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Activity nodes and licensed premises

Risky mixes and risky facilities?

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Presentation to the International Symposium on
Environmental Criminology and Crime Analysis (ECCA)

16th to 19th June 2014



Overview

- Theory and Literature
 - Risky facilities and activity nodes
 - Alcohol, crime and disorder and density of licensed premises
- Question
 - Is density appropriate measure?
- Case Study Area
- Preliminary Findings
- Policy Implications
- Next Steps/Further research...
- Concluding remarks

Theory/Literature

- Crime Pattern Theory and RAT
 - Activity Nodes, Risky Facilities and 80/20 rule
 - Licensed Premises
- Alcohol \equiv Crime
 - large volume research
 - multi-faceted relationship and not causal
- Recent studies – licensed premise density and crime
 - Parker, and Rebhun, L. (1995)
 - Stevenson and Weatherburn, (1999)
 - Gorman and Horel (2005)
 - Norström, T. (2000)
 - Livingstone.(2007)
 - Pridemore,. and Grubestic, (2011)

Density and activity nodes

- Hypothesis One:
 - Density as a measure of alcohol supply
 - More supply = more consumption = more crime
- Hypothesis Two:
 - Licensed premises as activity nodes
 - Risky facilities
 - By this reasoning many premises “not risky”
- Do certain types of premise (activity nodes) have protective factors:
 - “guardians” against crime
 - “handlers” of offenders

Mixing Drinks

- If faced with these will certain combinations get me more drunk?



- What happens if I change the order and mix fewer drinks?



- What happens if I change the order and add 'safer' option?



Mixing Premises?

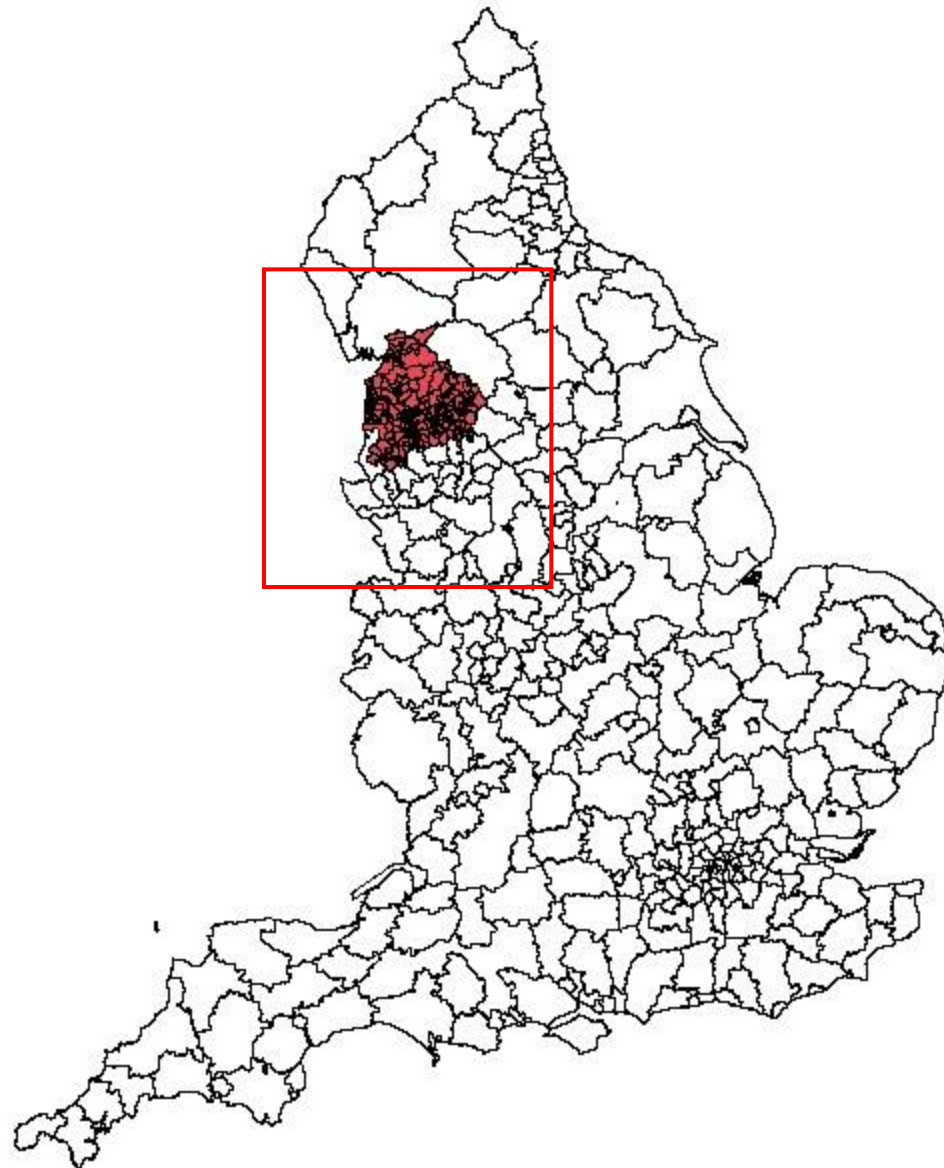
- Different combinations and how might impact activity nodes and crime

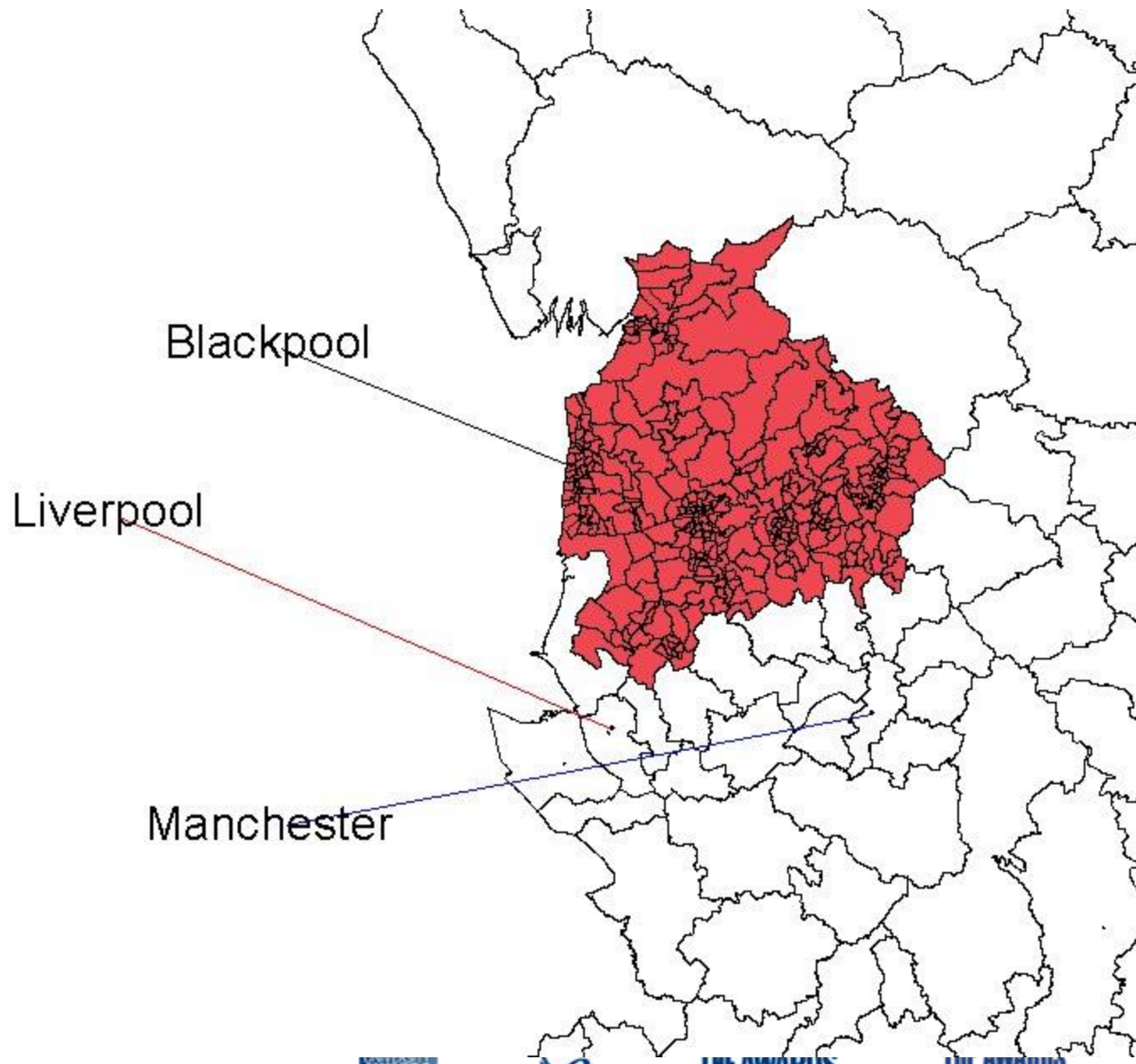


Context: Case Study Area

- Lancashire:
- Population: 1.45M (2006)





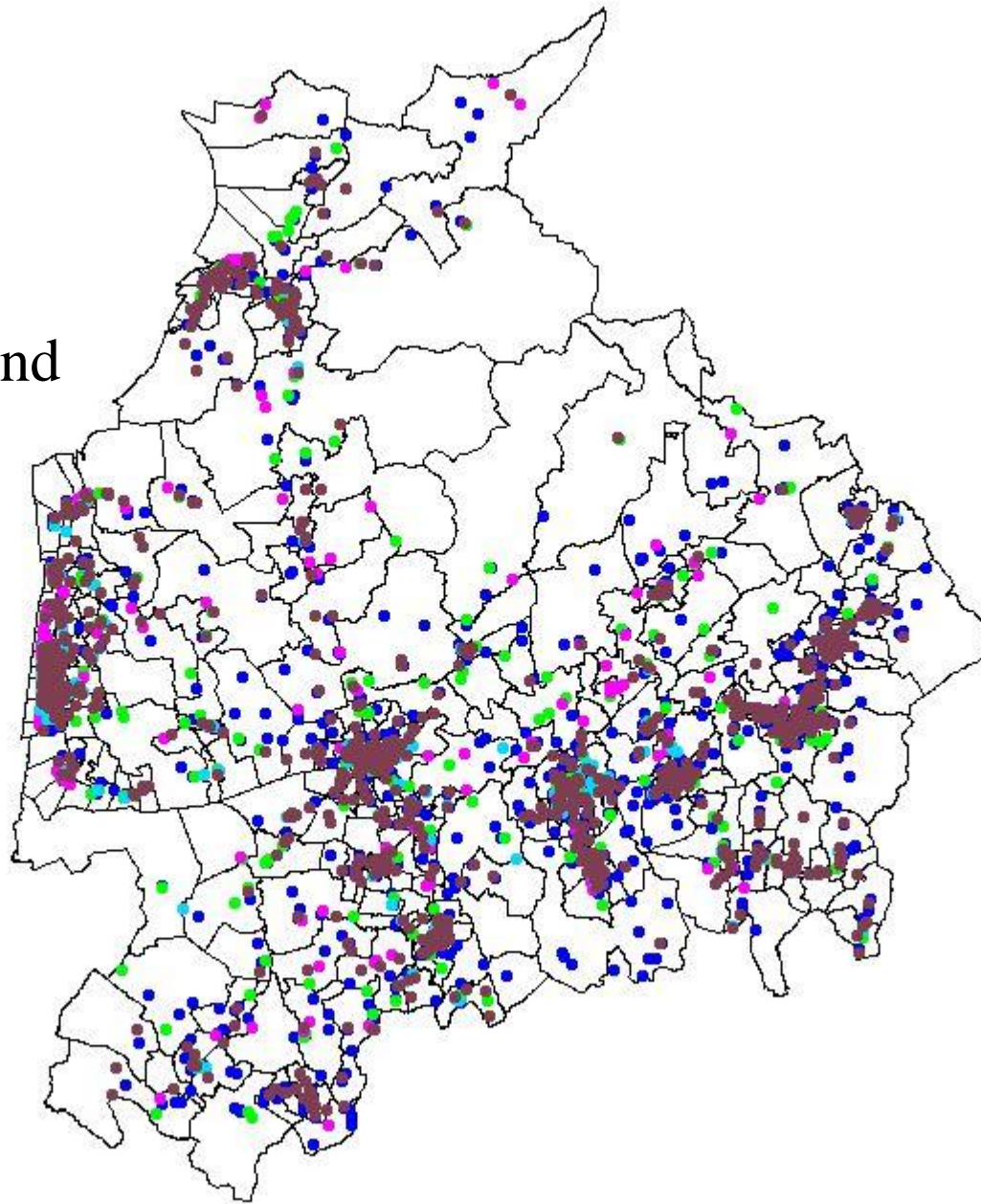


Context: Case Study Area

- Lancashire:
- Population: 1.45M (2006)
- 2007
 - VAP Offences: 24,841
 - Criminal Damage Offences: 32,555
 - ASB Incidents: 173,111
 - Licensed Premises: 6047

Premise Type	
Entertainment Other	1390
Pub/Bar	1191
Hotel	1116
Off License/Supermarket/Convenience Store	990
Takeaway	621
Restaurant/Cafe	603
Night Club	94
Licence Terminated	42

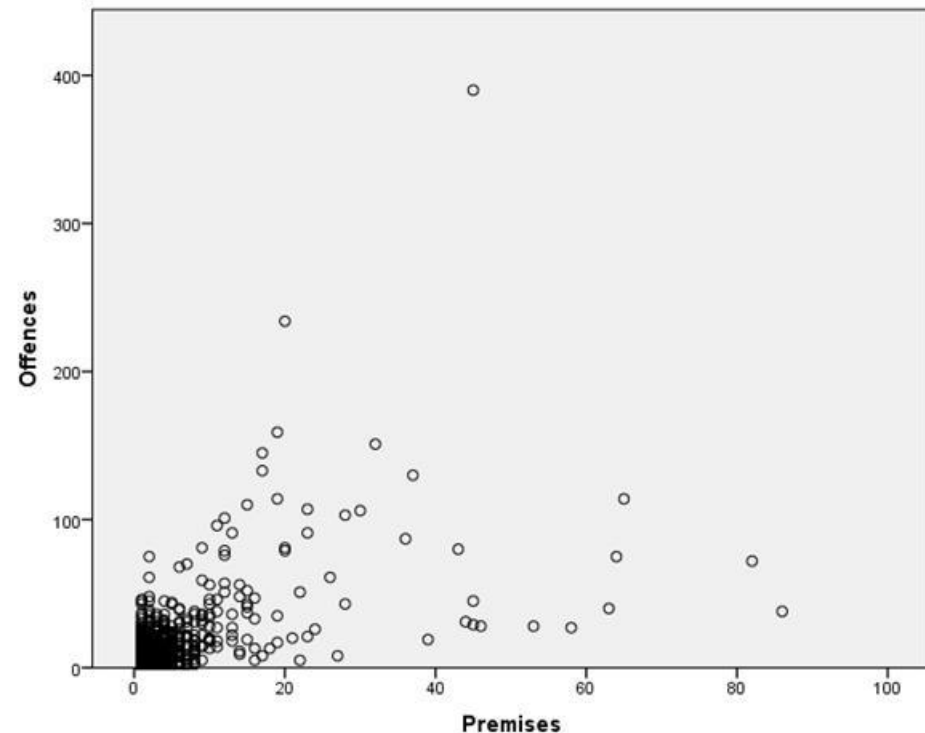
Off licenses,
supermarkets and
convenience
stores



Density and VAP

- What is relationship

Bivariate Correlations (250m grids)		
Violence Against the Person		
	n	rho
All Premises	2920	.436**
Pubs/Bars	2920	.446**
Takeways	2920	.429**
Club	2920	.322*
Off Licenses/ Supermarkets/ Convenience Stores	2920	.230**
Restaurants	2920	.503**
Entertainment Other	2920	.155**
Hotels	2920	.453**
Teminated	2920	.565**



Profiles?

- Number of combinations

Entertainment Other	Takeaway	Restaurant	Pubs	Off License	Nightclub	Hotel	Terminated
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0
1	0	1	0	0	1	0	0
1	1	1	1	1	1	1	1

- Multiple Regression/Negative Binomial Poisson
- Dissimilarity Index (overall score)
- Don't give profiles/mixes of individual areas
- The Conjunctive Analysis of Case Configurations
 - Miethe, Hart and Regoeczi (2008) / Hart and Miethe (2014)
- 8 premise types (2^8) = 256 combinations

Conjunctive Analysis

- For every VAP incident in immediate proximity
 - Within 250 meters (activity nodes?)
- Absence of presence of each licensed premise type

VAP Crime Number	Entertainment Other	Takeaway	Restaurant	Pubs	Off License	Nightclub	Hotel	Terminated
1	0	0	1	0	1	0	0	0
2	1	0	1	0	0	0	1	0

- 25,000 VAP incidents in case study
- “Truth tables”
- “Profiles”
- What do VAP environments look like?

Findings

- VAP Profiles

Entertainment Other	Takeaway	Restaurants	Pubs and Bars	Off Licenses	Nightclubs	Hotels	Terminated	Count	% cases	cum % cases	
1	1	1	1	1	1	0	0	2313	11.1	11.1	6
0	0	0	0	1	0	0	0	1887	9.0	20.1	1
1	1	1	1	1	1	1	1	1260	6.0	26.1	8
1	1	0	1	1	0	0	0	1258	6.0	32.1	4
1	0	0	0	0	0	0	0	1201	5.7	37.9	1
1	0	0	0	1	0	0	0	1044	5.0	42.9	2
1	0	0	1	1	0	0	0	1042	5.0	47.9	3
1	1	1	1	1	0	0	0	1022	4.9	52.8	5
0	0	0	1	1	0	0	0	1008	4.8	57.6	2
0	0	0	1	0	0	0	0	775	3.7	61.3	1
0	1	0	1	1	0	0	0	591	2.8	64.1	3
1	0	0	1	0	0	0	0	571	2.7	66.9	2
1	1	1	1	1	1	1	0	493	2.4	69.2	7
1	1	0	0	1	0	0	0	425	2.0	71.2	3
1	1	1	1	1	0	1	1	411	2.0	73.2	7
11	8	5	11	12	3	3	2				

Top 15 profiles (73%)
 126 other profiles (27%)
 141 profiles observed

Findings

- Criminal Damage Profiles

Entertainment Other	Takeaway	Restaurants	Pubs and Bars	Off Licenses	Nightclubs	Hotels	Terminated	Count	% cases	cum % cases	
0	0	0	0	1	0	0	0	3376	13.05	13.05	1
1	0	0	0	0	0	0	0	2016	7.79	20.84	1
1	1	0	1	1	0	0	0	1812	7.00	27.84	4
1	0	0	0	1	0	0	0	1710	6.61	34.45	2
0	0	0	1	1	0	0	0	1700	6.57	41.02	2
1	0	0	1	1	0	0	0	1577	6.09	47.11	3
0	0	0	1	0	0	0	0	1370	5.29	52.41	1
1	1	1	1	1	0	0	0	1240	4.79	57.20	5
1	1	1	1	1	1	0	0	975	3.77	60.97	6
0	1	0	1	1	0	0	0	852	3.29	64.26	3
1	0	0	1	0	0	0	0	832	3.22	67.48	2
1	1	0	0	1	0	0	0	704	2.72	70.20	3
0	1	0	0	1	0	0	0	618	2.39	72.59	2
1	1	1	1	1	1	1	1	508	1.96	74.55	8
1	1	1	1	1	1	1	0	370	1.43	75.98	1
10	8	4	10	12	3	2	1				

Top 15 profiles (76%)
133 other profiles (24%)
148 profiles observed

Findings

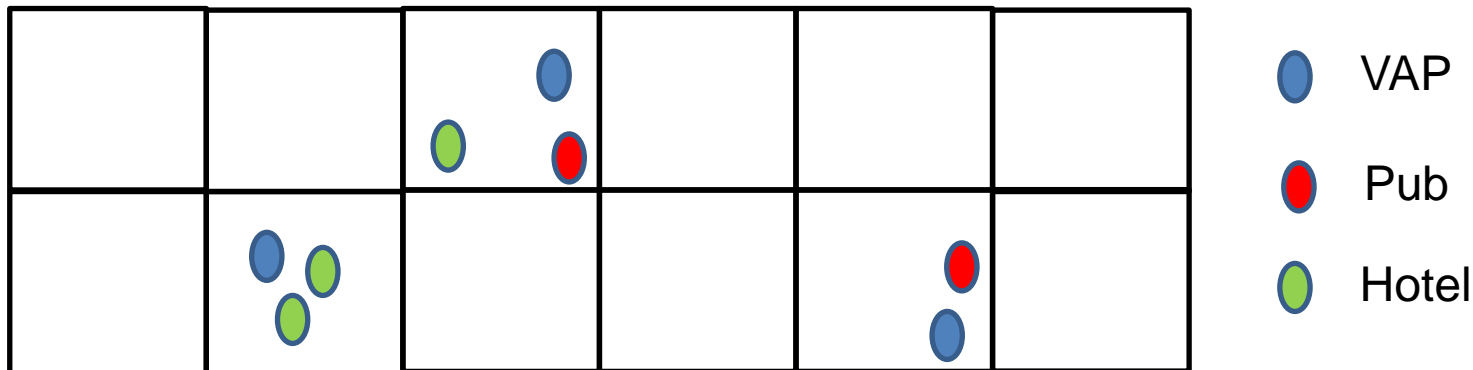
- ASB Profiles

Entertainment Other	Takeaway	Restaurants	Pubs and Bars	Off Licenses	Nightclubs	Hotels	Terminated	Count	% cases	cum % cases	
0	0	0	0	1	0	0	0	16458	11.98	11.98	1
1	0	0	0	0	0	0	0	10078	7.34	19.32	1
1	1	1	1	1	1	0	0	8990	6.55	25.87	4
1	0	0	0	1	0	0	0	8347	6.08	31.95	2
0	0	0	1	1	0	0	0	8321	6.06	38.01	2
1	1	0	1	1	0	0	0	8168	5.95	43.96	3
1	0	0	1	1	0	0	0	7686	5.60	49.55	1
0	0	0	1	0	0	0	0	7421	5.40	54.96	5
1	1	1	1	1	0	0	0	6497	4.73	59.69	6
0	1	0	1	1	0	0	0	4438	3.23	62.92	3
1	0	0	1	0	0	0	0	4171	3.04	65.96	2
1	1	1	1	1	1	1	1	3877	2.82	68.78	3
1	1	0	0	1	0	0	0	3177	2.31	71.09	2
0	1	0	0	1	0	0	0	2758	2.01	73.10	8
1	1	1	1	1	1	1	0	2350	1.71	74.81	1
10	8	4	10	12	3	2	1				

Top 15 profiles (74%)
 147 other profiles (26%)
 162 profiles observed

Policy Implications

- Could this be used for hot spot policing?
- Could this help urban planners and designers?
- Could this aid licensing decisions?
- Test by creating 250m Grids for entire case study area.
 - For those with Licensed Premise
 - Compare these profiles with VAP ones just created?



Policy Implications

- 250m Grid Profiles

GRID	VAP	PREMISES	ENT OTH	TAKEAWAYS	REST	PUBS	OFF LIC	NIGHTCLUBS	HOTEL	TERM	COUNT	TOP 15
32112	390	45	4	4	15	9	2	6	3	2	8	YES
25042	234	20	0	2	3	12	1	2	0	0	5	
28373	159	19	3	0	1	12	0	3	0	0	4	
31866	151	32	1	4	7	7	0	3	7	3	7	
25289	145	17	1	3	6	4	3	0	0	0	5	YES
31864	133	17	1	4	2	4	0	3	0	3	6	
57127	130	37	3	8	11	8	6	1	0	0	6	YES
32359	114	65	0	4	2	1	2	4	50	2	7	
57374	114	19	1	3	7	4	1	3	0	0	6	YES
31865	110	15	1	0	6	3	3	1	0	1	6	
24389	107	23	2	7	4	8	1	1	0	0	6	YES
59827	106	30	2	8	6	10	4	0	0	0	5	YES
23864	103	28	4	12	4	6	1	1	0	0	6	YES
25288	101	12	0	1	3	6	1	1	0	0	5	
28374	96	11	0	4	1	3	1	2	0	0	5	

7/15 top VAP fitted profiles



Future Research?

- Limitations
 - Singularity of facilities in profiles: present (1) or absent (0)
 - Previous Slide – (2),(3),(4),(5+) pubs?
 - 250m distances?
 - Euclidean distance v Manhattan.
 - Could run on street profiles?
- Other ways to segment
 - Capacity, duration of opening hours, time of day of offence
 - What about other activity nodes (school, parks, shops etc etc)
 - All VAP appropriate category?

Concluding Remarks?

- Is density of risky facilities sufficient measure
- Is there value in examining profile/mix of activity nodes
- Use to generate areas for further research/fieldwork
- Use as basis for RCT hotspot policing/ RCT Licensing Policy
- Rethinking ways of analysing activity nodes
- Risky Facilities and Risky Profiles/Mixes?

Questions?

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