

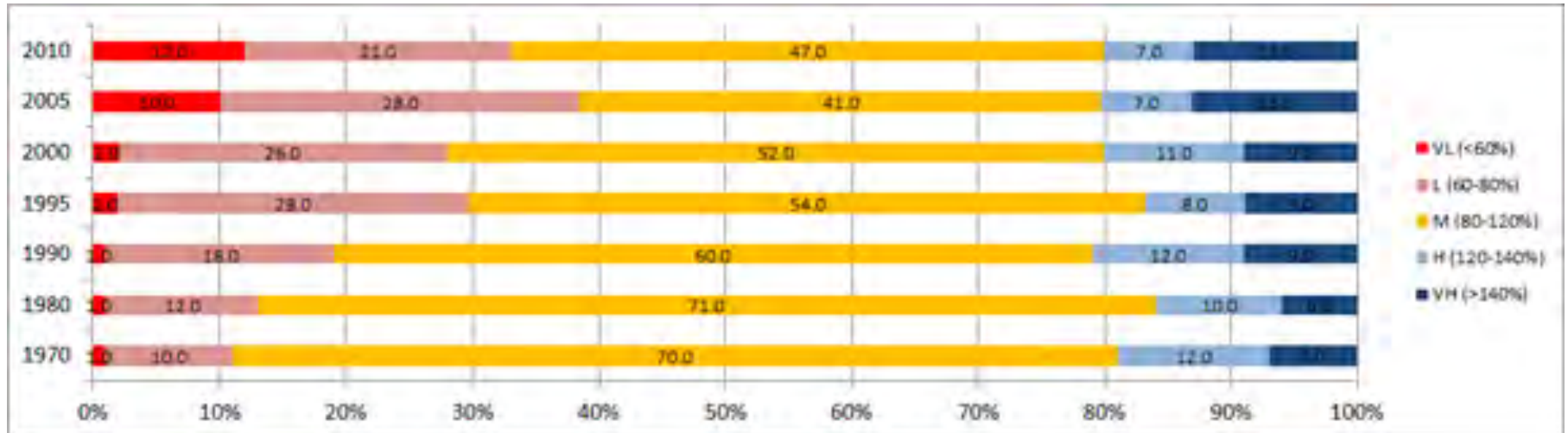


Socio-Spatial Changes in Neighbourhood Income Characteristics in Calgary: An Exploration of the Three Cities Model

Ivan Townshend,
Byron Miller,
Leslie Evans

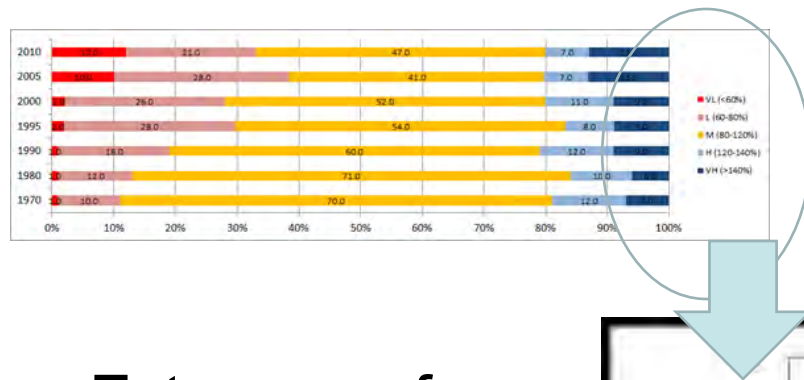
October 16, 2014

The Changing Character of Neighbourhood Income Distributions in Calgary 1970-2010

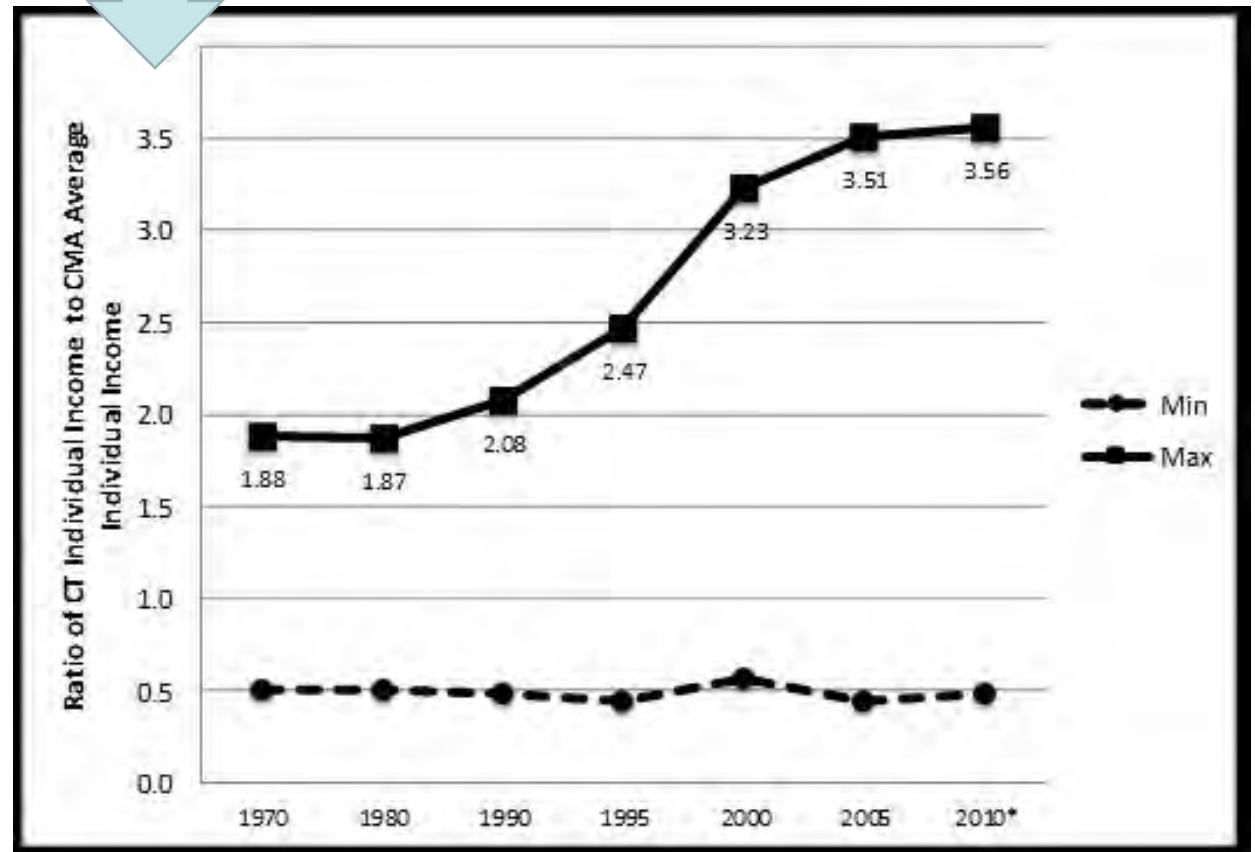


- Declining middle
- Stable shares H and VH
- Increases in L and VL

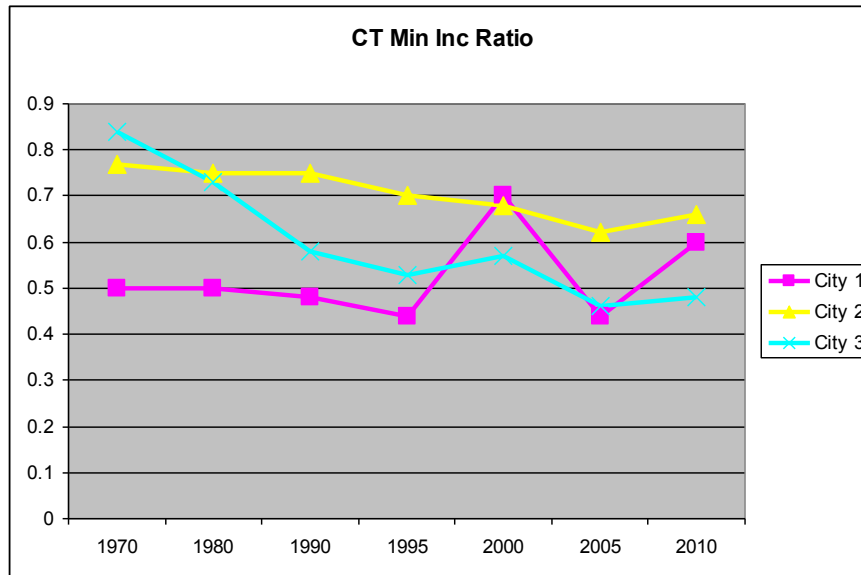
The Changing Character of Neighbourhood Income Distributions in Calgary 1970-2010



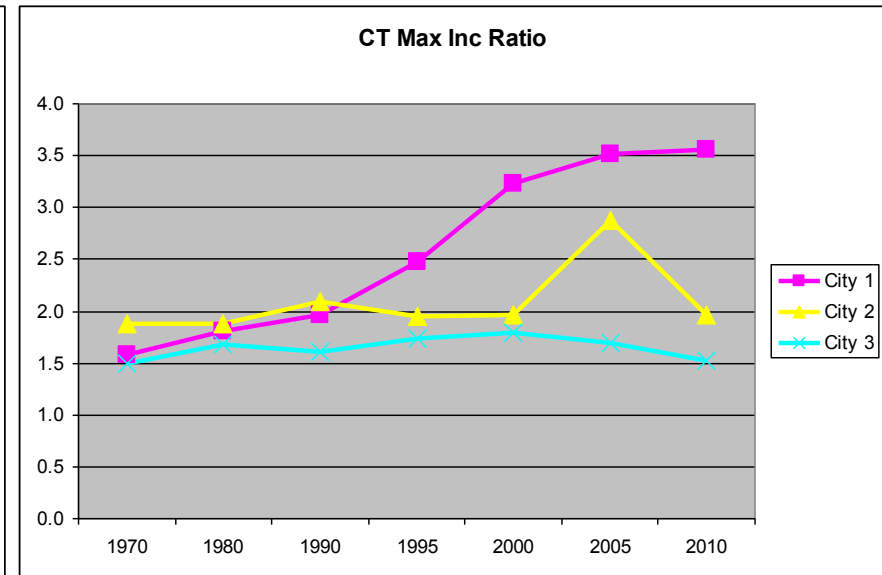
- Extremes of income are increasing
- Similar share of CTs, almost doubling income levels
- Worst off CT not much change



The Changing Character of Neighbourhood Income Distributions in Calgary 1970-2010

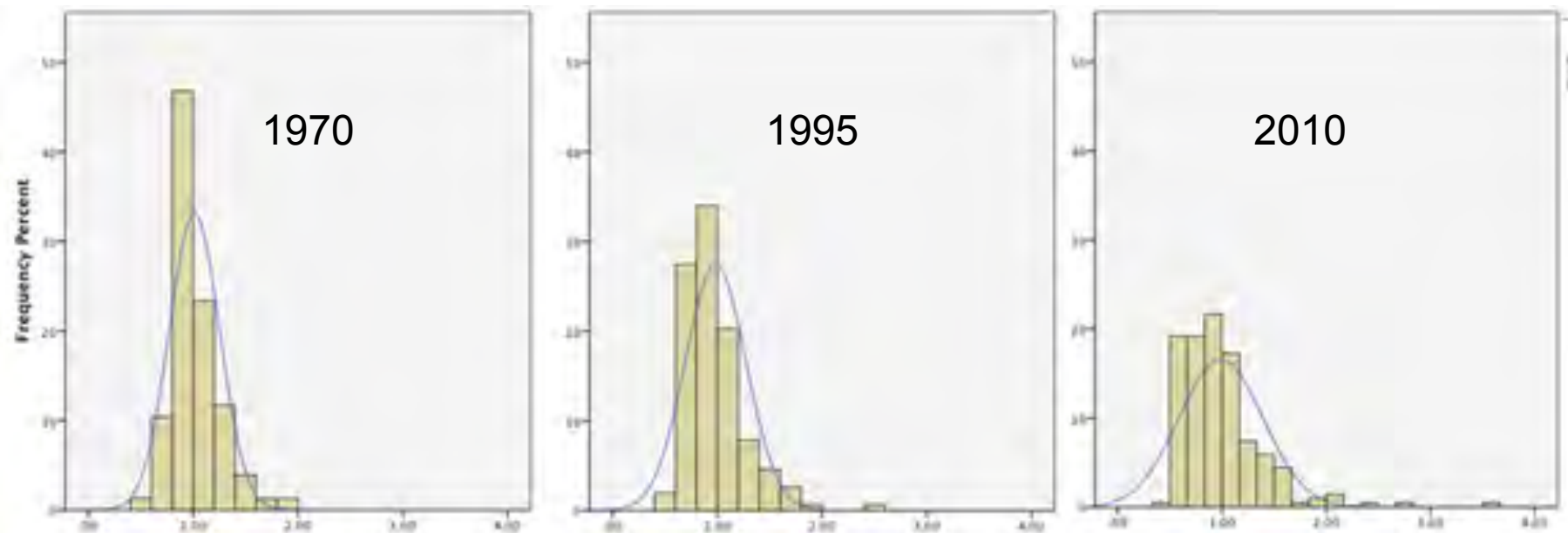


Poor CTs in City 3 are
RELATIVELY Poorer
through time.



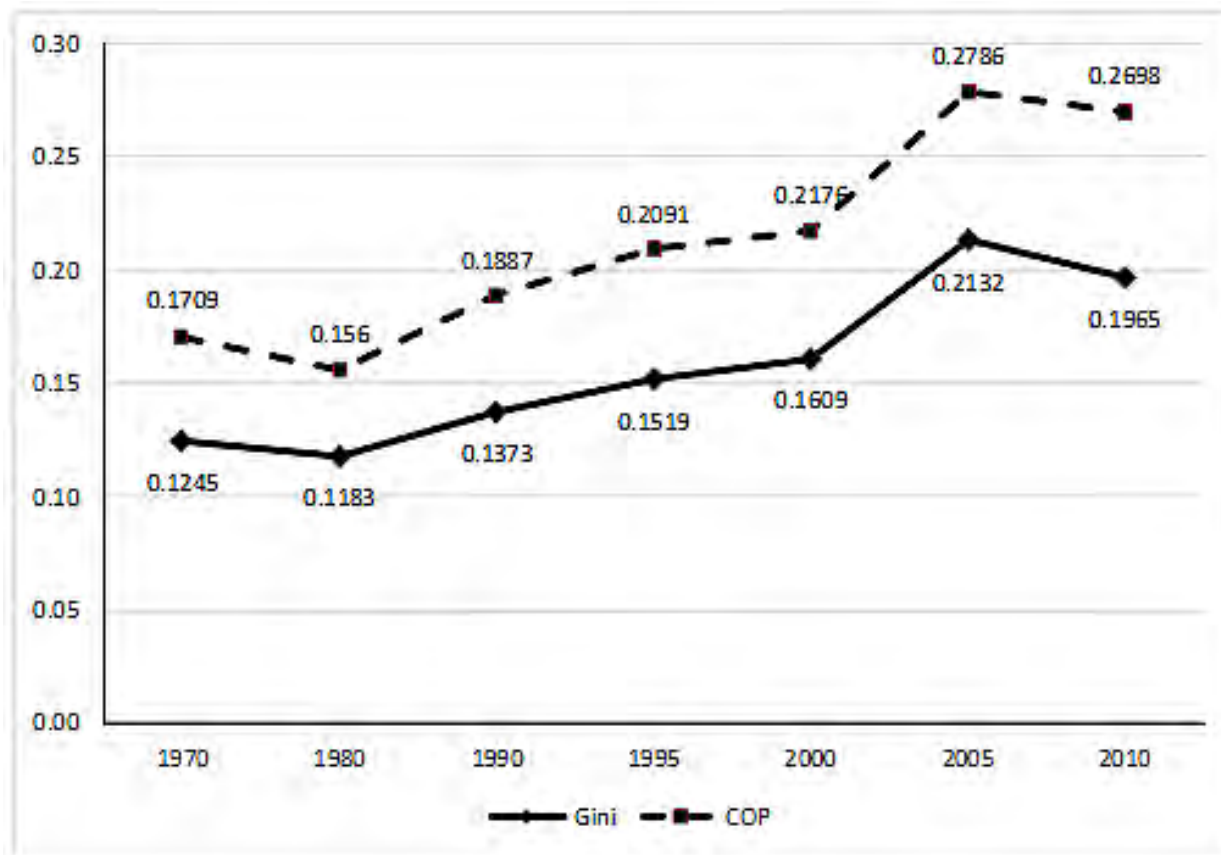
Rich CTs in City 1 are
RELATIVELY Richer
through time

The Changing Character of Neighbourhood Income Distributions in Calgary 1970-2010



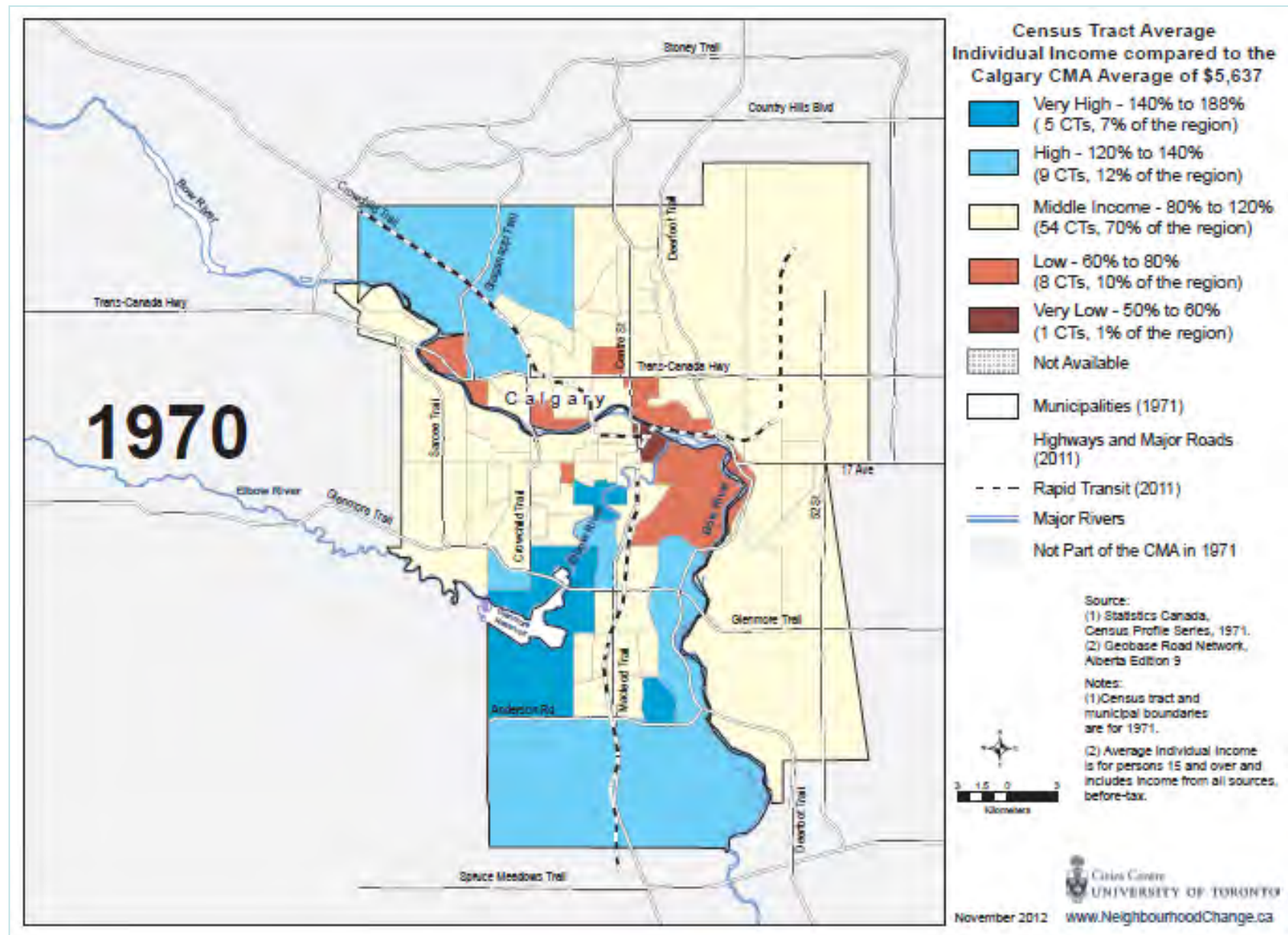
- Erosion of middle
- Shift to lower incomes
- VH Income outliers more extreme (increasing positive skewness)

The Changing Character of Neighbourhood Income Distributions in Calgary 1970-2010

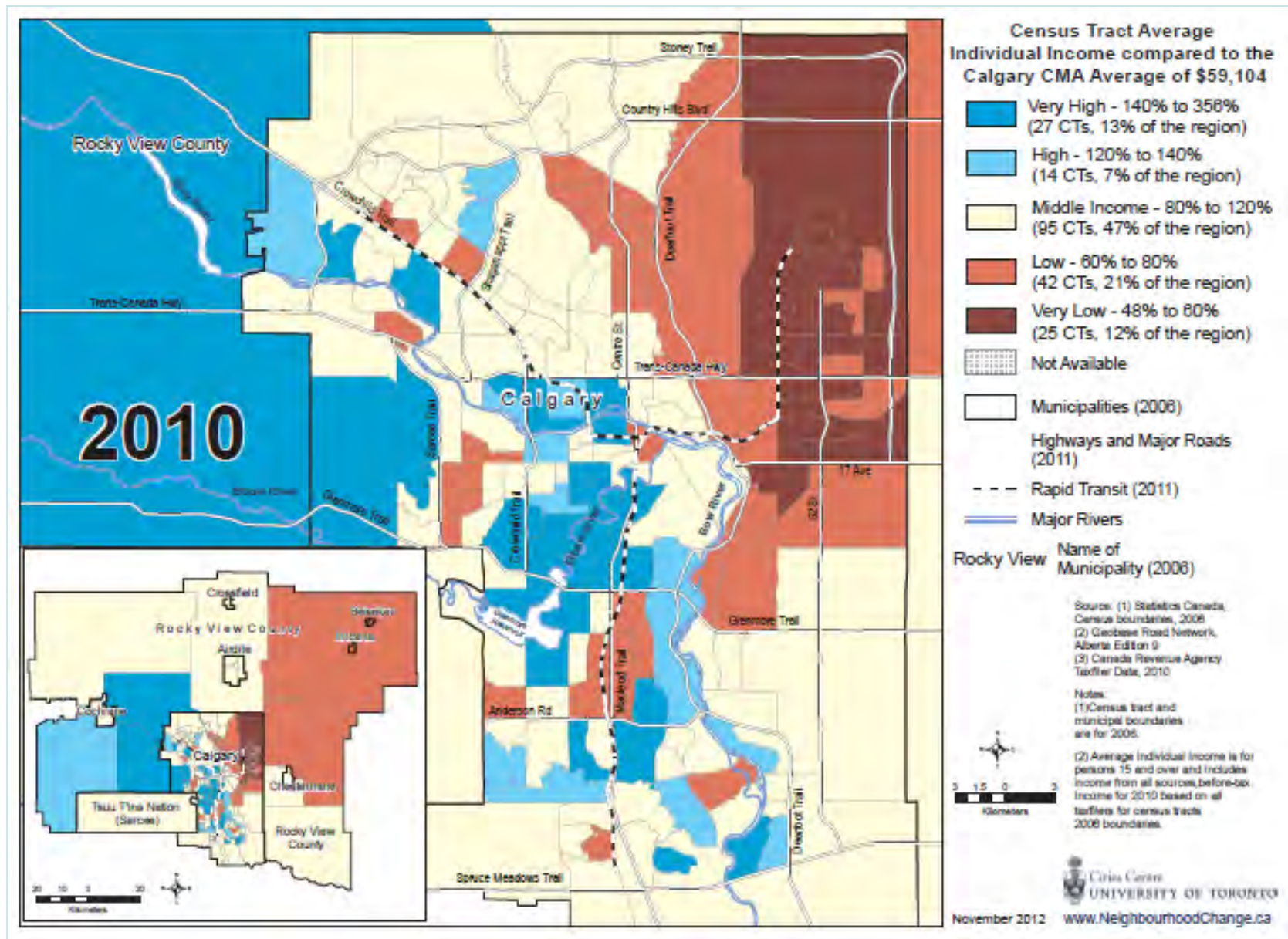


- Systematic temporal increase in Inequality & Polarization
- 2010 turnaround? (taxfiler data?)

Changing Geography of Income, 1970 to 2010.



Changing Geography of Income, 1970 to 2010.

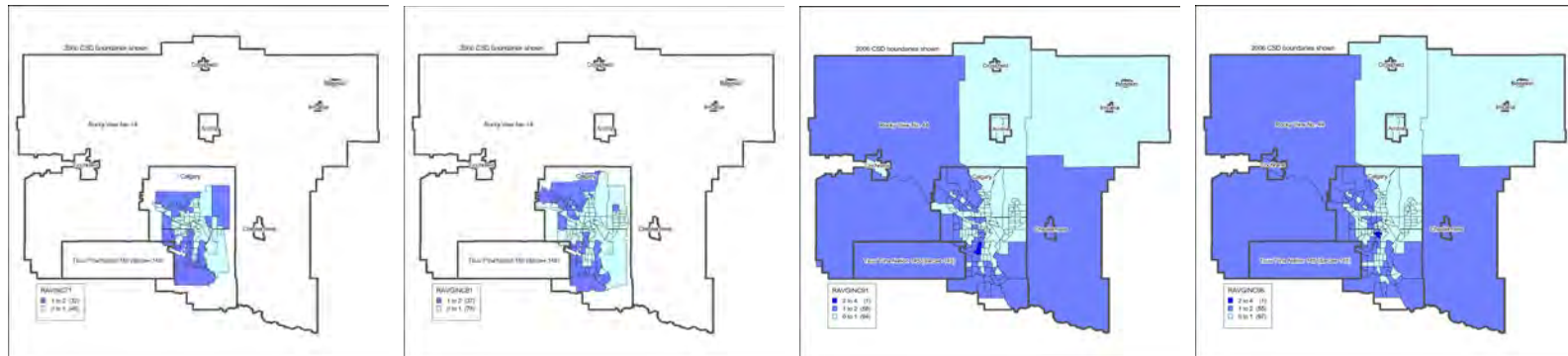


Changing Geography of Income, 1970 to 2010

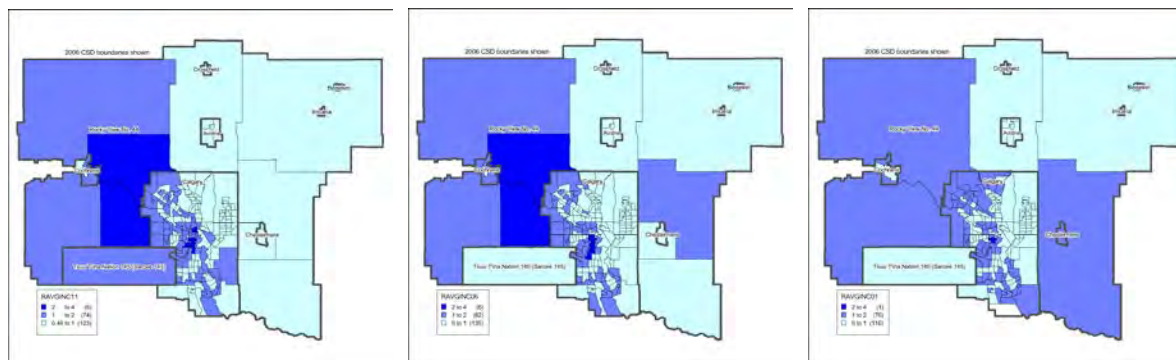
Spatial Change in Income:

- 1) The Declining suburbs
- 2) Inner City high income sector and western Exurban Concentration
- 3) Growing East-West divide

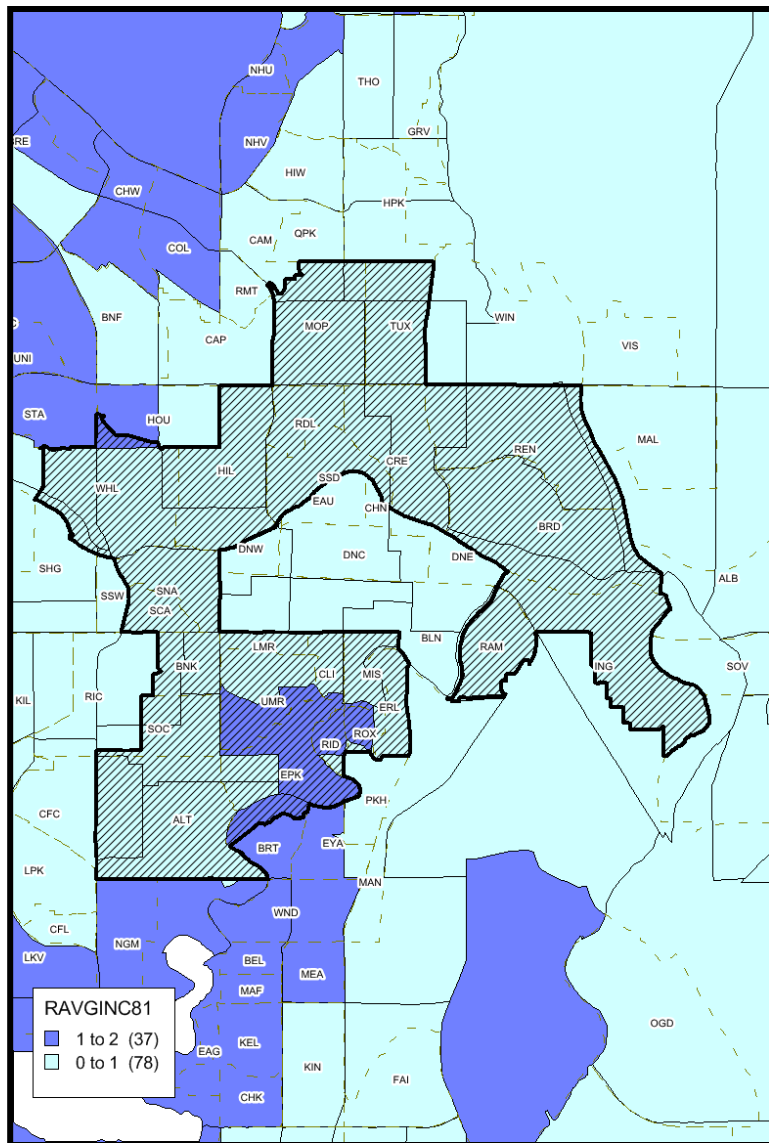
1970



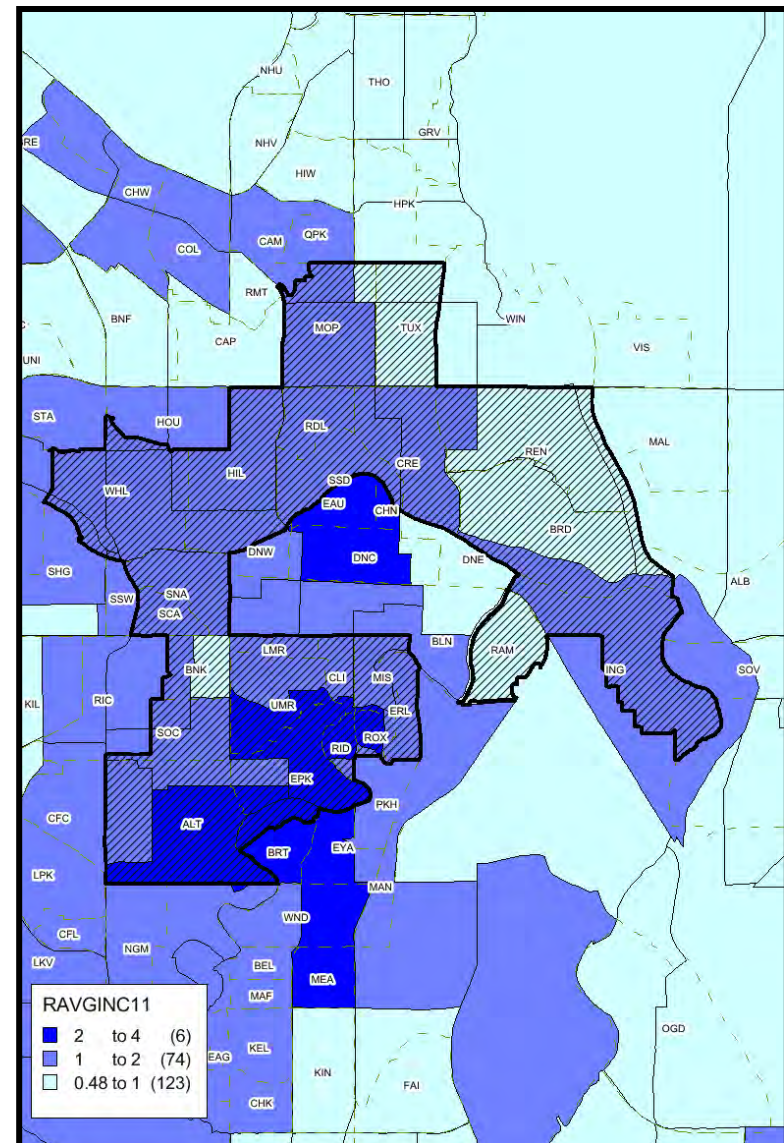
2000



Changes in “Inner City” Areas, 1981-2011

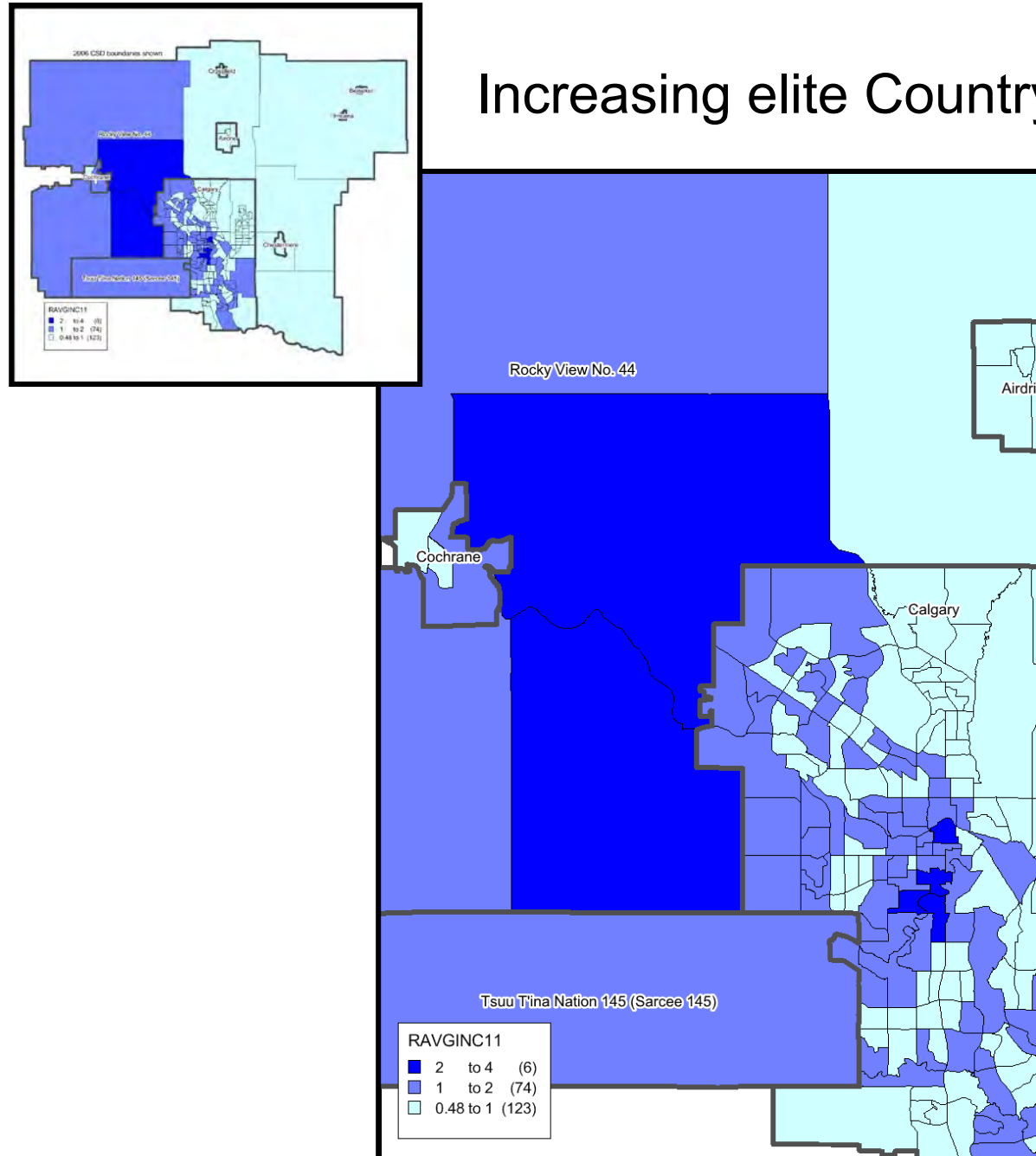


1981



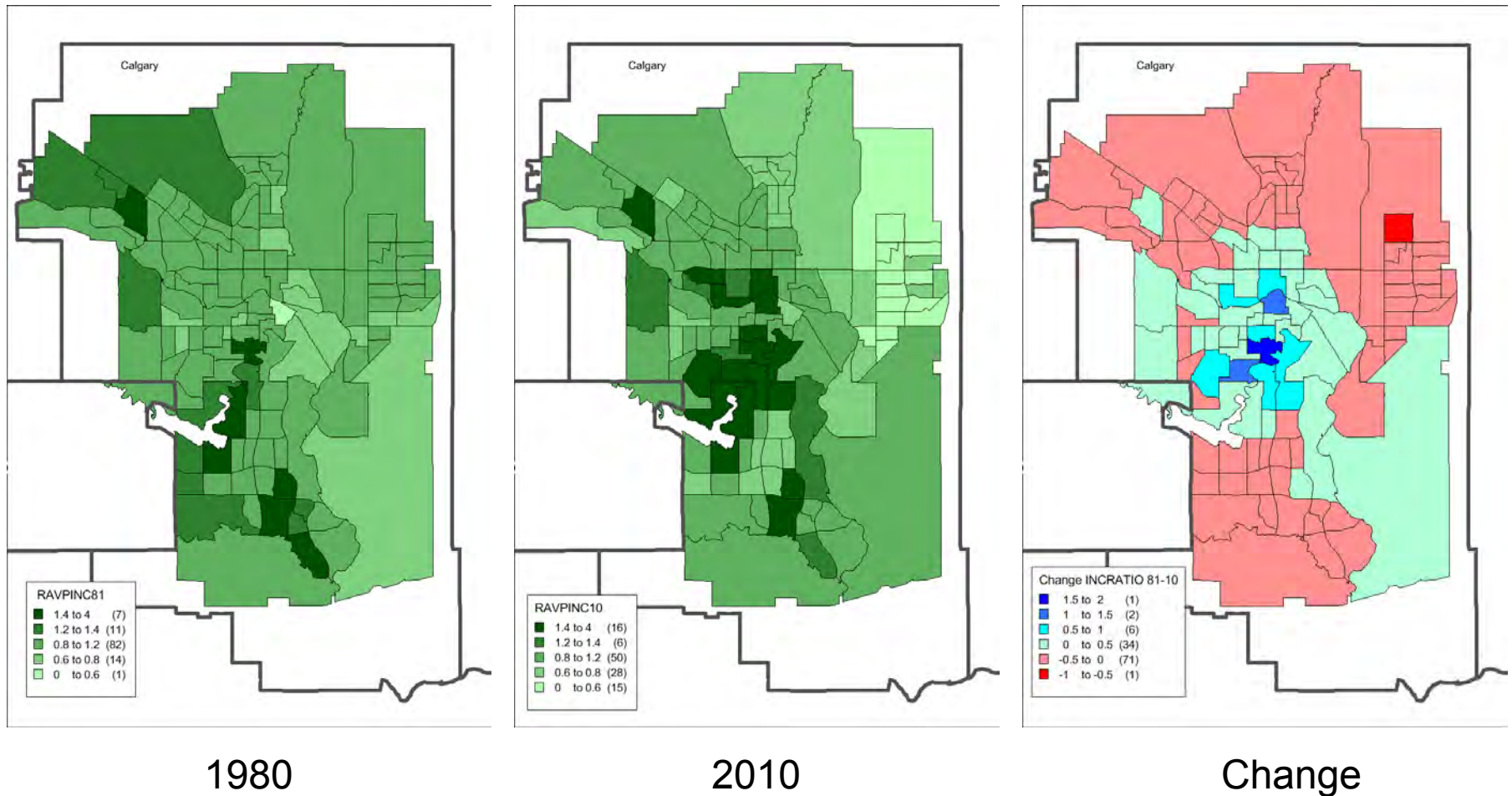
2011

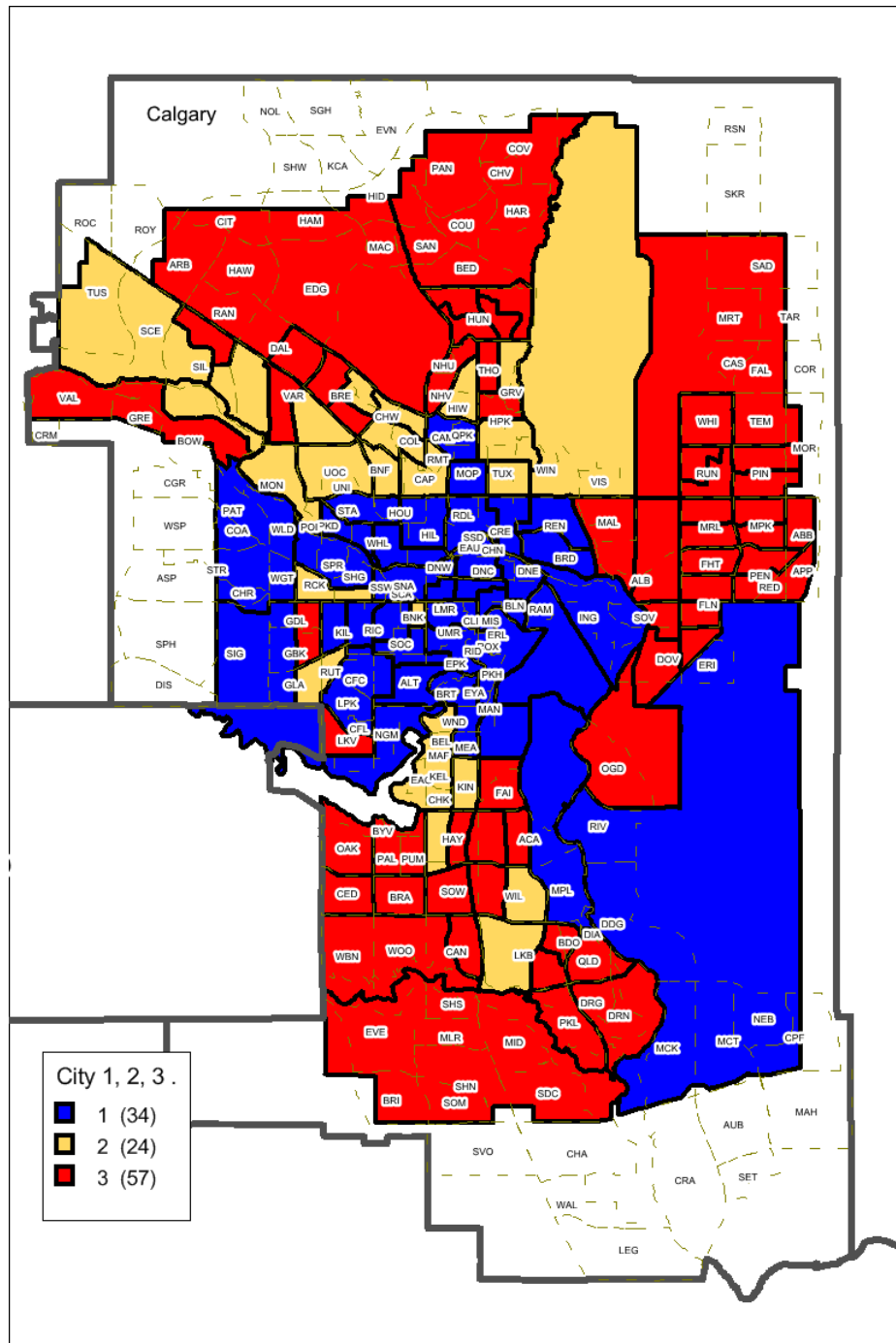
Increasing elite Country Residential



Spatial Change in Income:

- 1) The Declining suburbs
- 2) Inner City Concentration





Applying the Three Cities Model to Calgary

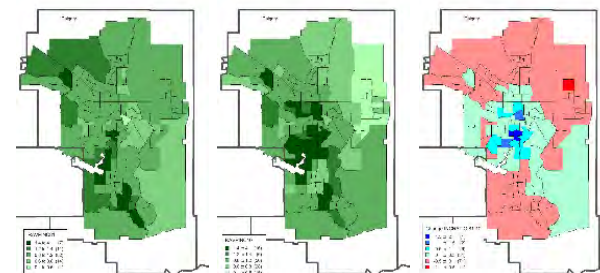
The Three Cities Model

Joint Geography 1981 and 2011 (mapped to 2006 Boundaries)

City 1: Increasing Income (1980-2010)
Income Ratio Increase of 0.1 or more
Mean change in ratio= +0.42

City 2: Stable (1980-2010)
Income Ratio Change between -0.1 and +0.1
Mean change in ratio= -0.02

City 3: Decreasing (1980-2010)
Income Ratio Decrease of 0.1 or more
Mean change in ratio= -0.26

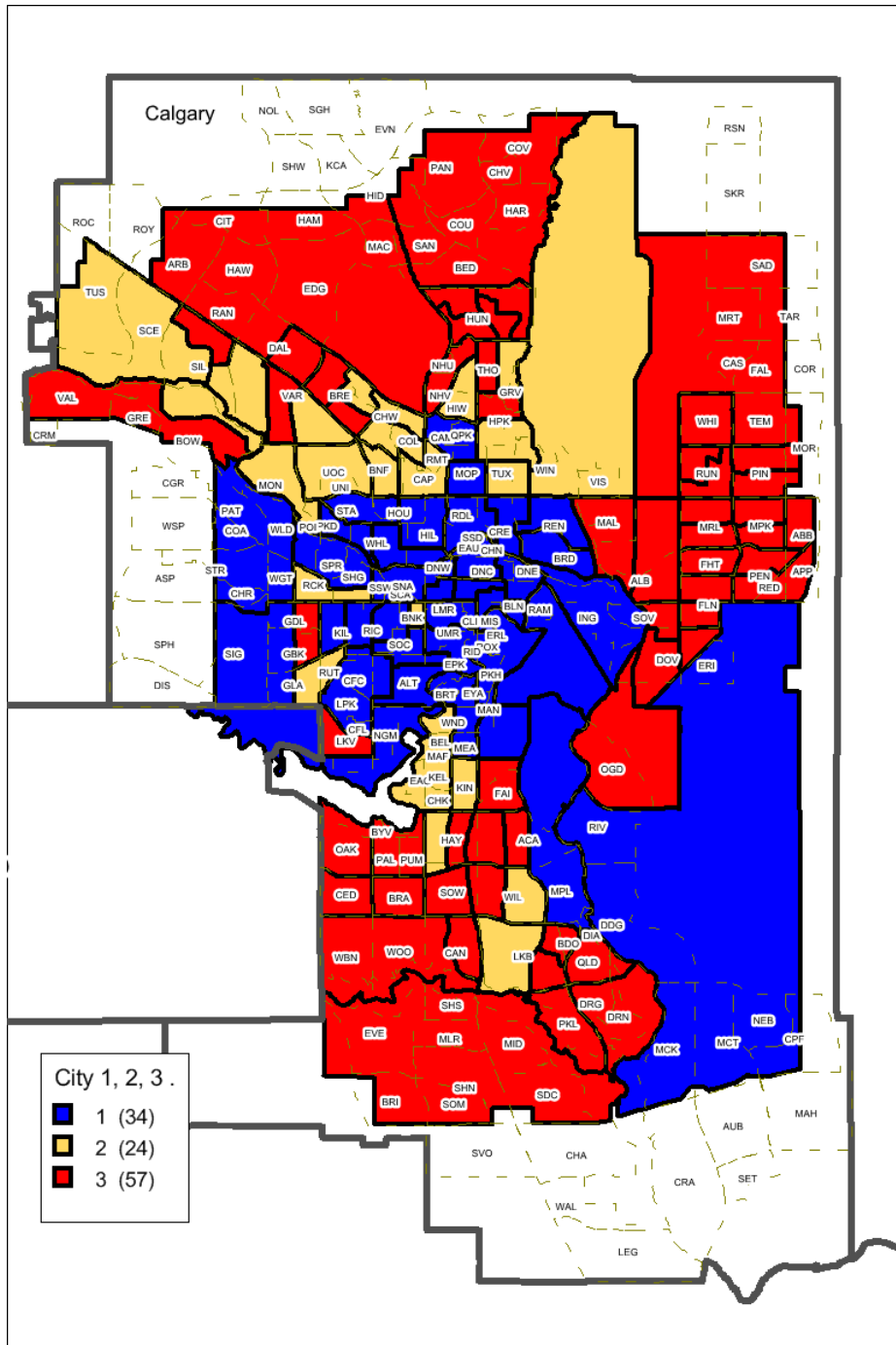


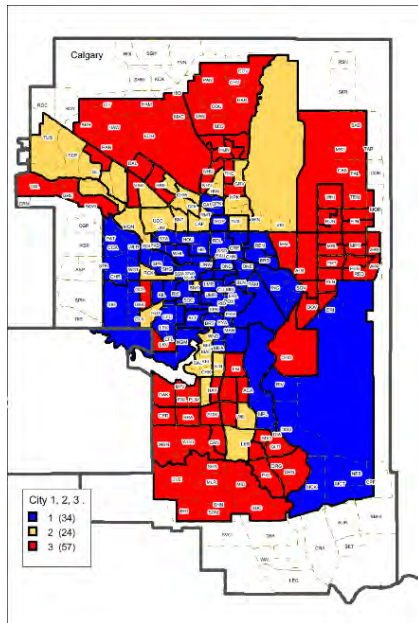
Applying the Three Cities Model to Calgary

City 1:
29.6% of tracts
27.2% of pop

City 2:
20.9% of tracts
13.0% of pop

City 3:
49.6% of tracts
59.8% of pop

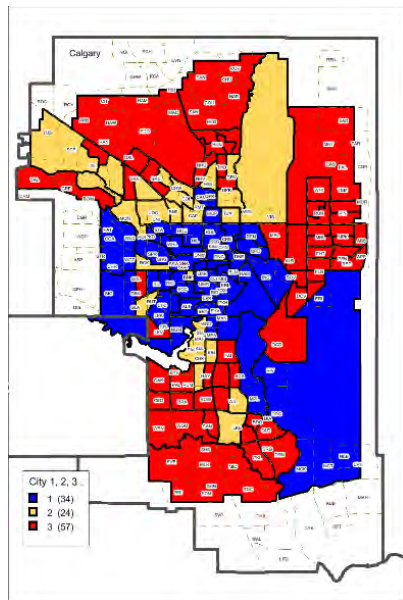




Applying the Three Cities Model to Calgary

. Income Ratio Characteristics in the Three Cities.

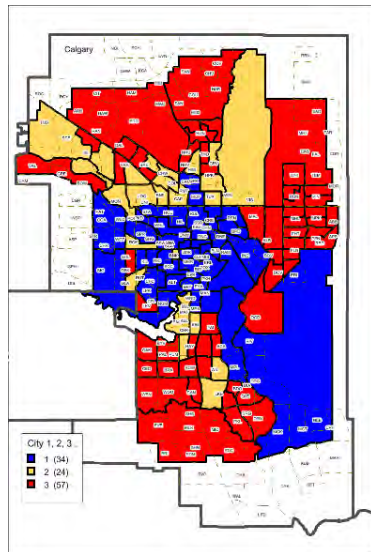
	City 1 (n=34)		City 2 (n=24)		City 3 (n=57)	
	1980	2010	1980	2010	1980	2010
Min	0.50	0.60	0.75	0.66	0.73	0.48
Max	1.81	3.56	1.88	1.98	1.68	1.52
Mean	0.92	1.34	1.04	1.02	1.01	0.76
STDev	0.23	0.54	0.31	0.33	0.20	0.21



Shifting Shares of Income Classes in the Three Cities

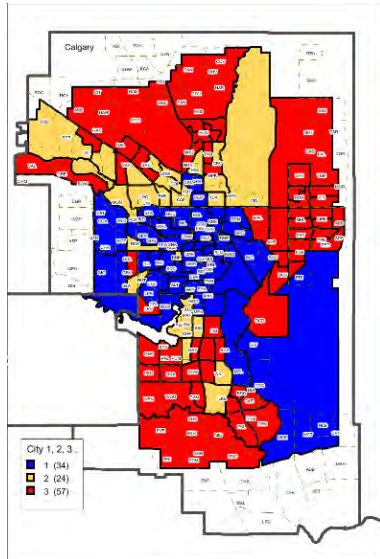
ALL Census Tracts Classified by Joint 1981 and 2006 Geography (n=115)

Income Ratio Categories						
Income Group	1980		2010		Change in % of Tracts	
	N	% of Tracts	N	% of Tracts	Difference (2010-1980)	
1 (0.00 to 0.59)	1	0.9	15	13.0	12.2	
2 (0.60 to 0.80)	15	13.0	28	24.3	11.3	
3 (0.81 to 1.19)	81	70.4	49	42.6	-27.8	
4 (1.20 to 1.40)	11	9.6	8	7.0	-2.6	
5 (1.41 to 4.00)	7	6.1	15	13.0	7.0	
Total	115	100.0	115	100.0	0.0	



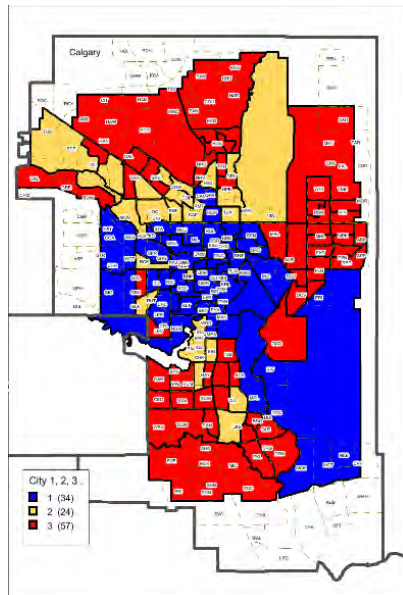
Shifting Shares of Income Classes in the Three Cities

City 1 Tracts (n=34)						
Income Ratio Categories						
	1980		2010		Change in % of Tracts	
Income Group	N	% of Tracts	N	% of Tracts	Difference (2010-1980)	
1 (0.00 to 0.59)	1	2.9	0	0.0	-2.9	
2 (0.60 to 0.80)	8	23.5	1	2.9	-20.6	
3 (0.81 to 1.19)	21	61.8	17	50.0	-11.8	
4 (1.20 to 1.40)	3	8.8	6	17.6	8.8	
5 (1.41 to 4.00)	1	2.9	10	29.4	26.5	
Total	34	100.0	34	100.0	0.0	



Shifting Shares of Income Classes in the Three Cities

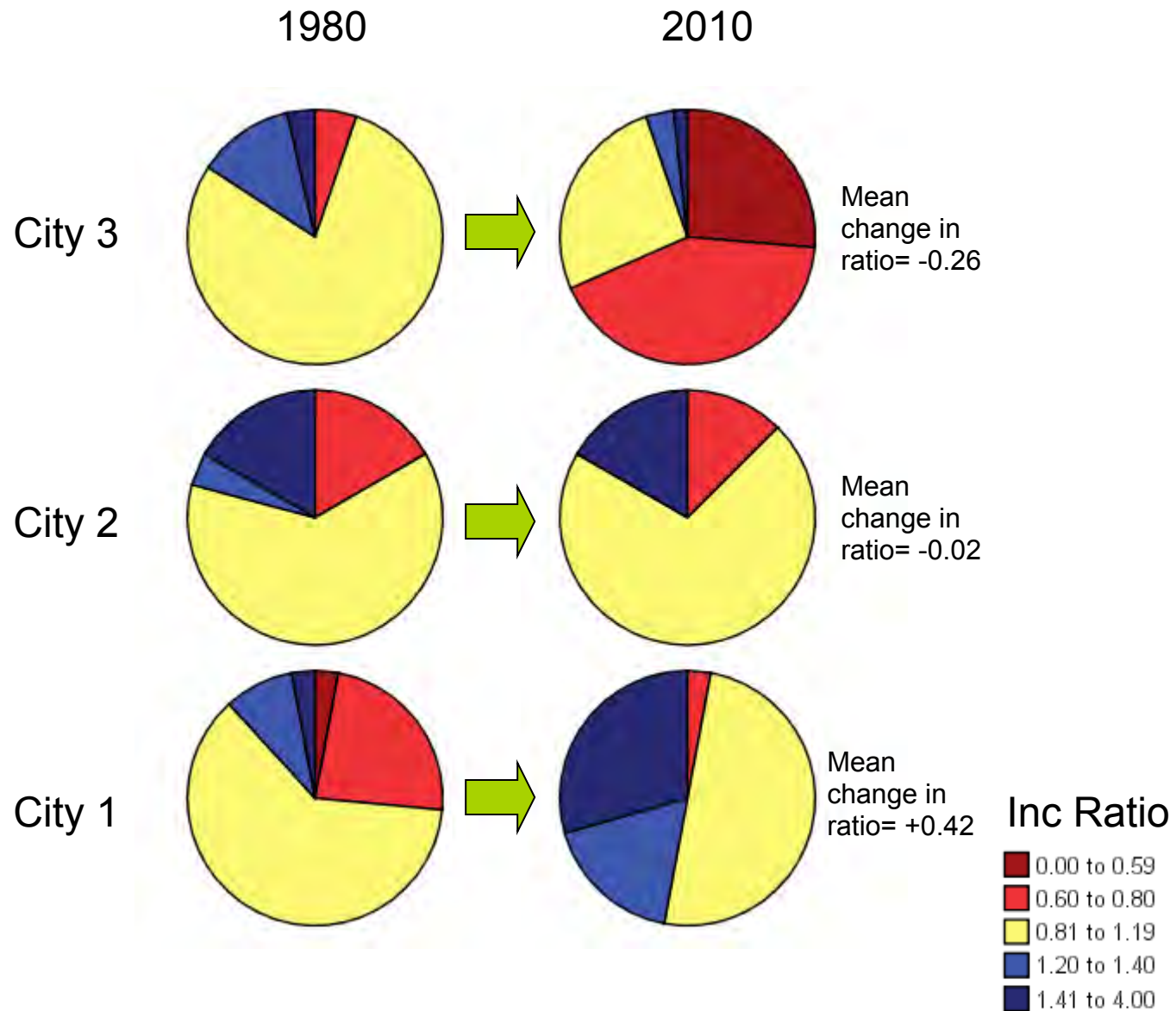
City 2 Tracts (n=24)						
Income Ratio Categories						
	1980		2010		Change in % of Tracts	
Income Group	N	% of Tracts	N	% of Tracts	Difference (2010-1980)	
1 (0.00 to 0.59)	0	0.0	0	0.0	0.0	
2 (0.60 to 0.80)	4	16.7	3	12.5	-4.2	
3 (0.81 to 1.19)	15	62.5	17	70.8	8.3	
4 (1.20 to 1.40)	1	4.2	0	0.0	-4.2	
5 (1.41 to 4.00)	4	16.7	4	16.7	0.0	
Total	24	100.0	24	100.0	0.0	



Shifting Shares of Income Classes in the Three Cities

City 3 Tracts (n=57)						
Income Ratio Categories						
	1980		2010		Change in % of Tracts	
Income Group	N	% of Tracts	N	% of Tracts	Difference (2010-1980)	
1 (0.00 to 0.59)	0	0.0	15	26.3	26.3	
2 (0.60 to 0.80)	3	5.3	24	42.1	36.8	
3 (0.81 to 1.19)	45	78.9	15	26.3	-52.6	
4 (1.20 to 1.40)	7	12.3	2	3.5	-8.8	
5 (1.41 to 4.00)	2	3.5	1	1.8	-1.8	
Total	57	100.0	57	100.0	0.0	

Percentage of CTs in Each Income Ratio Group



City 1: Income Group Transition

Income Group 1980 * Income Group 2010 Crosstabulation

Count		Income Group 2010				Total
		0.60 to 0.80	0.81 to 1.19	1.20 to 1.40	1.41 to 4.00	
Income Group 1980	0.00 to 0.59	1	0	0	0	1
	0.60 to 0.80	0	7	1	0	8
	0.81 to 1.19	0	10	4	7	21
	1.20 to 1.40	0	0	1	2	3
	1.41 to 4.00	0	0	0	1	1
Total		1	17	6	10	34

a. City 1 2 3 in 2010 = 1.00

Difference in Income Group

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No change	12	35.3	35.3	35.3
Increase 1 category	14	41.2	41.2	76.5
Increase 2 categories	8	23.5	23.5	100.0
Total	34	100.0	100.0	

a. City 1 2 3 in 2010 = 1.00

- No tracts decline
- 65% of tracts Increase

City 2: Income Group Transition

Income Group 1980 * Income Group 2010 Crosstabulation^a

Count		Income Group 2010			Total
		0.60 to 0.80	0.81 to 1.19	1.41 to 4.00	
Income Group 1980	0.60 to 0.80	2	2	0	4
	0.81 to 1.19	1	14	0	15
	1.20 to 1.40	0	1	0	1
	1.41 to 4.00	0	0	4	4
Total		3	17	4	24

a. City 1 2 3 in 2010 = 2.00

Difference in Income Gr^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Decrease 1 category	2	8.3	8.3	8.3
	No change	20	83.3	83.3	91.7
	Increase 1 category	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

a. City 1 2 3 in 2010 = 2.00

- 8% of tracts decline
- 83% No change
- 8% of tracts Increase

City 3: Income Group Transition

Income Group 1980 * Income Group 2010 Crosstabulation

Count		Income Group 2010					Total
		0.00 to 0.59	0.60 to 0.80	0.81 to 1.19	1.20 to 1.40	1.41 to 4.00	
Income Group 1980	0.60 to 0.80	3	0	0	0	0	3
	0.81 to 1.19	12	23	10	0	0	45
	1.20 to 1.40	0	1	5	1	0	7
	1.41 to 4.00	0	0	0	1	1	2
Total		15	24	15	2	1	57

a. City 1 2 3 in 2010 = 3.00

Decline of the Middle

- 23/57 (40.4%) are middle class neighbourhoods becoming poor nhoods
- 12/57 (21.1%) are middle class neighbourhoods becoming very poor

Selected Decline of Higher Income Nhoods

- 7/57 (12.3%) decline

Difference in Income Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Decrease 2 categories	13	22.8	22.8	22.8
	Decrease 1 category	32	56.1	56.1	78.9
	No change	12	21.1	21.1	100.0
	Total	57	100.0	100.0	

a. City 1 2 3 in 2010 = 3.00

- 79% of tracts decline
- 21% No change

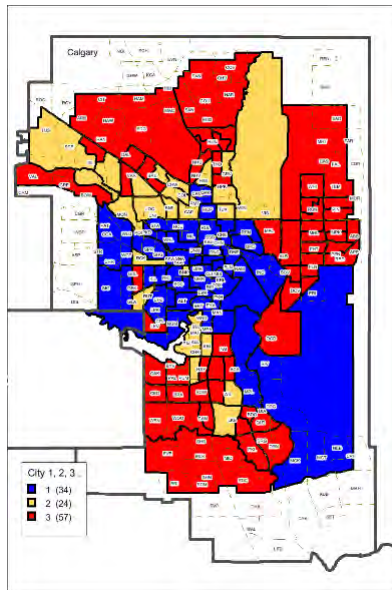
Social Differences in the Three Cities in 2006.

Characteristocs of 115 CTs Used to Define City 1,2,3.					
	Means				ANOVA Sig Differences (p<0.05)
	City 1	City 2	City 3	Total	
2006 Characteristics					
<u>Education</u>					
% Population 25 years and over with a degree	43.8	39.1	24.8	33.5	1-3, 2-3
% Population 25 years and over without high school certificate	10.8	12.3	19.7	15.5	1-3, 2-3
<u>Labour Force</u>					
% Labour Force Managerial	21.5	18.4	14.9	17.6	1-3, 2-3
% Labour Force Professional	28.0	27.4	19.2	23.6	1-3, 2-3
% Labour Force Sales and Service	20.6	21.8	24.9	23.0	1-3, 2-3
% Labour Force Manufacturing (trades, transport and manufacturing)	12.6	15.1	23.2	18.3	1-3, 2-3
Unemployment Rate, Persons 15 and Over	4.0	4.4	4.6	4.4	none
<u>Income</u>					
Income Ratio 2010	1.3	1.0	0.8	1.0	1-2, 1-3, 2-3
% High Income Households	26.4	26.7	23.1	24.8	none
% Economic Famlies Prevalence of Low Income in 2005	12.6	11.0	12.1	12.0	none
<u>Age</u>					
%Population Less Than 15 Years	12.1	13.6	16.8	14.7	1-3, 2-3
% Population 25-34 Years of Age	20.9	15.7	13.4	16.1	1-2, 1-3
% Population 50-64 Years of Age	16.1	17.2	18.5	17.5	1-3
% Population 65 Years and Over	12.4	15.0	12.0	12.7	2-3
<u>Households</u>					
% One Person Households	40.5	30.3	22.6	29.6	1-2, 1-3, 2-3
% Single Parent Households	14.7	15.8	19.2	17.1	1-3, 2-3
Persons Per Household	2.1	2.3	2.6	2.4	1-2, 1-3, 2-3

Characteristics of 115 CTs Used to Define City 1,2,3.					
	Means				
	City 1	City 2	City 3	Total	ANOVA Sig Differences (p<0.05)
2006 Characteristics					
<u>Immigrant and Ethnicity</u>					
% Visible Minority	16.0	13.9	26.7	21.8	1-3, 2-3
% Population Immigrant	19.8	18.5	23.3	21.2	1-3, 2-3
% Population Recent Immigrant (previous five years)	5.0	4.3	5.1	4.9	none
% Population South Asian	2.3	2.1	4.1	3.1	none
% Population Southeast Asian	2.0	1.4	2.7	2.2	2-3
% Population East Asian (Chinese and Japanese)	6.7	6.4	7.0	6.8	none
% Population Western, Northern and Eastern European	47.5	50.4	44.3	46.6	2-3
% Population Southern European	7.0	6.6	6.3	6.6	none
% Population Latin, Central and South American, and Caribbean	2.1	1.8	2.7	2.3	none
% Population Arab and West Asian	1.8	1.6	3.4	2.5	1-3, 2-3
% Population African (not including North Africa)	1.8	1.6	1.8	1.7	none
% Population Aboriginal	3.7	4.1	4.9	4.4	1-3
% Population British	50.5	51.9	44.9	48.1	1-3, 2-3
% Population French	10.5	10.8	10.0	10.3	none
% Home Language Neither English nor French	9.0	8.1	13.0	10.8	1-3, 2-3
<u>Mobility</u>					
% Persons (5 years +) who did not live at the same address 5 years ago	58.0	47.3	43.2	48.5	1-2, 1-3
<u>Housing</u>					
% Private Dwellings Rented	43.1	36.8	28.1	34.4	1-3
% Dwellings Constructed Before 1946	12.9	3.6	1.0	5.1	1-2, 1-3
% Dwellings Constructed 1996-2006	15.9	5.9	4.8	8.3	1-2, 1-3
% Dwellings Single Detached	39.5	53.2	59.1	52.0	1-3
% Dwellings Apartment Under 5 Stories	25.1	19.2	14.0	18.4	1-3
% Dwellings Apartment 5+ Stories	17.2	4.3	1.8	6.9	1-2, 1-3
Total Persons Per BEDROOM	1.0	0.8	0.9	0.9	1-2, 1-3
Average Number of Persons Per ROOM	0.4	0.4	0.4	0.4	none
% Dwellings Needing Major Repairs	6.8	6.8	6.1	6.4	none
Renters plus owners (avg housing cost) / household income	23.2	26.1	32.5	28.4	1-3, 2-3

Social Differences in the Three Cities in 2006

Apart from *income, household size, housing types, and period of dwelling construction*, City 1 and City 2 are not much different to each other on most social indicators.



City 3 stands out as having unique social attributes on many indicators. On *educational, labour force, income, age, household, immigrant and ethnicity, language, mobility, and housing variables*, City 3 standard in contrast to the other cities

Conclusion

- consistent and systematic increases in income inequality and polarization, causing Calgary to become the second most unequal CMA in Canada
- dramatic loss of middle income neighbourhoods (70% to 48%)
- Middle has transitioned to become low or very low income over time.
- levels of personal income has risen dramatically in H and VH income tracts (now as high 4 x CMA average)
- many more neighbourhoods are becoming poorer, and a select few neighbourhoods are becoming extremely wealthy

Conclusion

- Three Cities model applicable. Pattern similar to Toronto
- Suburbanization of poverty. Return to the central city.
- City 1 and City 2 are not much different to each other on most social indicators.
- City 3 stands out as different on most social indicators. Linkage between low and losing incomes/poverty and many social features (e.g. immigrant, language, housing, labour force, age, education, etc.)