Does Money Matter? Determining the Happiness of Canadians

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CSLS-ICP Conference on the Implications of Happiness Research for Public Policy

Chateau Laurier Hotel
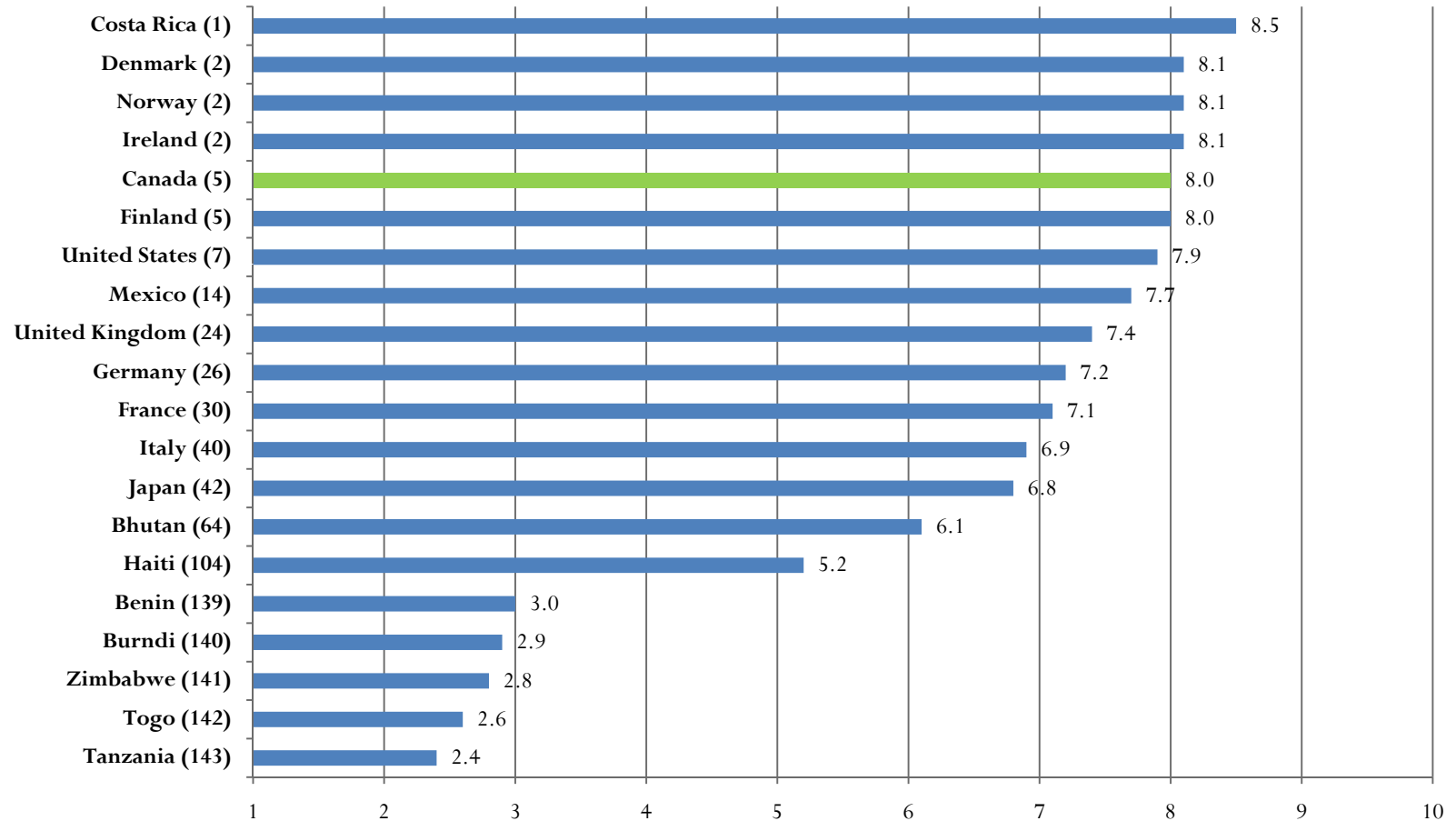
Ottawa, Ontario

December 1, 2010

Outline of Presentation

Introduction & Motivation

- International differences in well-being have primarily been the focus of empirical well-being research (see Diener et al. (eds.), 2010)

- Few studies have looked at within-country differences in subjective well-being; Frey and Stutzer (2000) is a notable exception

- There is markedly high variation in happiness across countries

- Geographical variation in happiness Canada is relatively small

- The effect of income on happiness is trumped by other factors: mental health, physical health, stress level, and sense of belonging

- We use our national estimates to explain geographical variation based on differences in the means of variables that are correlated with happiness in Canada

The International Happiness Landscape: Across Space

| Country	Score
Costa Rica (1)	8.5
Denmark (2)	8.1
Norway (2)	8.1
Ireland (2)	8.1
Canada (5)	8.0
Finland (5)	8.0
United States (7)	7.9
Mexico (14)	7.7
United Kingdom (24)	7.4
Germany (26)	7.2
France (30)	7.1
Italy (40)	6.9
Japan (42)	6.8
Bhutan (64)	6.1
Haiti (104)	5.2
Benin (139)	3.0
Burndi (140)	2.9
Zimbabwe (141)	2.8
Togo (142)	2.6
Tanzania (143)	2.4

Source: 2009 Happy Planet Index Report of the New Economics Foundation using Gallup World Poll.

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The Happiness Landscape in Canada: Across Time
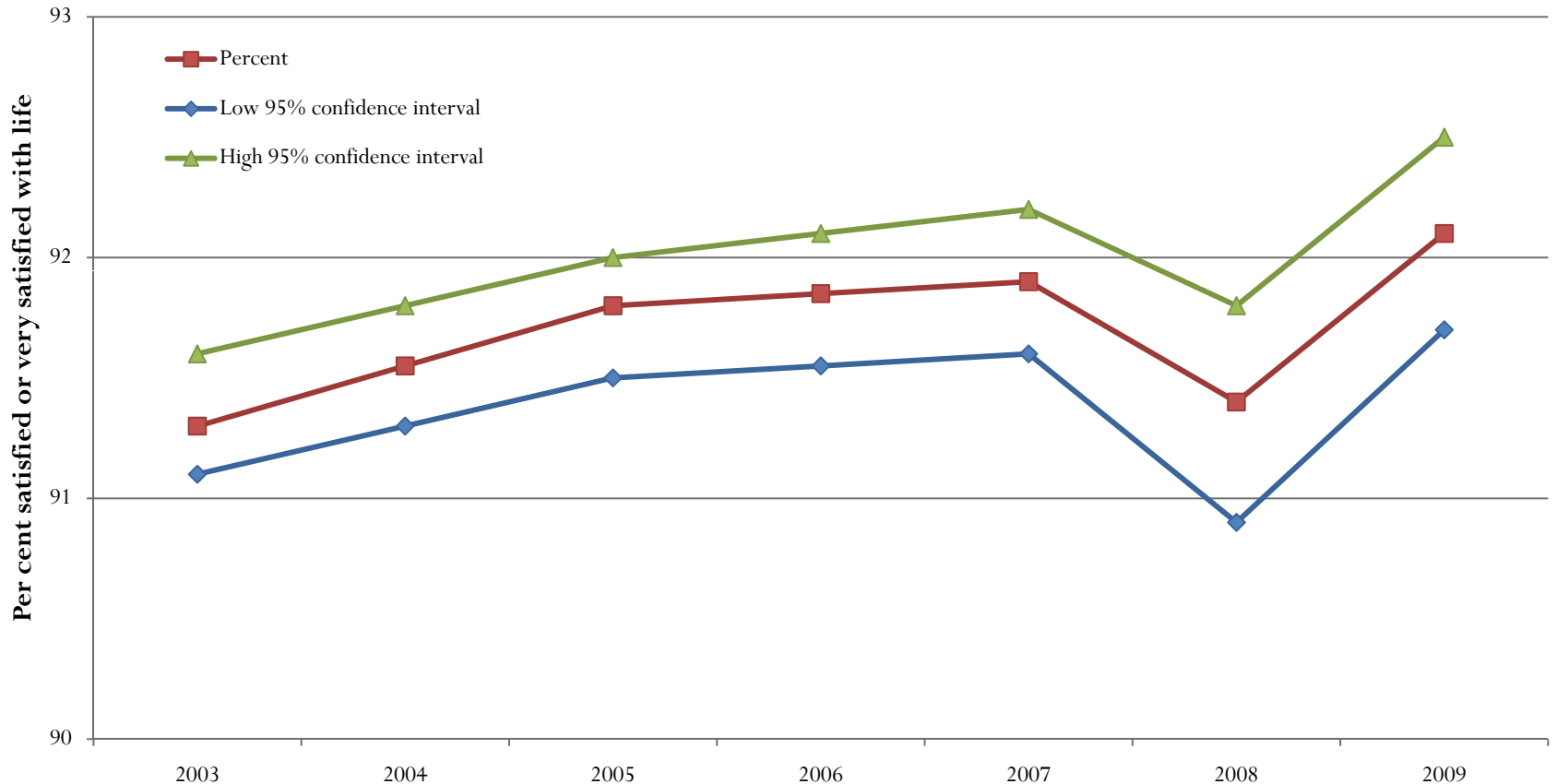
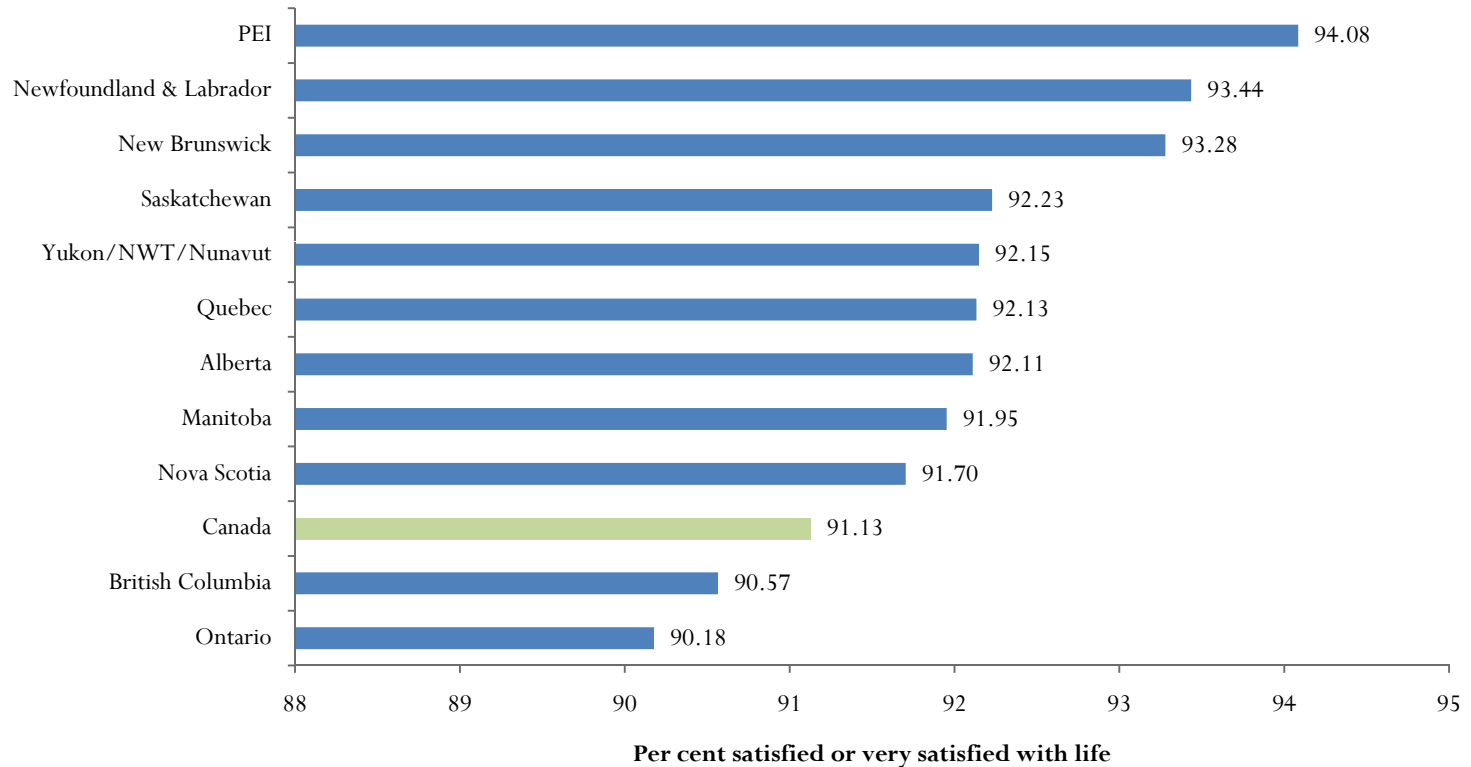
Source: CCHS 2003-2009. Cansim Table 105-0501

The Happiness Landscape in Canada: Across Space
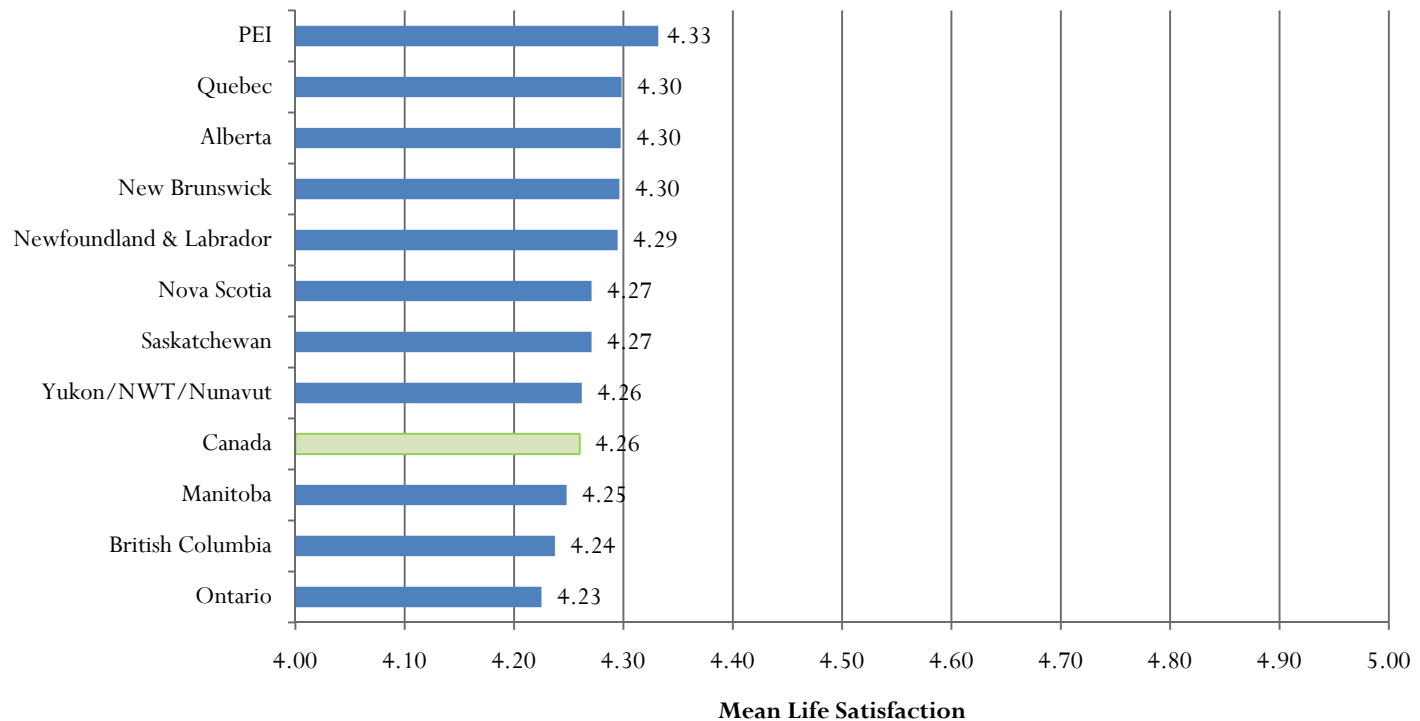
Note: Due to a small number of observations, the public use micro data file has merged Yukon, Nunavut and Northwest Territories into one territory.
Data Source: CCHS 2007-2008.

Happiness in Canada: Across Space

Per cent satisfied or very satisfied with life

PEI: 94.08
Newfoundland & Labrador: 93.44
New Brunswick: 93.28
Saskatchewan: 92.23
Yukon/NWT/Nunavut: 92.15
Quebec: 92.13
Alberta: 92.11
Manitoba: 91.95
Nova Scotia: 91.70
Canada: 91.13
British Columbia: 90.57
Ontario: 90.18

Note: Due to a small number of observations, the public use micro data file has merged Yukon, Nunavut and Northwest Territories into one territory.
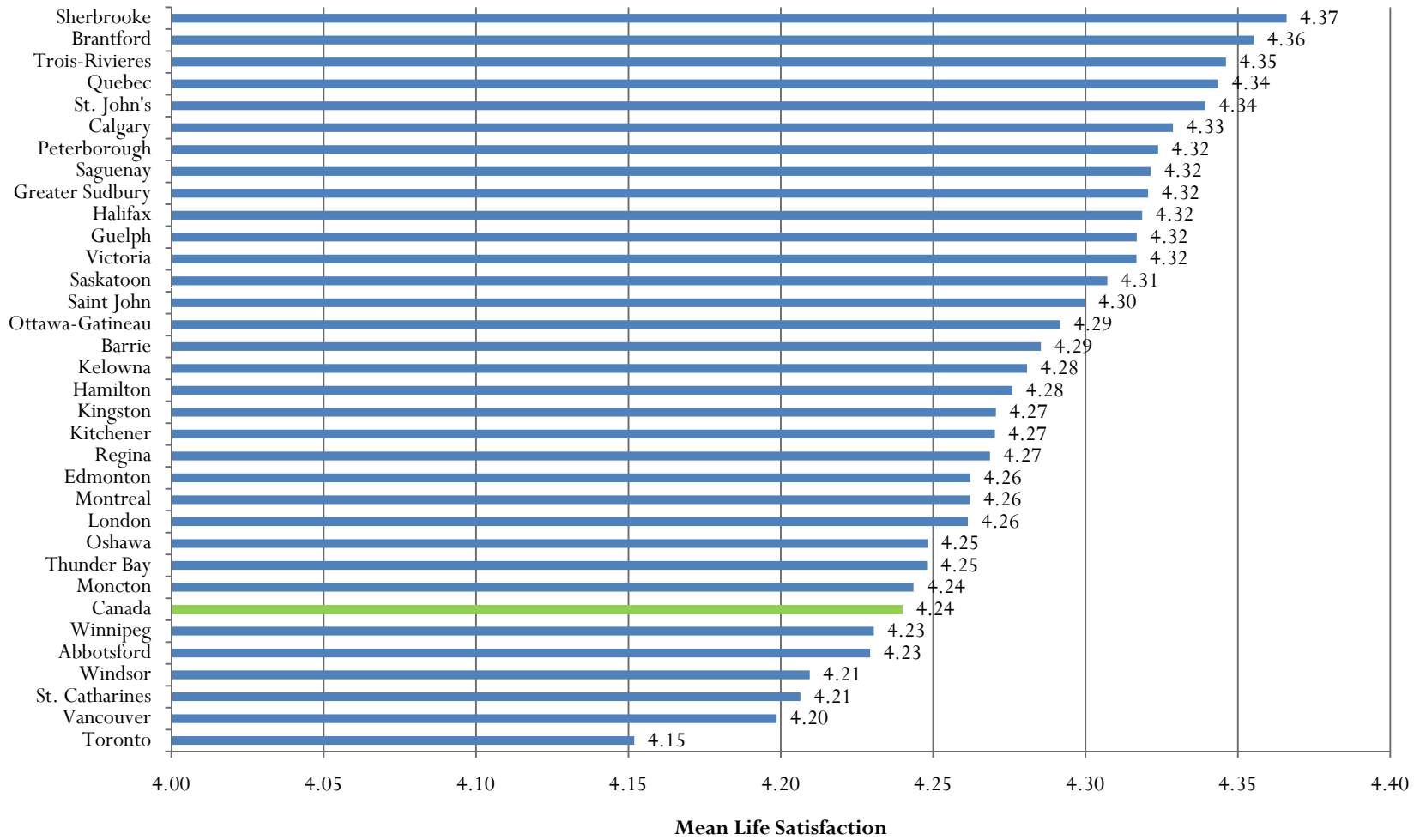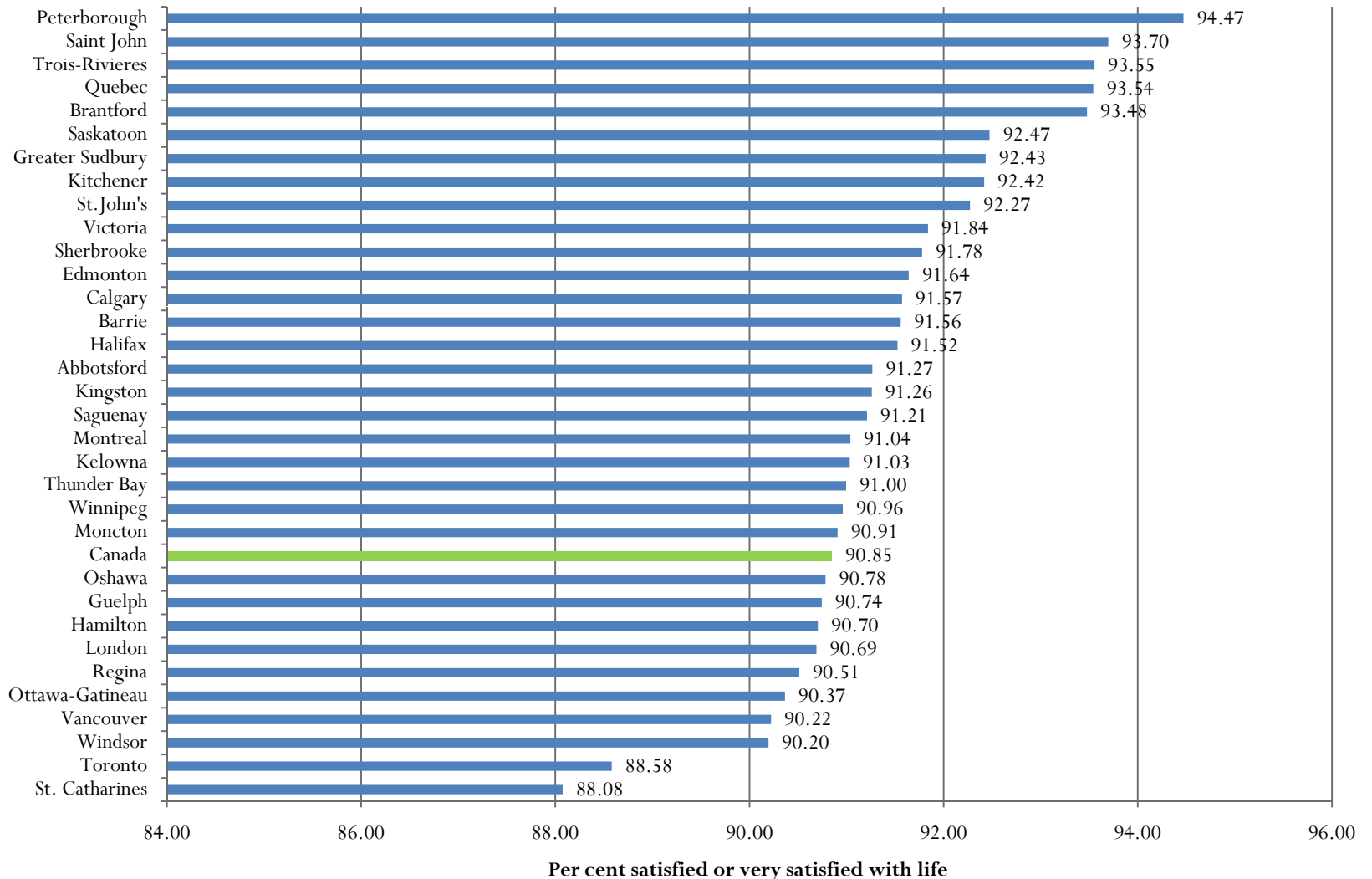Data Source: CCHS 2007-2008.

Happiness and CMAs

Mean Life Satisfaction

CMA	Mean Life Satisfaction
Sherbrooke	4.37
Brantford	4.36
Trois-Rivieres	4.35
Quebec	4.34
St. John's	4.34
Calgary	4.33
Peterborough	4.32
Saguenay	4.32
Greater Sudbury	4.32
Halifax	4.32
Guelph	4.32
Victoria	4.32
Saskatoon	4.31
Saint John	4.30
Ottawa-Gatineau	4.29
Barrie	4.29
Kelowna	4.28
Hamilton	4.28
Kingston	4.27
Kitchener	4.27
Regina	4.27
Edmonton	4.26
Montreal	4.26
London	4.26
Oshawa	4.25
Thunder Bay	4.25
Moncton	4.24
Canada	4.24
Winnipeg	4.23
Abbotsford	4.23
Windsor	4.21
St. Catharines	4.21
Vancouver	4.20
Toronto	4.15

Note: Average for Canada is a weighted average of the 33 CMAs.
Data Source: CCHS 2007-2008.

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Satisfied or Very Satisfied with life by CMAs

CMA	Per cent
Peterborough	94.47
Saint John	93.70
Trois-Rivieres	93.55
Quebec	93.54
Brantford	93.48
Saskatoon	92.47
Greater Sudbury	92.43
Kitchener	92.42
St.John's	92.27
Victoria	91.84
Sherbrooke	91.78
Edmonton	91.64
Calgary	91.57
Barrie	91.56
Halifax	91.52
Abbotsford	91.27
Kingston	91.26
Saguenay	91.21
Montreal	91.04
Kelowna	91.03
Thunder Bay	91.00
Winnipeg	90.96
Moncton	90.91
Canada	90.85
Oshawa	90.78
Guelph	90.74
Hamilton	90.70
London	90.69
Regina	90.51
Ottawa-Gatineau	90.37
Vancouver	90.22
Windsor	90.20
Toronto	88.58
St. Catharines	88.08

Per cent satisfied or very satisfied with life

Note: Average for Canada is a weighted average of the population in the 33 CMAs.
Data Source: CCHS 2007-2008.

Who's happy?

Table 3: Differences in Average Life Satisfaction by individual situational and demographic characteristics, Canada 2007-2008

| Variable	Category with the highest average on Life Satisfaction	Category with the lowest average on Life Satisfaction	Difference between highest and lowest average
Individual Variables			
Mental Health	Excellent	Poor	1.92
Health	Excellent	Poor	1.32
Stress	Not at all	Extremely	0.85
Sense of Belonging to the local community	Very strong	Very weak	0.54
Difficulty with Activities	Never	Often	0.42
Level of Physical Activity	Highly Active	Completely Inactive	0.24
Household Income	10th Decile	1st Decile	0.61
Employment Status	Employed	Unable to Work	0.67
Marital Status	Married	Never Married	0.29
Language Spoken at Home	Francophones	Allophones	0.28
Highest Educational Attainment	Post-Secondary Graduate	Less than Secondary	0.20
Immigration Status	Non-Immigrants	Recent Immigrants	0.19
Visible Minority Status	Majority	Visible Minority	0.19
Age	30s/60s	50s	0.07
Student Status	Student	Non-Student	0.02
Sex	Female	Male	0.01

Data Source: CCHS 2007-2008.

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Who's happy?

Chart 11: Life Satisfaction by Self Perceived Health Status in Canada, 2007-2008
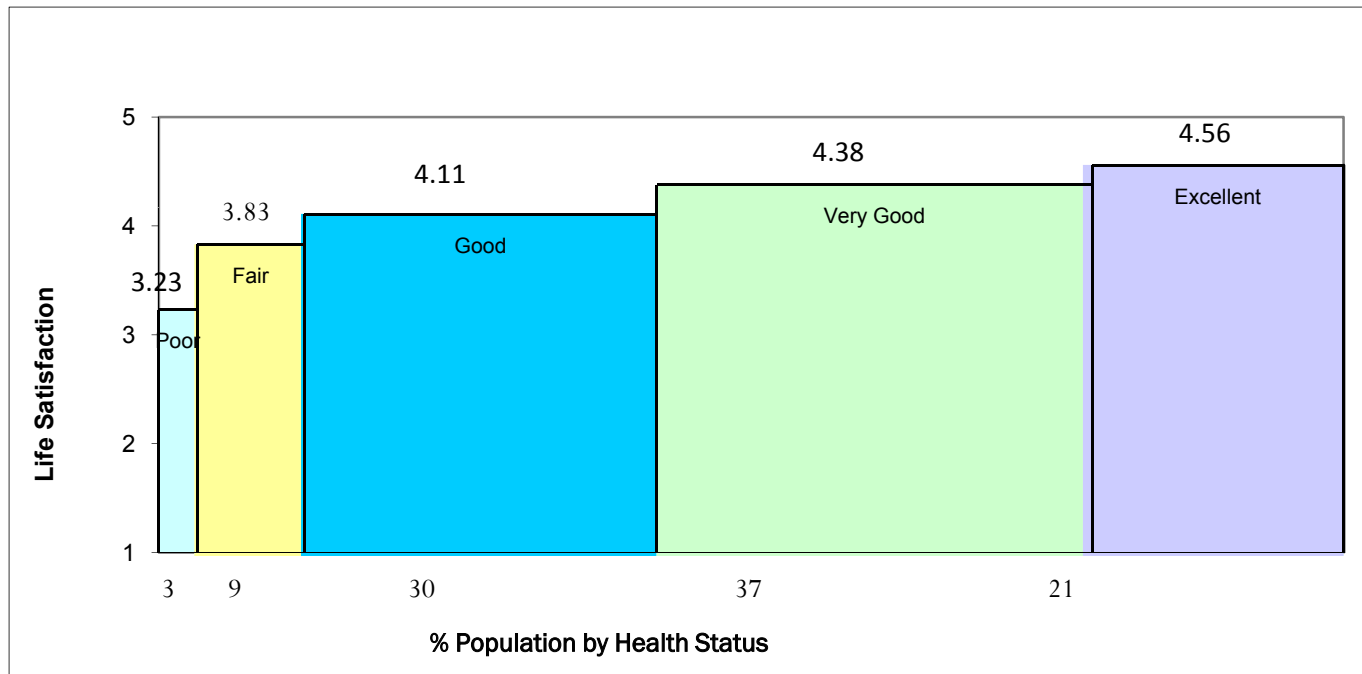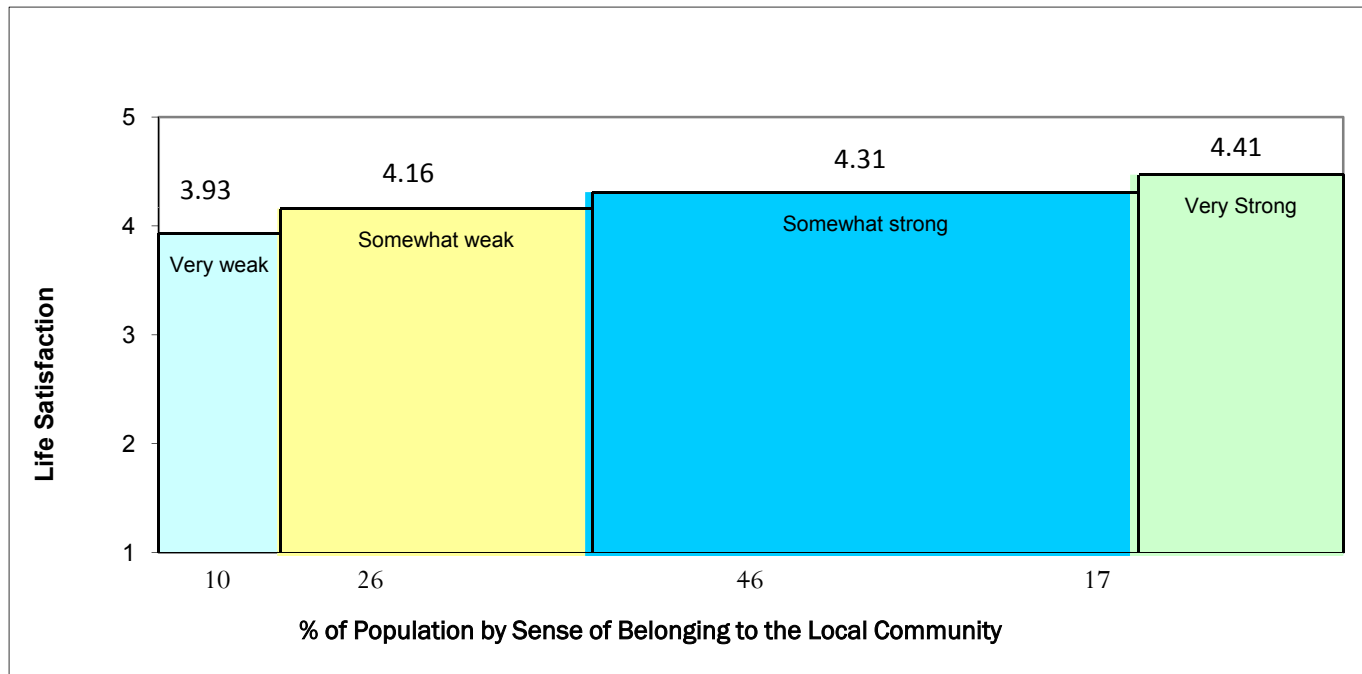
Who's happy?

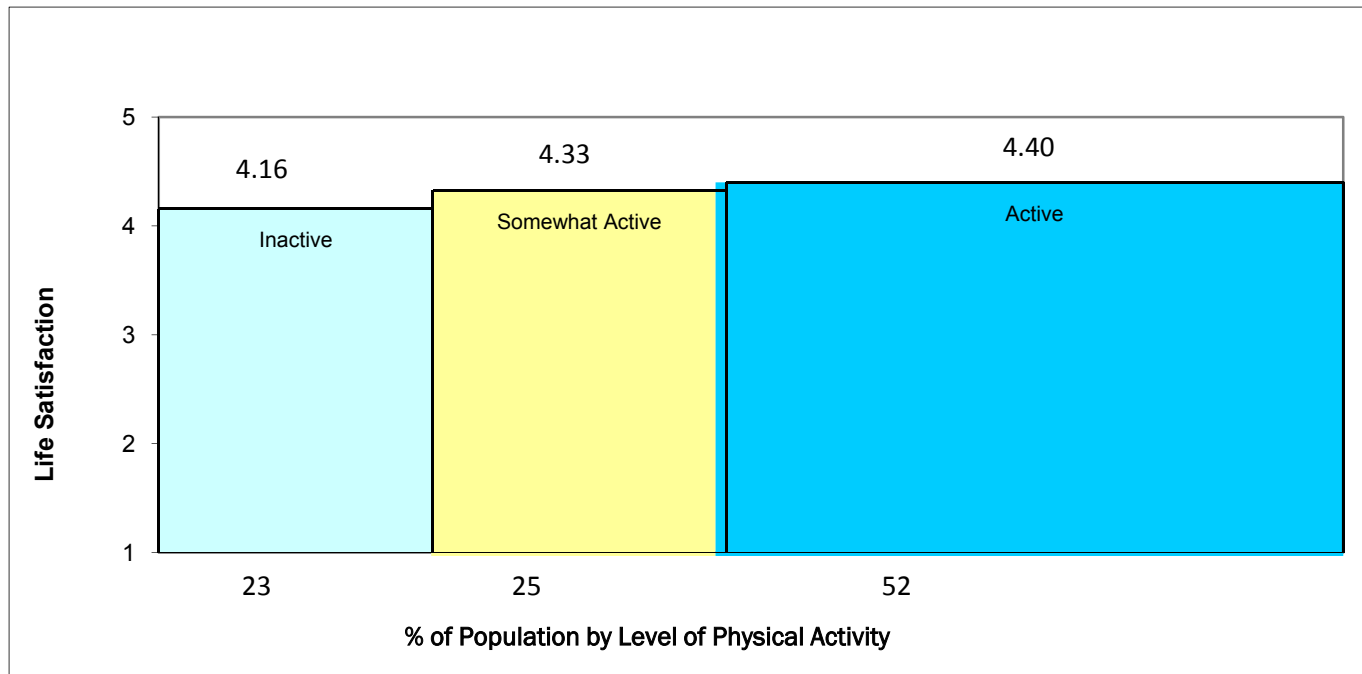**Chart 12 : Life Satisfaction by Self Perceived Mental Health Status in Canada, 2007-2008**
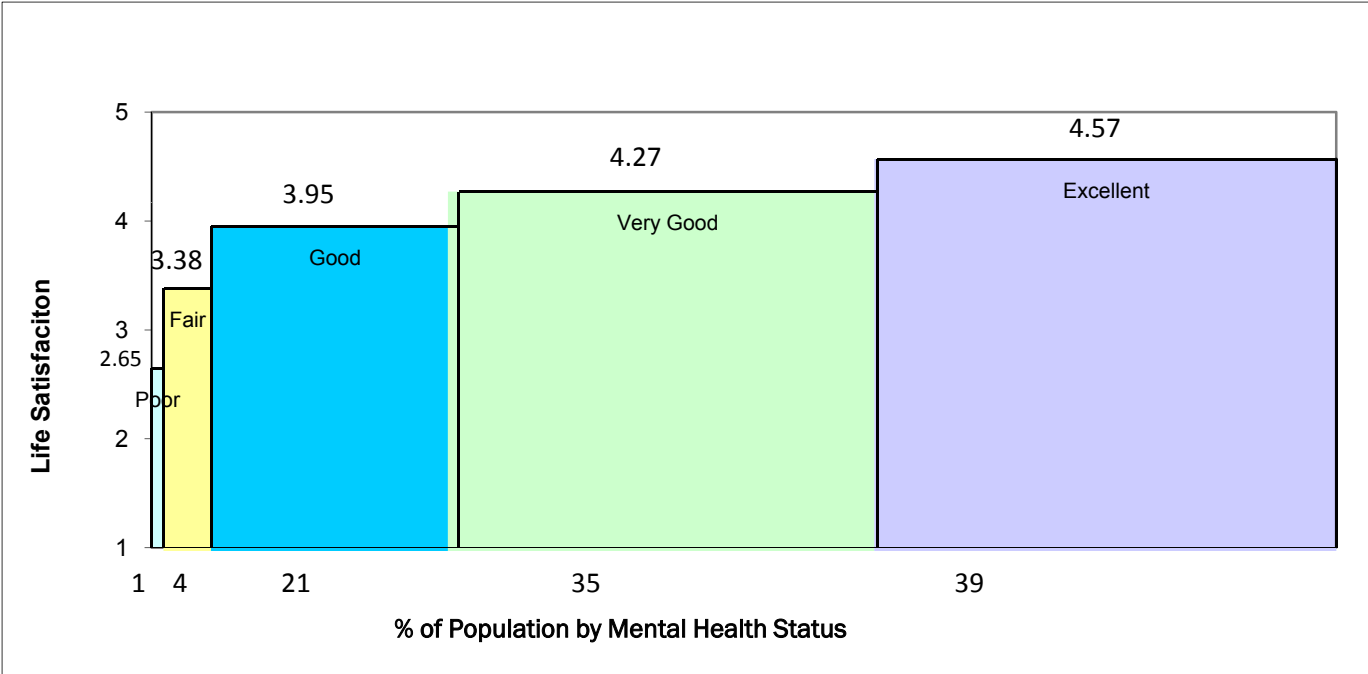
Who's happy?

Chart 14 : Life Satisfaction by Sense of Belonging to the Local Community in Canada, 2007-2008
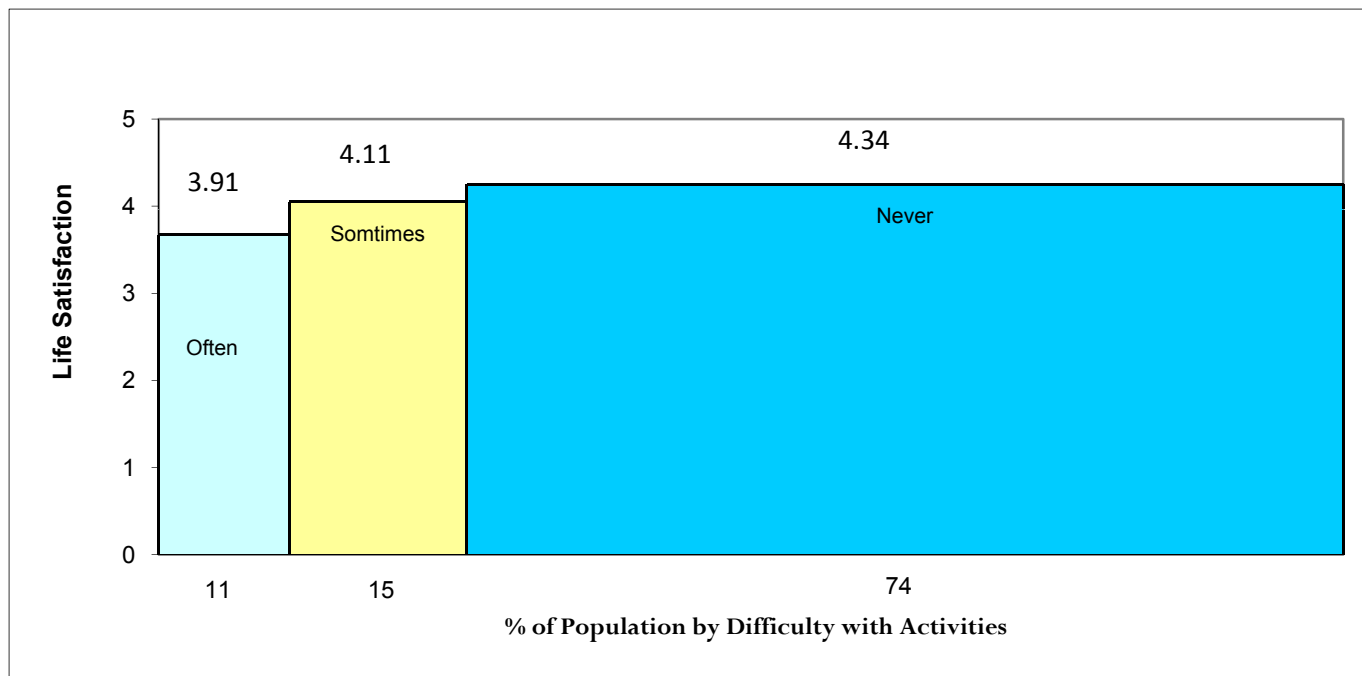
Who's happy?

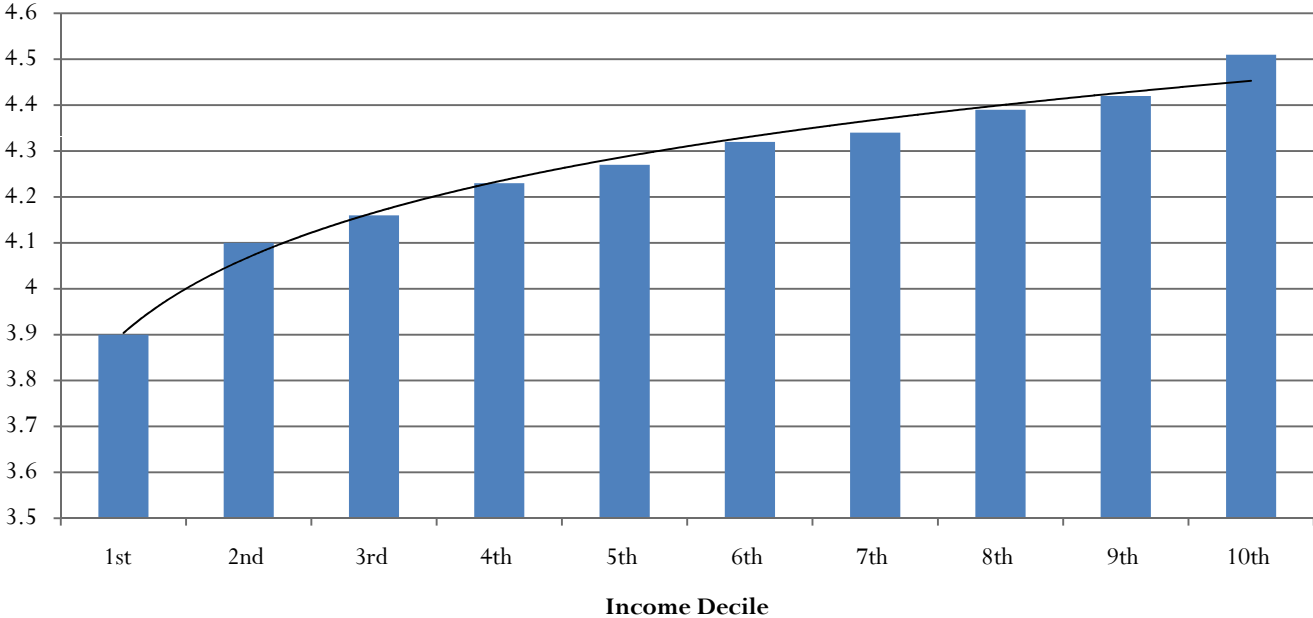**Chart 15: Life Satisfaction by Level of Physical Activity in Canada, 2007-2008**

Who's happy?

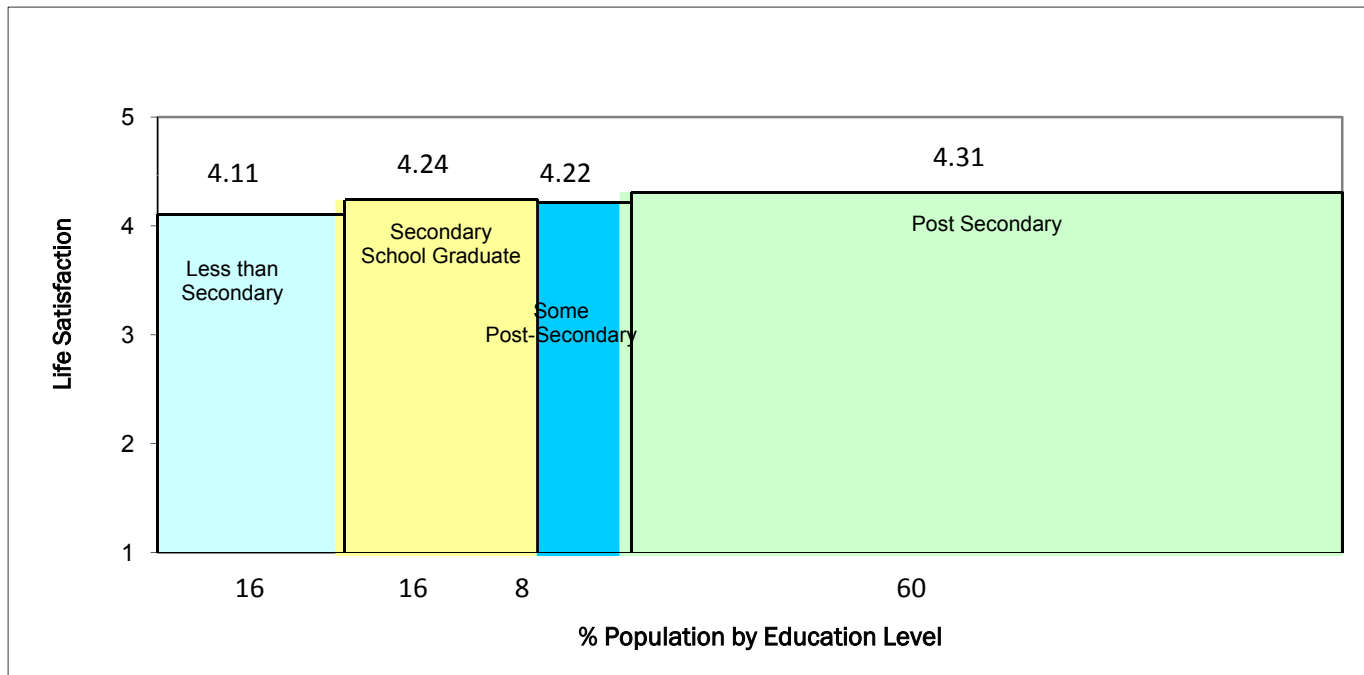**Chart 16: Average Life Satisfaction by Difficulty with Activities in Canada, 2007-2008**

Who's happy?

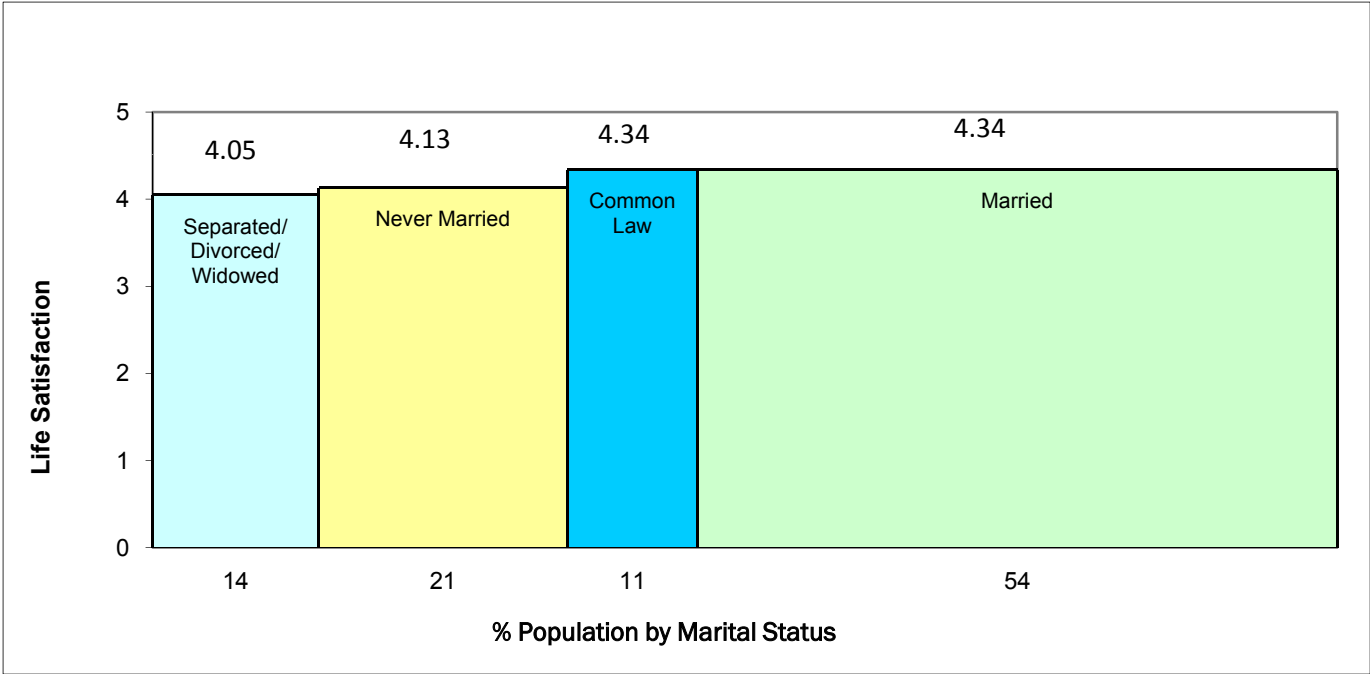**Chart 17: Life Satisfaction by Income Deciles, Canada 2007-2008**

Who's happy?

Chart 18: Average Life Satisfaction by Highest Educational Attainment in Canada, 2007–2008
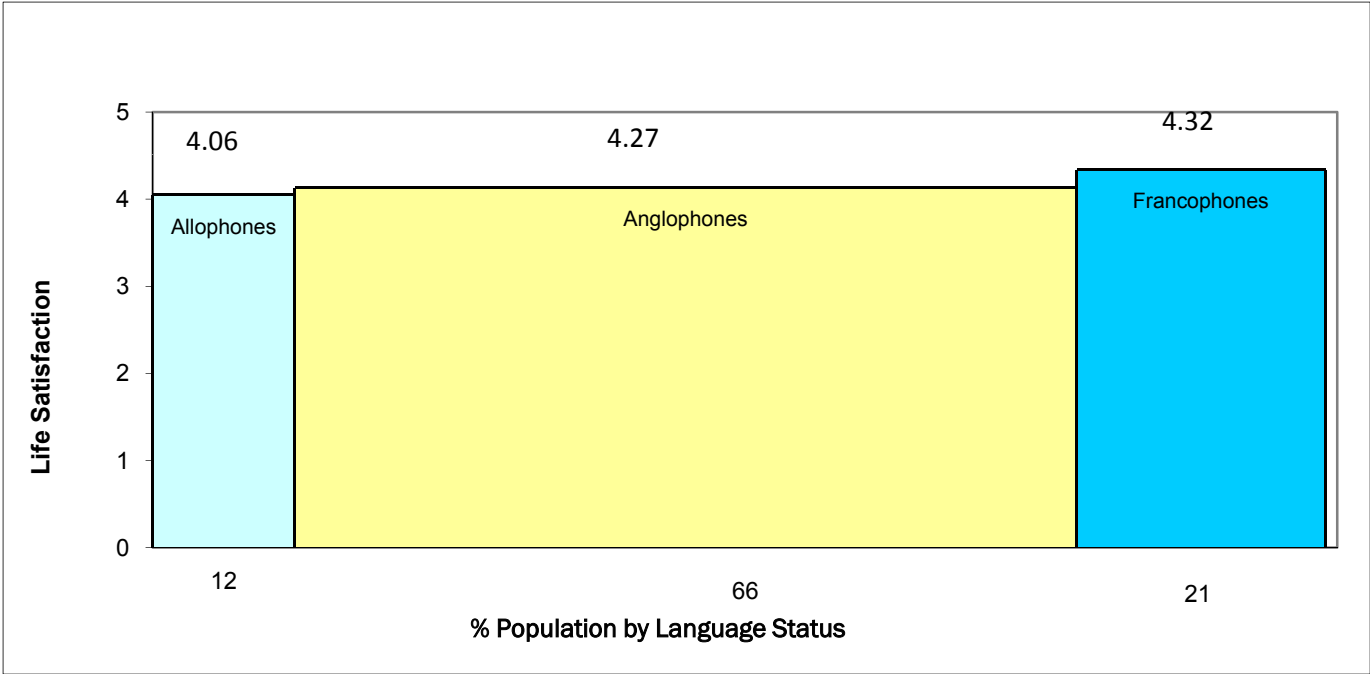
Who's happy?

Chart 19: Average Life Satisfaction by Marital Status in Canada, 2007–2008

Who's happy?

Chart 20: Average Life Satisfaction by Language Spoken at Home in Canada, 2007–2008

Data

- Micro-level data is from the 2007-08 cross section of the Canadian Community Health Survey (CCHS) conducted by Statistics Canada

- CCHS samples 65,000 households every year for a combined microdata file of 130,000

- 116,000 persons were 20 years-old or over

- Sample size used in regression analysis was 70,000 persons (due to non-response on income questions)

- We combine micro-level data and societal-level data

- The societal variables are either averages at the health region level or were taken from Census Metropolitan Area profiles for 2006

Methodology: Dependent Variable

- Measure of reported subjective well-being in the CCHS taken from the question: "How satisfied are you with your life in general?"

- Answers are given on a 5-point scale: very satisfied (5), satisfied (4), neither satisfied nor dissatisfied (3), dissatisfied (2), or very dissatisfied (1)

Methodology: Analysis Framework

- We used regression models to explain life satisfaction in Canada

- Micro-level independent variables: mental health status, physical health, stress level, sense of belonging, employment status, marital status, age, immigration status, sex, language, difficulty with activities, and log household income

- Societal-level independent variables: proportions of key micro-level variables for health regions, average household income, income inequality, population, density, and unemployment rate

Results: the big picture

- Mental health status, physical health, stress level, sense of belonging, marital status, employment status, and immigration status are the most economically significant determinants of happiness in Canada

- Household income is a statistically significant factor, but has limited economic significance

- Differs from cross-country studies where GDP has fairly high economic significance

Results: the details (marginal effect for top category)

- A one-unit increase from the mean of mental health (MH), physical health (PH), and stress level (STS) (5-point scale), respectively, changes the probability of an individual reporting that they are very satisfied with life by:
    - 17.0 percentage points (MH)
    - 8.8 percentage points (PH)
    - -7.7 percentage points (STS)

- A one-unit increase from the mean of sense of belonging (SB) (4-point scale) changes the probability of an individual reporting that they are very satisfied with life by:
    - 6.5 percentage points (SB)

- A ten per cent increase from the mean of household income (INC) changes the probability of an individual reporting that they are very satisfied with life by:
    - 0.6 percentage points (INC)

Results: marginal effects for the top category...

- Other marginal effects: change in probability of reporting very satisfied given a change in the following characteristics
  - Married people: 13.2 percentage points (relative to never married)
  - Unemployed: -8.2 percentage points (relative to employed)
  - Recent Immigrants: -8.6 percentage points (relative to non-immigrants)
  - Physically Active: 5.5 percentage points (relative to inactive)
- Societal variables
  - Limited additional explanatory power
  - Average household income: -0.7 percentage points for a ten per cent increase in the average (coefficient is statistically significant but marginal effect is not)

Results: the details (relative to income)

- Taking ratios of the coefficients from the ordered probit regression it is possible to express the effect of a variable on happiness relative to household income

- Requires us to assume that over our relevant range the average is equal to the margin (only tenable for small changes in the explanatory variables); see Di Tella et al. (2003)

- The effect of a 0.5-point (approx.) increase in the variable of interest on happiness corresponds to the effect of the following change in household income on happiness:
  - 143 per cent increase for mental health
  - 82 per cent increase for physical health
  - 70 per cent decrease for stress level
  - 50 per cent increase for sense of belonging

Geographical Variation

- Prince Edward Island: proportion of recent immigrants, sense of belonging, and stress level explain largest portion of their variation from Canada

- Ontario: proportion of recent immigrants explains the largest portion of their variation (but overall only 27.5 per cent is explained).

- New Brunswick: proportion of recent immigrants, proportion married, stress level, and sense of belonging explain their variation in happiness from Canada

- Toronto: proportion of recent immigrants and proportion physically active accounts for the largest share of the difference between the national average

- Model performs poorly when trying to explain the happiness of Quebec (-9.8 per cent of the variation is explained)

- Offsetting factors tend to dominate the regional story

Appendix Table 25: Explaining Variation in Life Satisfaction in Newfoundland & Labrador										
						Ordered Probit		Linear Probability (4,5)		Linear Probability (5)
	Average for Canada (%) (1)	Average for NFLD & LAB (%) (2)	Standardized Average for Canada (Scale 1-5) (3)	Standardized Average for NFLD & LAB (Scale 1-5) (4)	Difference in Standardized Averages (5)=(4)-(3)	Weight (6)	(7)= (6)*(5)	Weight (8)	(9)=(8)*(5)	Weights (10)	(11)= (10)*(5)
Life Satisfaction			4.26	4.29	0.036						
Perceived Health			3.64	3.63	-0.010	0.107	-0.001	0.105	-0.001	0.108	-0.001
Perceived Mental Health			4.07	4.14	0.070	0.206	0.014	0.240	0.017	0.207	0.014
Stress Level			2.79	2.55	-0.240	-0.092	0.022	-0.113	0.027	-0.084	0.020
Sense of Belonging to Local Community			3.38	3.81	0.430	0.081	0.035	0.102	0.044	0.076	0.033
Proportion of Married (including common law)	65.6	70.3	3.28	3.51	0.230	0.189	0.044	0.181	0.042	0.198	0.046
Proportion of Physically Active Individuals	22.6	19.7	1.13	0.99	-0.140	0.061	-0.009	0.030	-0.004	0.076	-0.011
Proportion of Individuals Who Often Have Difficulties	11.3	14.5	0.56	0.72	0.160	-0.033	-0.005	-0.029	-0.005	-0.012	-0.002
Proportion of Students	7.8	6.5	0.39	0.32	-0.070	0.054	-0.004	0.088	-0.006	0.041	-0.003
Proportion of Males	49.0	48.4	2.45	2.42	-0.030	-0.056	0.002	-0.055	0.002	-0.056	0.002
Proportion of Recent Immigrants	6.0	1.0	0.3	0.05	-0.250	-0.114	0.028	-0.058	0.014	-0.143	0.035
Variation Explained							0.127		0.130		0.134
% Variation Explained (Variation Explained / (5) Differences in Life Satisfaction							**352.7**		**357.0**		**367.1**
	t stat	Level of Statistical Significance									
Statistical Significance:	-3.00	1%									

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Caveats

- Correlation is not causation (the classic: post hoc ergo propter hoc)

- Endogeneity problems are present in empirical studies of subjective well-being: does mental health status determine happiness or does happiness determine mental health status

- Measurement issues: a lot of research still needs to be done to show if measurement errors bias results, i.e., do all individuals answer life satisfaction questions in the same manner? More of an issue in cross-country analysis, see Oishi (2010)

- Future research will have to confirm whether determinants of happiness in Canada are robust—panel data may provide the means to test the reliability of estimates

Conclusion

- Geographical variation of happiness within countries has not been widely studied

- The CCHS provides a substantial dataset to analyze happiness in Canada

- Household income is a statistically significant correlate of individual happiness but other factors trump its economic significance: mental health status, physical health, stress level, and sense of belonging

- If measures of happiness are an important focus of policy makers then improving the factors listed above will be more likely to improve overall happiness in Canada