2014-04-14

Controversial Topics in Gambling: Alberta Gambling Research Institute's 13th Annual Conference

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The Impact of VLT Location on Problem Gamblers: Evidence from Individual Bankruptcy Filings

Barry Scholnick, University of Alberta
Brad Humphreys, University of West Virginia
Vyacheslav Mikhed, Federal Reserve Bank of Philadelphia
AGRI – 2014 - Banff

CONTROVERSIAL TOPICS IN GAMBLING
Thanks to:
• “Based on the recommendations from the 2001 Gaming Licensing Policy Review... the AGLC continues to reduce accessibility to VLTs by reducing the number of locations providing VLTs to Albertans. Since 2001, the number of VLT locations in Alberta have been reduced by over 23 per cent.”
VLTs vs VGERs
(Video Gaming Entertainment Rooms)

• “VLT’s are ... in bars and lounges. And some people see this as being too accessible. That people stumble on them, not necessarily expecting them. .... They go in for a drink or a sandwich. They see the machines, haven’t played them before, play them, find them exciting, maybe win the first time and start getting hooked on them. And within a couple of months they’ve got an addiction problem. If they were only in gambling outlets, then at least you know you’re going gambling”.

Garry Smith (2005)
Our Aim:

• To provide empirical evidence on the effectiveness of reducing the number of general retail locations providing VLTs, while increasing VLTs in designated VGERS.
A New Question:

• To the best of our knowledge, no previous study has rigorously examined the premise that removing VLTs from general retailing locations, while concentrating them in gambling orientated locations (VGERs) will reduce the prevalence of problem gambling.
METHODOLOGICAL CONTRIBUTION

• Our main methodological innovation is our use of individual bankruptcy filings to identify and locate problem gamblers.
• We have detailed filing data from every bankruptcy filing in Canada, provided to us by the Canadian bankruptcy regulator, the Office of the Superintendent of Bankruptcy (OSB).

• We are able to identify from this database, bankruptcy filers for whom gambling was a cause of their bankruptcy.

• In Canada there are approximately 100 000 bankruptcy filings per year, of which approximately 2.2% indicated that gambling was a reason for their financial distress.
• To the best of our knowledge, no previous study has identified problem gamblers using individual personal bankruptcy filings, and in particular the element of the OSB filing data that indicates that gambling was a cause of a specific bankruptcy.
DATA

• VLT and VGER Location Data in Alberta - AGLC

• Individual Bankruptcy Filings - OSB

• Match by 6 Digit Post Code
VLT and VGER Location data (AGLC)

- **Every** VLT and VGER in Alberta
- Monthly Data 2004 to 2014
- Opening and Closing of Facility
- Change in number of machines over time
- Exact Location – 6 Digit Post Code
- Net $ Sales per Machine
- Number of Machines per location
OSB Individual Bankruptcy Data
FORM 79
Statement of Affairs (Non-Business Bankruptcy/Proposal)
(Subsections 49(2) and 158(d) of the Act / Subsections 50(2) and 62(1) and Paragraph 66.13(2)(d) of the Act)

(Title Form 1)

<table>
<thead>
<tr>
<th>Type of assets</th>
<th>Description (provide details)</th>
<th>Estimate dollar value</th>
<th>Exempt property</th>
<th>Secured amount/ liens</th>
<th>Estimated net realizable dollar value*</th>
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<tbody>
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<td>1. Cash on hand</td>
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<td>2. Furniture</td>
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<td>3. Personal effects</td>
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<td>4. Cash-surrender value of life insurance policies, RRSPs, etc.</td>
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<td>5. Securities</td>
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<td>6. Real property or immovables</td>
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<td>Snowmobile</td>
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<td>8. Recreational equipment</td>
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<td>9. Estimated tax refund</td>
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<td>10. Other assets</td>
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TOTAL
# LIABILITIES

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<tr>
<th>Creditor</th>
<th>Address, including postal code</th>
<th>Account No.</th>
<th>Amount of debt</th>
<th>Enter LTC</th>
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<td>Unsecured</td>
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<tr>
<th></th>
<th>TOTAL</th>
<th>Unsecured</th>
<th>Secured</th>
<th>Preferred</th>
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Date: ____________________________  Bankrupt/Debtor: ____________________________
**D. BUDGET INFORMATION: Attach Form 65 to this form**

11A. Have you ever made a proposal under the Bankruptcy and Insolvency Act?  Yes ___  No ___

11B. Have you been bankrupt before in Canada?  Yes ___  No ___

(If yes, provide the following details for all insolvency proceedings: (a) filing date and location of the proceedings; (b) name of trustee or administrator; (c) if applicable, was the proposal successful; (d) date on which Certificate of Full Performance or Discharge was obtained.)

12. Do you expect to receive any sums of money that are not related to your normal income, or any other property within the next 12 months?  Yes ___  No ___

13. If you answered Yes to any of questions 8, 9 or 11, provide details:

14. Give reasons for your financial difficulties:

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I, ___________________, of the ___________________, in the Province of ________________, do swear (or solemnly declare) that this statement is, to the best of my knowledge, a full, true and complete statement of my affairs on the _____ day of _____________ and fully discloses all property and transactions of every description that is or was in my possession or that may devolve on me in accordance with the Bankruptcy and Insolvency Act.

SWORN (or SOLEMNLY DECLARED)  
before me at ___________________ (city, town or village),  
in the Province of ___________________.  
on this _____ day of _______________.

Commissioner of Oaths  
for the Province of ___________________.  

Bankrupt/Debtor
Divorce
Prior defaults
Marital Breakdown
Unemployment
Insufficient Income
Business Failure
Health Concerns
Accidents / Emergencies
Overuse of Credit
Student Loans
Gambling
Tax Liabilities
Loans to Friends
Bad / Poor Investments
Garnishee
Legal Action
Moving / Relocation
Substance Abuse
Supporting Relatives
OSB Data

• Two types of Files

1. Paper Files: 1990-2010
   – ALL Files
   – Full Counts for Every Post Code
   – NO Balance sheet data etc.

2. Electronic Files: 2005-2010
   – All Detailed Information
   – Full Counts for 2007-2010
Electronic Filing by Trustees to OSB

– 2004 – Electronic Filing Introduced by OSB

Percentage of all files made electronically

2005 - 62.2%
2006 - 77.4%
2007 - 97.7%
2008 - 98.9%
2009 - 98.6%
2010 - 99.6%
Personal Bankruptcy in Canada

• All bankruptcies in Canada must be filed with the Office of the Superintendent of Bankruptcy (OSB).

• Filed by a Bankruptcy Trustee, who is typically an Accountant certified by the OSB to file bankruptcies.

• Bankruptcy petitions are legal documents, thus appropriate levels of proof are required by the Trustee from the bankruptcy filer, before petitions can be filed with the OSB.
Postal Codes in Canada

• Six Digits
• Very Small
• ~13 households
Dissemination Areas (DAs)

• ~200 households
• ~500 individuals
Neighborhood Level Controls

• DA Level Census Data
  – median family income
  – family income standard deviation
  – population without income
  – unemployment rate

• Literacy and Numeracy Estimates Murray (2011) from 2003 International Adult Literacy and Skills Survey (IALSS)
HYPOTHESES AND METHODOLOGY
VLT Changes and Gambling Bankruptcies – Difference in Differences Methodology
Testable Hypothesis

• A reduction in access to geographically proximate VLTs should lead to a reduction in bankruptcies related to gambling
The difference-in-differences approach

- Extensively used in applied economics research
- Isolate causality in observational data.
- The basic idea is to use a plausibly exogenous shock, and examine how that shock impacts the endogenous variable of interest.
Plausible exogenous shocks

• Change in the number of VLTs in a specific location (i.e. a location moving from having some to having no VLTs),

• Decided by AGLC

• Endogenous variable is the number of gambling related bankruptcies in the proximate geographic area (e.g. 5km radius, 20km radius etc.).
• **Treatment group**: geographic locations where the number of VLTs was changed

• **Control group**: geographic locations, across both time and space, where there was no change in the provision of VLTs.
• If the data show that there is a significant change in gambling bankruptcies in the treatment group relative to the control group, then we can conclude that the reduction in VLTs has a causal impact on proximate gambling bankruptcies.
A variety of specifications

1. the number of VLTs in a location is reduced, but some VLTs still remain (e.g. a reduction from 5 to 4 VLTs in the location)

2. last VLTs are removed from the location (e.g. a reduction from 1 to 0 VLTs at the location).
• Our hypothesis: predict a bigger effect for the latter case, where no VLTs are remaining.

• The marginal impact of a single VLT reduction should be larger when there is a discrete shift from some to no VLTs in a location.
Second Testable Hypothesis

- Marginal change in retail VLT provision vs. marginal change in VGER provision.
- Assume individuals will have a specific intention to undertake gambling activities when they visit a VGER, but they may have no intentions to gamble when they visit a retail establishment that provides VLTs.
- Thus retail VLTs may lead to gambling problems from individuals who initially had no intention of gambling.
• We can test this premise by comparing the impact of a marginal change in VLTs in a VGER with a marginal change in VLTs in a retail location.

• This hypothesis predicts that there should be a larger impact on gambling bankruptcies from a marginal change in retail VLTs compared to a marginal change in VGERs.
Distance from VLTs and Gambling Bankruptcy: Instrumental Variable Methods
• The closer the *distance* between an individual and a VLT location, the greater the likelihood that the individual will experience financial distress related to gambling, as reflected in gambling related bankruptcy.

• An individual that lives far away from a VLT machine is less likely to suffer financial distress compared to an individual who lives close to that VLT.
• this hypothesis examines all VLT locations in the data base, rather than limiting the sample to only those VLT locations where a change in the number of machines occurred.
• We test this hypothesis with a specification where the probability that an individual has filed for bankruptcy related to gambling (as a fraction of the population in the area) is the dependent variable, and the distance (in km) between the individual and the nearest VLT is the main dependent variable of interest.
Model

- Bankruptcies per Capita = $\alpha + \beta$ Distance to VLT Location (km) + $\beta$ Controls + $\varepsilon$
Neighborhood selection and reverse causality

• An individual addicted to VLT gambling could decide to locate in a certain neighborhood specifically because of the availability of VLTs in that neighborhood.

• In such circumstances, we cannot claim that the availability of proximate VLTs was causally responsible for an increase in gambling bankruptcies.
Model

• Bankruptcies per Capita = α + β Distance to VLT Location (km) + β Controls + ε

• Neighborhood Selection Issue
• Individuals could locate in a neighborhood because of VLTs – and then go bankrupt.
• Third variable impacts both LHS and RHS.
• Misspecified Equation
Model

• Bankruptcies per Capita = $\alpha + \beta$ Distance to VLT Location (km) + $\beta$ Controls + $\varepsilon$

• Need an Exogenous INSTRUMENT for “Distance to VLT Location”

• Instrumental Variable (IV) Techniques
• we need to find a variable that is highly correlated with our independent variable (distance in km between the individual and the VLT), but is clearly *exogenous* with respect to the individual’s decision to file for bankruptcy.
Choice of Instrument

• Certain types of business establishments tend to cluster together in certain parts of cities or towns.
• For example, it is common that restaurants and bars will tend to cluster in certain geographic locations.
• Thus instead of using the (possibly endogenous) distance (in km) between the bankrupt and the closest VLT location as an independent variable, we plan to use as an exogenous instrument the distance (in km) between the individual and the closest restaurant and/or bar that does not have a VLT.
• Use data from the Point of Interest (POI) database,
• Can measure the geographic distance from each bankrupt to both their nearest VLT (from AGLC VLT data) as well as their nearest non-VLT restaurant or bar (from POI data).
• Using an instrumental variable approach (e.g. two stage least squares- 2SLS).
Results
Results

• Coming Soon.......
Conclusions

• **Policy:** First study to Examine transfer of VLTs to VGERs. Does this reduce financial distress from gambling?

• **Methodology:** First study to use individual bankruptcy filing data to measure financial distress from gambling.