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Communication
SP CW: May 28/13
Item: 1

Subject: FW: Re; May 28th Special Council - Casino Debate
Attachments: InformingThePublicDebateCannibalization.pdf; InformingThePublicDebateCrimeCasinos.pdf; InformingThePublicDebateEconomicImpacts.pdf; InformingThePublicDebateProblemGambling.pdf; InformingThePublicDebateSocialCosts.pdf

Note:

The Attachments contained in this Communication have been distributed to the Mayor and Members of Council, posted on the City's Website, and are available to view at the meeting in the Reference Binder.

From: Paul Burns [mailto:pburns@canadiangaming.ca]
Sent: Monday, May 27, 2013 2:03 PM
To: Clerks@vaughan.ca
Subject: Re; May 28th Special Council - Casino Debate

Dear Clerk,

Please find attached copies of recent studies undertaken by Dr. Kahlil Philander and Dr. Bo Bernhard from University of Nevada Las Vegas International Gaming Institute.

This series of studies "Informing the Public Debate" examined the relevant peer review researched on five issues most often misrepresented in casino debates – Economic Impacts, Social Costs, Problem Gambling, Crime and Cannibalization.

I appreciate If you could distribute to the Mayor, Council and relevant city staff.

Regards,

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Informing the Public Debate: Cannibalization

The Effect of New Casinos on Gaming and Non-Gaming Businesses

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November 1, 2012

UNLV | INTERNATIONAL GAMING INSTITUTE
WILLIAM F. HARRAH COLLEGE OF HOTEL ADMINISTRATION

Executive Summary

This paper is part of a series that is intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). Specifically, our intent is to outline the relevant peer-reviewed research pertaining to these issues, as this is the research that can be trusted to be scientific and objective, and then to provide reasoned applications of this research to the unique economic and social environment in the Greater Toronto Area.

Our focus in this particular paper is on the issue of complementary effects and substitutionary effects (or "cannibalization") when casino-style gaming is introduced. To date, opinions on potential cannibalization in the GTA have been publicly and articulately voiced, but few if any of these have been supported by sound academic research on an alleged cannibalistic relationship between casino-style gaming and other industries.

In fact, available research does not generally support the assertion that casinos negatively affect surrounding businesses, including those in the hospitality industry. Where research is available to inform some of these questions, it often suggests that surrounding industries have actually *grown* after the introduction of casinos, and we would expect this to be especially true with the GTA project, as it should attract tourists. Potential impacts on neighboring businesses (including food and beverage, entertainment, and retail businesses) should not, therefore, discourage policy makers from adopting a resort casino in the GTA.

Even when we turn our attention to the existing gaming industry, the evidence does not support these cannibalization claims. On this academic topic, there are even more peer-reviewed studies that carefully explore these relationships, and they tend to conclude that new casinos' net economic effect on existing nearby casinos is positive. Some researchers have found negative impacts on lottery ticket revenues; however, in these instances the net economic impact remains positive. Finally, the most relevant scientific research on the economic relationships between online gambling and casinos suggest that the two forms of gaming actually have a small but positive (complementary) relationship.

Having examined all of the relevant peer-reviewed literature on the oft-cited "cannibalization" claim, we conclude that there is no strong evidence to suggest that a GTA resort casino will meaningfully cannibalize incumbent businesses. In fact, we expect that many industries will be stimulated by the resort casino, given the current empirical evidence of complementary relationships. Industries such as tourism, entertainment, lodging, food and beverage, as well as non-lottery gaming products may observe positive economic benefits from the expansion of casino gaming in the GTA. Finally, we expect that these positive effects will be even greater for a diverse integrated-resort property as opposed to a gaming-only facility.

Introduction

This document is the first in a series intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). The series focuses on common debates that tend to occur during the expansion of gaming in a jurisdiction. Our intent is to outline the relevant peer-reviewed research pertaining to these issues, as this is the research that can be trusted to be scientific and objective, and then to provide reasoned applications of this research to the unique economic and social environment in the Greater Toronto Area. This latter step is particularly important in policy considerations, since potential gaming jurisdictions can vary significantly in terms of market structure, amenities, population demographics, economic characteristics, and public health support systems.

In this first report, our focus is on the issue of complementary effects and substitutionary effects in industries related to casino style gaming – or what is commonly referred to as "cannibalization." The sections that follow include a discussion of the expected impacts on non-gaming industries (including hospitality-related businesses), the expected impacts on existing gaming markets, and the general economic principles of product and service consumption.

1 Background

In early 2012, the Ontario Lottery and Gaming Corporation (OLG) announced formal plans to develop a new casino in Greater Toronto. The plan, which is expected to elicit bids from large commercial gaming corporations, is projected to include an "integrated resort" property, combining hotel, restaurant, entertainment, retail, and convention facilities along with gaming amenities.

Opinions on this potential development have been publicly and articulately voiced, but few if any of these have been supported by sound research on an alleged substitutionary (or cannibalistic) relationship between casino resort gaming and other industries

Presently, there are several forms of gaming available in the GTA, although there is no resort-style casino gaming within an hour's drive of the downtown core. The nearest commercial resort-style casinos are Niagara Fallsview and Casino Rama, located well outside of the city limits, and there are OLG slot machines at more nearby racetrack casinos, such as Woodbine, Georgia Downs, and Ajax Downs.[1] Lotteries, pari-mutuel horse racing, bingo, and multi-game sports wagering are all accessible, and OLG has expressed its intention to roll out various forms of Internet gaming, beginning in 2013.

To date, opinions on this potential development have been publicly and articulately voiced, but few if any of these have been supported by sound research on an alleged

[1] There is also a temporary casino at the CNE during a portion of the summer.

substitutionary (or cannibalistic) relationship between casino resort gaming and other industries. Concerns about cannibalization of surrounding businesses in the GTA frequently point to isolated testimonial evidence – and at other times, they cite no research whatsoever. For example, consider a recent publication by the University of Guelph entitled, "Economic Consequences of a Casino-Resort in Downtown Toronto" (Joppe and Choi, 2012). The authors of that study made strong claims about many aspects of cannibalization, contending, for example, that a Toronto area casino would cannibalize Niagara Fallsview and Casino Rama. However, in their justification of this claim, the authors cited only an online news discussion with a psychologist, instead of the types of data-driven economic analyses we examine here.[2] Needless to say, these types of "studies" should not drive policy; instead, wherever possible, policymakers should rely on peer-reviewed research. What follows in this paper is carefully reasoned set of policy considerations, drawing on empirical results from the most robust academic studies available on cannibalization and casinos.

2 Issues

2.1 Impacts on Non-Gaming Industries

A common discussion point that arises when the expansion of casino gaming is introduced focuses on how businesses in the surrounding area, particularly those in the hospitality industry, will be affected. Our outlook is that the development of a resort-style casino in the GTA will have either no effect or a net overall positive effect on the nearby hospitality and tourism industries. Available research does not generally support the assertion that commercial casinos negatively affect surrounding businesses, including those in the hospitality industry. Where research is available to inform some of these questions, it often suggests that surrounding industries have actually grown after the introduction of casinos. Potential impacts on neighboring businesses should not, therefore, discourage policy makers from adopting a resort casino in the GTA.

Available research does not generally support the assertion that commercial casinos negatively affect surrounding businesses, including the hospitality industry

Consider the food and beverage industry, where the issue of casino cannibalization has been thoroughly researched. Hashimoto and Fenich (2003) examined the effects of casino development on food and beverage activity in the state of Mississippi. Mississippi is clearly not a perfect corollary to Toronto, but it is a market with resort-style casino gaming, and therefore provides some guidance, given the expected GTA property design. In the four cases that these researchers examined, they found activity of the local food and beverage industry *increased*

[2] Incidentally, one of the existing peer-reviewed empirical studies that exists (Fenich and Hashimoto, 2004) was listed in the reference section by Joppe and Choi (2012), but the authors did not cite its results anywhere in the report.

following the development of casinos, including rises in the number of businesses and employment. Importantly, these figures excluded food and beverage activity within the casino, and therefore represent incremental effects outside of the property.

Another article by Fenich and Hashimoto (2004) on different markets reached similar conclusions. This study focused on four casinos located in Colorado, South Dakota, and New Jersey. Again, the authors found that the number of food and beverage establishments and employees rise following the development of nearby casinos. While neither of these studies directly imply causal effects (that is, we cannot unequivocally suggest that casino development will increase surrounding hospitality industries), we find strong evidence that policymakers should proceed under the assumption that casino development will have either positive or insignificant effects on surrounding food and beverage businesses.

In a more recent study, Cotti (2008) develops a carefully constructed empirical analysis, using county-level data from across the US to examine the effects of casinos in a non-case study sample. This paper, which does not focus on any particular region, provides more generalizable insight into casinos' effects on related industrial sectors. Overall, Cotti finds that counties generally experience positive spillover effects after a casino opens. In particular, he finds that the effects on entertainment and hospitality industry employment/earnings are either insignificant or positive. Of course, a concern during the study was that the findings may be capturing the direct effects of the casinos themselves (that is, impacts felt within the new casinos), so Cotti also conducts other analyses of smaller sub-sectors that specifically exclude the casino properties. These sectors provide particularly revealing insights, as Cotti notes in the study:

> *Estimates from analysis of both the museum, zoos, and parks sector, as well as the other recreational centers sector (which includes golf courses, skiing resorts, marinas, fitness centers, and bowling alleys) do not show the presence of a strong casino effect, as estimates are insignificantly different from zero. That said, it is noteworthy that in both cases they have non-trivial positive coefficients. So one can conclude that there is stronger evidence of a complementary casino effect present then there is of any business-stealing effect within the entertainment industry.*

This study also provides estimates of impacts on the non-casino hotel industry and the non-casino restaurant/bar industry, and in both cases there is no evidence of a substitutionary effect; both industries show no statistical significance. The author concludes the study by noting that his findings generally refute arguments for a substitutionary effect, noting that the evidence actually supports the opposite position:

> *The results do not provide strong evidence to suggest that this increase in jobs is offset through substitution of jobs in other related industries, as has been suggested in prior research. To the contrary, some related industries see an increase in employment, which*

could be indicative that these firms benefit from some complementary demand, maybe through increased tourism etc.

In a modest but relevant study, Siegel and Anders (1999) examined the effect of riverboat gambling in Missouri on the sales tax revenue of surrounding businesses. The authors found that the growth of riverboat casinos had no effect on the sales tax revenue of general merchandise stores, apparel and accessory stores, miscellaneous retail, or personal services. The sole industry where the authors find some level of substitution is the amusement and recreation services industry, but this was far from a dollar for dollar substitution, and provides evidence countering claims by authors such as Grinols (1996) of perfect substitution. Siegel and Anders estimate a sales tax revenue substitution level of roughly $0.29 for every dollar of sales tax paid by riverboat casinos. That is, these results only suggest a decrease of $0.29 in amusement and recreation taxes for each $1.00 increase in gaming taxes – thereby leading to a *positive* incremental change of $0.71 in tax revenue.

Likewise, Rephann, Dalton, Stair, and Isserman (1997) conducted a more robust study of the effect of casinos on other sectors of the economy, analyzing 68 counties where casinos were opened from 1989 to 1993, including riverboat gambling. These authors also find no evidence of industry substitution, and in fact identify significant positive differences in retail trade, construction, and finance, insurance and real estate employment. These authors specifically note:

There is no evidence that casino development "cannibalizes" other sectors of the economy.

2.1.1 Economic and Market Perspectives

Compared to a "gaming only" facility, we expect that an integrated-resort casino will have more positive effects on surrounding businesses.

At this stage, it is useful to consider one oft-neglected point: previous research often examines casino-style development that looks (and acts) very different from that which is being proposed in the GTA. When considering the effects of casino expansion in the GTA, it is important to consider the design of the proposed property, especially when considering older research. For instance, one key aspect of the GTA development is that the integrated resort is expected to draw patrons from outside of the local market. This is an important feature, since the development of an integrated resort will serve to attract both business and leisure travelers from outside of the GTA. Some of these visitors will surely sleep, eat, and seek entertainment on-site, but many will also participate in tourism-oriented activities outside of the resort. Compared to a "gaming only" facility, then, we would expect that an integrated resort casino will have more positive effects on surrounding businesses, due to a positive increase in local tourism.

Even in the absence of these observations of the GTA market, the research literature contains economic arguments that suggest that cannibalization claims miss a bigger (and fundamental) policy point: if consumers choose to patronize the resort properties instead of another business, they are doing so because the value they perceive is higher. According to general economic principles, when we restrict these options, consumers tend to be inherently worse off. Certainly an argument can be made that whether that business is inside the casino resort or outside of the facility, consumers should be able to decide for themselves where they spend their income. This perspective on casino gaming is explained by Walker (1999):

> *If spending is unregulated, the producers who best please consumers will be rewarded with profitable futures. These researchers suggest that more choice in entertainment, by itself, is a bad thing simply because it means more competition for existing entertainment firms – that competing entertainment firms will be "cannibalized." Of course casinos will attract dollars that otherwise would have been spent elsewhere, but so does a sale at the local department store. Was society harmed when the horse-drawn buggy industry was cannibalized by the automobile industry?*

Of course, this economic argument is based an assumption that most consumers behave rationally, and we would certainly note that those with gambling-related problems do not necessarily do so. Nevertheless, the notion that cannibalization is an automatic negative misses an important and broader historical point: that newer consumer options are constantly replacing old ones, and that market forces are a key driver of this phenomenon.

2.2 Impacts on Existing Gaming Markets

In addition to considering the effects of casino expansion on non-gaming industries, an important policy concern is their effect on *other* gaming industries, which may be in competition for the same players. As summarized by Walker and Jackson (2008):

> *A key to understanding the effectiveness of legalized gambling as a fiscal policy tool is the relationship among gambling industries. If casinos and lotteries are complementary, for example, then a lottery state can benefit by introducing casinos.*

Because we seek to provide a thorough assessment of all of the substitution effects that we can determine based upon the academic literature, this section outlines the projected impact of a GTA resort casino on other gaming markets in Ontario.

2.2.1 Casinos & Racinos

The most comprehensive and robust study of gaming industry relationships was carried out by Walker and Jackson (2008). Their study modeled the gaming market relationships of all 50 U.S. states plus Washington D.C. over a 16 year period from 1985 to 2000. In their results, the authors found a positive relationship between casino gaming, race track gaming, and First Nations gaming – meaning that as one sector grew, others grew alongside them. If we

(cautiously) extend these results to the GTA market to understand the likely effects of an integrated resort there, we would expect that there would not be net substitution by the surrounding gaming facilities, such as those at Woodbine or in Niagara Falls. In fact, the GTA development might actually be associated with increased revenues from these facilities.

We would expect that there would not be net substitution from the surrounding gaming facilities, such as those at Woodbine or in Niagara Falls

Of course, we advocate a conservative outlook when applying the results from any study of the U.S. market when making recommendations for a Canadian municipality, but we see no strong arguments as to why these markets should differ significantly. In fact, there is similar evidence of complementary relationships in a study that included analysis of the Canadian market. Marfels (1997) examined the relationship between casinos and video lottery terminals (VLTs) in Canadian and U.S. jurisdictions. Marfels reached a similar conclusion on these relationships, noting:

> *...there is no case of declining revenues of casino gaming when VLT gaming was introduced or vice versa.*

Part of the explanation of the observed complementary relationships between commercial casinos, racetracks, First Nation casinos, and VLTs may be explained by an agglomeration effect, where the presence of more casinos leads to more activity for the whole sector. This effect, which has been casually observed in markets such as Las Vegas or Atlantic City for many years, was empirically tested by Walker and Nesbit (2012) in the Missouri market. Their study found that although casinos compete with one another in the machine game category, the presence of a new casino in a well-developed market offset this "cannibalization" through what was titled an "agglomeration" effect. They concluded that the presence of a new casino increases demand for all nearby gaming properties.

In the case of an "isolated" casino market, which is applicable to the GTA, Walker and Nesbit actually find that the agglomeration effect dominates the competitive effect, leading to an overall positive effect on the closest casino's revenue. This implies that although a new GTA casino and existing properties may compete for some players, the net effect on the incumbent properties should still be positive.

Similarly, Rephann et al. (1997) found that the positive economic effects of casinos were greater if the jurisdiction (county) hosted more than two casinos. This provides more evidence that nearby gaming facilities, such as casinos located at Niagara Falls or at Casino Rama, would not be adversely affected by a GTA casino. Another regional study by Condliffe (2012) found some evidence of substitution *between* jurisdictions (in this case from other states), though the study did not look at the potential for cannibalization within the jurisdiction that expanded the

number of casinos.[3] This study supported theory proposed by Eadington (1999) and others that suggests expanding gaming can help regain players that were leaving the jurisdiction (e.g. Ontario) to gamble in other provinces or states, as they found evidence that players that were once patronizing New Jersey casinos were now playing within their home state of Pennsylvania.

2.2.2 Lotteries

The sole industry where Walker and Jackson (2008) did find a substitutionary relationship with casino gaming was the lottery sector. This result is consistent with the general findings of Siegel and Anders (2001) and Elliot and Navin (2002). However, the effect, though significant, was of relatively minor economic size – a $1 increase in per capita casino revenue was related to a $0.12 reduction in lottery revenue. Of course, given typical casino gaming taxes, a relationship of this size would still result in a positive incremental tax revenue, growing the overall gaming industry and tax base. Put another way, even in this scenario, the overall tax revenue pie grows.

Although we find the Walker and Jackson (2008) study to have produced the most robust estimates of this effect size, the magnitude of this finding is not consistent throughout academic literature. For example, an early study of the effect of riverboat gaming on lotteries by Elliot and Navin (2002) found that an additional dollar in casino tax revenue was offset by an estimated $0.83 reduction in lottery revenue. However, these estimates were later improved by Fink and Rork (2003), who remedied a methodological issue by Elliot and Navin, producing a revised estimate of $0.56.

Overall, our outlook is that the expansion of spending on casino gambling will accompany a mild to moderate reduction in the purchase of lottery tickets, though the size of the effect is somewhat unclear for this market. We expect this effect size to be much closer to the $0.12 estimate by Walker and Jackson (2008) than the $0.56 estimate by Fink and Rork (2003), due to the more robust methodological design and wider sampling by Walker and Jackson. However, as we have noted, even these estimates may be overly negative. In part, this is because these effect sizes should be reduced to the extent that the integrated resort can serve as a tourism attraction and draw customers from outside of Ontario. Casino patrons drawn from outside of Ontario would not have purchased a lottery tickets from OLG retailers, and therefore substitution effects with these populations would be abated.

Finally, regardless of the precise level of substitution, we still expect a net increase in public tax revenue from the development of a GTA casino resort, since there is no evidence of perfect substitution. We also note that this substitution is only expected in the gaming portion of the resort development: other amenities, as we have seen, such as lodging, conference facilities, or other entertainment, are not expected to have any relationship with lottery sales.

[3]We note that due to some methodological limitations observed in this study, declines in revenues may be attributable (at least in part) to the Great Recession.

2.2.3 Online Gaming

OLG has yet to offer any form of sports wagering, poker, or casino style betting via the Internet, but given that OLG has expressed plans to do so, it is a useful exercise to examine how a GTA resort casino would affect this gaming market. The research in this field is limited, though revealing for this particular market. In a study examining the relationship between online poker and the casino industry, Philander and Fiedler (2012) found that the two forms of gaming actually had a small but positive (complementary) relationship in the North American market. This suggests that an increase in revenue from casino gaming would increase the revenue from online poker. This finding seems plausible in the GTA, since cross-marketing would be a straightforward exercise. For example, players who win poker tournaments online might be provided with a seat at a "live" tournament at the casino location.

Overall, we expect that the expansion of GTA resort-style gaming will not have a significant effect on the future OLG online gaming market

In an earlier study of the entire online gaming market, Philander (2011) found a negative overall relationship between the U.S. commercial casino industry and the online gaming industry (a reduction of 27 to 30 cents on the dollar by online gaming). However, there is reason to believe that this relationship is not as applicable to the GTA market as the newer Philander and Fiedler (2012) study. First, Philander (2011) did not include Canada as part of the market analysis, whereas Philander and Fielder (2012) examined both countries. Second, the earlier study also estimated a relationship over a very different, early growth period in online gaming (pre-2006 as opposed to the end of 2010 in Philander and Fiedler), rendering it less relevant to the current online market.

Overall, we expect that the expansion of GTA resort-style gaming will not have a significant effect on the future OLG online gaming market. Although substitution may occur in some forms of gaming and a complementary relationship may occur in others, our outlook is that the general effect will be relatively minor. We therefore suggest that future plans for OLG online gaming not affect any monetary estimates of GTA casino gaming. Put simply, the size of the online gaming pie should not shrink after the development of a GTA casino.

Given the results of the relevant studies, there is no strong evidence to suggest that a GTA resort casino will meaningfully cannibalize incumbent businesses. It is striking that while a "cannibalization" claim is often made, we could not find any strong empirical evidence to support this argument.

3 Conclusion

In this paper, we have examined all of the relevant peer-reviewed literature on the common "cannibalization" claim. Given the

results of these studies, there is no strong evidence to suggest that a GTA resort casino will meaningfully cannibalize incumbent businesses. This finding applies to both gaming and non-gaming industries. It is striking that while a "cannibalization" claim is often made with respect to casino gaming, we could not find any strong empirical evidence to support this argument. Where research has been based on empirical findings and not conjecture, studies generally support a view of complementary or insignificant relationships.

In general, a conservative approach to policymaking on the substitutionary versus complementary issue in the GTA would proceed under an assumption that no negative effects would occur to nearby businesses. Our perspective is that there is minimal downside risk to other industries from the expansion of casino gaming in the GTA.

We also expect that many industries will in fact be stimulated by the resort casino, given that there is much empirical evidence of complementary relationships. Industries such as tourism, entertainment, lodging, food and beverage, as well as non-lottery gaming products may observe positive economic benefits from the expansion of casino gaming in the GTA. Finally, we expect that these positive effects will be even greater for a diverse integrated-resort property as opposed to a gaming-only facility.

Acknowledgement

This research was sponsored by a grant from the Canadian Gaming Association. After agreeing upon the broad research topics that would be addressed, the research team insisted that the study sponsor have no editorial say over the contents of the final report. The study sponsor readily accepted these conditions, and the study proceeded. The contents of this research are solely the responsibility of the authors and do not represent the official views of the Canadian Gaming Association.

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Informing the Public Debate: Problem Gambling

Exposure, Adaptation, and Gaming Revenues

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December, 2012

UNLV | INTERNATIONAL GAMING INSTITUTE
WILLIAM F. HARRAH COLLEGE OF HOTEL ADMINISTRATION

Executive Summary

This report focuses on two problem gambling-related issues that have emerged in the Greater Toronto Area's gaming policy deliberations: the influence of gambling opportunities on problem gambling, and the potential share of casino revenue that might be derived from problem gamblers.

In the most recent and comprehensive reviews of the gambling opportunities and problem gambling literature, researchers label the early belief that gambling opportunities lead to linear increases in the PG rate the "exposure" model, and make a compelling argument that we now know this perspective to be flawed – or at the very least, incomplete. These researchers suggest that evidence for "adaptation" can be observed, as populations adjust after an initial exposure. This adaptation curve can be observed with many diseases, whereby more vulnerable groups develop problems first, but then the disease's spread begins to diminish as the general population learns more about the disease, and better understand risks and preventative measures. This "adaptation" perspective also appears to have support in the empirical literature.

In considering the unique case of potential GTA gaming expansion, we note that it is important to explore distinctions *between* various forms of gaming offerings. Today, what we call the "gaming industry" is in fact far from singular or monolithic, and the type of gambling offering proposed in the GTA is quite different from that which has often existed elsewhere (and hence, quite different from that which has often been studied elsewhere).

We also suggest caution in over-generalizing results from prior studies on the share of gaming revenue that is derived from problem gamblers. Based on our review of available literature, the sole study that is somewhat relevant to the GTA would be Williams and Wood's (2007) examination of the Ontario market (which suggests a percentage of 36%). However, we find that even this study significantly overestimates what would likely be the share of revenue from problem gamblers in Ontario if a new casino were to be introduced in the GTA today. If the rates from Williams and Wood are adjusted for more recent estimates levels of problem gambling prevalence, and are adjusted to include all gaming revenues (including those from visitors), we conservatively estimate the share of total gaming revenue from Ontario problem gamblers to be much closer to 5.7%.

1 Introduction

This document is the third in a series intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). The series focuses on common debates that tend to occur during the expansion of gaming in a given jurisdiction. Our intent is to outline the relevant academic research pertaining to these issues, and then to provide reasoned applications to the unique economic and social environment in the Greater Toronto Area. This latter step is particularly important in policy considerations, since potential gaming jurisdictions can vary significantly in terms of market structure, amenities, population demographics, economic characteristics, and public health support systems.

In this third report, our focus is on two problem gambling-related issues that have emerged in the GTA's policy deliberations: the influence of gambling opportunities on problem gambling, and the potential share of casino revenue that might be derived from problem gamblers. The sections that follow include a broad overview of literature related to these topics, followed by assessments of this literature's relevance to this particular market.

2 Background

In early 2012, the Ontario Lottery and Gaming Corporation (OLG) announced formal plans to develop a new casino in Greater Toronto. The plan, which is expected to elicit bids from large commercial gaming corporations, is projected to include an "integrated resort" property, combining hotel, restaurant, entertainment, retail, and convention facilities along with gaming amenities.

Our focus is on two problem gambling-related issues that have emerged in the GTA's policy deliberations: the influence of gambling opportunities on problem gambling, and the potential share of casino revenue that might be derived from problem gamblers.

Presently, there are several forms of gaming available in the GTA, although there is no resort-style casino gaming within an hour's drive of the downtown core. The nearest commercial resort-style casinos are Niagara Fallsview and Casino Rama, located well outside of the city limits, and there are OLG slot machines at more nearby racetrack casinos, such as Woodbine, Georgia Downs, and Ajax Downs.[1] Lotteries, pari-mutuel horse racing, bingo, and multi-game sports wagering are all accessible, and OLG has expressed its intention to roll out various forms of Internet gaming, beginning in 2013.

Historically, policymakers worried that welcoming gambling meant welcoming organized crime to a community, or that allowing legalized gambling would constitute an embrace of an immoral vice and community decline. Today, those concerns are no longer as

[1] There is also a temporary casino at the CNE during a portion of the summer.

potent as they once were, but a third concern – that some of gambling's customers have harmful interactions with the gambling product – has emerged as the major public health consideration for policymakers contemplating expanded gambling opportunities.

The related field of study – the problem gambling field – has grown in remarkable fashion over the past 25 years, with academic institutions, the gaming industry, governments, and other funding agencies providing support for major research initiatives all over the world. A summary of this now sizable field would require multiple book-length treatises. In this report, we will limit our literature analyses to two key problem gambling questions that have commonly emerged in legalization debates: 1) What do we know about the relationship between gambling opportunities and problem gambling? 2) What do we know about the gaming revenues associated with problem gamblers?

3 Issues

3.1 Gambling opportunities and problem gambling

Initially and understandably, problem gambling (PG) researchers speculated that as gambling exposure increased, gambling problems among those nearby would also increase – probably dramatically – and that these gambling problems would continue to increase over time. These early perspectives were especially understandable given the American Psychiatric Association's characterization of the disorder as a linear, "chronic and progressive" one (see, e.g., American Psychiatric Association 1980, 1994). For example, Kindt (1994) provided an extreme version of this perspective, speculating that in new gaming jurisdictions PG prevalence would increase by up to 550%. Other, less extreme perspectives emerged as well, including the National Gambling Impact Study Commission (NGISC) report, which suggested a near-doubling of problem gambling rates in areas within 50 miles of casinos in the U.S. (Gerstein, et al., 1999).

Soon, however, researchers came to identify limitations in this early literature, noting that at best, it provided blunt and arbitrary measures of exposure (and often, of problem gambling itself). Researchers also noted that causal conclusions (i.e., the notion that proximity caused pathology) were nearly impossible. Recently, however, the research community has come to develop more sophisticated models, and it has also been able to take advantage of larger-scale empirical databases to inform our understanding. Based upon this new understanding, a subtler perspective has emerged. This perspective began to crystallize in a 2004 essay that noted that there was actually empirical support for several PG trends post-exposure. In fact, the literature revealed evidence of increasing, stabilizing, *and* decreasing PG rates after the introduction of casinos, depending on the site studied (Volberg, 2004).

In the most recent and comprehensive reviews of this literature, LaPlante and Shaffer (2007) and Shaffer and Martin (2011) began to synthesize this information into a new model, assisted by newly-developed, finer-grained public health tools to examine gambling exposure

(Shaffer, LaBrie, & LaPlante, 2004). These researchers label the earlier belief (that gambling opportunities lead to linear increases in the PG rate) the "exposure" model, and make a compelling argument that this perspective is flawed, or at the very least, incomplete.

Specifically, LaPlante and Shaffer (2007) observe that "an evaluation of available research studies provides some support for the exposure effect, but also raises questions about the durability of that phenomenon across settings and time points." In synthesizing the studies that have explored these relationships, Shaffer and Martin (2011) explain:

> *"...recent empirical research indicates that individuals adapt relatively quickly after exposure to gambling opportunities, and the prevalence of PG only increases during the short term – as a novelty effect – after the introduction of new gambling opportunities."*

At the very least, this literature suggests that the impacts of gambling expansion on problem gambling rates are in fact more complex than originally assumed, and the notion that problem gambling rates simply rise as exposure increases has been debunked.

These authors suggest that evidence for "adaptation" can hence be observed, as populations adjust and respond after an initial exposure. This adaptation curve can be observed with many diseases, whereby more vulnerable groups develop problems first, but then the disease's spread begins to diminish as the general population learns more about the disease, and then begin to better understand risks and preventative measures (LaPlante and Shaffer, 2007; Shaffer and Martin, 2011).

Though a comprehensive summary is beyond the scope of this paper, this "adaptation" perspective does appear to have support in the empirical literature. In Switzerland, for instance, gambling addiction prevalence rates have remained stable despite the introduction of several casinos over the past 10 years (Bondolfi et al., 2008). In the United States, problem gambling prevalence rates have remained relatively stable over the past 35 years, despite the introduction of numerous new gambling opportunities during this period (see, e.g., Kallick et al., 1979, which found a national lifetime rate of 0.7%, and recent comparable figures of 0.4% to 0.6% found in Kessler et al, 2008, Petry et al., 2005).

At the very least, this literature suggests that the impacts of gambling expansion on problem gambling rates are in fact more complex than originally assumed, and the notion that problem gambling rates simply rise as exposure increases has been debunked. In the next section, we turn our attention to applications of this literature to the potential GTA market.

3.1.1 Implications for the Proposed GTA Market

In considering the unique case of potential GTA gaming expansion, we would first note that it is important when considering this literature to explore distinctions *between* various forms of gaming. Today, what we call "the industry" is in fact far from singular or monolithic, and the type of gambling offering proposed in the GTA is quite different from that which has often existed elsewhere (and hence, quite different from that which has often been studied elsewhere).

The U.S. National Gambling Impact Study Commission's Final Report alludes to the importance of considering this perspective when it says "...what society terms 'the gambling industry' actually involves segments that are quite different from one another" (1999). In fact, even this report was released before many significant (and hence unstudied) evolutions of the modern casino resort, and before a substantial body of research emerged which called into question previous understandings.

Once again, this early limitation was understandable for reasons of both history and scope – after all, the U.S. government was tasked with conducting a comprehensive study that by its nature also examined lotteries, horse racing, and many other forms of gambling. But the structure of the casino resort proposed in the GTA has been largely re-invented since the time that the NGISC was conducting its assessments.

The modern casino resort era – ushered in with Las Vegas' Mirage resort in 1989, and expanded upon with nearly every major new development since then – changed the types of offerings that casinos provided. This in turn shaped the benefits and costs. For instance, on the benefits side, major Las Vegas casino resorts now derive upwards of 60% of revenues from non-gaming amenities (e.g. MGM Resorts International, 2012; Wynn Resorts, 2012), a development that was unheard of even during the early, Mirage days. These new models are not reflected well in research conducted on earlier gambling environments.

Another important historical point is that many studies in the literature examine periods prior to what we might call the "modern responsible gaming era." In this era, responsible gaming is a significant policy consideration that is actively engaged from the moment gambling expansion is suggested. Though this has certainly not always been the case, today, in a manner that is historically unprecedented, problem gambling tends to be discussed throughout the legalization process, and then again during ongoing regulatory and legislative reviews. And although no one would argue that this process is streamlined, complete, or fantastically efficient, one thing is clear: pathological gambling researchers, clinicians, prevention specialists, government officials, and even casino operators are increasingly informed by a growing body of scientific research. In sum, by any reasonable measure, this is a field that is getting better (at least to the degree it relies on the scientific literature).

Finally, in observing the GTA environment, we note that this is hardly an entirely "new" jurisdiction when it comes to gambling opportunities. Residents in the GTA have had exposure to gambling for some time. Though the research literature in this area is limited in its ability to predict these types of specific dynamics, "exposure" has already happened in this region – and as such, it remains to be seen whether additional levels of exposure will have any additional impacts on PG.

...in observing the GTA environment, we should note a caveat: this is hardly an entirely "new" jurisdiction when it comes to gambling opportunities. Residents have had exposure to gambling for some time.

In sum, problem gambling is a highly important policy consideration, and problem gamblers' suffering merits very serious consideration. If we take a conservative approach, policymakers in the GTA should prepare to address what might be a small but real uptick in problem gambling rates should the proposed casino resort be built. As Shaffer and LaPlante (2007) note, however, the complexities of these effects need to be taken into consideration when contemplating public health policy, as "(f)ocusing too heavily on the adaptation effect could cause policymakers to underestimate the influence and importance of early increases in gambling-related problems" and "(a)lternatively, focusing only on exposure could cause a public policy overreaction to the availability of new opportunities."

3.2 Problem Gamblers and Gaming Revenue

Another oft-discussed consideration associated with problem gambling and casino expansion is how much of the tax burden (in the economic sense) falls to problem gamblers. We caution that while there is tremendous interest in this figure, academic voices are not clear on how this figure should be interpreted for policy purposes. These points aside, there appears to be substantial public policy interest in these values, and hence we seek to provide guidance on the studies that have examined this topic, and the extent to which we can generalize these results to the GTA market.

3.2.1 The Proportion of Gambling Revenue Derived from Problem Gamblers

The most geographically relevant study on the proportion of revenue from problem gamblers is by Williams and Wood (2007). This study used a combination of telephone surveys and gambling diaries from Ontario gamblers in 2004 to construct its estimates. While this paper is an important and effortful contribution to a very limited area of research – and one that improves vastly upon previous measurement methods – we find the original values that were produced in this study are substantially dated, methodologically incomplete, and largely inapplicable to the current GTA policy decisions.

First, a key concern is that the estimates of problem gambling prevalence used in the study are larger than the actual prevalence rate of problem gamblers. This is because they include *moderate risk gamblers* along with *problem gamblers*. These two sub-types, which are based on the Canadian Problem Gambling Index (CPGI), have substantially different characteristics. This is the reason why they are classified separately in both the current best-practices for using the CPGI (Currie, Casey, and Hodgins, 2010), and in the original design of the CPGI (Ferris and Wynne, 2001).

The *moderate risk* group, which is re-labeled as *moderate problem gamblers* in the Williams and Wood (2007) study, is not referred to as *moderate problem gamblers* anywhere in the Ferris and Wynne (2001) CPGI report (that was referenced by Williams and Wood), or the Currie, Casey, and Hodgins (2010) CPGI report. We feel that such labeling, though likely well intentioned and not uncommon among some researchers, may be misleading to many policymakers. According to the more detailed prevalence figures available in the Williams and Wood study, the true problem gambling prevalence rate (CPGI 8+) should be 1.00%. This is far below the 4.8% reported value that includes the *moderate risk* group.

Second, the most recent estimates of problem gambling in Ontario (from 2011) are much lower than the values used in the earlier Williams and Wood (2007) study. Even if we conservatively include both *problem gamblers* and *moderate risk gamblers*,[2] the CPGI prevalence rate was still only 1.04% in 2011 (Williams, Volberg, and Stevens, 2012). This is less than a quarter of the prior estimate (which relied upon data from 2004).[3] If the average gambling expenditure of *moderate risk* and *problem gamblers* has remained consistent relative to non-problem gamblers, the change in Ontario PG prevalence suggests that Williams and Wood's estimates of the share of revenue from these groups could be substantially revised downwards, from 36% to 7.8%.

...the change in Ontario PG prevalence suggests that Williams and Wood's estimates of the share of revenue from these (PG) groups could be substantially revised downwards.

Third, there is an important "denominator issue" here. Specifically, the denominator in this 36% calculation includes gambling expenditures by Ontario residents *only*, omitting the substantial gaming revenue that is derived from gamblers visiting from outside of Ontario (often from the US). If we instead look at the *total* Ontario gaming revenue figures (including visitors and residents), the figure differs from the authors' estimated revenue figures by roughly $1.53 billion. If the revised estimate from above is revised to account for this, the share of total

[2] The data presented in the study does not allow us to separate problem and moderate risk gamblers.
[3] There were slight differences in the CPGI cut-off criterion to define a *moderate risk gambler* as Williams and Wood (2007) used score of 3+ based on Ferris and Wynne (2001), and Williams, Volberg, and Stevens (2012) used a score of 5+, likely based on Currie, Casey, and Hodgins (2010). In any case, the 5+ criterion is now considered to be the recommended cutoff level for moderate-risk gamblers and problem gamblers.

Ontario gaming revenue from Ontario problem gamblers (including moderate risk gamblers) would be estimated at 5.7%.[4]

Although the points above represent the key revisions that should be made to Williams and Wood (2007) for the GTA's policy purposes, there are other methodological issues that need to be highlighted here. For one, like a lot of studies, this article makes arbitrary assumptions in how the data are summarized. For example, in calculating these figures, two different data filtering procedures are used – each of which could bias results. For instance, in one procedure, the top 1% and bottom 1% of gamblers are excluded from the calculations, which could substantially change the casino results when you consider how much revenue that a small percentage of high rollers can generate (assuming that the limited sample size captures this group in the first place). Alas, the study notes that these modified estimates of revenue are 36% *lower* than actual revenue.

The second (alternative) data filtering procedure used examines only the expenditures by gamblers who lost money, and not those who won money. These modified values are also noted to be quite different from actual revenue – in this case, the modified values are 37% *higher* than actual revenue. Considering that the gambling diaries used to gather these figures covered fairly short time periods (from one week to a maximum of four weeks), it seems likely that many players may have won money – and hence, excluding these players would create substantial bias. This is appropriately acknowledged in the study's limitations section:

> *"Regular gamblers occasionally have very large wins and losses. These statistical outliers have a major influence on the averages, making it very difficult with small sample sizes to establish what the 'true' average expenditures are, so as to compare them with actual revenues. Realistically, there would have to be thousands of people completing prospective diaries from each of the four categories of gamblers to offset the impact of these outliers."*

In addition, the authors made other decisions/assumptions that may have changed the percentage of revenue attributed to problem gamblers. While we wish to emphasize that such choices are always made in research designs of this complexity, these decisions do have an effect on the findings and the margins of error. In any case, we bring up these points not to point out methodological limitations (as limitations plague all research projects), but to properly understand the findings of a research article that has been widely cited in public and policy settings (often as "the percentage of gaming revenues which come from problem gamblers," which is not exactly what the original study aims to reveal). In sum, we hope to provide context for the understandable but mistaken assumption that a new GTA casino would derive 36% of its revenues from nearby problem gamblers.

[4] Note that were we able to separate out the problem gambling rate (and not use the combined moderate risk and problem gambling rates), this figure might be lower.

3.2.2 Other Studies on the Share of Revenue from Problem Gamblers

In our review, we also examined other studies that have attempted to analyze this same issue, including Dickerson et al. (1996), Grinols and Omorov (1996), Lesieur (1998), Volberg et al. (1998), Volberg et al. (2001), Williams and Wood (2004), and Orford, Wardle, and Griffiths (2012). In general, we found that these studies were not particularly relevant or useful to current policymakers in the GTA. For one thing, many of these studies rely excessively on unrealistic assumptions and/or self-reported gambling expenditures. The latter have been shown to be quite unreliable for all forms of gaming except lotteries (Blaszczynski, Dumlao, and Lange, 1997; Williams and Wood, 2007). For example, in Williams and Wood (2004), values are based on previously completed Canadian prevalence studies, but the authors appropriately note that self-report data can be quite biased:

... many of these studies rely excessively on unrealistic assumptions and/or self-reported gambling expenditures. The latter have been shown to be quite unreliable for all forms of gaming except lotteries.

> *"...even among educated medical students, only 32% to 64% interpret 'how much do you spend gambling?' to mean net expenditure (Blaszczynski, Dumlao, & Lange, 1997). Many interpret it as initial outlay or total outlay (initial outlay + reinvestment of winnings), as we speculate is the case for the Canadian studies analyzed earlier in this article. Blaszczynski et al. (1997) also found that some people include travel and meal costs when calculating gambling expenditures."*

In addition, these other studies were produced in periods and/or jurisdictions that cannot be reasonably generalized to the current GTA market, as the calculations are highly dependent on local market conditions, and PG prevalence rates. Orford, Wardle, and Griffiths (2012) described a similar problem when considering the generalizability of analysis from the Australia Government Productivity Commission (2010):

> *"...the Australian figures have a number of limitations. The first, which is particularly a limitation for those in other countries such as Britain, is the concentration of the Australian analysis on play on electronic gaming machines (EGMs) of the 'poker machine' type which are widespread in most Australian states and territories and which have caused great concern in Australia. Gambling opportunities in Britain are very diverse and it must be presumed that answers to the question posed here will vary considerably from one form of gambling to another."*

Despite these limitations, there are some important and broad contributions from this literature that should be noted here. It seems, overall, that casino gaming is neither the form of gaming that derives the most revenue from problem gamblers (typically this is VLT-type slots or pari-mutuel wagering), nor is it the form of gaming that derives the least amount of revenue from problem gamblers (typically this is lottery gaming).

3.2.3 Implications for the Proposed Toronto Market

Based on our review of available literature, the sole study that is somewhat relevant to the GTA based on geography, period of study, and gambling offerings would be Williams and Wood's (2007) examination of the Ontario market. However, we find that this study significantly overestimates what would likely to be the share of revenue from problem gamblers in Ontario if a new casino were to be introduced in the GTA. If the rates from Williams and Wood are adjusted for more recent estimates of PG prevalence (using a conservative group that includes both *problem gamblers* and *moderate risk gamblers*), and are adjusted to include revenue from out of province visitors, we expect the share of total gaming revenue from Ontario problem gamblers to be much closer to 5.7% than the reported value of 36%.

In addition to the methodological issues we identified above, there are some other factors that make the proposed Toronto casino-resort a much different environment than has been studied in the past. In particular, the development of an integrated resort will likely draw substantial business from outside of the area, unlike other forms of gambling examined in the problem gambling revenue studies conducted in the past (these typically looked at a diverse range of offerings, including lotteries, bingo, and horse tracks). In economic terms, tourists from outside of the area provide incremental gambling revenue without any of the domestic problem gambling issues, and the proposed design of the Toronto casino-resort appears to be designed to maximize its attractiveness to tourists, as it includes amenities like hotels and convention facilities. Of course, these non-gaming amenities will also yield substantial direct revenues and economic benefits, without the concerns of whether these revenues and benefits are derived from problem gamblers.

4 Conclusion

This study sought to provide guidance to GTA casino policy makers and stakeholders on two different questions related to problem gambling:

1) What do we know about the relationship between gambling opportunities and problem gambling?
2) What do we know about the gaming revenues associated with problem gamblers?

Our analysis of the first question revealed that the impacts of gambling expansion on problem gambling rates are in fact more complex than originally assumed by early researchers (and indeed by much of the public). The notion that problem gambling rates simply rise as exposure increases has been shown to be false. An adaptation curve, where the disease's spread begins to diminish as the general population adjusts and responds, appears as though it may explain problem gambling prevalence well. Modern responsible gambling programs, which are underrepresented in prior studies of availabilities and problems, are also likely to further abate future harm caused by casino expansion – and the GTA possesses some of the world's most modern and advanced programs in this area.

Regarding the second question, our review of literature produced several different studies related to the proportion of revenue from problem gamblers, but most of these studies were not generalizable to the GTA market. Based on our review, the sole study that is somewhat relevant to the GTA would be Williams and Wood's (2007) examination of the Ontario market. However, we found that this study significantly overestimates what would likely be the share of revenue from problem gamblers in Ontario if a new casino were to be introduced in the GTA. If the rates from Williams and Wood are adjusted for more recent estimates of PG prevalence and are adjusted to include revenue from out of province visitors, we expect the share of total gaming revenue from Ontario problem gamblers to be much closer to 5.7% than the reported value of 36%. We also note that the development of an integrated resort will likely draw substantial business from outside of the area, unlike other forms of gambling used in the problem gambling revenue studies conducted in the past, further reducing the share of revenue from Ontario problem gamblers.

Acknowledgement

This research was sponsored by the Canadian Gaming Association. After agreeing upon the broad research topics that would be addressed, the research team insisted that the study sponsor have no editorial say over the contents of the final report. The study sponsor readily accepted these conditions, and the study proceeded. The contents of this research are solely the responsibility of the authors and do not represent the official views of the Canadian Gaming Association or the University of Nevada, Las Vegas.

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Informing the Public Debate: Academic Research on Crime and Casinos

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Executive Summary

This document is the second in a series intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). In this second report, our focus is on the academic research on the effect of casino gaming on crime. The literature on casinos and crime has produced fairly consistent results in the past 15 years of research; however, we have observed that these findings are often misinterpreted or deceptively applied. In this paper, we seek to provide a sound assessment of academic research on the true relationship that might be expected in the GTA.

The findings of our review generally support a view that the proposed casino-resort might increase the total volume of crimes in the area, but that there will be an insignificant effect on the crime rates overall (when adjusted for the number of people in the area). That is, with respect to the *total volume of crime*, casinos seem to have an impact similar to other large recreation/tourism draws, such as a hockey game or the Canadian National Exhibition. With respect to the *crime rate*, however, casinos are typically found to have no significant effects, as the increase in volume is generally explained by the number of temporary visitors in the area. Put another way, there should be no increased risk of crime-related harm to nearby residents. These findings were consistent between studies that focused on jurisdictions within Canada, and in other international locations.

As such, we expect that resource requirements will indeed be higher for local law enforcement if the GTA adopts a casino-resort, but that the probability of any nearby residents being victimized will remain unchanged. The broader public policy consideration is that increased traffic in the form of tourists will be accompanied by increased infrastructural costs associated with that decision – including costs associated with policing additional people.

1 Introduction

This document is the second in a series intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). The series focuses on common policy debates associated with the expansion of casino gaming. Our intent is to not to advise on the immediate decision to permit a casino resort in the GTA, but rather to outline the relevant academic research, and then to provide reasoned applications to the unique economic and social environment in the Greater Toronto Area. This latter step is particularly important in policy considerations, since potential gaming jurisdictions can vary significantly in terms of market structure, amenities, population demographics, economic characteristics, and public health support systems.

In this second report, our focus is on the academic research on the effect of casino gaming on crime. Although casinos and crime are often associated in the popular imagination, we seek to provide a sound assessment of academic research on the true relationship that might be expected in the GTA.

2 Background

In early 2012, the Ontario Lottery and Gaming Corporation (OLG) announced formal plans to develop a new casino in Greater Toronto. The plan, which is expected to elicit bids from large commercial gaming corporations, is projected to include an "integrated resort" property, combining hotel, restaurant, entertainment, retail, and convention facilities along with gaming amenities.

Presently, there are several forms of gaming available in the GTA, although there is no resort-style casino gaming within an hour's drive of the downtown core. The nearest commercial resort-style casinos are Niagara Fallsview and Casino Rama, located well outside of the city limits. In addition, there are OLG slot machines at more nearby racetrack casinos, such as Woodbine, Georgia Downs, and Ajax Downs.[1] Lotteries, pari-mutuel horse racing, bingo, and multi-game sports wagering are all accessible, and OLG has expressed its intention to roll out various forms of Internet gaming, beginning in 2013.

In engaging the debates over gaming expansion, critics often cite ad hoc research that may or may not be entirely relevant to this particular market – as it may ignore other multidisciplinary fields of research that are relevant to the topic (e.g., sociology, psychology, economics, and criminology) or predate an era with modern responsible gambling programs. Wherever possible when engaging these debates, we believe that policymakers should rely on peer-reviewed research, as it has been subjected to the full rigors of the academic process.

What follows in this paper is a carefully reasoned set of policy considerations, drawing on empirical results and theory from the most robust academic studies available on the effects of

[1] There is also a temporary casino at the CNE during a portion of the summer.

casinos on crime. While the literature on casinos and crime has produced fairly consistent results, these findings are often misinterpreted or deceptively applied. In the rest of this paper, we attempt to clarify these findings as they pertain to the GTA.

3 Casinos & Crime

3.1 General Findings

This section describes the existing research on the relationship between casinos and crime. Although much of this literature examines jurisdictions outside of Canada, we attempt to focus our efforts on the most robust studies from the jurisdictions that are most relevant to the proposed GTA resort-style casino. There were a handful of studies that looked at the relationship between crime and casinos prior to the 2000s, beginning with Albanese (1985). His study, though limited by data and a choice of method, is quite important to understanding the effects of casinos, as he outlined how crime statistics can be misleading when they fail to account for changes in the population at risk.

In general, these studies support a view that the introduction of casinos may increase the total volume of crime in an area, but that this tends to be related to crime caused by a higher number of people present rather than by the presence of casino gaming itself.

Those warnings aside, we observe (as do other researchers, such as Walker, 2010) that the more robust studies on casinos and crime tend to have been published within the past 10 to 15 years. These studies include papers by Gazel, Rickman, and Thompson (2001), Wilson (2001), Giacopassi, Stitt and Nichols (2001), Evans and Topoleski (2002), Stitt, Nichols, and Giacopassi, (2003), Grinols and Mustard (2006), Barthe and Stitt (2007, 2009a, 2009b), Reece (2010), and Humphreys and Lee (2010). Although these studies vary in terms of their scope and design, there are some broad inferences that can be made from an interpretation of their overall results.

In general, these studies support a view that the introduction of casinos may increase the total volume of crime in an area, but that this tends to be related to crime caused by a higher number of people present (caused by increases in tourism and traffic levels) rather than by the presence of casino gaming itself. Put another way, individual risks do not increase, but absolute amounts of crime do (and the latter is in turn related to the presence of more people). In this respect, casinos appear to be similar to any other large recreation/tourism draw, such as a hockey game or the Canadian National Exhibition. Therefore, we believe that an increase in law

enforcement may be required to handle the increase in crime, but the probability of being victimized will likely remain the same.[2]

Consider Grinols and Mustard (2006), whose results have been widely quoted, and whose study examined crime data in each US County from 1977 to 1996. Their study concludes that roughly 8% of crime in counties with casinos can be attributed to the casinos. Importantly, however, these authors focus on the structural costs rather than the probability of being victimized, and they specifically note that their analysis excludes the number of visitors in the area when calculating crime rates:

> *"In this study we are interested in the costs to the host county associated with a change in crime from whatever source. We are therefore interested in the total effect of casinos on crime, and thus use the undiluted crime rate based on (population without visitors)."*

...casinos have an effect similar to any other amenity that brings in tourists, which is a key point that is consistent among these studies.

In a compelling critique of this study, however, Walker (2008) describes how the results from Grinols and Mustard can be misleading, and argues that tourists should be included in these crime calculations:

> *"...clearly the "diluted" crime rate (adjusted for temporary visitors) is the appropriate one to use if we are trying to measure the risk to residents and/or visitors of being victimized. The Grinols and Mustard "undiluted" crime rate will overstate the crime rate in tourist (casino) counties. This is perhaps the most significant problem in the Grinols and Mustard paper."*

In fact, Walker (2008) continues, the organization that provides the data for Grinols and Mustard's study – the FBI – argues *against* using these data in the way these authors do:

> *Curran and Scarpitti (1991, 438) explain that the FBI, the source of the Grinols and Mustard crime data, warns against "comparing statistical data...solely on the basis of their population."*

These same warnings are reiterated by Giacopassi, Stitt, and Nichols (2000), who reference the original data handbook from the FBI, and who also engage in their own analysis to demonstrate the policy risk of ignoring the tourist population.

Generally speaking, it seems that academics who have more recently published in this area agree with this critique. For instance, Reece (2010) used several controls to account for the

[2] Indeed, this view is the same perspective that was outlined by the Toronto Police Department in response to the proposed casino resort (EY, 2012).

effects of tourism. In particular, Reece accounted for the number of hotel rooms in the area, as a means to determine which effects were caused by general tourism increases with new casinos and which were caused by the casino itself. The author concludes:

> *"I find very limited support for the proposition that new casinos increase local crime rates. Opening new casinos appears to increase the number of burglaries in the county after a lag of a few years. Opening new casinos appears, however, to reduce the number of motor vehicle thefts and aggravated assaults. Increased casino activity, measured using turnstile count of casino patrons, seems to reduce rates of larceny, motor vehicle theft, aggravated assault, and robbery."*

...economic variables often associated with economic growth (such as unemployment decline or GDP growth) have an effect on crime – predictably, improved economic conditions are related to a decrease in the crime rate.

Other authors who controlled for increased levels of visitation near casinos, including those responsible for a series of papers on the Reno, NV market (Barthe and Stitt 2007, 2009a, 2009b), reach similar conclusions. Barthe and Stitt (2009b) put it this way in their conclusion:

> *"...while it has been consistently argued by many that casinos generate crime, this latest analysis is yet another empirical verification that casinos venues may not be all that different from non-casino environs in terms of crime prevalence and patterns. Barthe and Stitt (2007) provided evidence that casinos may not be deserving of the label 'hot spots' for crime. Then, Barthe and Stitt (2009a) further found that casino generated 'hot spots' were not very different from non-casino 'hot spots in terms of criminogenic patterns.'"*

In other words, casinos have an effect similar to any other amenity that brings in tourists, which is a key point that is consistent among these studies.

In a "pre- and post-test" longitudinal study, Koo, Rosentraub, and Horn (2007) developed a model using data from several US states, both before and after casinos were adopted. In their models of crime rates, the authors find that the presence of a casino in the home county or an adjacent county (within 50 miles) has no effect on the crime rate. The authors do find that economic variables often associated with economic growth (such as unemployment decline or GDP growth) have an effect on crime – predictably, improved economic conditions are related to a decrease in the crime rate. In their conclusion, these authors state quite simply:

> *"The analysis of crime rates...shows that the presence of casinos had no impact on crime levels."*

3.2 Canadian Evidence

In one of the few studies that examine a Canadian jurisdiction, Humphreys and Lee (2010) explore the effects of both VLTs and casinos on crime rates in Alberta, using a model that controls many other different variables that could be affecting crime rates. In general, they find little relationship between the introduction of a casino and crime rates (including breaking and entering, credit card fraud, other fraud, drugs, illegal gambling, prostitution, robbery, and shoplifting):

> *"The results indicate only a weak relationship between casinos and crime in Alberta...the presence of a casino in a community was associated with an increase in robberies and decrease in shoplifting under $5,000. All of the other estimated parameters on the casino indicator variables were not statistically different from zero at conventional levels."*

The idea that problem gamblers are more likely to commit crimes than others has been proposed by many researchers, however it is important to note that most of these psychological studies simply draw correlational relationships and do not directly imply any causal effects

The authors also investigate whether crime effects take a longer time period to develop (as some have suggested) by examining how casinos affect crime rates up to three years after opening. They find little evidence of a delayed effect either:

> *"... infrequent instances of significant parameters, and the fact that some are negative, provides little support for the idea that casinos increased crime in Alberta over this period."*

In another Canadian study that specifically focused on an Ontario market, Phipps (2004) developed an empirical model to test for the effects of the opening and closing of Windsor urban casinos in two nearby neighborhoods. Although the author is cautious to avoid concluding that casinos had benign effects, he found no evidence that calls to police services changed as a result of the casinos' presence in the neighborhoods.

3.3 Crime and Problem Gamblers

Because of the lack of macro-level evidence to support the idea that casinos and crime would be related, we might wonder whether micro-level studies would support this theory. The idea that problem gamblers (or gamblers in general) are more likely to commit crimes than others has been proposed by many researchers (e.g. Lesieur and Rosenthal, 1991), however it is important to note that most of these psychological studies simply draw correlation based relationships and do not imply any causal effects. As a means of addressing the methodological issues that pertain to these research questions, Clark and Walker (2009) developed a model using

a data set that examined a large sample of young adults, and controlled for many characteristics that may also contribute to criminal behavior. This sample is arguably more applicable to policymakers, since it focuses on a public that includes non-gamblers, gamblers who are non-problem gamblers, and problem gamblers, whereas many micro studies look only at risk factors for problem gamblers. The authors found the following (emphasis added in bold):

> *"Contrary to what is commonly believed, the Add Health survey data suggests gamblers* ***other than casino and lotto gamblers****, are more likely to commit crimes."*

That is, while other types of gamblers are associated with criminal activity, the authors found no evidence that *casino* gamblers are more likely to commit crimes than the general public. In other words, the gamblers who are more susceptible to committing crimes are found to participate in other (non-casino) forms of gaming, such as sports wagering, cards, or horse racing. Notably, even in these cases, the authors point out that their analysis does not allow them to make a strong conclusion regarding these other groups' likelihood of committing a crime.

4 Implications for the Proposed Toronto Market

The broader public policy consideration for policymakers is that increased traffic in the form of tourists will be accompanied by increased infrastructural costs associated with that decision – including costs associated with policing additional people. These costs must be balanced against the projected economic benefits of the development.

The findings of our review and analysis widely support a view that the proposed casino-resort might increase the total volume of crimes in the area, but that it will have an insignificant effect on the crime rates overall (when adjusted for the number of people in the area). As such, we can expect that resource requirements will be higher for local law enforcement if the GTA adopts a casino-resort, but that the probability of any nearby residents being victimized will remain unchanged.

Given this, the broader public policy consideration is that increased traffic in the form of tourists will be accompanied by increased infrastructural costs associated with that decision – including costs associated with policing additional people. As a resort-style casino would serve as a greater draw than a gaming-only facility, we expect that this type of facility design would lead to even more resource requirements than might be associated with smaller-scale projects. These costs must be balanced against the projected economic benefits of the development.

On the other hand, the notion that casinos increase the individual risk of residents is not supported by the research. Based upon the academic literature, we can conclude that a GTA casino should not cause any increased risk of crime-related harm to area residents.

5 Conclusion

The purpose of this study was to inform policy makers and the general public of the likely effects of a GTA resort-style casino on crime. The academic research in this area of the gaming literature is fairly consistent, and should be considered in the public debate. With respect to the *total volume of crime*, casinos seem to have an impact similar to other large recreation/tourism draws, such as a hockey game or the Canadian National Exhibition. This anticipated development, of course, can and should be considered when developing policies pertaining to infrastructure in the area. With respect to the *crime rate*, however, casinos are typically found to have no significant effects, as the increase in volume is generally explained by the number of temporary visitors in the area – meaning that there should be no increased risk of crime-related harm to nearby residents.

Acknowledgement

This research was sponsored by the Canadian Gaming Association. After agreeing upon the broad research topics that would be addressed, the research team insisted that the study sponsor have no editorial say over the contents of the final report. The study sponsor readily accepted these conditions, and the study proceeded. The contents of this research are solely the responsibility of the authors and do not represent the official views of the Canadian Gaming Association or the University of Nevada, Las Vegas.

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Informing the Public Debate: Academic Research on Social Costs and Casinos

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Executive Summary

This document is the third in a series intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). The series focuses on common debates that tend to occur during the expansion of gaming in a jurisdiction. In this third report, our focus relates to academic research on the social costs of gaming. While this topic has been the focus of extensive academic research, it is an area that has lacked consensus. This report describes the extent to which this literature can be useful to policymakers.

Social costs are real, and they are an important consideration when considering any new development in a community. However, given the state of the research literature at this time, we encourage skepticism of any party that suggests that they can unequivocally calculate the social costs of casino gaming in the GTA. This is especially true when the methodologies employed rely on dated, irrelevant, or inappropriate data. In our view, and unfortunately for GTA policymakers, there are no current peer-reviewed social cost accounting studies that are sufficiently trustworthy and applicable to the proposed GTA resort-casino. In addition, recent reports by the Centre for Addiction and Mental Health and Toronto Public Health do not, as they acknowledge, address the full range of issues that are important to consider in social cost studies. Specifically, they do not include important studies in the research literature on public health effects of casinos, and they also exclude analyses of employment, economic development, crime, motor vehicle traffic, and other community impacts of casino expansion – all of which need to be incorporated into any comprehensive assessment of social costs (and relatedly, benefits) associated with casino development.

Based on our observations of the literature and the proposed developments, we do believe that if the GTA decides to move forward with the development of an integrated resort casino (instead of a gaming-only facility), there is reason for cautious optimism in at least one sense. Specifically, this facility's tourist-oriented nature, along with the globally recognized research, treatment, and education resources in the area, should lead policymakers to have confidence that the GTA's process can and will constitute a "best practice" approach to casino resort development – at least from the perspective of recognizing, addressing, and mitigating certain social costs.

1 Introduction

This document is the third in a series intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). The series focuses on common debates that tend to occur during the expansion of gaming in a jurisdiction. Our intent is to not to advise on the decision to approve or disapprove casino resort development, but rather to outline the relevant academic research pertaining to these issues, and then to provide reasoned applications to the unique economic and social environment in the Greater Toronto Area. This latter step is particularly important in policy considerations, since potential gaming jurisdictions can vary significantly in terms of market structure, amenities, population demographics, economic characteristics, and public health support systems.

In this third report, we focus on academic research on the social costs of gaming. While this topic has been the focus of a number of studies, the research area remains contentious overall. This report describes the extent to which this literature can be useful to policymakers, and the limitations of available research. The sections that follow also include an overview of the conceptual and methodological difficulties in measuring these types of social costs.

2 Background

In early 2012, the Ontario Lottery and Gaming Corporation (OLG) announced formal plans to develop a new casino in Greater Toronto. The plan, which is expected to elicit bids from large commercial gaming corporations, is projected to include an "integrated resort" property, combining hotel, restaurant, entertainment, retail, and convention facilities along with gaming amenities.

Presently, there are several forms of gaming available in the GTA, although there is no resort-style casino gaming within an hour's drive of the downtown core. The nearest commercial resort-style casinos are Niagara Fallsview and Casino Rama, located well outside of the city limits, and there are OLG slot machines at more nearby racetrack casinos, such as Woodbine, Georgia Downs, and Ajax Downs.[1] Lotteries, pari-mutuel horse racing, bingo, and multi-game sports wagering are all accessible, and OLG has expressed its intention to roll out various forms of Internet gaming, beginning in 2013.

...there are significant challenges in measuring the social costs of gambling, creating many areas of contention that have not been resolved between gambling researchers. As a result, we suggest that this is a field where a healthy amount of skepticism is merited...

[1] There is also a temporary casino at the CNE during a portion of the summer.

In engaging these debates, critics often cite ad hoc research that may or may not be entirely relevant to this particular market – as it may ignore other multidisciplinary fields of research that are relevant to the topic (e.g., sociology, economics, and criminology) or predate an era with modern responsible gambling programs. Whenever possible when engaging these debates, we believe that policymakers should rely on current peer-reviewed research, as it has been subjected to the full rigors of the academic process.

What follows in this paper is carefully reasoned set of policy considerations, drawing on empirical results and theory from the most robust peer-reviewed studies available on the social costs of casinos. As we mentioned in the introduction, there are significant challenges in measuring the social costs of gambling, leading to many areas of legitimate debate that have not yet been resolved between gambling researchers. As a result, we suggest that this is a field where a healthy amount of skepticism is merited when considering claims made with absolute certitude.

3 Issues

3.1 Understanding Social Costs of Gambling

The gambling research field agrees that there are social costs associated with casino gambling. In fact, the founding figure in this research field, Dr. William Eadington, sums up this perspective nicely by dividing the arguments against gambling into three general categories (Eadington, 1996):

> *"Gambling is immoral and inconsistent with religious views;*
> *Gambling is linked to organized crime, fraud, and corruption; and*
> *Gambling leads to problem gambling and consequent social costs."*

Of these, the first argument remains potent, but societal changes mean that this no longer tends to be the primary policy consideration when introducing gambling. Meanwhile, categories two and three are generally thought to constitute "social costs" of gambling. However, researchers are much more divided on what specific items constitute these social costs, and how these costs should be measured – in terms of both scope and method. This lack of consensus has not been the result of a lack of effort. As noted by an oft-published scholar in the area of social cost estimation, Walker (2008) points out that:

> *"The gambling literature has lacked a consensus on the definition of 'social cost,' though there have been serious attempts to come to an agreement. With no standardized definition, interpreting and comparing social cost estimates can be tricky."*

Indeed, it is important to keep this in mind when considering any studies in this particular field. Even market-specific research should be applied with caution: for example, Chhabra (2007) performs a cost/benefit analysis of casino gambling in Iowa, but in doing so he also warns:

> *"Studies on benefits and costs of casino gambling are characterized by a high degree of heterogeneity in methodology and indicators used...Additionally, net impacts vary across different communities and statewide positive net impact computations can sometimes be misleading because the overall picture does not capture county-specific effects."*

In other words, there can be profound differences in the way that costs are conceptualized (e.g. including only costs that problem gamblers cause to other people vs. including costs they might cause to themselves) and the variables we might use to measure them (e.g. assigning dollar values or using qualitative descriptions). In addition, these costs may affect varying regions in very different ways (depending upon whether social costs are borne by non-resident tourists or not).

There can be profound differences in the way that costs are conceptualized and the variables we might use to measure them. In addition, these costs may affect varying regions in very different ways (depending on whether social costs are borne by non-resident tourists or not).

The primary reason that social cost estimates are so difficult to compare is that there are several legitimate ways to define a social cost. Walker (2007) highlights three different perspectives for socioeconomic cost/benefit analyses that have gained traction, and that are generally believed to have merit in the literature:

i. The cost of illness approach: this approach attempts to estimate the social costs of treatment, prevention, research, law enforcement and lost productivity from problem gamblers;
ii. The economic approach: this approach looks at how much less an economy may produce overall as a result of gambling-related costs, ignoring transfers among different people or parties. For example, costs of collecting gambling related debts would be included since it is an added transaction cost, but the debt itself would not be included since it is simply a transfer of wealth from an economic point of view.
iii. The public health approach: this approach is a more holistic view of gambling-related problems that includes some cost analysis, but also considers components that researchers cannot easily measure, focusing on items like prevention, treatment, and quality of life.

In addition to the availability of several different approaches to social cost estimation, a secondary reason why estimates can be so unreliable is a (mis)understanding of the approaches themselves. In providing a description of the sources of these studies' variation in social cost estimates, Collins and Lapsley (2003) point to two common sources of error:[2]

[2] The authors themselves also categorize and describe many different activities associated with gambling that could be considered social costs that are somewhat arbitrarily divided into tangible costs and intangible costs, where intangible costs are those that cannot be readily computed empirically. However, this division seems to be more so on the basis of the ease with which the activities can be estimated, and many of these costs – such as loss of life –

> *"... (the first are) theoretical errors which result in the production of social cost estimates which are simply incorrect. The major error here tends to arise from confusion between real and pecuniary (that is, transfer) costs. Walker and Barnett (1999) provide a detailed analysis of such errors arising in American studies."*

And secondly,

> *"Different treatment of areas of genuine theoretical controversy. For example, the treatment of the issue of rationality is one on which the literature has yet to reach a conclusive judgment. It is, nevertheless, a crucial aspect of the definition of social costs."*

Put simply, some researchers make fundamental errors by either defining a social cost too broadly (or too narrowly), while others make assumptions about whether, for example, problem gamblers are acting irrationally if they gamble excessively.

To illustrate how these (and other) definitions of social costs can create substantial differences in estimates, consider an article by Walker (2008) that critiqued a prior study by Thompson and Schwer (2005). Walker re-calculated the estimated social costs framed by Thompson and Schwer, but Walker used a different methodology based on a definition of social costs that is favored by economists. He concludes thusly:

> *"After considering the various effects in the context of the economics definition of social costs, most of the effects identified by Thompson and Schwer (2005) turn out to be private or internalized costs and thus should be removed from the social cost estimate. Without debating how they arrive at their specific dollar estimates, the social cost estimate would be reduced to $1,579 by eliminating transfers and private costs. Taking for granted the prevalence estimates and related calculations by Thompson and Schwer (2005), the cumulative social costs ...would be revised from $314-545 million down to $25-44 million per year."*

...it becomes clear that without a very careful review of the inputs of a social cost calculation, it is difficult to trust or even understand the recommendations that the output is providing to policymakers

Looking at these results, it becomes clear that without a very careful review of the inputs of a social cost calculation, it is difficult to trust or even understand the recommendations that the output is providing to policymakers – as these estimates vary by over ten-fold!

have been estimated empirically in the past. The authors do note that many of the intangible costs are difficult to value and are prone to large variation in terms of order of magnitude.

Another strong illustration of how a detailed understanding of study inputs is important is provided by Walker (2007), who outlines a simple case of how limitations can lead to biased estimates of social costs:

> *"In many cases, social cost estimates are derived from responses given by Gamblers Anonymous (GA) members. Examples of this type of study include Thompson et al. (1997) and Schwer, Thompson, and Nakamuro (2003)... Extrapolating from the experience of the most serious problem gamblers to the general population is inappropriate"*

While most researchers would agree that Walker's assessment of these papers' weaknesses is correct, what is less clear is whether there are more reliable estimates available. Unfortunately, social cost accounting is not only potentially unreliable, it is also resource consuming, so it is common for researchers to take shortcuts (like basing costs for all gamblers on the experiences of the most serious problem gamblers).

4 Implications for the Proposed Toronto Market

In our view, and unfortunately for GTA policymakers, there are no strong social cost accounting studies that are sufficiently trustworthy and applicable to the proposed GTA resort-casino. In Toronto, we have observed citations of research conducted by Grinols and Mustard (2001), suggesting that social costs clearly outweigh the benefits of casinos. However, this paper has been convincingly discredited by Walker (2007), as among other problems, it relies upon prior studies that are completely irrelevant to the proposed resort-style casino in Toronto. These studies date as far back as 1981, prior to what we might call the "modern casino resort" era, and focus instead on many small and quite different jurisdictions which are neither generalizable nor comparable to Toronto. In addition, many of the studies used by Grinols and Mustard to develop their cost estimates were not peer reviewed and/or use questionable measurement approaches.

In Toronto, we have observed citations of research conducted by Grinols and Mustard (2001), suggesting that social costs clearly outweigh the benefits of casinos. However, this paper has been convincingly discredited... and among other problems, it relies upon prior studies that are completely irrelevant to the proposed resort-style casino in Toronto.

Unfortunately, we believe that using this study for policy decisions is a "worse than useless" approach, as described by Walker and Barnett (1999):

> *"Under any circumstance, assessing the social costs and benefits of a public policy is a difficult and imprecise endeavor. Even with a clear and conceptually defensible definition of social costs and benefits, the practical problems of quantifying policy impacts are formidable. In short, the best of such studies should be taken with a liberal grain of salt.*

> *But when these studies are done without the conceptual guidance provided by a clear, explicit definition of what is being measured, the results of the studies can be worse than useless. They are more likely to obscure relevant issues than to inform the policy debate."*

...to the extent that casino resort developments serve as a tourism draw, bringing in customers from outside of the region, social costs will be reduced

Another oft-cited publication is the recent report by the Centre for Addiction and Mental Health (CAMH) and Toronto Public Health (2012). While this report invokes the public health approach method in their review of a proposed casino, it does not mention other valid methodological options, like the economic or cost of illness approaches outlined above. In fact, this report notes that it relies entirely on a non-peer reviewed study co-authored by psychologists to inform a literature review of social and economic impacts of casino effects in Toronto (Williams, Rehm, and Stevens, 2011). Unfortunately, it ignores a similar study on socio-economic impacts of gaming in Alberta that included some different results (Humphreys et al., 2011). For example, this latter study found strong causal evidence that casino participation substantially increased Albertan's happiness levels, which would be useful data when considering the comprehensive social, economic, and health impacts of casino expansion.[3] While this omission is perhaps understandable given time and resource constraints, this report's approach needs to be understood against the backdrop of the broader research literature.

In addition, while the report is titled "The Health Impacts of Gambling Expansion in Toronto," it notes that:

> *"This report was limited in scope to the potential impact of gambling expansion on problem gambling. Employment, economic development, crime, motor vehicle traffic, and other community impacts were outside the scope of this report, though these factors affect the health and well-being of individuals, families and communities."*

Once again, these limitations are understandable, but they are not consistent with a comprehensive assessment of health impacts, as the title implies. At the very least, research in this area needs to be appropriately thorough and appropriately cautious, acknowledging the very real limitations and methodological concerns expressed in this broad research field.

Social cost analysis can be a very powerful tool in making decisions, but our current belief is that social cost estimates should not be considered a reliable decision-making tool for the adoption or rejection of casinos until an inter-disciplinary consensus is reached among researchers. That said, we do have cautious optimism that some of the social cost literature can inform broader considerations in the GTA debates. For example, this literature suggests broadly

[3] Both of these reports remain outside of the scope of our report, as we seek to focus on peer-reviewed academic studies.

that to the extent that casino resort developments serve as a tourism draw, bringing in customers from outside of the region, social costs should be reduced (Eadington, 1999). Also, we would note that the presence of strong research, treatment, and education resources in the area will serve to further reduce social costs – and in the GTA and Ontario, these resources are globally recognized as leaders in the field.

5 Conclusion

This study examined the social cost literature in order to provide an assessment of its relevance to the proposed resort-casino in the GTA. Social costs are an important consideration, but unfortunately, this is a research field that is far from definitive. In fact, there seem to be no clear examples of social cost accounting studies that are sufficiently trustworthy and applicable to the proposed GTA development. In general, academics agree that there is too much disagreement in the current research literature to provide firm direction or solid quantifiable estimates of these social costs.

Based on our observations of the literature and the proposed developments, however, we do believe that if the GTA decides to move forward with the development of an integrated resort casino (instead of a gaming-only facility), there is reason for cautious optimism in at least one sense. Specifically, this facility's tourist-oriented nature, along with the globally recognized research, treatment, and education resources in the area, should lead policymakers to have confidence that the GTA's process can and will constitute a "best practice" approach to casino resort development -- at least from the perspective of recognizing, addressing, and mitigating certain social costs.

Acknowledgement

This research was sponsored by the Canadian Gaming Association. After agreeing upon the broad research topics that would be addressed, the research team insisted that the study sponsor have no editorial say over the contents of the final report. The study sponsor readily accepted these conditions, and the study proceeded. The contents of this research are solely the responsibility of the authors and do not represent the official views of the Canadian Gaming Association or the University of Nevada, Las Vegas.

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Informing the Public Debate: Economic Impacts of Casinos

Economic Benefits, Tax Regressivity, and Real Estate Impacts

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January, 2013

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Executive Summary

This document is the fifth in a series intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). The series focuses on common debates that tend to occur during the expansion of gaming in a jurisdiction. In this report, our focus is on the extant academic research on the economic impacts of casino gaming. Specifically, we seek to clarify certain conceptual issues by drawing on the theoretical and empirical literature in this field.

The results of our review of literature on the economic impact of casinos suggest that the integrated-resort approach being pursued in the GTA is a "best practice" in terms of maximizing the economic impact of the potential facility. We expect a meaningful increase in economic growth over the short run, and the employment generated by the facility should produce wages well above those observed in non-unionized hospitality firms. We also found that the economic impact estimates produced by Ernst & Young (2012) generally appear to be reasonable, insofar as their assumptions prove to be correct, but may be subject to more (upside and downside) risk than was implied in their report.

We also found that the tax revenue generated from a GTA casino is likely to be regressive, albeit generally less regressive than lotteries. However, we note that if the tax revenue raised from casinos is used to benefit lower income groups, then the *net incidence* of the tax may actually be progressive rather than regressive. This could be done by funding projects that are disproportionally used by lower income groups, such as public transportation. We also note that regressive excise taxes are hardly unique to casinos. In fact, most other general sales taxes (such as the GST/HST) are typically found to have a regressive incidence.

Finally, our outlook on nearby property values is that no negative effects on prices should be expected from casino expansion in the GTA. Prior research suggests that there may in fact be moderate increases in both commercial and residential property values near the resort-casino. While the research literature is fairly consistent in supporting a non-negative impact, we find that the empirical findings are not sufficiently developed for us to estimate an average effect size for the GTA project in particular.

Throughout this series, we have attempted to sift through the complex claims made by various stakeholders by focusing on the findings that can be trusted most – those in the empirical, peer-reviewed academic literature. In addition, we have emphasized the importance of understanding differences *between* types of gambling when applying this literature – in this instance, the importance of understanding the potential impacts of an "integrated resort" casino, as these impacts tend to be different (and more economically beneficial) than those found with many other forms of gambling. Ultimately, this approach should help policymakers make informed decisions, using the most reliable and applicable information available.

1 Introduction

This document is the fifth in a series intended to inform policy debates on the potential development of a casino resort in the Greater Toronto Area (GTA). The series focuses on common debates that tend to occur during the expansion of gaming in a jurisdiction. Our intent is to not to advise on the immediate decision to permit or prohibit a casino resort, but rather to outline the relevant academic research pertaining to these issues, and then to provide reasoned applications to the unique economic and social environment in the Greater Toronto Area. This latter step is particularly important in policy considerations, since potential gaming jurisdictions can vary significantly in terms of market structure, amenities, population demographics, economic characteristics, and public health support systems.

In this fifth and final report, our focus is on academic research related to the economic impacts of casino gaming.[1] Specifically, we seek to clarify certain conceptual issues by drawing on the theoretical and empirical gaming economics literature. In addition, we provide a general critique of the methodology used by Ernst & Young in their economic impact study of a potential GTA casino (2012). Along with this critique, the sections that follow include a conceptual discussion of the direct economic impacts of casino expansion (including the quality of employment generated from casino gaming), the relative regressivity of casino tax revenue, and casino expansion effects on real estate values.

2 Background

In early 2012, the Ontario Lottery and Gaming Corporation (OLG) announced formal plans to develop a new casino in Greater Toronto. The plan, which is expected to elicit bids from large commercial gaming corporations, is projected to include an "integrated resort" property, combining hotel, restaurant, entertainment, retail, and convention facilities along with gaming amenities.

Presently, there are several forms of gaming available in the GTA, although there is no resort-style casino gaming within an hour's drive of the downtown core. The nearest commercial resort-style casinos are Niagara Fallsview and Casino Rama, located well outside of the city limits, and there are OLG slot machines at more nearby racetrack casinos, such as Woodbine, Georgia Downs, and Ajax Downs.[2] Lotteries, pari-mutuel horse racing, bingo, and multi-game sports wagering are all accessible, and OLG has expressed its intention to roll out various forms of Internet gaming, beginning in 2013.

In engaging these debates, critics on both sides of the debate often cite ad hoc research that may or may not be entirely relevant to this particular market. With economic impact studies in particular, estimates, forecasts, and commentaries are rarely put into the proper context for the

[1] A prior paper in this series focused on the topic of cannibalization and complementary effects of casinos; this study differentiates itself by focusing on the expected direct economic effects of a Toronto casino.
[2] There is also a temporary casino at the CNE during a portion of the summer.

local economy. Clearly, these types of geographically diverse "studies" should not drive local policy; instead, wherever possible, policymakers should rely on peer-reviewed research that is put into the proper context for the local economy.

What follows in this paper is a carefully reasoned set of policy considerations, drawing on empirical results and theory from the most robust peer-reviewed studies available on the economic impacts of casinos. As we have mentioned throughout this series, there are significant challenges whenever one seeks to measure the economic impacts of gambling. In fact, policymakers should be immediately skeptical of claims made with absolute certitude, as scientific inquiries are, by their very nature, designed to be tentative, modest, and up-front about their limitations. In this paper we seek to provide clarity in the areas where such clarity exists in academic literature, and we express caution where academic results are less clear.

With economic impact studies in particular, estimates, forecasts, and commentaries are rarely put into the proper context for the local economy. Clearly, these types of geographically diverse "studies" should not drive local policy.

3 Issues

3.1 Economic Benefits

In previous papers, we have examined some of the social issues often associated with resort casinos (including crime and cannibalization), but it is also important to consider the anticipated economic benefits. The pre-eminent gambling economist, William Eadington, has written extensively on the economics of casinos, and in particular, resort-style casinos (1999, 2009). In doing so, he categorizes the economic benefits of casinos into three areas. The first, which is often underreported in public debates because of its intangibility, is the entertainment value that is experienced by the vast majority of patrons who gamble in moderation and seem to enjoy doing so – typically referred to as recreational or non-problem gamblers. Their benefit from this leisure experience (known as "utility" in economic speak) is often overlooked, but it is important to keep in mind. After all, the ability to (more or less) choose the goods and services that we purchase is widely held as the key economic force that drives free markets (and a basic right in Canadian society), and more choice tends to be a net positive for consumers (think of a town with only one restaurant – the addition of even one more restaurant ensures that residents do not have to eat the same food every night they go out and surely improves their leisure experience).

The second and third benefits described by Eadington are those that are more often reported in public debates, since they are much easier to quantify. These are the "ancillary economic benefits" of casinos and the tax revenue from casinos. Eadington describes the ancillary economic benefits from casinos as the "job creation, investment stimulation, tourism

development, economic development or redevelopment, urban or waterfront revitalization, or the improvement of the economic status of deserving or underprivileged groups." (p.186)

The type of development currently being contemplated in the GTA is commonly called an "integrated resort," and these are noted by Eadington to be particularly effective at generating jobs, economic development, and exports, as compared with casino-only complexes (1999, 2009). As we have noted in previous papers in this series, this is due in part to the direct impacts of these facilities' non-gaming amenities, but it is also due to the synergistic effects that help these combined entities create a tourism draw to the region.

Although there has been little empirical work to quantify the first benefit described by Eadington (1999), some peer-reviewed research has been done to better understand the effect of the latter two on local economies. For instance, Walker and Jackson (1998) first found that casino gambling had a positive effect on economic growth (specifically personal income per capita), but a follow-up study using a longer period of study (Walker and Jackson, 2007) found no significant effects. The authors suggest that the most likely explanation is that in the short-run, casinos have a meaningful and significant effect on economic growth, but that this effect will gradually wear off over time. Another study examining the effects of casinos in the Gulf States after Hurricane Katrina by those same authors (Walker and Jackson, 2009), found further support for this explanation. In this article, the authors found that casinos had a positive impact on state-level economic growth.

Walker has since summarized the findings of his studies thusly:[3]

> *"Consistent with our earlier papers, the Katrina study suggests casinos can indeed have a positive impact on state-level economic growth, at least in the short-term. Presumably, these effects come about from an amalgamation of capital and labor effects and the attraction of tourism. The available empirical evidence suggests that, indeed casinos do have a positive economic growth effect, although it may be short-lived. Obviously, the effect will vary depending on specifics of the jurisdiction and market."*

In terms of the *quality* of employment that will be generated from casino-resorts, we caution that this is an area where it is difficult to generalize the statistics found in other studies. In the few academic studies that provide this type of data (which tend to focus on the U.S. economy) little is done to control for other aspects of the economy, such as tax rates, gratuities, or purchasing power parity. These are crucial factors needed to explain and generalize the true quality of the casino (and related industry) employment. However, we do note that there is some academic research that will inform the casino-resort employment quality debate. In a series of papers on the effect of unions on casino-resort wages, Waddoups (1999, 2000, 2001) finds that the presence of a union in a hotel-casino leads to significantly higher wages – the author

[3] Walker, D. M. (2009). The Economic Effects of Casino Gambling: A Perspective from the US. *Macao Polytechnic Institute Global Gaming Management Seminar.* Macao, CN: Macao Polytechnic Institute.

estimates wages to be 24% higher in these positions. As a number of unions have already expressed interest in the hospitality-related jobs that would be generated by a GTA casino-resort, we expect that a substantial share of the proposed development would be serviced by unionized employees. Therefore, we expect that wages will be set well above a minimum serviceable level.

Further, while we caution it is not a peer-reviewed study, these results are consistent with those found by the U.S. National Gambling Impact Study Commission (1999), which notes that resort-casinos in particular offer superior quality employment than comparable service sector jobs. The impact study commission notes:

We expect that a substantial share of the proposed development would be serviced by unionized employees. Therefore, we expect that wages will be set well above a minimum serviceable level.

> *"The Commission also heard testimony quantifying job quality in the casino industry, and these data show that in terms of income, health insurance, and pension, casino jobs in the destination resorts of Las Vegas and Atlantic City are better than comparable service sector jobs... Within the casino industry, destination resorts tend to create more and better quality jobs than other kinds of casinos."*

3.1.1 Implications for the Proposed Toronto Market

The results of our review of the literature on the economic impact of casinos suggest that the integrated-resort approach being pursued in the GTA is a "best practice" in terms of maximizing the economic impact of the potential facility. Specifically, we anticipate that there will be a meaningful increase in economic growth over the short run, and the employment generated by the facility should produce wages well above those observed in non-unionized hospitality firms.

To date, one report has sought to estimate the economic impacts of the proposed GTA resort-casino (Ernst & Young, 2012). The economic impact estimates from the Ernst & Young report generally appear to be reasonable, insofar as their assumptions prove to be correct. However, we do wish to highlight some key additional risks – both positive and negative – that may not have been fully captured or expressed in this report.

First, projections of casino revenue are highly challenging to project accurately in what is effectively a new market with substantial latent demand (demand which currently lacks the supply to be observed). Since there has never been a casino in downtown Toronto, it is unclear how substantial this latent demand could be, both in terms of area residents and in the international high roller market (particularly in Asia). As an example of how this has occurred previously, when Las Vegas' Mirage resort ushered in the mega-resort era in 1989, seven year junk bonds for the $630 million project were paid off in 18 months due to the unforeseen high

demand. While we certainly might question whether Mirage-like success might ensue in Toronto, this dynamic creates both upside and downside risk in the forecasts.

Second, since casino gaming is generally a product that is a function of discretionary income, there is general economic risk that should be factored into the calculations. For example, strong growth in the U.S. economy may lead to a substantial increase in traffic from trans-border players, but a downturn would lead to macro- and micro-level concerns that are not captured in the economic impact projections. This creates both upside and downside risk in the forecasts.

The results of our review of literature on the economic impact of casinos suggest that the integrated-resort approach being pursued in the GTA is a best-practice in terms of maximizing the economic impact of the potential facility.

Third, the study projects an 80/20 gaming revenue to non-gaming revenue split, and non-gaming revenue is forecast as a function of their gaming revenue estimates. While this could be considered a reasonable and conservative estimate, non-gaming amenities could also reasonably generate a substantially larger share of revenue. Companies that have expressed interest in bidding on a Toronto casino license have casino resorts that derive upwards of 60% of revenues from non-gaming amenities (e.g. MGM Resorts International, 2012; Wynn Resorts, 2012). This creates upside risk in the forecasts, especially with non-gaming amenities that potentially have significant additional economic benefits – meaning that the overall economic impact could be larger than that which is anticipated in this report.

3.2 Tax Regressivity

While the discussion of the quantity of taxes generated from casinos tends to generate little debate (as this is a straightforward figure to measure), debates often focus on the degree to which these taxes are "regressive" – that is, whether lower income residents bear a disproportionate tax burden compared to higher income residents. On this question, much of the cited evidence of regressivity in gaming taxes is in fact generalized from the literature on lotteries and not casinos (and certainly not resort-style casinos). As such, we seek to clarify this literature's applications, rather than applying lottery-based findings to all forms of gaming.

Academic literature has found that lotteries are tend to be quite regressive (e.g. Ghent and Grant, 2010; Daberkow and Lin, 2012; Perez and Humphries, 2012), but casino gambling has not shown the same degree of income inequality (e.g. Worthington, 2001). In part, this may be because there is little opportunity for higher income players to bet much higher denominations in lotteries. A single purchase of a lottery ticket for the week is the same price for a low income gambler as it is for a high income gambler, whereas in a casino a lower income gambler can wager on "penny slots" while higher income gamblers can wager on higher denomination slots

or table games. Another explanation is that lotteries are generally considered to be more likely to be viewed as "aspirational gambling" (i.e., engaged with aspirations of reaching higher levels of wealth) rather than entertainment-oriented gambling, and thus are more likely to appeal to lower income gamblers. Eadington (1988) summarizes this perspective:

> *"Lotteries which have low intrinsic entertainment value but very large prizes relative to the cost of participation are the ideal wealth motive gambles. Fixed odds games with even money pay-offs, on the other hand, are more likely to attract entertainment motivated players than wealth seekers."*

...much of the cited evidence of regressivity in gaming taxes is in fact derived from the literature on lotteries and not casinos... Academic literature has found that lotteries are tend to be much more regressive than casino gambling

Put simply, lotteries offer little as a time-occupying recreational activity, but do offer large payouts so they are more likely to be consumed by people who desire to increase their wealth. Casinos, which tend to have lower payout games that offer higher levels of entertainment, are less likely than lotteries to be consumed by people who are simply trying to increase their level of wealth.

The first study focusing on casino gaming tax incidence suggested that casino gaming tax revenue was progressive for the U.S. overall: gamblers with higher incomes had proportionally higher spending levels (Suits, 1977). However, this U.S. national study occurred during a period when only Nevada offered widespread legalized casinos, so many gamblers needed to be relatively wealthy to travel to that state if they wanted to visit a legal casino.

More recent studies, such as Borg, Mason, and Shaprio (1991), Rivenbark and Rounsaville (1996) have found that casino taxes are generally regressive, but that they differ in the extent of the regressiveness. Worthington (2001) finds evidence of a positive relationship between income and gambling expenditures, but notes that gambling spend does not increase at the same rate as income. He therefore concludes that gaming products in Australia are regressive, though slot machines and casino style table games are found to be the least regressive forms of gaming:

> *"The results indicate that the incidence of gambling-related taxation is indeed regressive; that is, gambling expenditures as a percentage of income decline as income increases. And this finding holds even when other factors such as household income sources and welfare dependence is (sic) taken account of. This has obvious ramifications for the use of gambling-related taxation as a means of fiscal extraction. However, factors other than income level are also at play in determining gambling expenditures, and thereby the implied tax incidence."*

Rivenbark and Rounsaville (1996), who also find evidence of regressivity in Mississippi casino taxes, agree with Worthington (2001) findings that casino taxes are less regressive than lotteries, suggesting that casino gaming may be a better funding option than lotteries if regressivity is a concern:

> *"...if tax incidence is of major concern, states should consider casino gaming before implementing such a tax regressive vehicle like a state lottery."*

3.2.1 Implications for the Proposed Toronto Market

Overall, the handful of studies that have looked at the regressivity of casino tax revenue have found that it is regressive – albeit generally less regressive than lotteries. However, an important policy consideration that remains is how the incremental tax revenue from casinos is used. If the tax revenue raised from casinos is used to benefit lower income groups, then the *net incidence* of the tax may actually be progressive rather than regressive.

A net progressive tax can occur either directly, through lower income tax rates or social assistance transfers for bottom tax brackets, or it can occur indirectly, by funding government infrastructure projects that are disproportionally used by lower income groups – for example, this could be done though an expansion of public transportation funding.

Ultimately, a theme common in many of the papers from this series emerges once again: it could be that we are focusing on the wrong metric. In this instance, we might argue that the question of tax regressivity should not be the primary concern for policy makers. Rather, the more important metric would seem to be the net effect of the incidence, as this is more properly associated with the common good. Hence, policymakers should devote simultaneous consideration to tax revenue *spending* when considering the effect of a "regressive" casino tax.

As a final note, we might point out that regressive excise taxes are hardly unique to casinos. In fact, most other general sales taxes (such as the GST/HST) are typically found to have a regressive incidence (Kakwani, 1976) – once again underscoring the importance of thinking more holistically about the proper approach to tax policy.

3.3 Real Estate Values

In considering economic impacts of a GTA casino, some parties have expressed concern that nearby property values will decline. While there have only been a handful of studies on this topic, the empirical evidence to date suggests that this is an unfounded concern. Where research has been developed and peer reviewed, the effects of casinos on property value clearly appear to be positive – for both residential property and commercial property.

The most robust of these studies was authored by Wiley and Walker (2011), and this study also provides a relatively meaningful case to compare to the proposed Toronto project, since it studies a resort-style casino in an urban market (Detroit, MI). The authors, who control

for many different factors that could also affect property value, find that casino revenues have a positive influence on retail property values. They conclude by saying:

> *"The results indicate that casinos have a complementary effect on Detroit retail. An increase in casino revenues is associated with a statistically significant increase in retail property values. This effect is stronger in magnitude for properties within a 5-mile radius surrounding the commercial casinos."*

Buck et al (1991) similarly found that casinos in Atlantic City increased nearby property values by $1.35 million per square mile, but caution that crime in the area may have abated some of these gains.[4] Phipps (2004) examined the Windsor, ON market, before and after casino openings, and also found no evidence that there was a negative change in residential real estate values, albeit the author found no positive changes either. Finally, in a large sample study that used data from the 1990 and 2000 U.S. Census of Population and Housing, Wenz (2007) identifies positive effects of casino on nearby property values. He notes:

Where research has been developed and peer reviewed, the effects of casinos on property value clearly appear to be positive – both for residential property and for commercial property.

> *"...the estimated net benefit of casino gambling at year 2000 levels was approximately 2% of household value, or about $2,000-$3,000 per household for households living near a casino. Additionally, there are positive spillover effects to neighboring in-state regions and no significant costs to out-of-state border regions."*

However, Wenz also expresses a cautionary note that may be relevant here, suggesting that these benefits may be less significant in areas with substantial population density. A downtown casino, then, may see less positive spillover in real estate values.

3.3.1 Implications for the Proposed Toronto Market

As a whole, our outlook is that no negative effects on real estate values should occur from casino development in the GTA. In fact, there may be moderate increases in both commercial and residential property values. However, while the research literature is fairly consistent in supporting a non-negative impact, we find that the empirical research is not sufficiently developed for us to estimate an average effect size for this specific GTA project, so some ambiguity remains over the ultimate size of this impact.

[4] In our earlier study on casinos and crime, we concluded that available evidence suggested that casinos do not seem to increase crime levels any more than other tourism attractions.

4 Conclusion

Throughout this series, we have attempted to sift through the complex claims made by various stakeholders by focusing on the findings that can be trusted most – those in the empirical, peer-reviewed academic literature. In addition, we have emphasized the importance of understanding differences *between* types of gambling when applying this literature – in this instance, the importance of understanding the potential impacts of an "integrated resort" casino, as these impacts tend to be different (and more economically beneficial) than those found with many other forms of gambling. Ultimately, this approach should help policymakers make more informed decisions.

This particular document sought to inform policy debates on academic research related to the economic impacts of casino gaming. Specifically, we aimed to clarify certain conceptual issues by drawing on the theoretical and empirical gaming economic impact literature. The results of our review suggest that the integrated-resort approach currently under consideration in the GTA is a "best practice" in terms of maximizing the economic impact of the potential facility. We expect a meaningful increase in economic growth over the short-run, and we also expect that the employment generated by the facility should produce wages well above those observed in non-unionized hospitality firms. We also found that the economic impact estimates produced by Ernst & Young (2012) generally appear to be reasonable, insofar as their assumptions prove to be correct, but these estimates may also be subject to more (upside and downside) risk than was implied in their report.

We expect the tax revenue generated from a GTA casino to be regressive, but less regressive than lotteries. We also note that the *net incidence* of the tax may be progressive (rather than regressive) if spending of the revenue benefits lower income groups. This could be done by funding projects that are disproportionally used by lower income groups, such as public transportation.

Finally, our outlook on property values is that no negative effects on nearby prices should be expected from casino expansion in the GTA. Prior research suggests there may in fact be moderate increases in both commercial and residential property values near the resort-casino. While the research literature is fairly consistent in this general perspective, we find that the empirical literature is not sufficiently developed for us to put forward an average effect size for the GTA project in particular.

Acknowledgement

This research was sponsored by the Canadian Gaming Association. After agreeing upon the broad research topics that would be addressed, the research team insisted that the study sponsor have no editorial say over the contents of the final report. The study sponsor readily accepted these conditions, and the study proceeded. The contents of this research are solely the responsibility of the authors and do not represent the official views of the Canadian Gaming Association or the University of Nevada, Las Vegas.

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