has contributed to State debt reduction (VGCA 1998, p. 2) this leakage has no return effect.

4. The border of an area is arbitrary. A key assumption here then is that we should treat it less like a walled city and more like a zone. This will allow us to account for the Maidstone-Braybrook (Maribyrnong) resident who will shop and gamble 'across the border' in Sunshine (Brimbank) and *vice versa*. When we treat the issue in this way it is possible to assume reasonably, in the context of the broad growth of gaming machine gambling across the regions with which we are concerned, that such marginal 'in-out' spending and gambling broadly balance. It would be different were, in an extreme example, one area to contain all the shops and its neighbour all the gambling venues. However, this is extreme, and for practical purposes here the assumption is viable.[25] This is a somewhat different issue from those of measuring 'escape spending' in general and gambling in the region's venues by, for example, employees but non-residents of a region (see below).

[25] An obvious caveat is that Highpoint shopping centre in Maribyrnong probably exerts more centrifugal than centripetal shopping force than its 'competitors' in neighbouring municipalities.

5. Complementary consumption describes an increase in consumption spending that may occur because people using poker machines may buy drinks and meals, etc., while they attend the gambling venue. However, a little thought shows that the economic effect of this is at best illusory. People do not consume meals twice. A meal and drinks at a venue will replace a meal and drinks at home or elsewhere and thus divert spending. Note also that there are forms of complementary spending that accompany some activities that gambling has replaced (e.g., coffee and a meal while out shopping). Indeed it may well be true that patrons would have spent more elsewhere, especially when the subsidised prices of meals and free coffee available in some venues is accounted for. Complementary consumption in gambling venues is best treated as another form of substitution and will not be considered here.

The following are more specific assumptions and steps. The numbers here will correspond to the sequence of steps in the following tables titled 'Models of local area economic impact: 1-4'. The tables are grouped in this paper at Table 10.

6. A 60: 40 split is assumed to apply to expenditures on poker machines in hotels *versus* those in clubs. These are used to derive aggregate losses *per annum* in hotels and clubs, assuming the Victorian average per machine applies in Maribyrnong. We suspect that this estimate is lower than it should be because the State average includes rural areas. Gaming machines in country Victoria, we understand, have a lower average take. These issues were discussed in section 2.

7. What we have dubbed the ‘saving hypothesis’ is substantively unsustainable. This argument may be stated positively: over time it is more reasonable to treat gaming machine expenditure as being substantively a diversion/substitution from consumption spending. The latter is called the ‘alternative’ here. Two cases will be used as examples. In the first diversion is complete. In the second, following the hint in DHSA, MIAESR, & NIEIR (1997, p. 45) cited at the end of the previous section we will say that 80 per cent is diverted and 20 per cent is from savings.

8. Leakages of income and spending from the area in general are crucial to understand the approach. Leakages from the ‘first round’ of gaming machine expenditure are well known and *large*: State tax (33 1/3 per cent); the Community Support Fund (8 1/3 per cent for hotels only); and operators (33 1/3 per cent). The leakages for the alternative are less well known and much more complex to calculate. We will discuss them in subsequent points. At this stage we will not treat the profits of hotel venues as a leakage, though the region’s hotels seem to be owned increasingly by larger external chains, including breweries.

9. We must have some idea of (or working assumption for) the particular household spending that is being diverted or substituted for. Table 8 in the previous section gives a general view of the proportions of the major categories in

household budgets obtained by the 1993-94 HES.[26] Of the expenditure categories we can infer that some of the categories are more akin to 'fixed costs' (e.g., housing, etc., health, education, and, to some degree at least, transport and communications).[27] Others are more malleable and discretionary (e.g., furnishings and household equipment, recreation, restaurants, clothing and footwear, personal care, and, to some extent at least, food, etc.). These are the ones most likely to be affected by substitution. Largely they fit under a retail heading.

10. There are three potential local leakages from alternative consumption spending to consider: (a) what is known as 'escape spending' or spending outside the local area; (b) the proportion to which the gaming machine losses in the area of non-residents of the local area exceed those of local residents (and hence would not necessarily[28] be spent on alternative consumption locally); and (c) the proportion of losses not from reduced consumption (from saving or dissaving). The third leak we have discussed in point 7. The second we will argue is zero. We know from discussions with some industry sources that most people gamble locally. We also know, as well, that the Crown Casino and other City of Melbourne venues draw clientele from the inner suburban areas of Melbourne (DHSA, MIAESR, & NIEIR 1997, pp. 4-5). Our assumption is that as much is 'gambled out' as is 'gambled in'. The first leak is discussed in point 11.

[26] Additional tables detailing the proportions of total household final consumption expenditure data for the 1990s for Australia and Victoria may be found in ABS 5204.0 (1999, Table 2.26) and ABS 5220.0 (1999, Table 7).

[27] This breaks down for those experiencing financial problems from serious gambling losses (see, e.g., Brown & Coventry 1997, pp. 41-44, 56-57, 65-68).

[28] We say 'not necessarily' because the gaming machine losses of non-resident workers may well be spent locally on alternative consumption.

11. ‘Escape spending’ is very difficult to estimate, and we have not engaged in direct research on this subject ourselves. However, our discussions with those directly involved in local area economics as consultants or as council officers leads us to think that escape spending is not high in Maribyrnong. Most people shop locally. Factors influencing this conclusion are that the municipality has a broad range of retail and other recreational outlets, more people have no or fewer vehicles than the Melbourne average (Department of Infrastructure, p. 51), the region is relatively settled, and *a fortiori* the area has shopping facilities that attract people from outside the municipality. These points are also contained in a City of Maribyrnong background report (Waugh 1998) and a draft Retail Overview kindly made available to the authors. Our discussions suggest it is reasonable *for this example exercise* to use an escape spending factor of about 20 per cent for the sorts of items referred to in point 9, but we register the view that practical local area economic analysis is needed to arrive at a more accurate figure (e.g., based on retail floor space analysis, etc.). Hence we also present an example estimate using a very conservative figure of 50 per cent escape spending (coupled with the more conservative estimate for consumption version given in point 7).

12. The steps above give estimates of initial gaming machine and consumption leakages. Remaining from the initial expenditures are estimates of the initial shares of the gaming machine venues (hotels and clubs) and the businesses that would have benefited from alternative consumption displaced. These shares are broken down into gross operating surplus (profit before all taxes in this case),

employee compensation (principally wages and salaries), and induced production (production by other businesses of goods and services that enter into the output of the venues and alternative, e.g., retail, production). Not all of the latter are, of course, produced locally. We have used a rough estimate that 20 per cent are produced within the region for this exercise. All of the estimates for respective shares here are otherwise derived from ABS *1994-95 Input-Output Tables* (1999 5209.0, Tables 10 and 15) for the categories in which gambling is located (9301) and retail trade (5101). This very broad approach is not ideal, and subsequent research will need to look more closely at the (preferably local) structure of gaming machine venues and the alternatives. The release in July of the final version of *1997-98 Gambling Industries Australia* (see ABS 1999) will be useful, as will a closer analysis of the data in existing and future VCGA-sponsored research.

13. The above allows the example exercises to estimate the total initial value added for the area. From this it may be reasonable to deduct the gross operating surplus of hotel venues as a leakage from the area, as note above. Club operating surpluses we treat as local. However, we have yet to account for multiplier effects derived from the wages and salaries, etc., paid in the initial round being spent on consumption goods in successive rounds. For convenience again we have used the relevant multipliers in ABS *1994-95 Input-Output Tables* (1999 5209.0, Table 15) to estimate the overall effect, then reduced it as above to account for actual local production.

14. The resulting item ‘Estimate of total local value added’ is one of the two effects we set out to examine. This shows the relative effects on what is genuine *local production or output* of gaming machine expenditure *versus* its alternatives. It is this figure that has local implications for jobs.

15. However, the item ‘Estimate of total local value added’ does not in itself describe the effect on the incomes of local residents of gaming machine expenditure *versus* its alternatives. The reason is that not all venue or alternative business employees (and owners) live locally. In fact various estimates have been given for the proportion of the workforce who live in the municipality (cf. DHSA, MIAESR, & NIEIR 1997c, pp. 2, 37-38; Waugh 1998; Maribyrnong City Council 1999). The figure of about 20 per cent, based on journey to work data, will be used as a reasonable approximation. The result is the second of our desired effects, namely ‘Resident share of local value added’, which gives a clue to what we somewhat ponderously described in the introduction as ‘socio-geographic income redistribution’.[29]

Summary of example outcomes

Four example outcomes are presented as Table 10 below. The first three have been signalled in the 15 steps above. The fourth is derived from our reading

[29] By way of analogy this is a GNP-type measure of local impact (Armstrong 1993; Bleaney *et al.* 1992).

of the approach followed in NIEIR (1997b, section 7.10). All of the example outcomes here show that economic production, employment, and income in Maribyrnong would have been higher *had the expenditures on gaming machines not been diverted from other consumption spending*. The main reason for this is to be found in the fundamentally different structures of gaming machine activity and its alternative. Simply, the former leaks considerably in the first round via tax and the oligopoly (or duopoly) position of Tabcorp and Tattersall's (and subsequently, if we account for the leakage of hotel owners' profits). The tables show that that a small proportion of such expenditures 'remain'. Gaming machine expenditures are regressive both individually and for low-income areas on this account.

Now it should be said that the approach above could be made much more sophisticated in many ways. We have not really taken into account the precise structure of local economic activity, as would be the case if we used input-output or other more complex models. Our multipliers are general and would benefit greatly from being made much more industry specific. Obviously work is needed in this area. However, given the large leakages involved with gaming machine losses, we suspect that added sophistication, while necessary if resources permitted, would not alter the broad picture. Practical research on 'escape spending' and who uses local venues would add more to the final results, as would a clearer and up to date account of work and residential patterns.

For these reasons we stress that the figures given in the tables in this section are in the category of 'best guess' examples rather than final research results. This, of course, is in keeping with the nature of this research, as outlined in the introduction: a critical survey of the issues and a methodological assessment of

ways to go about researching the local area economic impact of the growth in gaming machine gambling in low-income areas.

Conclusion

The Workplace Studies Centre of Victoria University research presented here on behalf of the Brimbank, Greater Dandenong, Maribyrnong and Moreland councils has raised again the negative economic impact that gaming (poker) machine gambling can have on local economies. The research, *a fortiori* in the case of low-income areas, disputes the prevailing view in research sponsored by the Victorian Casino and Gaming Authority. This view is that 'Victoria has experienced significant and measurable net economic benefits flowing from increased gaming opportunities' (VCGA 1998).

Our study finds that the VCGA research conclusions are based on a shaky premise. This is that increased pokie expenditure (or loss) from 1992 did not substitute for alternative forms of consumption, such as retail spending, but were effectively an economic 'add-on' because they were financed from saving. This, in turn, was reflected in a lower household saving ratio. We do not think that this proposition is sustainable.

In the context of generally increased consumption expenditures in Australia (and other countries, such as the United States) household saving ratios have declined. However, it is to draw an extremely long bow indeed to establish a causal link between increased gambling and lower saving ratios at the aggregate

level. First, a multitude of much more powerful influences, from sustained economic growth to rising asset prices and lower real interest rates, have affected the consumption-saving proportions (RBA 1999, pp. 16-18, 24-25). Saving and consumption relations are notoriously tricky at the macroeconomic level. Second, gambling expenditures (losses) more than doubled *per capita* in real terms in Australia over past decade to $819. They trebled in Victoria to $921. It is more plausible that these higher losses were 'financed' in large measure by reducing other consumption spending relatively. In low-income areas this diversion or substitution may well have been absolute. That is, actual revenues of local retail business may have fallen while the general trend was upwards.

Our argument is both critical of the existing research and offers a reasonable alternative explanation:

1. The original research for the VCGA in 1997 used the ABS *1993-94 Household Expenditure Survey* statistically to compare spending patterns of gambling and non-gambling households. However, massive under-reporting of poker machine losses in the HES (only about 10 per cent of total losses were admitted by respondents) means that we cannot necessarily trust it to model the economics of gambling. This is so even if the data are adjusted to account for the much higher actual expenditures and/or other assumptions are made. The ABS also expresses such concerns about the HES in its submission to the current Productivity Commission Inquiry into Australia's Gambling Industries (ABS 1998).

2. We estimate, using accurate industry data from the Tasmanian Gaming Commission and the VCGA, that City of Maribyrnong residents lost a staggering $52.25 million in 1997-98 on the pokies alone. This represents on average $2098 *per annum* or about $40 per week per household. These figures are double the Victorian averages, and they are out and out losses net of any winnings. Yet Maribyrnong is ranked by the ABS as Melbourne's lowest-income and most disadvantaged municipality.
3. We also reckon that fewer than 40 per cent of households use pokies each year. The actual figure per gambling household is therefore more like $100.58 per week or $5245 per year. In addition, losses are shared disproportionately: heavy gamblers lose more. Consider that, modestly, 50 per cent of losses are sustained by 25 per cent of gambling households. The weekly loss rises for these households to $201.16, while the annual bill is $10,490. We also note that the gambling industry acknowledged to the Productivity Commission that 80 per cent of losses were borne by 20 per cent of regular EGM users (Wunsch 1998, p. 539).
4. These sums are large enough for any household budget, but they need to be interpreted in the context of a low-income area where saving is low or non-existent on average. It is thus hardly conceivable that such spending on gaming machines would not have affected consumption seriously. This is emphatically so if the sums are aggregated across the years since the introduction of machines in 1992. This longer run view, indeed, is also suggested by the VCGA research. There must be a time when consumption spending is cut, at a minimum relative to the level it otherwise would have reached. Our review of

the social policy, welfare, and psychological case studies reinforces this assessment.

Moreover, when use example ‘best guess’ models of the above data in the Maribyrnong economy, by contrasting expenditure on gaming machines with the alternatives (e.g., retail), we find (on most reasonable assumptions) that local production is lower and income flows outwards. Pokie expenditures are individually and socio-geographically regressive: they fall heaviest on low-income households and they leak heavily from low-income areas like Maribyrnong. More than one-third of each pokie dollar goes directly out to the State government via gambling tax and the Community Support Fund Levy. Another one-third goes to the oligopoly (duopoly) operators, Tattersall’s and Tabcorp. Large hotel organisations also take their share. By contrast the usual local area economic leakages such as retail ‘escape spending’ are less severe.

Overall, the Workplace Studies Centre research reinforces what many have been concerned about all along: the negative economic impact that gaming machine gambling can have on local economies.

TABLE 10

Models of Local Area Economic Impact (Example 1)

TABLE 10 (continued)

Models of Local Area Economic Impact (Example 2)

TABLE 10 (continued)

Models of Local Area Economic Impact (Example 3)

TABLE 10 (continued)

Models of Local Area Economic Impact (Example 4)

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