Wither the Systemic Model? Neighborhood Ties, Neighbourhood Interaction and Collective Efficacy

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Collective Efficacy

- CE is a *task-specific* construct that describes *specific* community-based mechanisms that facilitate social control
- CE does not require strong ties or associations amongst community members;
- CE is the most proximate social mechanism for understanding between-neighborhood variation in crime and disorder;
- CE represents a shift away from studying the static *existence* of social ties to studying the more dynamic *processes* for activating social ties to achieve desired outcomes.

Support for Collective Efficacy

In addition to the PHDCN results from Sampson and colleagues…

- Browning, 2002; Browning & Cagney, 2002; Browning et al, 2004, Browning et al, 2005
- Franzini et al, 2005
- Rankin & Quane, 2002
- Mazerolle, Wickes and McBroom (2006)
- Sampson & Wikstrom (2007)
- Zhang, Messner and Liu (2007)

Take home message – CE matters!

But Questions Remain…

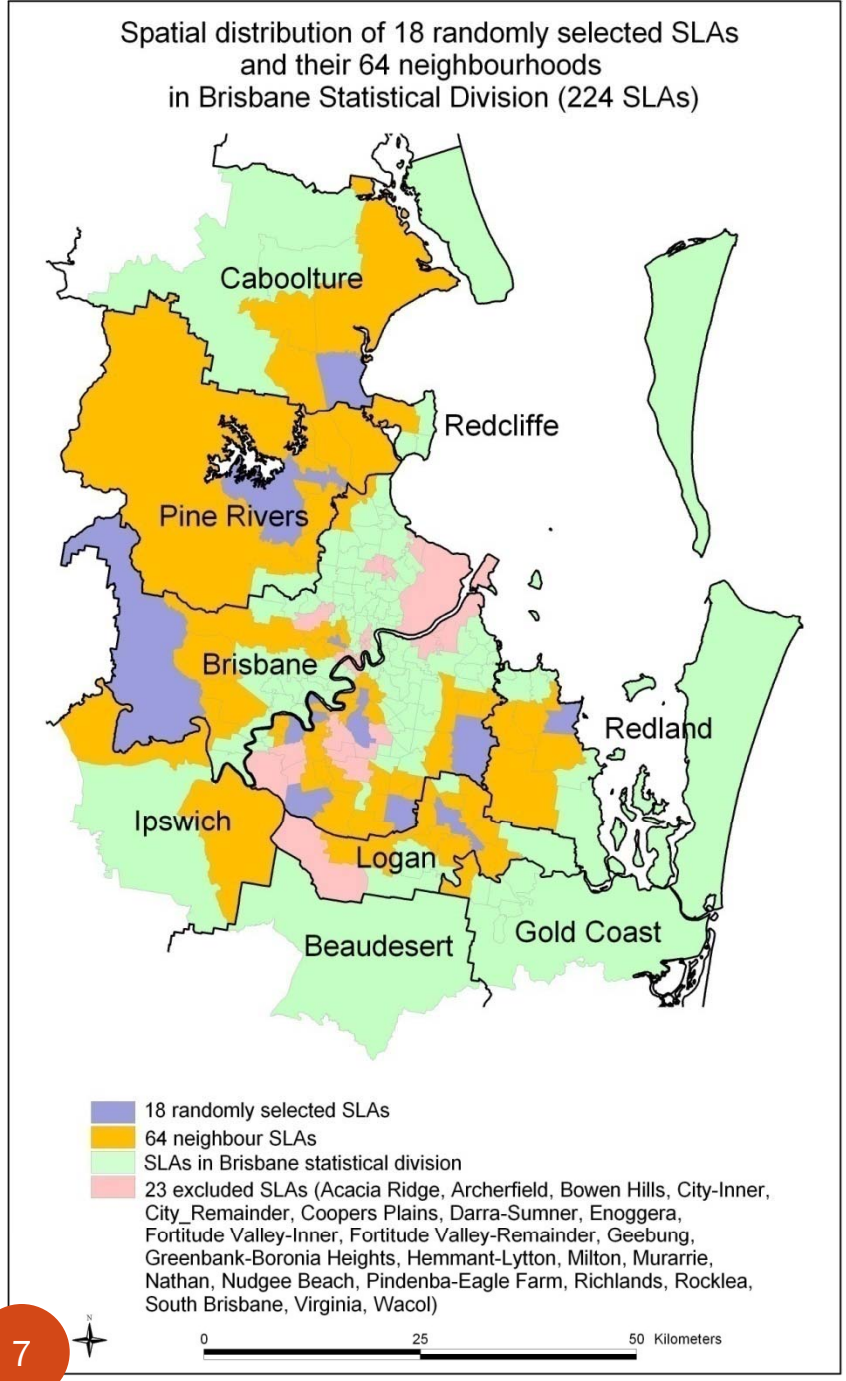
- Is CE a multi-dimensional concept that differentiates *kinds* of tasks or does it represent an invariant property of a community?
- How important are intra-community ties to CE?
  - Notion of ties "built in" the PHDCN measure of CE and research concerned with ties does not account for this.
  - Is it the density of ties, frequency of contact or the type of neighborly exchange that best predicts CE?
  - Does the role of ties differ for different types of tasks?

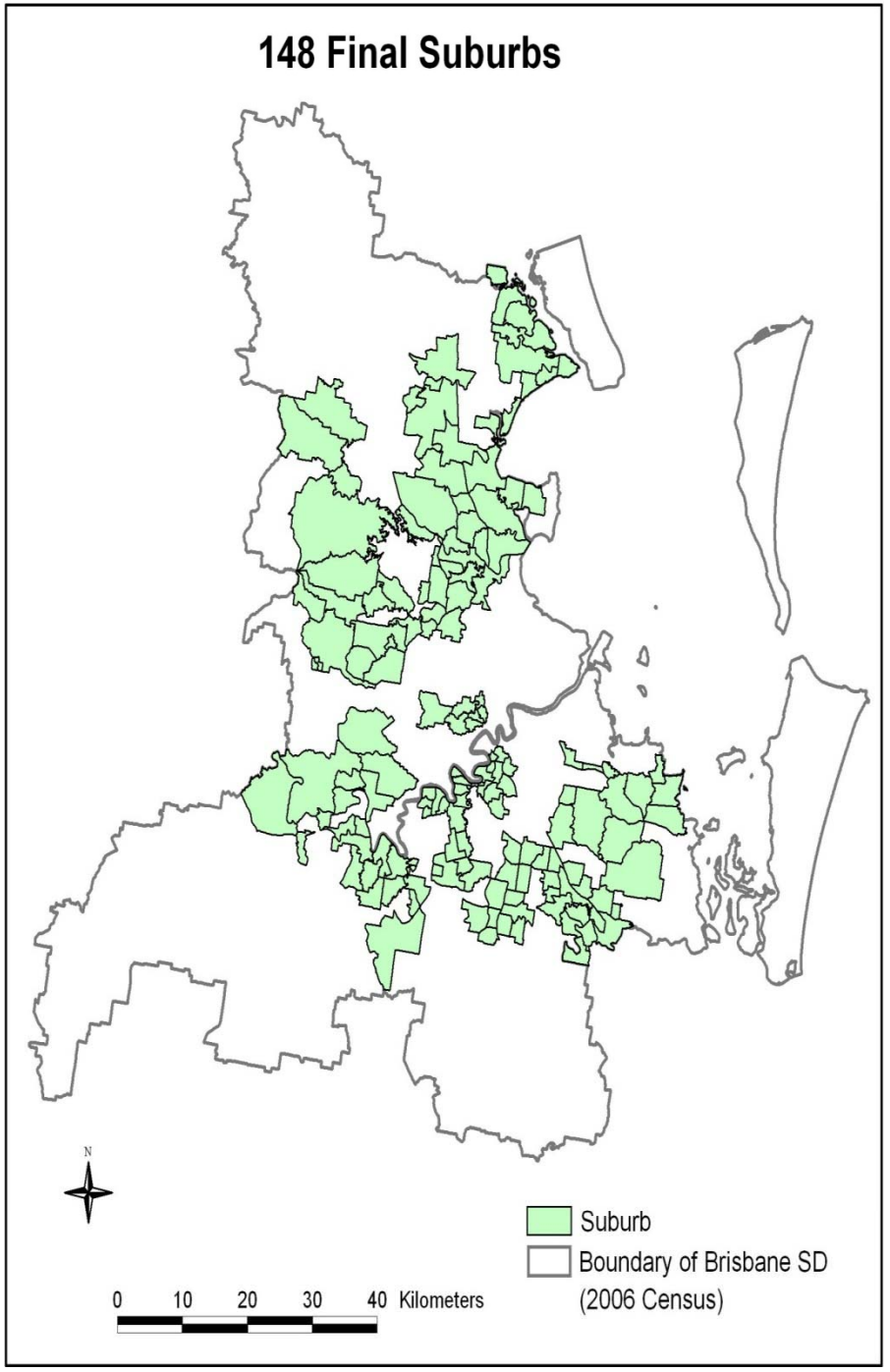
The Community Capacity Study

- Funded by the Australian Research Council
- Chief Investigators: Ross Homel, Rebecca Wickes, James McBroom and Robert Sampson
- GIS Specialist Dr. Tung Kai Shyy
- Two waves of data collected across 82 Statistical Local Areas, encapsulating 148 suburbs in Brisbane in 2005 and 2008
- Goal: To explore the role of CE and social capital in explaining spatial variations in crime and disorder in the Australian context over time

The Study Sites

- The City of Brisbane is in the State of Queensland and is Australia's third largest city with nearly 2 million people
- The South East Queensland area is the fastest growing region in Australia
- Wave 1 – two stage sampling approach from 201 "eligible" statistical local areas
  - Randomly selected 18 core SLAs;
  - Included the *population* (64) of all SLAs adjoining these 18 core SLAs generating our final sample of 82 SLAs;
- Wave 2 – drilled down to suburbs as the next lowest unit of analysis
  - Included all suburbs fully or partially encapsulated in the 82 SLAs
  - Omitted those without census data (new suburbs) or those with a very small sample size (under 10 residents)
  - Left with 148 suburbs with population ranging from 240 to 20,000 (total suburbs in Brisbane SD =429)


Spatial distribution of 18 randomly selected SLAs
and their 64 neighbourhoods
in Brisbane Statistical Division (224 SLAs)
Caboolture
Redcliffe
Pine Rivers
Brisbane
Redland
Ipswich
Logan
Beaudesert
Gold Coast
18 randomly selected SLAs
64 neighbour SLAs
SLAs in Brisbane statistical division
23 excluded SLAs (Acacia Ridge, Archerfield, Bowen Hills, City-Inner, City_Remainder, Coopers Plains, Darra-Sumner, Enoggera, Fortitude Valley-Inner, Fortitude Valley-Remainder, Geebung, Greenbank-Boronia Heights, Hemmant-Lytton, Milton, Murarrie, Nathan, Nudgee Beach, Pindenba-Eagle Farm, Richlands, Rocklea, South Brisbane, Virginia, Wacol)
N
0 25 50 Kilometers


148 Final Suburbs
N
Suburb
Boundary of Brisbane SD
(2006 Census)
0 10 20 30 40 Kilometers

Wave 2 Sample

- A total of 1,100 respondents from time 1 participated again
- A 'top up' sample of 3,149 was generated to produce stable ecometric measures across the suburbs;
- As in wave 1, each suburb was assigned a quintile score by population size and a quartile score by a "coefficient of variation" score measuring *within* suburb variation in social structure.
- The scores were added to give a distribution of scores from 2 to 9.
  - Score of 2 or 3 (i.e. low population and low cv), the survey quota was 20 respondents
  - Score of 4, 5 or 6, the survey quota was 35 respondents
  - Score of 7, 8 or 9 the survey quota was 45 respondents;
- The final sample size was 4,249
- The University of Queensland Social Research Center conducted 20 minute telephone interviews using random digit dialling.

The Survey Items – Wave 2

- Maintained many variables from wave 1 (past victimisation information, perceptions of disorder, violence, fear and demographic information)
- Expanded CE items* to examine efficacy for specific types of problems including:
  - Child centered control
  - General disorder
  - Violence
  - Civic matters
- Expanded items examining social exchange
  - Density of friends/family
  - Density of acquaintances
  - Amount of contact with neighbours
  - Type of neighboring exchange – affective vs. instrumental

* Note – we included measures of social cohesion and trust in the survey, but separate them from the CE measure in these analyses

Our Analytic Approach

- Integration of secondary statistical data with survey data to link behavioural information with locational attributes.
- Principal components, varimax rotation to examine distinctions in:
  - CE
  - Neighbouring patterns (affective vs. instrumental
- Random effects item response models embedded in a hierarchical regression models to assess the difference between respondents, within suburbs (level 1) and between suburbs (level 2) in collective efficacy.
- Multivariate models used to examine the direct and indirect influences on collective efficacy across communities.

Principle Components

- Collective Efficacy
  - 2 factors – not four
  - High Risk CE – scenarios which depict direct and potentially confrontational interaction
  - Low Risk CE – scenarios which depict collaborative efforts around civic rather than potentially criminal or dangerous problems
  - Correlation b/w HR and LR CE = .46
- Neighbouring
  - Only one factor extracted
  - No distinction b/w affective and instrumental neighbouring patterns
  - Correlation =.64

The Analytic Model

- The general form of the linear mixed model used is

$$\mathbf{y} = \mathbf{X}\boldsymbol{\beta} + \mathbf{Z}\mathbf{b}_{ij} + \mathbf{W}\mathbf{b}_{i} + \boldsymbol{\varepsilon},$$

- Two-level hierarchical models (corresponding to setting **Z** to the zero matrix) are used to assess factors influencing collective efficacy.
- Random intercept effects for suburb (**W** is the unit column vector) are used in these models to account for between - and within – suburb variation. The **X** matrix consists of columns corresponding to values of covariates.
- Diagnostics included: graphical assessments of error and random effects normality; heteroscedasticity; goodness of fit; multicollinearity
- Model 1 through 3 = low risk collective efficacy; Model 4 – 6 = high risk collective efficacy

Control/IVs in Multi-Level Model

Survey	Australian Census Data
Individual level • Demographics: Age, gender, NESB, marital status, number of dependent children, employment status, ATSI, household income, own/rent, length of address) ***Community Level*** • Proportion of intra-suburb friends/family • Proportion of intra-suburb acquaintanceships • Proportion of people with regular contact with neighbours • Mean score by suburb for affective and instrumental exchange	***Community Level*** • SEIFA - Low scores = high disadvantage • Percent from NESB • Percent at address 5 years ago • Percent renting • Population density

Variation Explained…

Scale	Between Suburbs
CE – Total Score	.14
High Risk CE	.08
Low Risk CE	.16
Neighboring	.07

Results for Low Risk CE Scale

Predictor	Unstandardized Estimates (SE) Model 1		Unstandardized Estimates (SE) Model 2	Unstandardized E Estimates (SE) Model 3
Age	.031(.005)	***		
Gender (0F/1M)	-1.293 (.119)	***		
NESB (0ES/1NESB)	.700(.242)	**		
ATSI (0NO/1YES)	N/S			
Marital Status (0 MARRIED/1NOT)	-.421(.143)	**		
Dependent Children (cont)	N/S			
Employment Status (as factor)	N/S			
Own (0)/Rent (1)	N/S			
Length of Residence (cont)	N/S			
Population Density	-.028(.013)	*		
Ethnicity	N/S			
Residential Mobility	N/S			
Renting	-.108(.046)	*		
SEIFA (High/low)	.006(.001)	***		
Friendship ties				
Acquaintanceships				
Contact with Neighbors				
Exchange with Neighbors				

Coefficients only reported for significant predictors
*p<.05, **p<.01, ***p<.001

Results for Low Risk CE Scale

Predictor	Unstandardized Estimates (SE) Model 1		Unstandardized Estimates (SE) Model 2		Unstandardized E Estimates (SE) Model 3
Age	.031(.005)	***	.030(.005)	***	
Gender (0F/1M)	-1.293 (.119)	***	-1.297 (.118)	***	
NESB (0ES/1NESB)	.700(.242)	**	.746(.242)	**	
ATSI (0NO/1YES)	N/S		N/S		
Marital Status (0 MARRIED/1NOT)	-.421(.143)	**	-.429(.142)	**	
Dependent Children (cont)	N/S		N/S		
Employment Status (as factor)	N/S		N/S		
Own (0)/Rent (1)	N/S		N/S		
Length of Residence (cont)	N/S		N/S		
Population Density	-.028(.013)	*	-.034(.013)	**	
Ethnicity	N/S		N/S		
Residential Mobility	N/S		-.022(.010)	*	
Renting	-.108(.046)	*	-.111(.043)	**	
SEIFA (High/low)	.006(.001)	***	.005(.001)	***	
Friendship ties			N/S		
Acquaintanceships			1.743(.684)	**	
Contact with Neighbors			2.529(1.163)	*	
Exchange with Neighbors					

Coefficients only reported for significant predictors
*p<.05, **p<.01, ***p<.001

Results for Low Risk CE Scale

Predictor	Unstandardized Estimates (SE) Model 1		Unstandardized Estimates (SE) Model 2		Unstandardized E Estimates (SE) Model 3	
Age	.031(.005)	***	.030(.005)	***	.030(005)	***
Gender (0F/1M)	-1.293 (.119)	***	-1.297 (.118)	***	-1.294(.119)	***
NESB (0ES/1NESB)	.700(.242)	**	.746(.242)	**	.748(.241)	**
ATSI (0NO/1YES)	N/S		N/S		N/S	
Marital Status (0 MARRIED/1NOT)	-.421(.143)	**	-.429(.142)	**	-.420(.143)	**
Dependent Children (cont)	N/S		N/S		N/S	
Employment Status (as factor)	N/S		N/S		N/S	
Own (0)/Rent (1)	N/S		N/S		N/S	
Length of Residence (cont)	N/S		N/S		N/S	
Population Density	-.028(.013)	*	-.034(.013)	**	N/S	
Ethnicity	N/S		N/S		N/S	
Residential Mobility	N/S		-.022(.010)	*	-.021(.010)	*
Renting	-.108(.046)	*	-.111(.043)	**	-.113(.042)	**
SEIFA (High/low)	.006(.001)	***	.005(.001)	***	.004(.001)	**
Friendship ties			N/S		N/S	
Acquaintanceships			1.743(.684)	**	N/S	
Contact with Neighbors			2.529(1.163)	*	N/S	
Exchange with Neighbors					.294(.098)	**

Coefficients only reported for significant predictors
*p<.05, **p<.01, ***p<.001

Results for High Risk CE Scale

Predictor	**Unstandardized Estimates (SE) Model 4**		**Unstandardized Estimates (SE) Model 5**	**Unstandardized E Estimates (SE) Model 6**
Age	-.019(.005)	***		
Gender (0F/1M)	-.433(.117)	***		
NESB (0ES/1NESB)	N/S			
ATSI (0NO/1YES)	N/S			
Marital Status (0 MARRIED/1NOT)	N/S			
Dependent Children (cont)	.110(.054)	*		
Employment Status (as factor)	N/S			
Own (0)/Rent (1)	N/S			
Length of Residence (cont)	.126(.046)	**		
Population Density	N/S			
Ethnicity	N/S			
Residential Mobility	N/S			
Renting	N/S			
SEIFA (High/low)	.005(.001)	***		
Friendship ties				
Acquaintanceships				
Contact with Neighbors				
Exchange with Neighbors				

Coefficients only reported for significant predictors
*p<.05, **p<.01, ***p<.001

Results for High Risk CE Scale

Predictor	Unstandardized Estimates (SE) Model 4		Unstandardized Estimates (SE) Model 5		Unstandardized E Estimates (SE) Model 6
Age	-.019(.005)	***	-.020(.005)	***	
Gender (0F/1M)	-.433(.117)	***	-.427 (.116)	***	
NESB (0ES/1NESB)	N/S		N/S		
ATSI (0NO/1YES)	N/S		N/S		
Marital Status (0 MARRIED/1NOT)	N/S		-.280(.139)	*	
Dependent Children (cont)	.110(.054)	*	.107(.055)	*	
Employment Status (as factor)	N/S		N/S		
Own (0)/Rent (1)	N/S		N/S		
Length of Residence (cont)	.126(.046)	**	.119(.045)	**	
Population Density	N/S		-.023(.010)	*	
Ethnicity	N/S		N/S		
Residential Mobility	N/S		N/S		
Renting	N/S		N/S		
SEIFA (High/low)	.005(.001)	***	.005(.001)	***	
Friendship ties			N/S		
Acquaintanceships			2.207(.542)	***	
Contact with Neighbors			2.706(.905)	**	
Exchange with Neighbors					

Coefficients only reported for significant predictors
*p<.05, **p<.01, ***p<.001

Results for High Risk CE Scale

Predictor	Unstandardized Estimates (SE) Model 4		Unstandardized Estimates (SE) Model 5		Unstandardized E Estimates (SE) Model 6	
Age	-.019(.005)	***	-.020(.005)	***	-.020(.005)	***
Gender (0F/1M)	-.433(.117)	***	-.427 (.116)	***	-.422 (.116)	***
NESB (0ES/1NESB)	N/S		N/S		N/S	
ATSI (0NO/1YES)	N/S		N/S		N/S	
Marital Status (0 MARRIED/1NOT)	N/S		-.280(.139)	*	N/S	
Dependent Children (cont)	.110(.054)	*	.107(.055)	*	.109(.053)	*
Employment Status (as factor)	N/S		N/S		N/S	
Own (0)/Rent (1)	N/S		N/S		N/S	
Length of Residence (cont)	.126(.046)	**	.119(.045)	**	.118(.045)	**
Population Density	N/S		-.023(.010)	*	N/S	
Ethnicity	N/S		N/S		N/S	
Residential Mobility	N/S		N/S		N/S	
Renting	N/S		N/S		N/S	
SEIFA (High/low)	.005(.001)	***	.005(.001)	***	.004(.001)	***
Friendship ties			N/S		N/S	
Acquaintanceships			2.207(.542)	***	1.602(.579)	**
Contact with Neighbors			2.706(.905)	**	N/S	
Exchange with Neighbors					.203(.076)	**

Coefficients only reported for significant predictors
*p<.05, **p<.01, ***p<.001

Summary of Results

1. CE not a unitary construct but represents the task specificity of particular types of problems
   - Research points to the need to examine CE for high risk and low risk community regulation
2. Variation across suburbs more pronounced for low risk CE – a perceived capacity for residents to respond to high risk scenarios better explained by intra-neighborhood, intra person factors
3. Models for high risk/low risk CE similar, but some differences
   - Household:
     - Age, gender and family status important for both, though age negatively related to high risk CE
     - Length of residency only important high risk
   - Suburb:
     - Disadvantage important for both
     - But - residential mobility and home ownership only important for low risk CE

The Role of Ties

- Some support for Chicago study
  - Not the number of ties, but the frequency of exchange that matters most for CE
  - Intra-community ties important as they facilitate reciprocated exchange
  - Reciprocated exchange leads to the conjoint belief in the capacity of the collective to respond to particular types of problems
  - CE not directly driven by density of friendships and acquaintanceships, rather CE is influenced by the dynamic processes that emerge from these relationships

Future Research

- Presentation a limited snapshot of findings thus far but demonstrates the need to 'unpack' CE and decouple the task specific nature of the theory from ties and social cohesion
- Need to explore mediating hierarchical models to further detail the specific role of intra-community relationships in mediating collective efficacy for high and low risk scenarios and then test against victimization and crime rates
- Examine more closely the role of gender and family in predicting CE, victimization and crime
- Examine the reliance on key structures (e.g. police, local council, community organizations) for dealing with problems in the context of CE and crime.

Questions/Comments?