

June 1995

A Report

from

Ernst & Young

A Report to Manitoba Lotteries Corporation Reviewing:

*Analysis of the Net Social
Benefits from Legalized
Gambling in the Province
of Manitoba*

June 29, 1995

Private and Confidential

Mr. William Funk
President
Manitoba Lotteries Corporation
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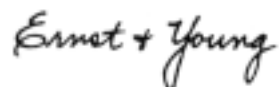
Dear Mr. Funk:

Re: A Review of "An Analysis of the Net Social Benefits From Legalized Gambling in the Province of Manitoba"

As requested, attached is our commentary on the report authored by Dr. Philippe Cyrenne.

We would be pleased to respond to any questions you may have.

Yours very sincerely,



Ernst & Young

D. A. Posten/S. Tanny

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I. Introduction

This report, dated June 1995, is prepared for Manitoba Lotteries Corporation ("MLC"). It comments on a report dated April 7, 1995 entitled "Analysis of the Net Social Benefits from Legalized Gambling in the Province of Manitoba," authored by Philippe Cyrenne, Ph.D., Assistant Professor, Department of Economics, The University of Winnipeg ("Cyrenne").

II. Scope And Purpose

This report is intended to provide a third party point of view regarding the Cyrenne report's contents, particularly with respect to the application of economic techniques and with respect to the statistical data used.

Our report does not attempt to independently develop an opinion regarding the "net social benefit from legalized gambling" in the Province of Manitoba .

We have not interviewed Cyrenne regarding the assumptions, calculations and interpretations used in his report.

In that we do not consider ourselves experts in the field of pathological gambling we have not commented on Cyrenne's interpretation of, or selective use of, studies cited on this topic (other than data-related observations). In our view, however, it would be appropriate for the MLC to commission an independent assessment of this aspect of the Cyrenne report.

We understand that this report may be used for internal MLC purposes or may be a document submitted by MLC to a commission reviewing gaming in Manitoba.

III. Conclusion

Cyrenne variously applies microeconomic analysis, econometric methods and cost benefit analysis to analyze the impact of government-managed gambling on the Manitoba economy, and to assess the public policy implications of government's involvement in gambling. While these analytical approaches are generally appropriate for such analysis, we have identified a variety of weaknesses respecting their application by Cyrenne.

These methodological deficiencies, as well as errors and omissions in the data applied by Cyrenne, are documented in detail below. Because these are both numerous and significant, they cast serious doubt on the accuracy and validity of many of the study's findings, both quantitative and qualitative, and on the author's objectivity in developing his arguments and conclusions.

Major weaknesses or errors in the Cyrenne report include:

- inappropriate application and/or interpretation of standard regression analysis tools in developing forecasts, and in assessing the degree of possible relationships among variables;
- flawed and inadequately supported microeconomic analysis in estimating consumer surplus associated with gambling;
- incorrect calculation methods to determine spending, revenue and cost estimates;
- incorrect sourcing and application of various standard data relating to the Manitoba economy and provincial demographics; and
- apparent lack of balance in citing secondary references and application of secondary data sources.

IV. Restrictions

This report may be used only for the purpose described above. It may not be reproduced for use beyond internal MLC applications without our prior consent, which will not be unreasonably withheld. Any approved reproduction of this report will be complete and not excerpted.

V. Review of Cyrenne Report

This section of our report reviews commentary and calculations contained in the Cyrenne report. The Cyrenne report is organized around the concept of benefit-cost analysis. It attempts to define, in dollar terms, the direct and indirect benefits and costs to Manitoba (all Manitobans) of "legalized gambling."

Because we take issue with a significant portion of the Cyrenne report's contents, the commentary which follows is presented according to page-number sequence to facilitate comparison with the Cyrenne report. This report assumes the reader has read the Cyrenne paper. For readers who wish to refresh their familiarity with the Cyrenne report a summary of the approach used in that document is attached as Appendix I.

General Commentary

A fault which underlies many of the problems contained in the Cyrenne report is its single-minded attempt to correlate social phenomena (travel patterns, business income, charitable income, consumer bankruptcies, etc.) to government-managed gambling. It reminds us of ancient tales in which people believed the crowing of the cock caused the sun to rise – that is, if only one variable is examined to explain a phenomenon, inevitably some correlation between the two can be found. In this report we point out that Cyrenne's attempts to correlate social phenomenon with government-managed gambling ignores other persuasive data.

Second, Cyrenne's methodologies to quantify costs and benefits contain errors in logic and deficiencies in application. We address a number of these shortcomings in this report.

Third, the Cyrenne report contains several instances where the data employed is simply wrong. We highlight these instances.

The combination of these deficiencies cast serious doubt on many of the study's findings, both quantitative and qualitative, and on the author's objectivity in developing his arguments and conclusions.

V.a. Public Finances

In his report, Cyrenne describes legalized gambling as "a significant feature in the public finances of Manitoba." The data shows that:

- government-managed gaming represents a minor portion of overall public finances;
- expenditures on government-managed gaming represents less than 1.5% of provincial gross domestic product.

The two tables below place legalized MLC gambling into perspective as compared to the provincial budget and gross domestic product (GDP).

MLC Net Income Compared to Manitoba Government Revenue

Year	MLC Net Income (\$'000)	Manitoba Govt Revenue (\$'000)*	MLC Net Rev as a % of Mb Budget
1991	60,890	4,798,000	1.27%
1992	72,018	4,919,000	1.46%
1993	114,107	4,895,000	2.33%
1994	181,084	4,902,000	3.69%

Sources: MLC Annual Reports; The Manitoba Budget

* Note: Revenue is Total Revenue before Fiscal Stabilization and Lotteries

Manitoba Gaming Expenditures Compared to the Manitoba GDP

Year	Gaming Expenditures (\$'000)	Manitoba GDP (\$'000,000)	Gaming Exp. as a % of GDP
1985	95,500	17,755	0.54%
1986	124,170	18,588	0.67%
1987	143,413	19,757	0.73%
1988	154,346	21,256	0.73%
1989	165,106	22,437	0.74%
1990	167,084	23,124	0.72%
1991	172,095	22,841	0.75%
1992	193,017	23,631	0.82%
1993	258,194	23,997	1.08%
1994	341,676	25,093	1.36%

Sources: Statistics Canada - Cat. No. 11-010; MLC Annual Reports

V.b. Profitability of Gaming

Cyrenne suggests that "it is important to note, that gambling is not an inherently profitable activity, if the price of gambling was set at average cost then profits would be zero. Thus, the province of Manitoba must restrict entry into gambling if it wants to earn profits."

This observation is not correct. In theory, it is possible for gambling to be a purely competitive industry and to earn a normal profit just like any other industry. Legal gambling is competitive and profitable in places such as Nevada.

In such a situation, the province of Manitoba would benefit from the industry in the form of jobs created and various tax revenues earned just as is the case for many other industries. Obviously, however, the province can earn monopoly profits by restricting entry into gambling, which is exactly what it does.

V.c. Gambling Expenditures

Cyrenne concludes, using a combination of Statistics Canada *Survey of Family Expenditures* data and MLC data that the amounts spent on gambling by average Winnipeg households increased by 4 times from 1990 to 1994. As we demonstrate in the following:

- the data and calculations on which this finding is based are badly flawed;
- using this data it is not possible to measure to what extent gambling expenditures by Manitobans have risen or fallen.

Cyrenne Calculations

Cyrenne compares the results of two different calculation methods to examine gambling expenditures over time. The first method uses data from Statistics Canada's *Survey of Family Expenditures*. The second method uses MLC revenue and population data. In the following paragraphs we show the two alternative methods for the calculation and then indicate their limitations.

Cyrenne: Household expenditures

In the first method, Cyrenne refers to the average household in Winnipeg in 1990 spending 0.30% of its total expenditures, or \$111, on lottery products. The Statistics Canada *Survey of Family Expenditures* was most recently published in the years 1986, 1990, and 1992. Data to calculate lottery expenditure as a percentage of total expenditure for the average Winnipeg household is presented in the table below.

Lottery Expenditures as a Percentage of Average Household Expenditure -
Winnipeg

	Year		
	1986	1990	1992
Lottery Expenditures (\$)	127	111	156
Total Expenditure (\$)	32,554	36,563	42,633
Lottery % of Expenditure	0.39%	0.30%	0.37%

Source: Statistics Canada - Cat. No. 62-555

On this basis, it can be seen that the data shows 1992 household expenditures on lotteries to have risen approximately 41% in nominal dollars from 1990 (23% from 1986). No Statistics Canada data is available beyond 1992.

Cyrenne: MLC Revenue Per Capita

In an apparent attempt to overcome the lack of Statistics Canada data more current than 1992, Cyrenne attempts a different calculation for 1994. He next calculates lotteries expenditure per capita for Manitoba using total lotteries expenditures and total adult population which he estimates at 811,000. He divides 1994 gross MLC revenues, \$341.676 million, by the population estimate to arrive at a number of \$420.

He concludes that \$420 (MLC revenue per capita calculation) is 4 times \$111 (Statistics Canada 1990 expenditure per household) and that "the average amount spent on lotteries" increased by four times during that period.

Comparability of Calculations and Corrections

Cyrenne's attempts to impute the growth in lottery expenditures by comparing the *Family Expenditure Survey* \$111 average spent by Winnipeg households in 1990 to his per capita calculation of \$420 in 1994 contains numerous errors.

These two calculations use different bases and are not comparable. For 1990, the household expenditure method yields an average expenditure of \$111 per household. Dividing MLC revenue by population yields an average expenditure of \$205 per adult in 1990. Statistics Canada's Survey of Family Expenditures lists an average of 1.83 adults (eighteen years of age or older) per household in 1990, and an average of 1.90 in 1992. Cyrenne is comparing *household* expenditures in one method to *individual adult* expenditures in the second.

Household Expenditures

Looking at the household expenditure method first, we adjusted the average expenditure on lotteries to a real dollar amount to account for inflation, or increases in the consumer price index. This adjustment is summarized in the table below.

Lottery Expenditures as a Percentage of Average Household Expenditure, Winnipeg - In Real Dollars (1986 = Base Year)

	Year		
	1986	1990	1992
Lottery Expenditures (1986 \$)	127	93	123
CPI	100.00	118.90	126.80

Sources: Statistics Canada - Cat. No. 62-555; Cat. No. 62-001

Using this data, average lottery expenditure has actually declined or remained flat since 1990 in real dollars and as a percentage of household expenditure for the years which data is available.

Further, Cyrenne erred when he used \$36,563 as the average expenditure of Winnipeg households to calculate the percentage of expenditure spent on lotteries in 1994. \$36,563 is the Statistics Canada 1990 average expenditure for Winnipeg households... no data is available for 1994. The table "Lottery Expenditures as a Percentage of Average Household Income - Winnipeg," shows that

household expenditures increased by 17% between 1990 and 1992 alone, so it is very likely the \$36,563 underestimates 1994 expenditure, and that the percentage of expenditure on lotteries is lower than Cyrenne's calculated 1.12%.

MLC Revenue Per Capita

A table summarizing MLC revenue per capita is presented below.

MLC Revenue per Capita

	Year					
	1989	1990	1991	1992	1993	1994
MLC Revenue (\$'000)	\$165,106	\$167,084	\$172,095	\$193,017	\$258,194	\$341,676
Estimated Adult Population (000)	816	817	820	826	834	839
Lotteries Expenditure per Capita	\$202.44	\$204.48	\$209.77	\$233.59	\$309.91	\$407.19

Sources: Statistics Canada - CANSIM; MLC Annual Reports

Notes: Adult Population = 18 years of age and older

This calculation method would generate a per capita revenue value of approximately \$407 in 1994 and \$205 in 1990. Therefore, by this method, expenditures from 1990 to 1994 would have doubled - not quadrupled.

The source of Cyrenne's estimate of the adult population of Manitoba at 811,000 for 1994 is unknown. Our adult population numbers are from Statistics Canada's CANSIM and *"Intercensal and Postcensal Annual Estimates of Population and Components of Growth by Sex and Age for Canada, Provinces and Territories, July 1, 1971-1993"*. These estimates take into account the results of the Censuses adjusted for net census undercount, non permanent residents and returning Canadians up to 1991. CANSIM data for 1994 by age shows the 1994 adult population of Manitoba to be approximately 839,000. (We have defined the adult population as individuals 18 years of age or older.)

Adult and Total Population - Manitoba

Year	Population ('000s)		Adult % of Total	Population Change (%)	
	Adult	Total		Adult	Total
1985	794.1	1,084.6	73.22%	1.37%	0.98%
1986	803.6	1,094.0	73.46%	1.20%	0.87%
1987	809.0	1,100.5	73.51%	0.67%	0.59%
1988	813.4	1,104.7	73.63%	0.54%	0.38%
1989	815.6	1,106.2	73.73%	0.27%	0.14%
1990	817.1	1,108.4	73.72%	0.18%	0.20%
1991	820.4	1,113.3	73.69%	0.40%	0.44%
1992	826.3	1,113.1	74.23%	0.72%	-0.02%
1993	833.7	1,116.0	74.70%	0.90%	0.26%
1994	839.1	1,132.8	74.07%	0.65%	1.51%

Sources: Statistics Canada - Cat. No. 91-537, Revised Intercensal Estimates; CANSIM

Note: Adult Population is 18 Years of Age and Older

Conclusion

We are of the view that, even using the data correctly, neither approach is able to accurately measure expenditures on gambling products by Manitobans. Both methods are unable to measure the "leakage" of gambling dollars into and out of Manitoba. We don't know if, or what portion, of total spending by Manitobans on gambling has shifted from outside Manitoba to within Manitoba. And, we don't know how much of MLC revenues are generated from non Manitobans.

V.d. Expenditures Inversely Related To Income

Cyrenne observes that "as a percentage of income, lottery expenditures are inversely related to income." In making this point, Cyrenne is laying the foundation for an argument which suggests that lotteries represent an unfair, regressive form of taxation. We note that:

- many types of expenditures are inversely related to income.

We illustrate below that many goods share this same property as lottery expenditures, namely, that expenditures on them are inversely related to income. Examples include household operations (communications, child care, pet expenses, etc.), cigarettes and laundry and dry-cleaning costs. The following table highlights this property for selected items.

Percentage of Household Expenditure by Household Income -
Prairie Provinces 1992

Household Income	Household Operation	Cigarettes	Household Cleaning Supplies	Laundry & Dry- Cleaning	Lotteries
Under \$15,000	6.5%	2.6%	0.9%	0.6%	0.7%
\$15,000 - 19,999	6.6%	2.4%	0.9%	0.4%	0.6%
\$20,000 - 29,999	5.3%	2.1%	0.8%	0.4%	0.4%
\$30,000 - 39,999	4.7%	2.1%	0.7%	0.3%	0.4%
\$40,000 - 49,999	4.6%	1.8%	0.6%	0.3%	0.3%
\$50,000 - 59,999	4.5%	1.5%	0.6%	0.2%	0.4%
\$60,000 - 79,999	4.1%	1.3%	0.5%	0.2%	0.3%
\$80,000 and over	4.5%	0.6%	0.4%	0.2%	0.2%

Source: Statistics Canada, Cat. No. 62-555

V.e. Travel By Manitobans

Cyrenne discusses the affect of expanded legalized gambling on the number of Manitobans traveling to jurisdictions with extensive gambling networks on page 7 of his report and presents supporting data in his Figure 4. He is, presumably, attempting to persuade the reader that government-managed gaming in Manitoba has not influenced the frequency with which Manitobans gamble outside Manitoba. Our analysis shows that:

- Cyrenne used incorrect data in his calculations;
- the data does not enable a conclusion regarding gambling-related travel.

Our review of the published data shows that Cyrenne misused this data. He presents data as "Manitobans Traveling to the U.S.", but the data is actually the number of *Canadians* traveling to the U.S. The correct data for Manitobans is presented in the table below, for visits of one or more nights.

Manitoba Residents Travelling to the United States - Visits by State
Compared to the Average Exchange Rate

Selected States	Year				
	1990	1991	1992	1993	1994
South Dakota	37,700	36,400	33,600	37,200	29,500
New Jersey	1,200	900	1,100	1,300	2,100
Nevada	25,400	27,500	22,700	27,100	17,100
Minnesota	193,200	179,400	201,400	225,300	153,500
North Dakota	556,800	595,300	515,600	409,600	333,400
Total	814,300	839,100	774,400	700,500	535,600
Average Canadian Dollar in US Funds	0.8570	0.8728	0.8276	0.7753	0.7321

Source: Statistics Canada, International Travel Section; Bank of Canada Review Spring 1995

Note: Data presented is for visits of one or more nights

Contrary to Cyrenne's statement that "the numbers of Manitobans traveling to such gambling states such as South Dakota, Minnesota, New Jersey and Nevada has been almost constant," the data generally shows sizable fluctuations, both up and down, since 1990 with a sharp decline in 1994. The exceptions are New Jersey, where there is a sharp increase in 1994 (although the numbers are tiny), and North Dakota. The latter attracts the large majority of travel by Manitobans and the number of travelers has declined steadily and dramatically since 1991.

Further, the usefulness of this analysis is questionable in that the data does not isolate gaming travel, and that Manitobans may have a number of motives for traveling or not traveling to these states. Cyrenne mentions major influences in changes in travel patterns were likely the introduction of the GST and the relatively strong value of the Canadian dollar, particularly in 1991. Not surprisingly, total U.S. travel by Manitobans fell as the Canadian dollar declined in value relative to the U.S. dollar.

V.f. Revenues To Operators

Cyrenne classifies profits to government as benefits and all MLC payments to suppliers as costs to produce the gambling products. This is appropriate. However, in his calculation of benefits, Cyrenne also determines that the \$33 million he estimates will be paid to VLT site holders as "commission" to be benefits. Here Cyrenne's inclusion of benefits to site holders is inappropriate because:

- the focus of the benefits calculation is government and society at large, not individuals.

For Cyrenne to include payments to VLT site holders as benefits "opens the door" for other payments to suppliers to be similarly be classified as benefits. For example, just as VLT site holders (age controlled, licensed premises such as lounges and hotels) receive compensation, so do retailers (often convenience stores, pharmacies, etc.) who sell lottery tickets. The millions paid to these retailers are highly similar in nature to VLT commissions and should, therefore, be included as "benefits" if Cyrenne's cost benefit analysis were consistently applied. Further, if expenditures to these suppliers of service to MLC are benefits, expenditures made to other suppliers are equally "beneficial" to Manitoba.

In summary, it is our view that the cost benefit approach used by Cyrenne is inconsistent.

V.g. Consumer Benefits

In his discussion of consumer surplus (benefits enjoyed by consumers in addition to the amount paid for a good), Cyrenne concludes that for gambling "the demand curve is therefore relatively inelastic, that is, not very responsive to the price of gambling" and "there is relatively little consumer surplus remaining." In our view:

- these comments appear to be both imprecise and inconsistent;
- no support is provided to substantiate their validity.

To begin, Cyrenne does not specify precisely what he means by "relatively inelastic" as a description of the demand curve overall. However, we note that for most demand curves, there is some price range where demand is elastic, that is, where a relative increase in price would be more than offset by a relative decrease in quantity sold, so that the overall effect is a decline in total revenue. Since Cyrenne regards the MLC as a monopolist, then it follows that in order to maximize profit, the MLC would set the price of gambling in the elastic portion of the demand curve, which seems at variance with his comment.

While the technical proof of this fact is beyond the scope of this paper, the argument can be summarized simply as follows: to maximize profit, the monopolist prices where the incremental revenue from selling an additional unit is just equal to the incremental cost of producing that unit. Since this incremental cost is positive, so too is the incremental revenue. Suppose the producer were to reduce the price a little. This would prompt a small increase in the quantity sold, and would result in a small gain in overall revenue (since incremental revenue from another unit is positive). Thus, the relative decline in the price is outweighed by the relative gain in the quantity sold, which is precisely what is meant when demand is said to be elastic in this price range.

Cyrenne offers no arguments or calculations to support his contention that "there is relatively little consumer surplus remaining". Indeed, such a calculation depends on the shape of the demand curve, about which insufficient information is known.

In passing, we point out that consumer surplus rises as the price falls, and that the consumer surplus is therefore bigger in the inelastic portion of the demand curve than in the elastic portion, which is precisely why a monopolist prices in the elastic portion of the curve.

V.h. Costs Of Providing Gaming Services

In Cyrenne's measurement of social costs he includes an estimate of costs to provide gaming services (costs in his Table 1 include an estimate of annual VLT machine costs and annual operating costs). Our review of his methodology shows:

- he has double counted both types of expense.

First, Cyrenne calculates an estimated \$1 million as the annual charge for the amounts invested to create a VLT network of 4,900 machines. His logic here is faulty. He has ignored the fact that the net revenue he has used as the basis of his benefit calculation is already net of \$4.7 million in non cash depreciation charges for the VLT network.

Second, Cyrenne shows MLC's annual general and administrative expenses of approximately \$4.9 million as a social cost. In doing this he has committed yet another mechanical error in that in his development of his estimate of annual non VLT revenues (the 1994 amount of \$103 million, plateauing at \$110 million) he has already deducted the general and administrative expenses. (His calculation was \$181 million net revenue - \$78 million VLT = \$103 non VLT. The \$181 million is already net of general and administrative costs.)

V.i. Loss In Profits To Charitable Organizations

Cyrenne argues that legalized gambling has an adverse effect on charitable revenues (see pages 16-18). His argument in this respect is unconvincing. In particular:

- he places a heavy reliance upon a forecast of his own creation for estimating the expected level of charitable deductions, based upon the state of the economy;

- he ignores other economic factors which may explain changes in donation patterns.

With respect to his donation forecast, there are no details provided concerning his forecasting methodology. There are only seven data points in Figure 10 to which he refers the reader. If his analysis is based upon these data points, surely this is inadequate information upon which to base a forecast. Even further, Cyrenne supplies no evidence to support the contention that such a simplistic model of charitable behavior is reasonable. Also, Cyrenne supplies no indication of the reliability of the forecast model in a statistical sense, that is, the standard error, so it is impossible to judge whether the variance between the actual level of charitable deductions and those that would have been predicted by the model are even statistically significant.

On page 17 of his report, Cyrenne states that charitable gaming profits are static or falling from which he deduces that MLC products have hurt charitable gaming. He performs no further analysis to support that conclusion. He fails even to consider his own logic from earlier in his report wherein he states that gaming revenue can be expected to plateau after a period of growth. This phenomenon itself may explain charitable gaming revenue trends.

Detailed data shows that while charitable gaming net profits have been remaining relatively flat in the past four years, gross revenues have in fact been increasing.

Charitable Gaming (\$'000,000)

	Year									
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Gross Revenue	85.1	82.7	92.4	95.7	99.0	107.8	121.0	130.9	133.7	136.2
Prizes Paid	57.2	54.5	61.2	n/a	65.8	71.7	81.8	88.3	92.6	93.9
Total Expenses	12.8	10.9	10.9	n/a	13.4	14.4	16.5	18.2	18.3	20.2
Net Profit	15.1	19.6	20.3	20.1	19.8	21.7	22.7	24.4	22.8	22.1

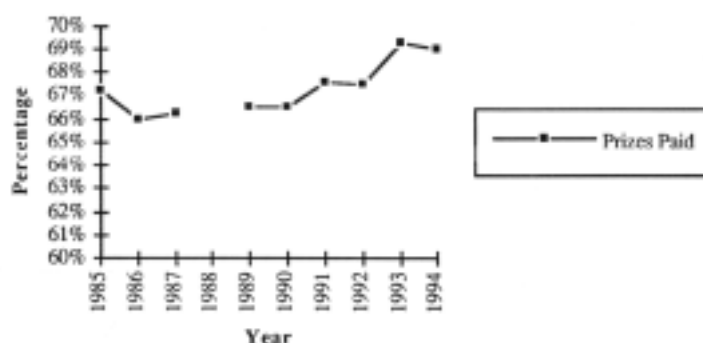
Source: MLC Annual Reports

Notes: Prizes Paid and Total Expenses are estimated for 1985, 1986 and 1987, and are not available for 1988.

Data for 1994 was provided by MLC and has been updated since appearing in the 1994 MLC annual report.

While the flattening of charitable gaming profitability may be a product of numerous factors, it may partially result as a lack of cost control by charities as they compete with each other for consumer dollars. The graph below indicates that prizes paid as a percentage of gross revenue is following an increasing trend.

Charitable Gaming - Prizes Paid as a Percentage of Gross Revenue



Source: MLC Annual Reports; Data not available for 1988

Cyrenne then argues that \$5 million of charitable donations were lost as a result of the expansion of legalized gambling and that this reduction in charitable donations is largely attributable to rural Manitoba.

In 1992, 39% of the total charitable deductions for Manitoba were donated by residents outside of Winnipeg. The table below summarizes the total charitable donations allowed by Revenue Canada for individuals in Winnipeg and other areas in Manitoba.

Charitable Donations (\$'000)

Year	Winnipeg	Other Manitoba
1985	75,251	43,988
1986	77,255	47,757
1987	84,352	50,936
1988	84,473	53,012
1989	93,022	56,693
1990	91,984	62,967
1991	93,933	63,822
1992	99,674	62,614

Source: Revenue Canada - Taxation Statistics

The year over year growth in charitable donations for Manitoba peaked in 1989, and decreased in the following years. The year over year change data is presented below for Manitoba and neighboring provinces for comparison. (Donation data subsequent to 1992 is yet unavailable.)

Charitable Donations
Year Over Year Change (%)

Year	Manitoba	Saskatchewan	Ontario
1986	4.84%	8.81%	10.38%
1987	8.22%	6.93%	14.45%
1988	1.62%	0.18%	8.15%
1989	8.90%	4.71%	9.78%
1990	3.50%	3.04%	7.20%
1991	1.81%	6.66%	0.27%
1992	2.87%	1.06%	3.34%

Source: Revenue Canada - Taxation Statistics

The table above shows that these provinces displayed similar trends to Manitoba's. Neither of the other provinces had VLT's during the period.

It is more instructive to consider the effect of fluctuations in farm net income on charitable donations of Manitoba residents living in areas other than Winnipeg. The table below examines the relationship between charitable donations and farm net income.

Charitable Donations & Farm Net Income

Year	Other Manitoba - Charitable Donations (\$'000)	Manitoba Farm Net Income (\$'000,000)	Other Manitoba Charitable Donations as a % of Manitoba Farm Net Income
1985	43,988	561	7.84%
1986	47,757	378	12.63%
1987	50,936	380	13.40%
1988	53,012	150	35.34%
1989	56,693	465	12.19%
1990	62,967	472	13.34%
1991	63,822	143	44.63%
1992	62,614	407	15.38%

Source: Revenue Canada - Taxation Statistics; Manitoba Agriculture Yearbook 1992

The data shows that farm incomes suffered a precipitous drop in 1991 and that in 1992, while recovering, remained below 1989 levels.

It is our view that the blows taken by Manitoba's rural economy, as well as broader consumer issues reflected in the three provinces' donation patterns, had an influence on 1992 rural Manitoba donations.

V.j. Loss In Profits To Other Businesses

Cyrenne calculates as a social cost his estimate of profits lost in 1992 by businesses in rural Manitoba as a result of monies spent on gambling. To do so he forecasts net income of self employed individuals and suggests that if actual net income is less than his

forecast, the differential is a gambling-related cost. According to Cyrenne "this measure is likely to pick up the affect on small businesses particularly in rural Manitoba" (page 18). In our view:

- Cyrenne has misused self-employed income data. It actually shows the opposite of his contention;
- he has ignored the more significant incorporated business income levels, the effect of the recession, and the fact that reported taxable incomes do not correlate simplistically with GDP. His attempts to forecast lost self employment income are meaningless.

In order to estimate lost profits, Cyrenne once again develops a highly simplistic econometric model which uses the state of the economy as the single explanatory variable for the change in the net income of self-employed individuals in Manitoba. As was the case in his earlier econometric estimation, Cyrenne does not exhibit any details of the estimation procedure. The results that are shown cover only an eight year period, far too few observations for developing reliable econometric results. The standard error from the regression is not shown, and the time period relating to the introduction of video lottery terminals in rural Manitoba is far too short to derive any reliable conclusions.

Cyrenne does not state the source of his self-employed income statistics. He presents data for all of Manitoba in his Figure 12, he does not use data for self-employed net income in rural areas only. We used Revenue Canada's *Taxation Statistics* to examine the total self-employed net income earned by all Manitobans in the taxation years 1988 to 1992. This data is presented in the table below for Winnipeg and for other areas of Manitoba excluding Winnipeg. In 1992, 55% of all self-employed income for Manitoba was earned by Winnipeg residents. Self-employed net income for Other Manitoba, or rural Manitoba, actually increases in 1992 while it declines in Winnipeg.

Self-Employed Net Income (\$'000s)

Year	Dollars (\$'000s)			Change (%)	
	Winnipeg	Other Mb	Total Mb	Winnipeg	Other Mb
1988	426,224	422,818	849,042		
1989	454,127	433,048	887,175	6.55%	2.42%
1990	503,826	372,761	876,587	10.94%	-13.92%
1991	481,959	355,319	837,278	-4.34%	-4.68%
1992	465,598	377,047	843,375	-3.39%	6.32%

Source: Revenue Canada - Taxation Statistics

We have additional concerns with this approach. First, Cyrenne observes (page 18) that it is necessary to "count as losses the lost profits which are brought about by a reduction in demand for those goods which are substitutes for gambling" in estimating the costs of legalized gambling. However, his methodology fails to attempt to measure increases in profits for those businesses which provide complimentary goods. These could include the hotel, restaurant and tourist industries, all of which are supporters of various forms of legalized gambling. By looking only at self employed income he has ignored most businesses which would provide the "substitutes" Cyrenne believes are hurt by gambling. Certainly, most providers of entertainment are incorporated be they theatres, bowling alleys, or pizza parlors.

Further, most entrepreneurial incomes are influenced by broad business trends. Taxable incorporated business income can be used to examine business trends. The table below summarizes taxable incorporated business income for Manitoba, Saskatchewan and Ontario.

Taxable Incorporated Business Income (\$'000s)

Year	Province		
	Manitoba	Saskatchewan	Ontario
1988	1,095,417	930,494	23,117,703
1989	1,136,031	927,926	24,001,931
1990	1,003,065	897,725	20,793,214
1991	1,021,466	918,146	18,377,667
1992	845,870	780,206	14,793,724

Source: Statistics Canada, Financial and Taxable Statistics for Entreprises

All three provinces display similar trends.

Because the average taxable income for incorporated businesses will vary by province, it is also useful to look at the number of businesses reporting taxable income. Not only did incomes fall in 1992 but the number of businesses shrunk. This data is summarized in the following table.

Number of Incorporated Businesses with Taxable Income

Year	Province		
	Manitoba	Saskatchewan	Ontario
1988	10,235	11,095	121,556
1989	8,765	9,666	106,534
1990	8,854	9,855	103,378
1991	8,279	9,407	85,643
1992	7,612	8,555	71,783

Source: Statistics Canada, Financial and Taxable Statistics for Entreprises

Year over year percent change in the number of incorporated businesses reporting taxable income follows:

**Number of Incorporated Businesses with Taxable Income
Year Over Year Change**

Year	Province		
	Manitoba	Saskatchewan	Ontario
1988			
1989	-14.36%	-12.88%	-12.36%
1990	1.02%	1.96%	-2.96%
1991	-6.49%	-4.55%	-17.16%
1992	-8.06%	-9.06%	-16.18%

Source: Statistics Canada, Financial and Taxable Statistics for Entreprises

Again, the three provinces have similar trends. Further, as shown below, business income does not correlate simplistically with GDP.

**Number of Incorporated Businesses with Taxable Income
Compared to GDP - Manitoba**

Year	Number of Businesses	GDP (\$'000,000)	Change (%)	
			No. of Bus	GDP
1988	10,235	21,256		
1989	8,765	22,437	-14.36%	5.56%
1990	8,854	23,124	1.02%	3.06%
1991	8,279	22,841	-6.49%	-1.22%
1992	7,612	23,631	-8.06%	3.46%

Source: Statistics Canada, Financial and Taxable Statistics for Entreprises
Statistics Canada, Cat No 11-010

In summary, Cyrenne's attempts to forecast lost self employment income are meaningless.

To support his estimate of lost profits to businesses providing goods and services for which gambling is a substitute, Cyrenne cites the results of a survey of rural Manitoba businesses conducted by the Winnipeg Free Press. If the results of this survey are to be believed, then roughly 70% of all businesses believe that business and profits will be up or will remain the same following the introduction of video lottery terminals. Further, almost 90% of businesses report that employment is up or the same since video lottery terminals were introduced.

In our view, however, the design of the survey is wanting in many respects. For example, the questions posed are simplistic or vague, there is no evidence that the respondents were requested to check their records in order to ensure the accuracy of their responses. There is no discussion as to how the businesses were selected, whether or not the sample of businesses selected can be considered representative, how the sample frame was determined from which businesses were selected, and how issues of non-response could affect the stated survey results.

V.k. Discussion Of Costs Of Pathological Gambling

In an effort to quantify the social costs which arise from problem gambling, Cyrenne bases his calculations upon differing estimates which appear in two studies of the U.S. situation. According to these studies, the social costs per pathological gambler in 1981 in the U.S. was \$13,600(US) and \$8,800(US), respectively. The two studies are based upon essentially the same data and differ only in a relatively minor methodological issue. Cyrenne derives what he believes is the equivalent amount in 1995 Canadian dollars by assuming an interest rate of 5% and then converting the U.S. dollar figure into Canadian dollars. In our view this methodology is seriously flawed because:

- the mechanics used to generate a current Manitoba equivalent for this 14 year old U.S. data are faulty;
- the social costs per pathological gambler used in his calculations are highly suspect.

Cyrenne's estimate of social costs of pathological gaming are based on work done by Rachel A. Volberg, Ph.D. As a result of enquiries by us, Volberg has written to us saying:

"With respect to your inquiry regarding the figures used by Robert Goodman in Legalized Gambling as a Strategy for Economic Development, quoting an unpublished presentation I gave at the Seventh National Conference on Gambling Behavior in 1993, please note the following points:

-
- The dollar figures used by Mr. Goodman, and therefore Professor Cyrenne, are based on a 1981 sample of 28 individuals selected from a group of approximately 90 pathological gamblers in an inpatient treatment program in the United States.

This sample cannot be considered representative of pathological gamblers in treatment since most treatment programs are outpatient facilities. Nor is this sample representative of pathological gamblers in the general population. Given these differences, extrapolation of data from this sample is of extremely limited use.

- Further, given the small size of the original sample of pathological gamblers, the "social costs" associated with this sample are best considered anecdotal and should not be considered reliable for extrapolation to larger groups.

The lack of existing research in this area makes the calculation of the total social costs associated with problem gaming speculative at best. It is unfortunate that the social cost figures I developed for discussion purposes at the conference in 1993 have been given a credibility that I do not believe they warrant."

Further, Cyrenne's ad hoc methodology for estimating social costs from problem gambling in Canada is entirely inappropriate. To begin, there is no reason to believe that the social costs for problem gambling in Canada are related to those in the U.S. in any simple way such as this might suggest. The Canadian and U.S. economy differ with respect to wage rates, social systems, import costs, bail-out patterns and many other factors which would make such a simplistic comparison ridiculous without a considerable weight of supporting evidence.

Even further, the conversion methodology which Cyrenne adopts to ascertain the Canadian dollar costs is nonsense. In theory, it is not clear whether to convert the U.S. dollar estimate from 1981 into the corresponding Canadian dollar value in 1981, and then apply Canadian inflation, or to inflate the U.S. dollar estimate to 1994 according to U.S. inflation, and then apply some exchange

conversion. In any event, to convert from 1981 dollars to 1995 dollars, certainly one should *not* use an interest rate as he does, but rather an inflation rate.

Second, it is by no means clear what would be the appropriate exchange rate for converting the U.S. dollar costs into Canadian dollars. What is clear is that by using a 73 cent Canadian dollar, which is very close to the historical low for the Canadian exchange rate relative to the U.S. dollar, Cyrenne is unfairly biasing the estimate.

V.I. Lost Salary Due To Pathological Gambling

Cyrenne observes that "the major cost from problem and pathological gambling is the dollar value of the salary that would have been earned by problem and pathological gamblers who lost their jobs (page 22). Cyrenne then proceeds to develop a calculation for the cost associated with such job loss based upon his estimate that 50% of problem and pathological gamblers lose their jobs and that the position remains unfilled for half a year. In our view:

- the assumptions are unsupported;
- the calculations contain mechanical errors.

First, there is absolutely no evidence provided to support the reasonability of either of Cyrenne's assumptions. For example, calculating that jobs remain vacant for half a year assumes relatively little slack in the workforce. If it were alternatively assumed that job vacancies were promptly filled by unemployed individuals collecting unemployment insurance, Cyrenne's approach would generate zero social salary costs.

Further, we observe that the math he uses to calculate social costs in Appendix A6, page 40, is in error. Specifically, he calculates the same cost for unemployment insurance regardless of whether 30% of his estimated 5,000 problem gamblers lose their jobs or whether 100% do so. This is incorrect.

V.m. Other Social Costs

Cyrenne determines other social costs to be measurable by estimating the amounts of money transferred involuntarily to gambling from the family members of problem gamblers. The methodology he employs:

- uses data which is inconsistent with other calculations in his report and thereby biases his result.

His calculation attempts to measure the amount by which gambling expenditures of problem gamblers exceed normal discretionary spending by families. He estimates the annual income of problem gamblers to be \$15,000, uses a 21% estimate of discretionary spending (from the *Family Expenditure Survey*) and then concludes that if problem gamblers spend \$5,000 per year on gambling it would exceed \$3,150 (21% of \$15,000) by \$1,850. The \$1,850 is meant to represent the necessities family members are deprived of and is multiplied by the number of problem gamblers to derive a social cost.

This methodology would not withstand rigorous examination by an expert in the area of gaming pathology. For example, the same Gfellner study he cites to develop his gambling expenditure estimate also says that over 40% of problem gamblers are single and never married.

Further, we question why Cyrenne uses a problem gambler employment income estimate of \$29,000 in the calculation of "lost salary" and then uses \$15,000 as the income estimate when calculating "other" social costs. In both cases he's referring to the same population of 5,000 estimated problem gamblers. By changing income estimates he has biased the calculation of other social costs. If the higher income estimate is used and the same methodology applied, no other social costs are incurred.

V.n. Consumer Bankruptcies

Cyrenne cites the expansion of the VLT network as the reason for the discrepancy between actual consumer bankruptcies and his forecasted consumer bankruptcies for 1991 and 1992 on page 30 of his report. We conclude that:

- bankruptcy trends reflect broader social and economic factors;
- Cyrenne uses a highly simplistic model in his attempt to predict bankruptcies in Manitoba.

The table below summarizes the number of consumer bankruptcies for neighboring provinces.

Number of Consumer Bankruptcies - By Province

Year	Province		
	Manitoba	Ontario	Saskatchewan
1985	658	6,828	454
1986	754	7,580	562
1987	994	7,981	631
1988	1,076	7,516	775
1989	1,419	8,902	1,013
1990	1,890	16,287	1,341
1991	2,572	26,360	1,607
1992	2,542	27,178	1,580
1993	2,358	23,153	1,208
1994	2,252	21,436	1,239

Source: Office of the Superintendent of Bankruptcy

The following table shows that both Saskatchewan and Ontario also had dramatic growth in the number of consumer bankruptcies from 1990 to 1991.

Number of Consumer Bankruptcies - By Province
Year Over Year Change

Year	Province		
	Manitoba	Ontario	Saskatchewan
1986	14.59%	11.01%	23.79%
1987	31.83%	5.29%	12.28%
1988	8.25%	-5.83%	22.82%
1989	31.88%	18.44%	30.71%
1990	33.19%	82.96%	32.38%
1991	36.08%	61.85%	19.83%
1992	-1.17%	3.10%	-1.68%
1993	-7.24%	-14.81%	-23.54%
1994	-4.50%	-7.42%	2.57%

Source: Office of the Superintendent of Bankruptcy

The growth pattern in consumer bankruptcies appears to be very similar in all the provinces. Ontario, which does not have government VLT's, actually shows the largest increase in consumer bankruptcies in 1990, 1991, and 1992. Clearly, there are broader economic factors, consumer confidence factors and other factors influencing bankruptcy patterns. We do not find it credible to attempt to correlate the expansion of government-managed VLT's to consumer bankruptcies. In fact, to do so would erroneously imply that the expansion of the VLT network in Manitoba from 1992 to 1994 caused a decline in bankruptcies during those years.

VI. Summary

Cyrenne concluded that "Legalized gambling produces enormous social benefits and enormous social costs" and calculated net benefits to exceed costs. We have not attempted to arrive at our own opinion as to what these benefits and costs might be.

Our review of the Cyrenne report has revealed a number of significant methodological deficiencies as well as errors and omissions in the application of data. These cast serious doubt on the validity and accuracy of the study's findings, the author's objectivity, and the usefulness of his report.

Appendix I. Overview Of Cyrenne Report

The Cyrenne report is organized around the concept of benefit-cost analysis. It attempts to define, in dollar terms, the direct and indirect benefits and costs to Manitoba (all Manitobans) of "legalized gambling."

[While Cyrenne introduces his report as a net social benefit study of legalized gambling, it focuses exclusively on MLC-operated games. The report does not review non-MLC gaming, such as horse racing and licensed charitable gaming events. Additionally, within the subset of MLC products the focus is primarily on video lottery terminals "VLT's".]

Cyrenne estimates the annual dollar benefits of gaming as follows (in \$'000,000s):

Revenues to government	\$210
Revenues to operators	33
Consumer benefits	<u>45</u>
Total benefits	<u>\$288</u>

Revenues to government

- to develop this estimate Cyrenne first looks at actual 1994 fiscal VLT net revenue of approximately \$78 million and predicts it will plateau at an annual level of \$100 million.
- he then examines revenue from products other than VLT's. He judges net revenue in fiscal 1994 to be \$103 million and concludes this will plateau at an annual level of \$110 million.
- he concludes the sum of these two revenue streams will represent annual benefits of \$210 million.

Revenues to operators

- to determine the amount of VLT commissions going to site holders on an annual basis, he grosses up the approximately \$26 million paid out in 1994 to \$33 million, in line with his plateaued estimate for VLT net revenue.

Consumer benefits from gambling

- Cyrenne introduces the notional concept of consumer surplus. Consumer surplus is defined as the benefit a consumer enjoys which is greater than the benefit the consumer is required to pay for.
- He postulates that consumer demand for lottery products is not very price sensitive and that the existing pricing is high, deducing from this that the consumer surplus is relatively small.
- He estimates that the amount of the consumer surplus is one-fifth of future annual "monopoly profits" (which he defines as MLC net income plus VLT commission), adjusted downward for non-Manitobans who use the products, is the amount of consumer surplus. His estimate of this amount is \$45 million.

Cyrenne then quantifies the annual dollar costs of gaming as follows (in \$'000,000s):

Costs - machine costs	\$1.0
Costs - operating expenses	4.9
Lost profits charities - rural	5.0
Lost profits charities - Winnipeg	8.0
Lost profits - other businesses	46.0
Social costs - lost salary	60.0
Social costs - other	<u>10.0</u>

Total costs

\$134.9

Costs of gaming facilities - machine costs

- Cyrenne opines that the cost of producing gambling services must be included as a social cost. He estimates a price per VLT machine at \$7,000, and multiplies this by the 4,900 VLT's in service to arrive at an estimate of the "fixed cost for the Video lottery network" of \$34 million.
- He then calculates how much must be invested annually, over 20 years, at 7% interest, to fund the estimated \$34 million cost.
- He concludes this annual cost to be approximately \$1 million per year.

Costs of gaming facilities - operating costs

- Cyrenne uses \$4.9 million as the annual operating cost of gaming facilities, this number presumably taken from the \$4.904 million shown on MLC's 1994 financial statements as general and administration expenses.

Lost profits to charities - rural

- Cyrenne postulates that profits from "legalized" gaming reduce the profits which are available to charitable organizations from licensed activities. He concludes that charitable gaming profits are static or falling, without quantifying benefits or losses, and further postulates that legalized gaming reduces donations given to charitable organizations.
- He examines trends in charitable donations in Manitoba and then concludes 1992 donations outside Winnipeg were below the long term average relative to Winnipeg donations. Because VLT's were introduced to sites outside Winnipeg in the fall of 1991, he attributes this variance to VLT's. He quantifies this amount at \$5 million and uses this as an annual social cost.

Lost profits to charities - Winnipeg

- Similarly, he predicts that Winnipeg charitable donations will fall when VLT's are introduced to Winnipeg and quantifies this at \$8 million per year.

Lost profits to other businesses

- Cyrenne notes that VLT's may be substitutes for other forms of entertainment and calculates as a social cost lost profits to other businesses. He suggests that self employed income is a useful measure of profits to small rural business.
- He then calculates that self employed income is \$46 million less than what he would otherwise forecast for 1992 and uses this as his on-going estimate of losses to other businesses.

Social costs - lost salary

- Cyrenne attempts to address the social costs of pathological gamblers. He discusses several U.S. references to social costs and concludes one major cost to society is job loss by pathological gamblers.
- He quantifies job loss cost by assuming half of the estimated 5,000 problem gamblers in Manitoba lose their jobs every year for half the year. At his estimate of \$29,000 per job this is equivalent to \$36.25 million.
- In addition to salary loss Cyrenne describes unemployment insurance amounts paid to those with lost jobs as a social cost. He calculates this amount to be \$20.16 million.
- The sum of these two wage-related costs is rounded to an estimate of \$60 million per year on an on-going basis.

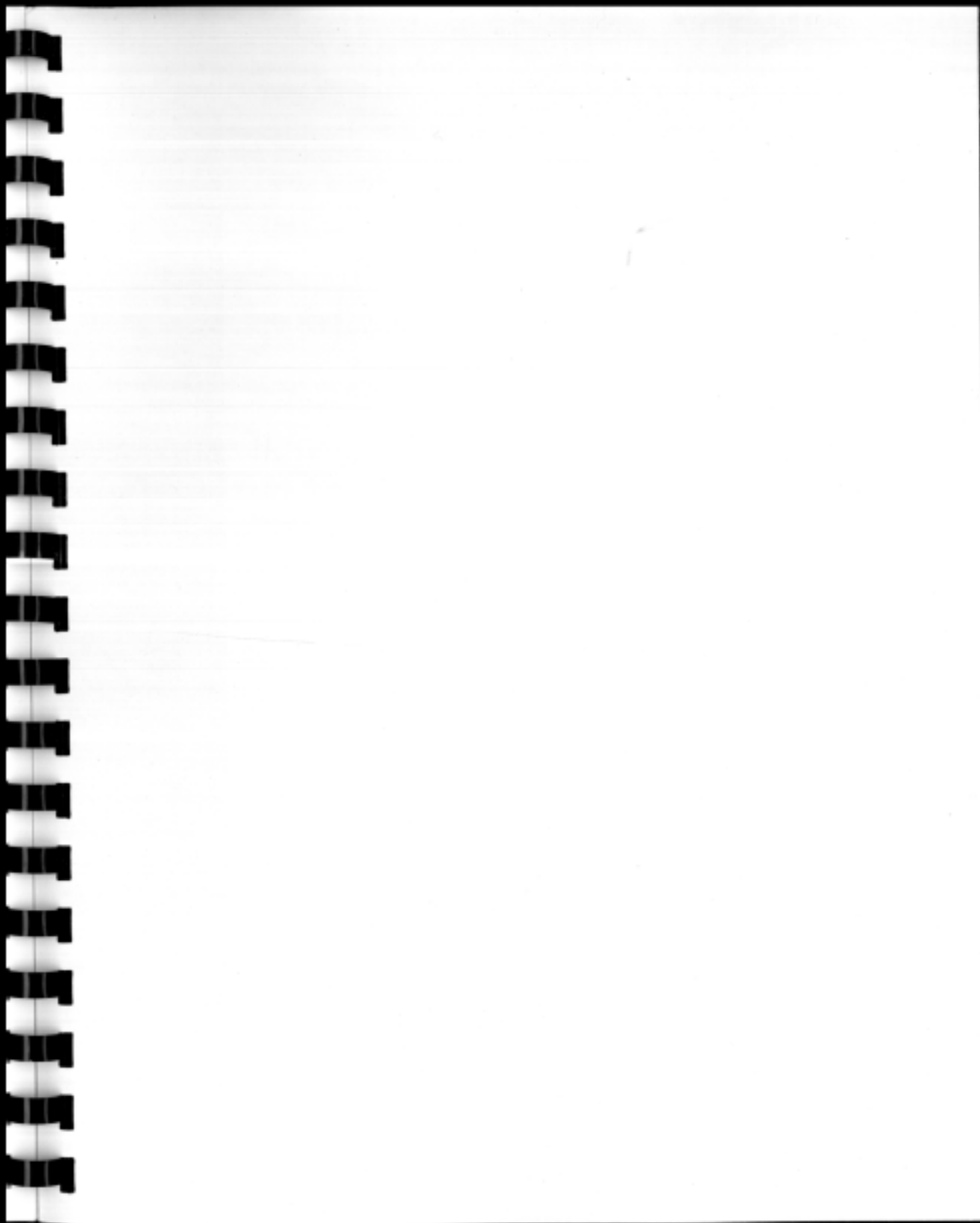
Social costs - other costs

- Cyrenne quantifies as an additional social cost his estimate of amounts spent on VLT's by problem gamblers which would otherwise have been spent on household necessities.

-
- He does this by assuming that 5,000 problem gamblers spend \$5,000 per year each on gambling. He assumes these gamblers earn \$15,000 per year. He notes that Statistics Canada surveys report that 21% of family expenditures are discretionary.
 - To determine the amounts transferred involuntarily from other family members he calculates that 21% of a \$15,000 income is \$3,150. His assumed gambling expenditure of \$5,000 exceeds this amount by \$1,850. He therefore concludes that a societal cost of $\$1,850 \times (5,000 \text{ gamblers}) = \$9,250,000$. This is rounded to an annual cost of \$10 million.

Other observations by Cyrenne include:

- Lottery profits earned by government create a transfer of wealth from those who gamble to those who don't.
- That gambling profits to government represent a regressive tax in that amounts "paid" are not related to ability to pay.
- He estimates consumer bankruptcies in 1991 and 1992 were higher than he would otherwise predict based on a correlation with provincial GDP and attributes this discrepancy to the expansion of the VLT network.



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