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Understanding Gambling: Mechanisms and Predictors: Alberta Gambling Research Institute's 15th Annual Conference

Bedford, Kate; Cunningham, John; Hing, Nerilee; Kayser, Andrew; Kim, Hyoun S. (Andrew); Leonard, Carrie A.; Lewis, Marc; Lister, Jamey J.; McGrath, Daniel; Nower, Lia...

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Presentation

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Bankruptcies after the Removal of Neighborhood Slot Machines

Vyacheslav Mikhed, Federal Reserve Bank of
Philadelphia

Barry Scholnick, University of Alberta

Hyungsuk Byun, Government of Alberta

The views expressed here are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of Philadelphia, the Federal Reserve System, the Government of Alberta, the Office of the Superintendent of Bankruptcy Canada (OSB), the Alberta Gaming and Liquor Commission (AGLC) or the Alberta Gambling Research Institute (AGRI).

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ALBERTA GAMBLING RESEARCH INSTITUTE



- Data Provision



Policy Question

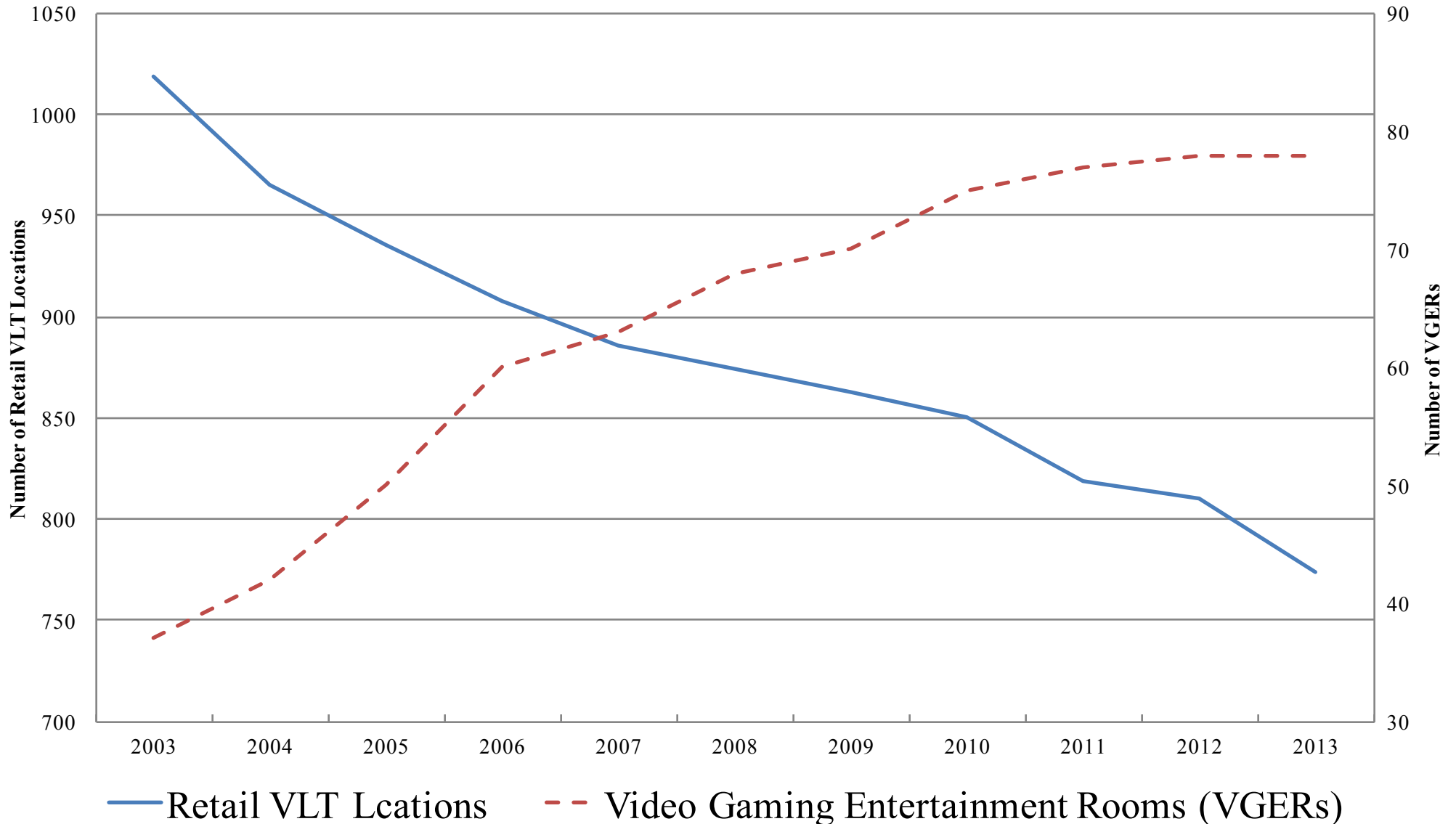
AGLC 2012 Annual Report (p. 33)

- *“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.”*

This paper:

- Examine impact of removal of slots from a retail location on neighboring bankruptcies

Number of Retail and VGER Slot Locations in Alberta 2003 -2013



VLTs in Alberta - Locations

- We only examine **small retail locations** (e.g. bars and restaurants).
 - Need Alcohol Licenses
- Other Locations:
 - Video Gaming Entertainment Rooms (VGERS)
 - large city-wide casinos
 - race tracks.

VLT Ceiling on Numbers

- Alberta provincial legislature - 6,000 slot machines in the retail and VGER locations
- Has remained unchanged over the course of our study.
- AGLC can alter the distribution of machines across specific retail and VGER locations

VLT Data

- Provided by AGLC (regulator)
- universe of retail slot locations in the province.
- include six-digit postal code for each slots location and the exact dates that slots were introduced or withdrawn from a location.
- monthly data on the total dollars gambled and the number of slot machines at each location.

Personal Bankruptcy in Canada

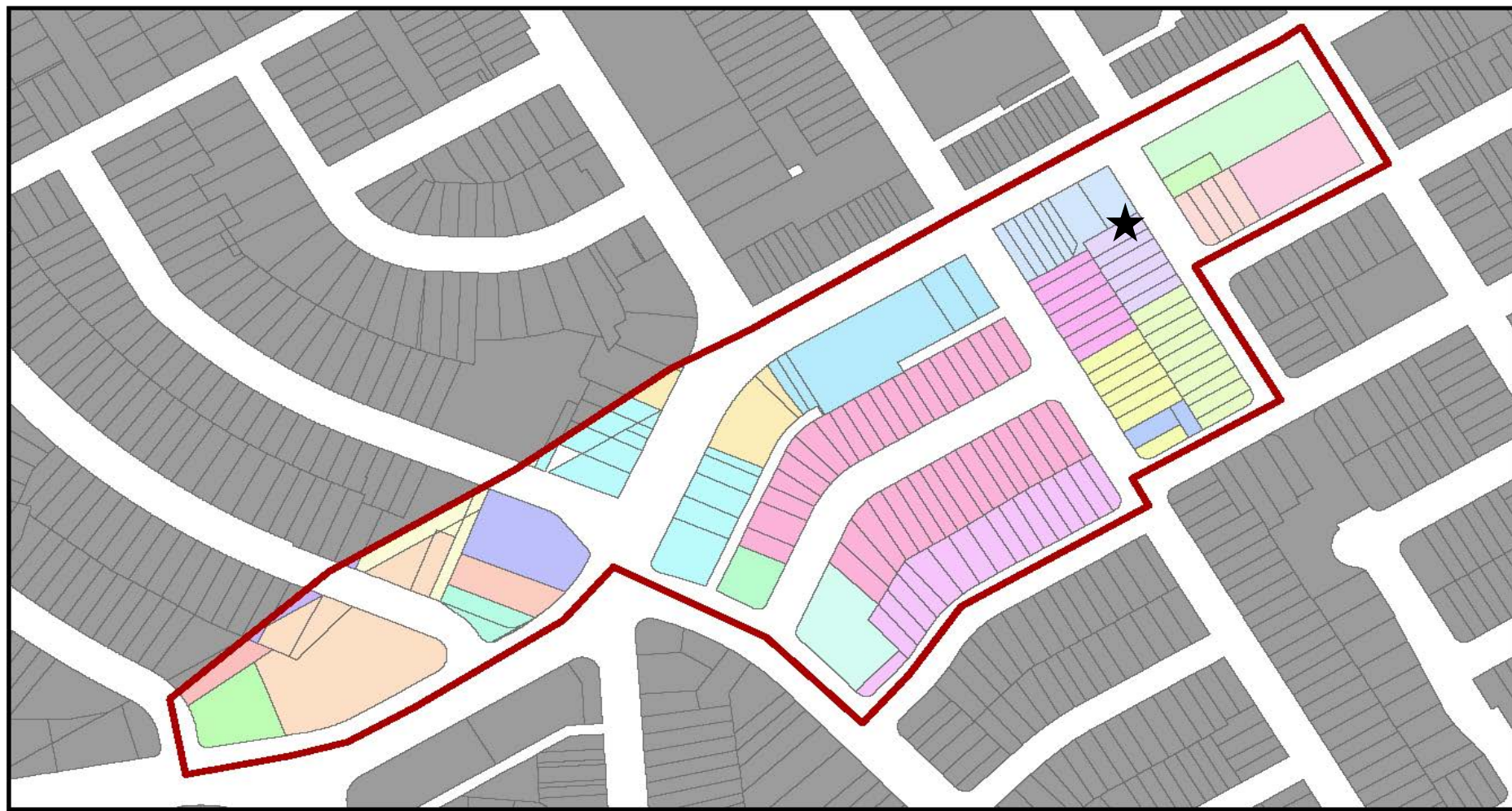
- All bankruptcies in Canada must be filed with the Office of the Superintendent of Bankruptcy (OSB).
- Filed by a Bankruptcy Trustee,
 - Accountant certified by the OSB to file bankruptcies.
- Bankruptcy petitions are legal documents,

Matching Data

- Universe of Bankruptcy Filings in Canada by Post Code by Year (Source OSB)
- Universe of VLT Locations in Alberta by Post Code by Year (Source AGLC)
- Our Unit of analysis: Post Code – Year

6 Digit Postal Code ~13 households – have precise geographic location (long and lat)

Dissemination Area (DA) ~200 households



0 0.05 0.1 0.2 Kilometers

0 0.05 0.1 0.2 Miles

Research Design

- Defining Events Dates:
- **Removal** of All Slot Machines from Retail Locations
- Did not look at new slot locations – very few

Methodology – 3 way interaction

Impact of Slot Closure on Neighboring Bankruptcies

1. Before vs After Closure Date
2. Inner ring vs Outer Ring
3. \$ amount of Gambling withdrawn

Defining Closure Events

1. **Single** slot closure event during the sample
 - No multiple events within a single event window.
2. No other **proximate** slot location of any sort, operating at any stage during the course of our sample.
 - No Geographic Substitution

Methodology:
Literature on Neighborhood
Disamenities

- Linden and Rockoff (2008)
 - sex offender location on neighborhood house prices
- Currie, DellaVigna, Moretti, and Pathania (2010)
 - fast food restaurants on neighborhood obesity
- Campbell, Giglio and Pathak (2011)
 - foreclosure on neighborhood house prices
- Currie, Greenstone, and Moretti (2011)
 - Superfund Cleanup and neighboring infant health
- Pope and Pope (2014)
 - Walmart opening on neighbourhood house prices
- Currie and Tekin (2015)
 - foreclosure on neighbourhood hospital visits
- Currie, Davis, Greenstone and Walker (2015)
 - toxic plants on neighborhood infant birth weight

Inner Rings and Outer Rings

Unobserved Common Attributes

- using very close inner ring neighbors as treatment groups, and outer ring neighbors as control groups
- “differences out” any unobserved common attributes (e.g. unobservable shocks) that are shared by residents of *both* the inner rings and outer rings.
- Campbell, Giglio and Pathak (2011), “*if there is a common shock in the neighborhood which generates an overall ... trend within this micro geography, it will be captured by the difference between these two groups.*” (p. 2125).

Non-random selection into neighborhoods

- Either by individuals (e.g. gamblers) or by facilities (e.g. owners of slot stores).
- Linden and Rockoff (2008) “*individuals may choose neighborhoods with specific characteristics, but, within a **fraction of a mile**, the exact locations available at the time individuals seek to move into a neighborhood are arguably exogenous*” (p. 1110).
- Currie et al (2010) “*we only require that, within a quarter of a mile from a school, the exact location of a new restaurant opening is determined by idiosyncratic factors such as **where suitable locations become available***” (p. 34, italics added).

\$ Gambled - Intensity of Treatment

- We use dollar magnitude of gambling across bars or restaurants as a measure of the continuous intensity of treatment,
- Treatment is defined as the removal of that specific *quantity* of gambling from that specific location (more or less \$)

Importance of \$ Gambling

- Our results become insignificant when we omit this intensity of treatment measure from our specifications.
- Very few studies can measure magnitude of neighborhood disamenity.

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)

Sizes of Inner and Outer Rings

- We use three inner ring radii
 - (0.25 km, 0.5 km and 0.75 km)
- Three outer ring radii
 - (1.5 km, 2.0 km and 2.5 km),
- Report results for a total of nine different ring size combinations.

Estimate for Each Year (-4 to 4)

- Event year – Year of removal of slots from location $t = 0$
- Report results for each individual year from $t = -4$ to $t = 4$, where year $t = -1$ is the omitted year.

Results

- **2 years after event (t= +2)**
- **Compare Across Inner Ring**
 - 0.25 km to 0.5 km to 0.75 km
- **Compare Across Outer Ring**
 - 1.5 km, 2.0 km and 2.5 km

- Outer Ring is : 1.5 km, 2.0 km and 2.5 km
- **Inner ring is 0.25 km:**
 - a 1% increase in \$ gambling causes a reduction in bankruptcies by 2.3%, 2.4% or 2.9%
- **Inner Ring is 0.5 km**
 - a 1% increase in \$ gambling causes a reduction in bankruptcies by 1.4%, 1.4% and 1.8%.
- **Inner Ring is 0.75 km**
 - a 1% increase in \$ gambling causes a reduction in bankruptcies by 1%, 1% and 1.2%.

- Removal of slot machines from a specific location will have the largest effect on neighborhoods that are the closest to the location (0.25 km)
- Increase the radius of the inner ring in different specifications (from a quarter kilometer, to a half kilometer to three quarters of a kilometer), so the magnitude of the effect declines.
- Consistent with many gravity type models - the impact of shocks decline with distance.

Economic Magnitudes

- Bankruptcy is a rare event, reflecting an extreme form of financial distress.
- 0.159 bankruptcies per postal code per year
- a 1% reduction in bankruptcies represents 0.0015 fewer bankruptcies per postal code per year.

Main Policy Conclusion

The AGLC Policy of Reducing Retail VLT Locations Significantly Reduced Neighboring Bankruptcy Filings

*“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” (AGLC Annual Report 2012)*