



# Can rust belt or three cities explain the socio-spatial changes in Atlantic Canadian cities?

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# Motivation

- Atlantic Canada - Economic crisis in early 1990s
  - 1992: Moratorium on cod fishery

## → Rapid changes across region (1996-2006)

- Economic
- Socio-cultural
- Physical/environmental



# Previous research

## ‘Rust Belt’ Model

- Changes in Rust Belt cities, post-deindustrialization

(Romo and Schwartz 1995; Smith 2007; Warf and Holly 1997)

## ‘Three Cities’ Model

- Changes in 3 largest cities (Toronto, Montreal, Vancouver)

(Hulchanski 2010; Prouse et al. 2014; Walks, 2011)

# Research questions

1. In each Atlantic Canadian city, is most change concentrated in the downtown core?
2. Which dimension of neighborhood change was driving the most change in 4 cities combined?
  - Economic
  - Sociocultural
  - Physical/structural

# This presentation

- Historical analysis of neighborhood change in 4 Atlantic Canadian cities, 1996 to 2006

- Halifax (Nova Scotia)
- St. John's (Newfoundland and Labrador)
- Moncton (New Brunswick)
- Charlottetown (Prince Edward Island)



# Methods

Data: 1996 and 2006 Canadian Census Microdata files

- Unit of analysis
  - Census Tracts (Halifax, St. John's, Moncton - Census Metropolitan Areas (CMAs))
  - Census Subdivision (Charlottetown - Census Agglomeration)

# “Simple” Index of Change

## **Economic indicators**

- % Lone parent families
- % Low income households
- Unemployment rate
- Average income

## **Socio-cultural Indicators**

- % Immigrants
- % Visible minority
- % University degree
- % Age 65+

## **Physical-Residency Indicators**

- % Apartment renters
- % Single occupancy homes
- % Renters
- % Housing requiring major repair

# Analytical Techniques

## 1. Descriptive Analysis

- GIS Mapping

## 2. Logistic Regression



# Dependent Variable

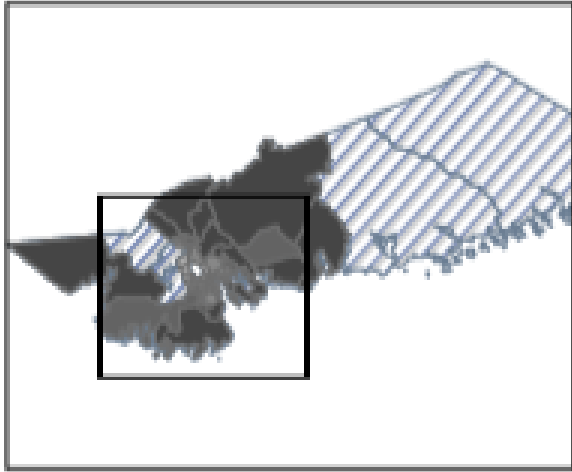
## Relative Change Index

- Coded 1 for the top quintile and 0 otherwise

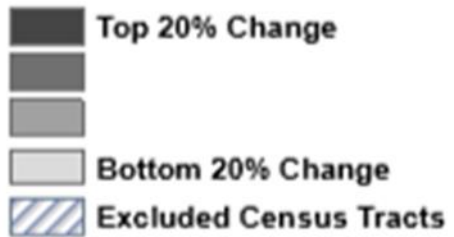
# Independent Variables

- **1996 neighborhood measures (slide 7)**
  - 12 economic, demographic, physical/structural measures
- **1996-2006 neighborhood change measures (slide 7)**
  - 12 economic, demographic, physical/structural measures)

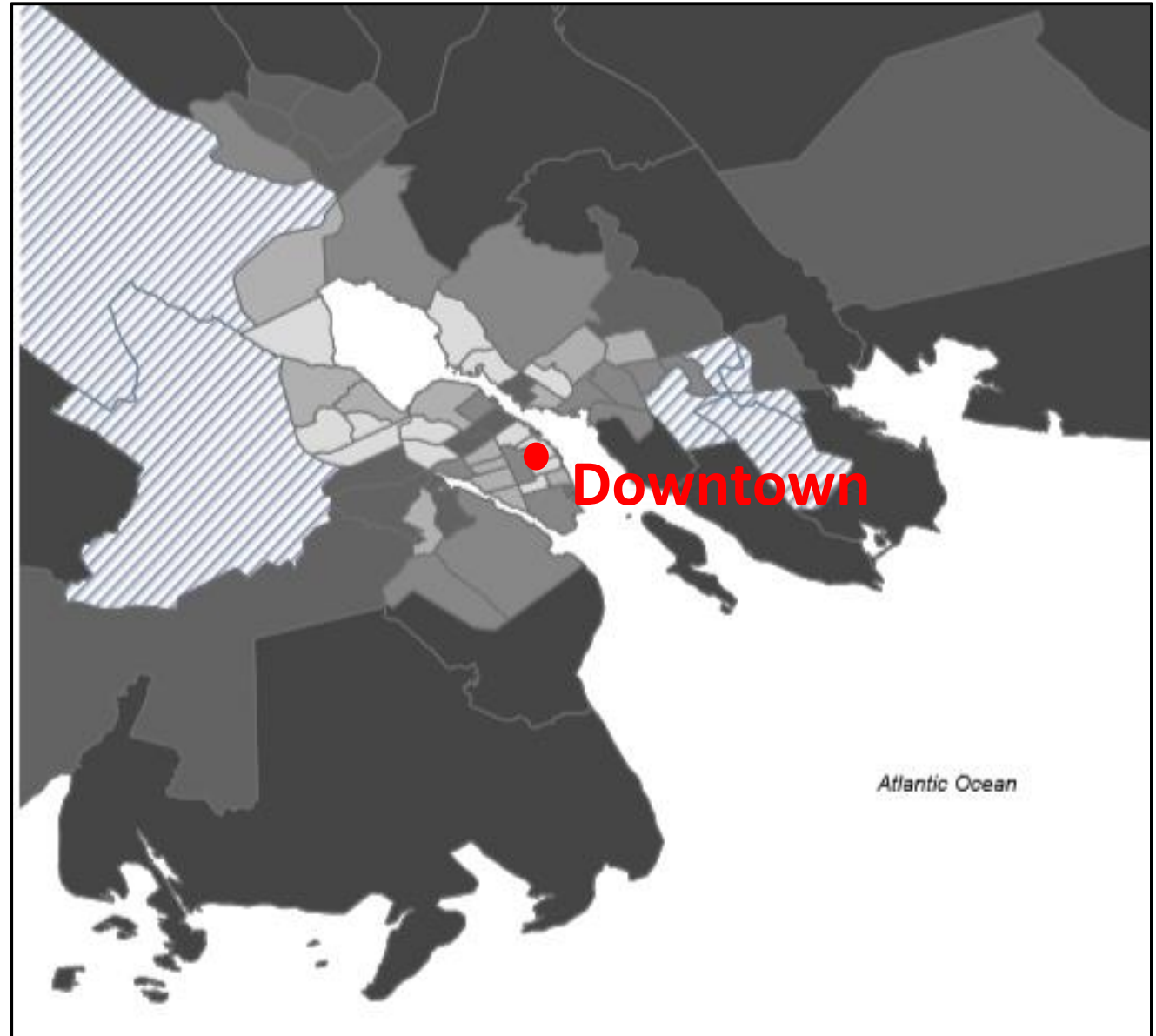
# Halifax, NS



## Quintiles of Overall Change



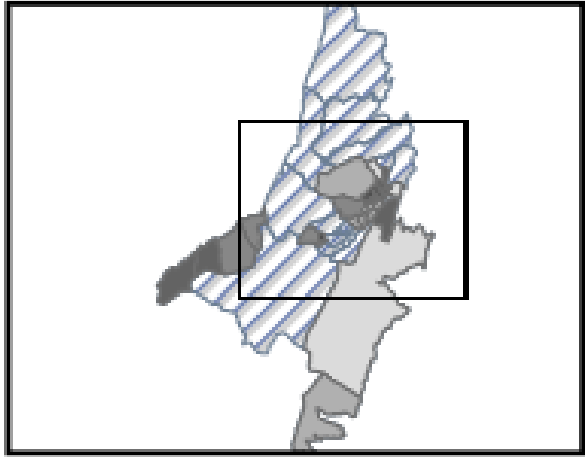
Source: Canadian Census 2006



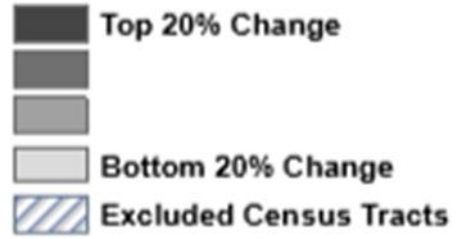
Halifax, Nova Scotia



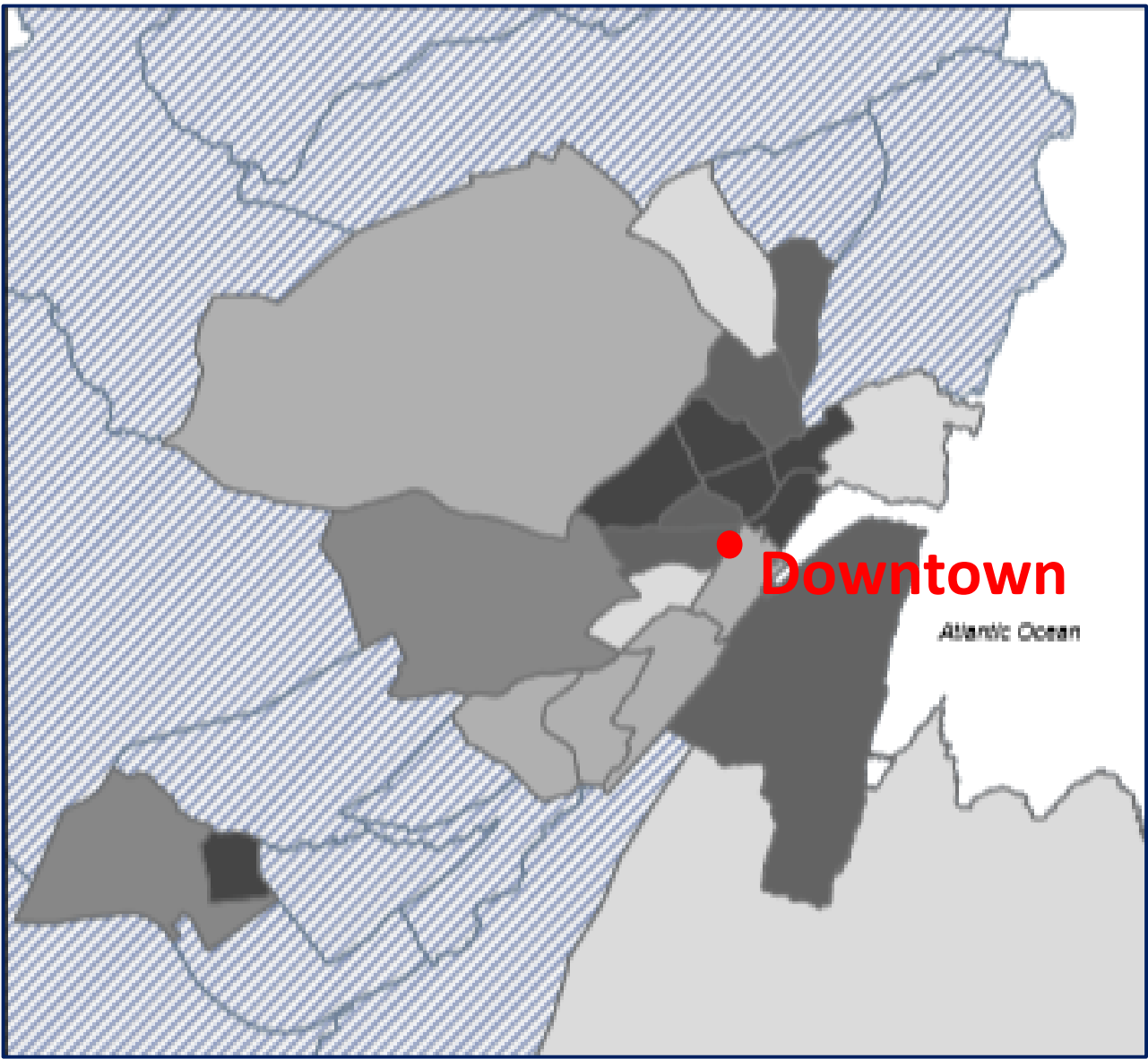
# St. John's, NL



## Quintiles of Overall Change

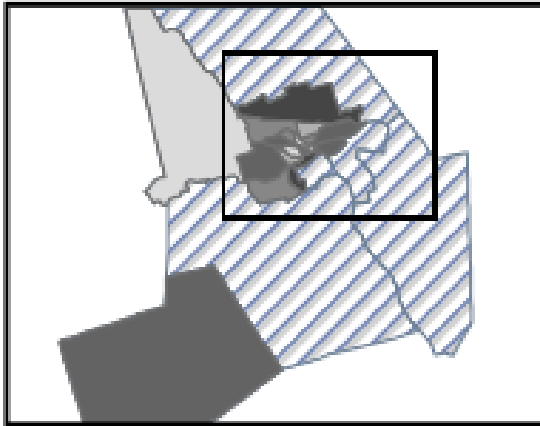


Source: Canadian Census 2006

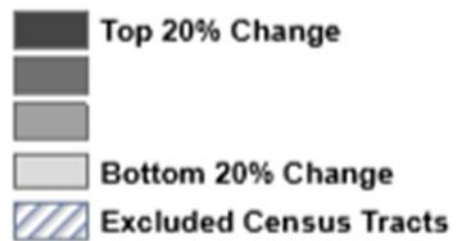


St. John's, Newfoundland and Labrador

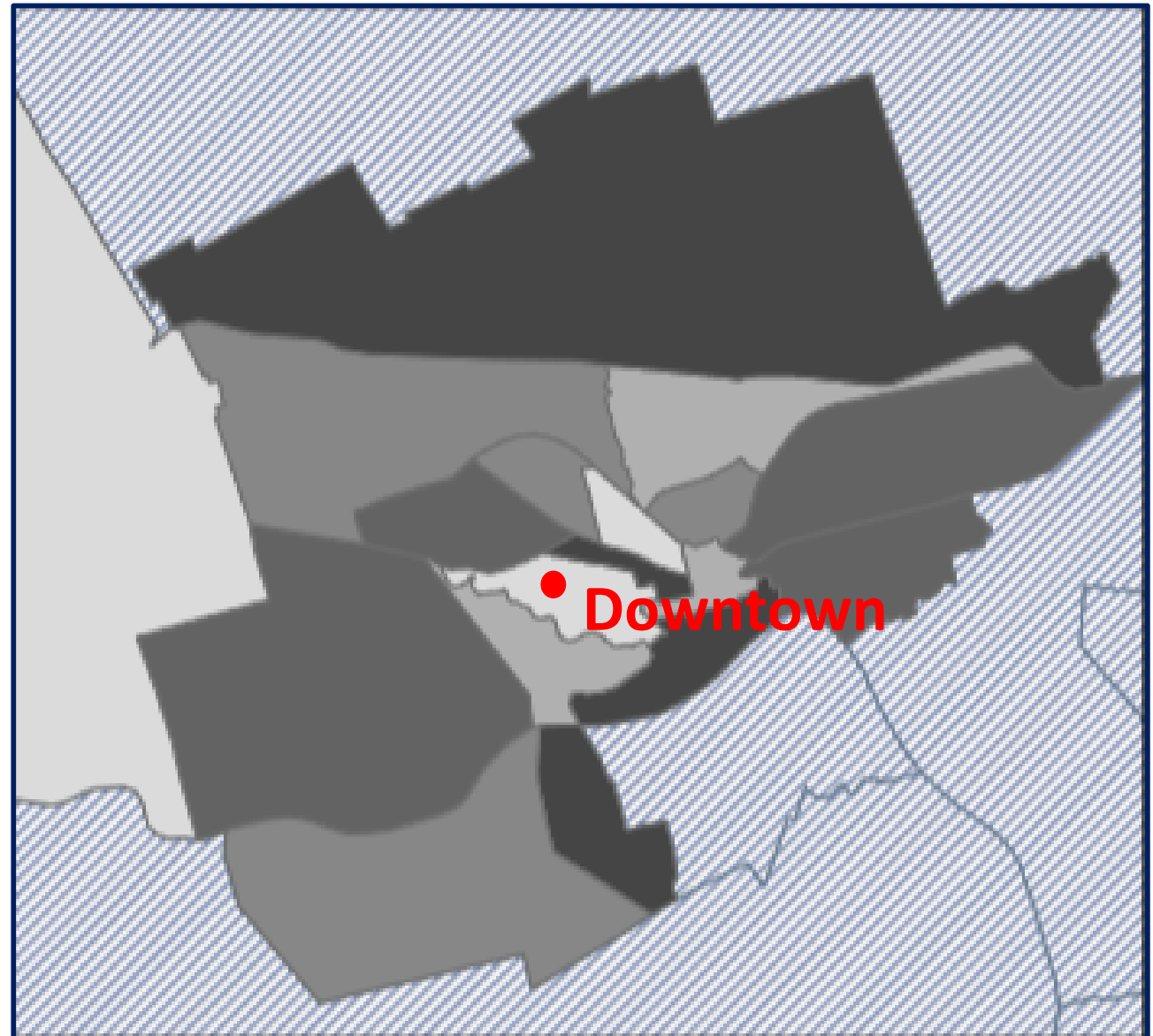
# Moncton, NB



## Quintiles of Overall Change



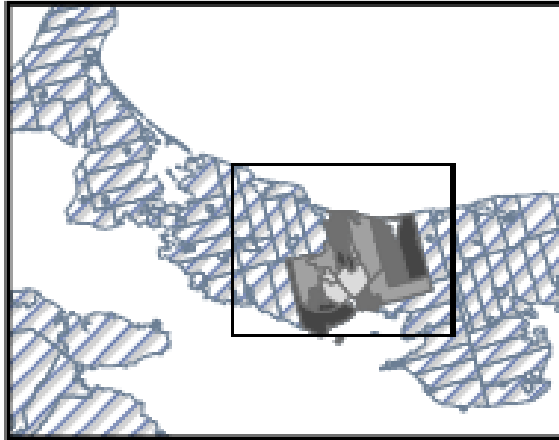
Source: Canadian Census 2006



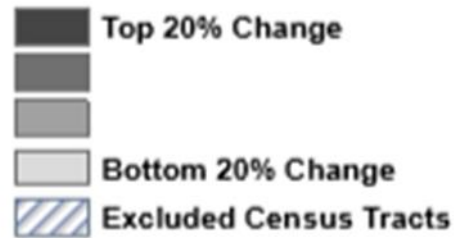
Moncton, New Brunswick



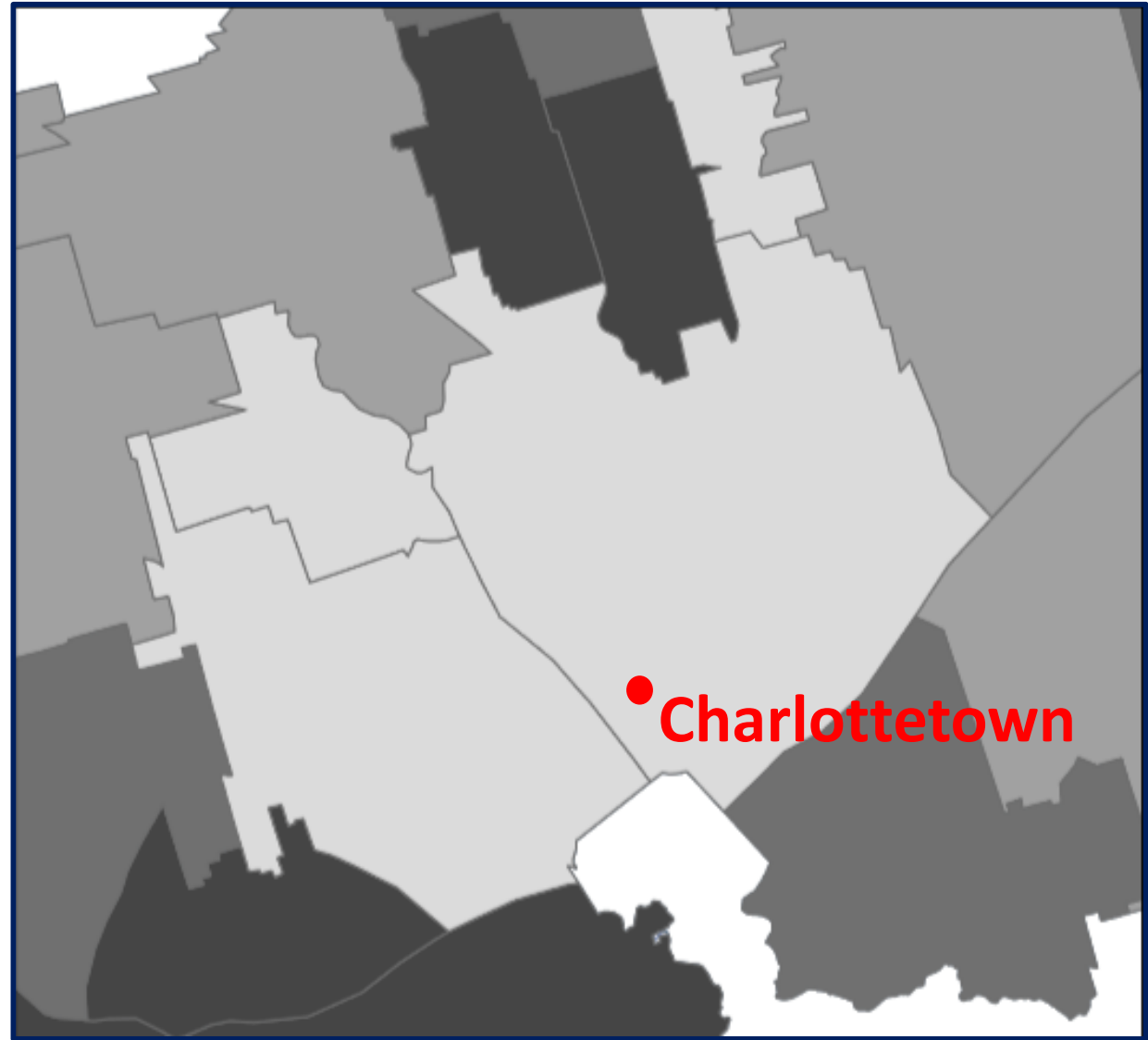
# Charlottetown, P.E.I.



## Quintiles of Overall Change



Source: Canadian Census 2006



Charlottetown, P.E.I. 0 1 2 4 Km

# Which 1996 characteristics drive the most overall change between 1996-2006?

## 1996 Index Indicators

### Physical/Structural

- Percent of single occupancy homes
  - Percent of dwellings that require major repair
  - Percent of renters
- 
- Socio-cultural and Economic Indicators contribute to a lesser degree

# Which measures of changes in 96-06 drive the most overall change?

## 1996-2006 Change Index Indicators

### Physical/Structural

- Percentage of apartment renters
- Percentage of Dwellings that require major repair
- Socio-cultural and Economic Indicators, again, contribute to a lesser degree



# Conclusion

## **Rust Belt or Three Cities?**

- These models do not explain change in secondary cities
- Similar patterns of change occur adjacent to the downtown core, and the outskirts

## **'Hot Spot' Model**

- Model of urban renewal and suburban/rural development

## **The importance of examining secondary cities**

- changes are happening in a more haphazard way

# Thank you!

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“Perceptions of Change in Atlantic Canadian Cities”  
(PI: Howard Ramos, Dalhousie University)

<http://perceptionsofchange.ca/>

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Social Sciences and Humanities  
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sciences humaines du Canada

Canada

# APPENDIX

# Relate Change Index Indicators, Statistics Canada Census (1996-2006)

Indicators	Definition
<b>Economic Indicators</b>	<b>Reports the economic changes and performance of the population between 1996-2006</b>
Lone Parent Families	Census Family Structure: Refers to the percentage of families in which there is only one parent
Unemployment Rate	Labour Market Activity: Refers to the prevalence of unemployment in the population
Income	Average Income: Total average yearly income
Low Income Households	Low Income: Refers to the percentage of low income households in the population
<b>Social Cultural demographic Indicators</b>	<b>Reports the social and demogrpahic changes in the population between 1996-2006</b>
Immigration Status	Citizenship: Refers to the percentage of immigrants in the population
Visible Minority	Visible Minority: Refers to the percentage of visible minorities in the population
University Degree Holders	Level of Education: Refers to the percentage of University degree holders in the population (i.e. Bachelor's; Master's; Doctorate)
Age 65 and Older	Age: Refers to the percentage of the population that is 65 years of age and older
<b>Physical-Residency</b>	<b>Reports the physical changes in the occupancy of housing and property in the population between 1996-2006</b>
Apartment Renters	Dwelling: Refers to the percentage of the population who live in apartment buildings
Single Occupancy Homes	Household Occupancy: Refers to the percentage of single occupancy homes in the population
Physical Environment and Tenur	Housing and Shelter Costs: Refers to the percetange of the population who rent a housing property (i.e. tenants of a property)
Condition of Dwelling	Housing and Shelter Costs: Refers to the percetange of housing and shelter that requires major repair in the population

**TABLE 1.** Logistic Regression Models Predicting the Probability of Most Economic, Sociol-cultural, Physical, and Overall Change (N = 138)

	Model 1			Model 2			Model 3			Model 4		
	Economic Index			Socio-cultural Index			Physical index			Overall change index		
	logit	OR	<i>p</i>	logit	OR	<i>p</i>	logit	OR	<i>p</i>	logit	OR	<i>p</i>
<i>1996 characteristics</i>												
<i>Economic measures</i>												
% lone parents	-0.089	0.91	0.027							0.168	1.18	0.084
Unemployment rate	0.057	1.06	0.354							-0.052	0.95	0.527
% low income hhld	0.051	1.05	0.030							-0.041	0.96	0.135
Individual income (in \$1,000s)	0.012	1.01	0.810							0.000	1.00	0.010
<i>Socio-cultural measures</i>												
% aged 65 and older				-0.056	0.95	0.188				-0.197	0.82	0.026
% visible minority				0.054	1.06	0.203				-0.275	0.76	0.090
% immigrants				0.017	1.02	0.862				0.017	1.02	0.921
% university degree holders				-0.027	0.97	0.399				-0.151	0.86	0.049
<i>Physical measures</i>												
% apartment renters							0.049	1.05	0.199	0.014	1.01	0.731
% renters/tenants							-0.148	0.86	0.000	-0.106	0.90	0.063
% single occupancy homes							0.064	1.07	0.461	0.220	1.25	0.073
% dwelling requiring major repair							0.270	1.31	0.001		1.25	0.012
Intercept	-2.912		0.040	-0.522		0.301	-1.211		0.061	-5.719		0.021
Log likelihood	-66.5			-70.6			-51.8			48.6		

*Source:* Statistics Canada, 1996 and 2006 Censuses of Population

**TABLE 2.** Logistic Regression Models Predicting the Probability of Most Economic, Sociol-cultural, Physical, and Overall Change (N = 138)

	Model 1			Model 2			Model 3			Model 4		
	Economic Index			Socio-cultural Index			Physical index			Overall change index		
	logit	OR	<i>p</i>	logit	OR	<i>p</i>	logit	OR	<i>p</i>	logit	OR	<i>p</i>
<i>Changes, 1996-2006</i>												
<i>Economic measures</i>												
% lone parents	-0.095	0.91	0.270							0.008	1.01	0.898
Unemployment rate	-0.257	0.77	0.009							-0.103	0.90	0.201
% low income hhld	-0.168	0.85	0.000							0.003	1.00	0.879
Individual income (in \$1,000s)	0.000	1.00	0.003							0.033	1.03	0.619
<i>Socio-cultural measures</i>												
% aged 65 and older				-0.069	0.93	0.334				-0.018	0.98	0.630
% visible minority				-0.233	0.79	0.025				0.084	1.09	0.465
% immigrants				-0.453	0.64	0.000				-0.130	0.88	0.249
% university degree holders				-0.118	0.89	0.078				0.079	1.08	0.265
<i>Physical measures</i>												
% apartment renters							-0.164	0.85	0.044	-0.139	0.87	0.018
% renters/tenants							-0.030	0.97	0.714	0.080	1.08	0.166
% single occupancy homes							-0.407	0.67	0.012	-0.051	0.95	0.631
% dwelling requiring major repair							-0.624	0.54	0.000	-0.152	0.86	0.032
Intercept	-5.617		0.000	-0.595		0.140	-1.246		0.023	-1.962		0.010
Log likelihood	-40.1			-59.9			-38.6			-61.8		
<i>Source:</i> Statistics Canada, 1996 and 2006 Censuses of Population												