Notice of the Final Oral Examination
for the Degree of Doctor of Philosophy

of

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MSc (University of Victoria, 2012)
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“The Effects of Alcohol Access on the Spatial and Temporal Distribution of Crime”

Department of Geography

Monday, February 27, 2017
11:00AM
University Centre Building
Room A207a

Supervisory Committee:
Dr. Trisalyn Nelson, Department of Geography, University of Victoria (Supervisor)
Dr. Aleck Ostry, Department of Geography, UVic (Member)
Dr. Timothy Stockwell, Department of Psychology, UVic (Outside Member)

External Examiner:
Dr. Daoqin Tong, School of Geography & Development, University Of Arizona

Chair of Oral Examination:
Dr. Dean Karlen, Department of Physics & Astronomy, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies
Abstract

Increases in the availability of alcohol have led to a higher frequency of crime across multiple regions around the world. As people consume alcohol they experience impaired judgment and a dose-response escalation in aggression that for some leads to criminal behaviour. By limiting alcohol availability it is possible to reduce alcohol-associated crime. However, the literature remains mixed on the best practices for alcohol access restrictions. Variances in data quality and statistical methods have created an inconsistency in the reported effects of price, hour of sales, and alcohol outlet restrictions on crime. Most notably, the research findings are influenced by the different effects of alcohol establishments on crime. The objective of this PhD research was to develop novel quantitative approaches to establish the extent alcohol access (outlets) influence the frequency of crime (liquor, disorder, violent) at a fine level of spatial detail (x,y locations and block groups). We focus this study on British Columbia where policies are changing to allow greater alcohol access across municipalities, but less is known about the crime-alcohol access relationship. Two reviews were conducted to summarize and contrast the effects of alcohol access restrictions (price, hours of sales, alcohol outlet density) on crime, and evaluate the state-of-the-art in statistical methods used to associate crime with alcohol availability. Results highlight key methodological limitations and fragmentation in alcohol policy effects on crime across multiple disciplines. Using a spatial data science approach, recommendations were made to increase spatial detail in modelling to limit the scale effects on crime-alcohol association. Providing guidelines for alcohol-associated crime reduction, kernel density space-time change detection methods were also applied to provide the first evaluation of active policing on alcohol-associated crime in the Granville St. entertainment district of Vancouver, British Columbia. Foot patrols were able to reduce the spatial density of crime, but hot spots of liquor and violent assaults remained within 60m proximity to bars (nightclubs). To estimate the association between alcohol establishment size, and type on disorder and violent crime reports in block groups across Victoria, British Columbia a Poisson Generalized Linear Model with spatial lag effects was applied. Estimates provided the factor increase (1.0009) expected in crime for every additional patron seat added to an establishment capacity, and indicated that establishments should be spaced greater than 300m a part to significantly reduce alcohol-associated crime. These results provided the first evaluation of seating capacity and establishment spacing on alcohol-associated crime for alcohol license decision making, and are pertinent at a time when alcohol policy reform is being prioritized by the British Columbia government. In summary, this dissertation contributes 1) cross-disciplinary policy and methodological reviews, 2) expands the application of spatial statistics to alcohol-attributable crime research, 3) advances knowledge on local scale of effects of different alcohol establishment types on crime, 4) and develops transferable models to estimate the effects of alcohol establishment seating capacity and proximity between establishments on the frequency of crime.