



*Centre for the  
Study of Living Standards  
Centre d'étude des  
niveaux de vie*

# Beyond GDP: Trends and Economic Well-Being in Newfoundland and Labrador, 1981 - 2017

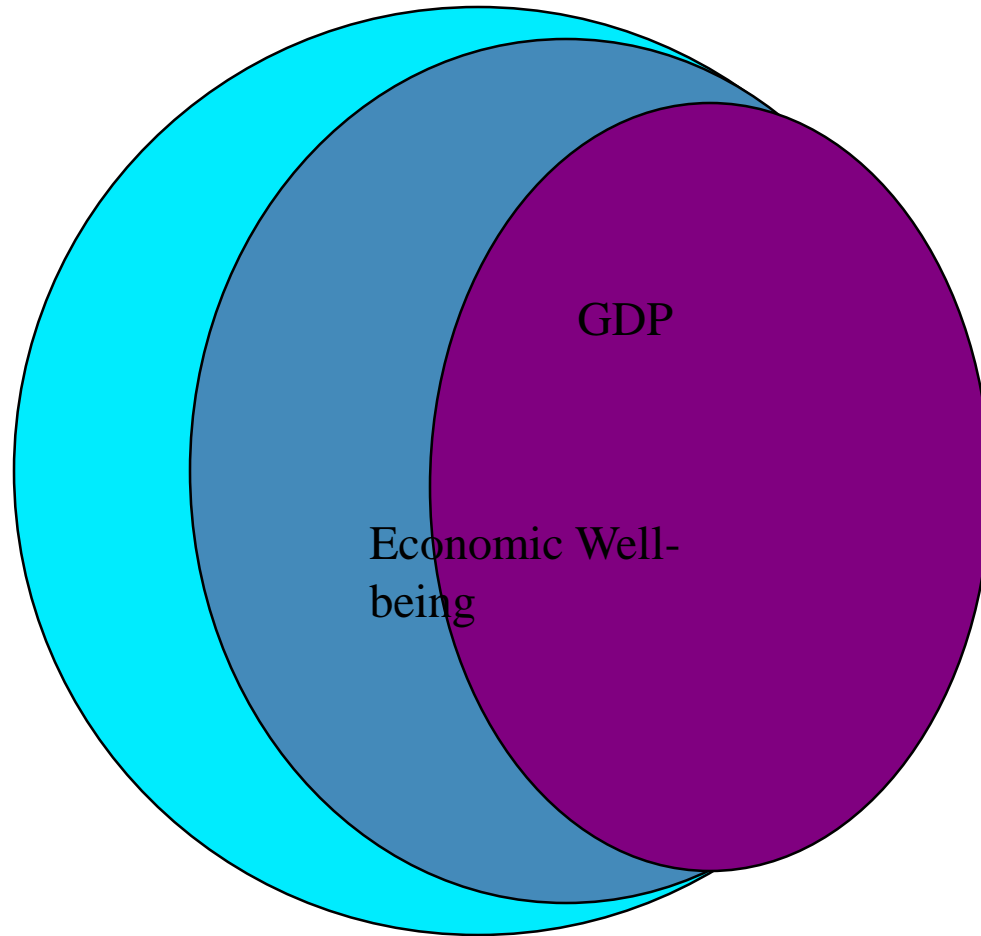
**Andrew Sharpe**

Memorial University

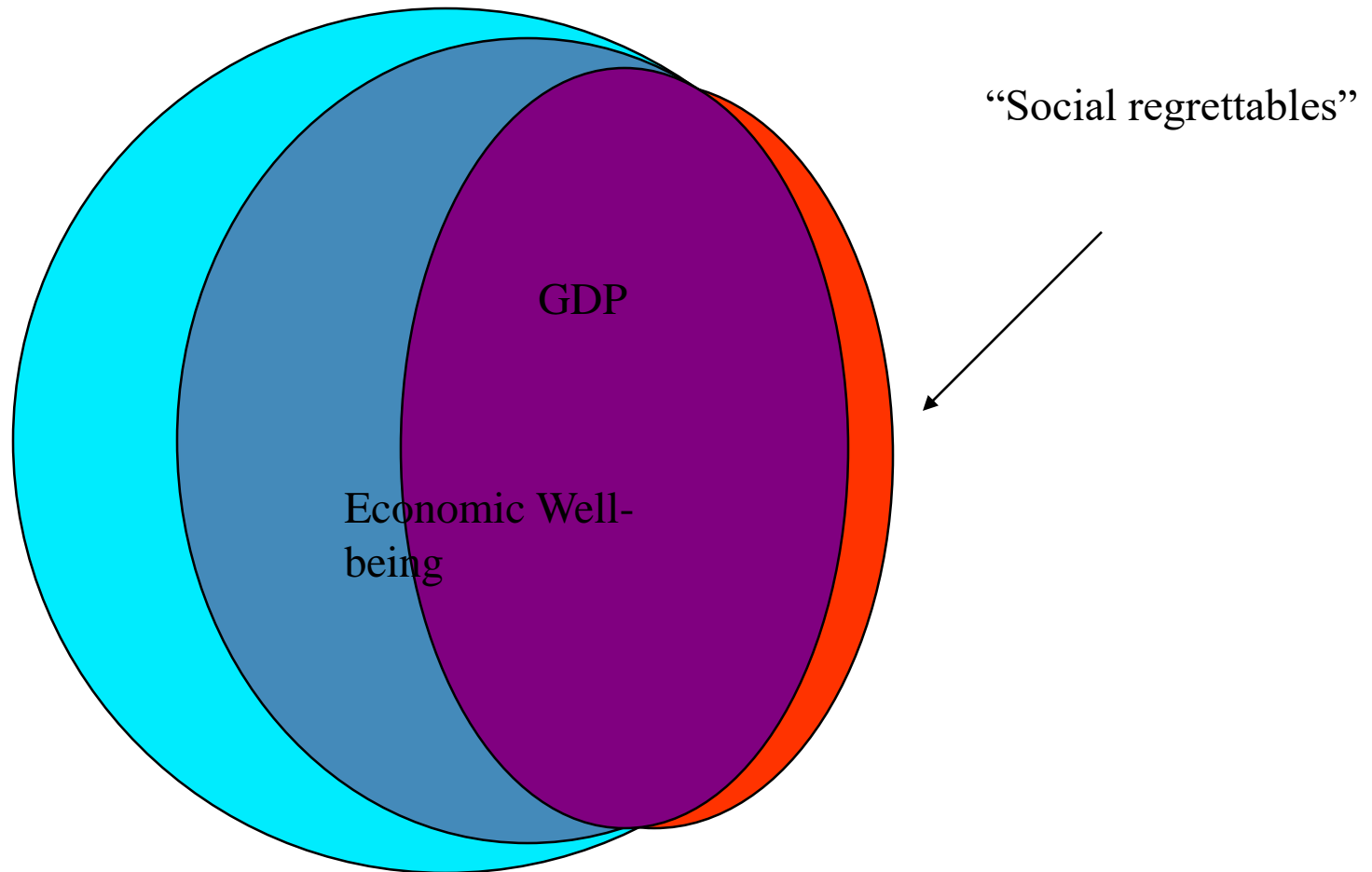
Friday, September 6<sup>th</sup>, 2019

- I) The Measurement of Economic Well-Being:  
A Debate
- II) An Overview of the IEWB
- III) The Consumption Flows Domain
- IV) The Stocks of Wealth Domain
- V) The Equality Domain
- VI) The Security Domain

Human Well-Being > Economic Well-Being > GDP



# Well-Being > Economic Well-Being > GDP- regrets



# Dimensions of Economic Well-Being

Concept

Present

“Typical Citizen”

Average Flow of  
Current Income

Per Capita GDP  
or “Adjusted”  
Average Income  
Flow

*Issues: Market  
transactions only?  
leisure & household  
production?*

Concept

Present

“Typical Citizen”

Average Flow of  
Current Income

Diversity of  
Population

Distribution of  
Current Income  
- Poverty and  
Inequality

*Diminishing  $MU_y$   
Less well-being if  
same total income is  
more unequally  
distributed*

Concept

Present

Future

"Typical Citizen"

Average Flow of  
*Effective* Current  
Consumption

Aggregate  
Accumulation of  
Productive Stocks  
(broadly defined)

*Issues:*

*Average Income  
does not reveal  
savings rate  
- assets include  
environment,  
Human Capital,  
R&D, net foreign.*

*Aggregate Savings  
– not automatically  
optimal or  
sustainable  
– preferences for  
sustainability differ  
among individuals*

# Schematic of the Index of Economic Well-Being

Concept	Present	Future
"Typical Citizen"	Average Flow of Effective Current Consumption	Aggregate Accumulation of Productive Stocks
Diversity of Population	Distribution of Current Income: - Poverty and Inequality	Insecurity of Future Income



# Index of Economic Well-Being<sub>[ Osberg / Sharpe ]</sub>

- INDEX OF ECONOMIC WELL-BEING (IEWB)
  - =  $\alpha_1$  PER CAPITA CONSUMPTION
  - +  $\alpha_2$  SUSTAINABILITY / ACCUMULATION
  - +  $\alpha_3$  INCOME DISTRIBUTION / POVERTY
  - +  $\alpha_4$  SECURITY
- $\sum \alpha = 1$
- DIFFERING VALUES IMPLY DIFFERENT WEIGHTS
  - $\alpha = 0$  is a (strong) value choice
  - GDP per capita sets  $\alpha_3 = \alpha_4 = 0$  and assumes  $\alpha_2$  is optimal

# Schematic of the Index of Economic Well-Being

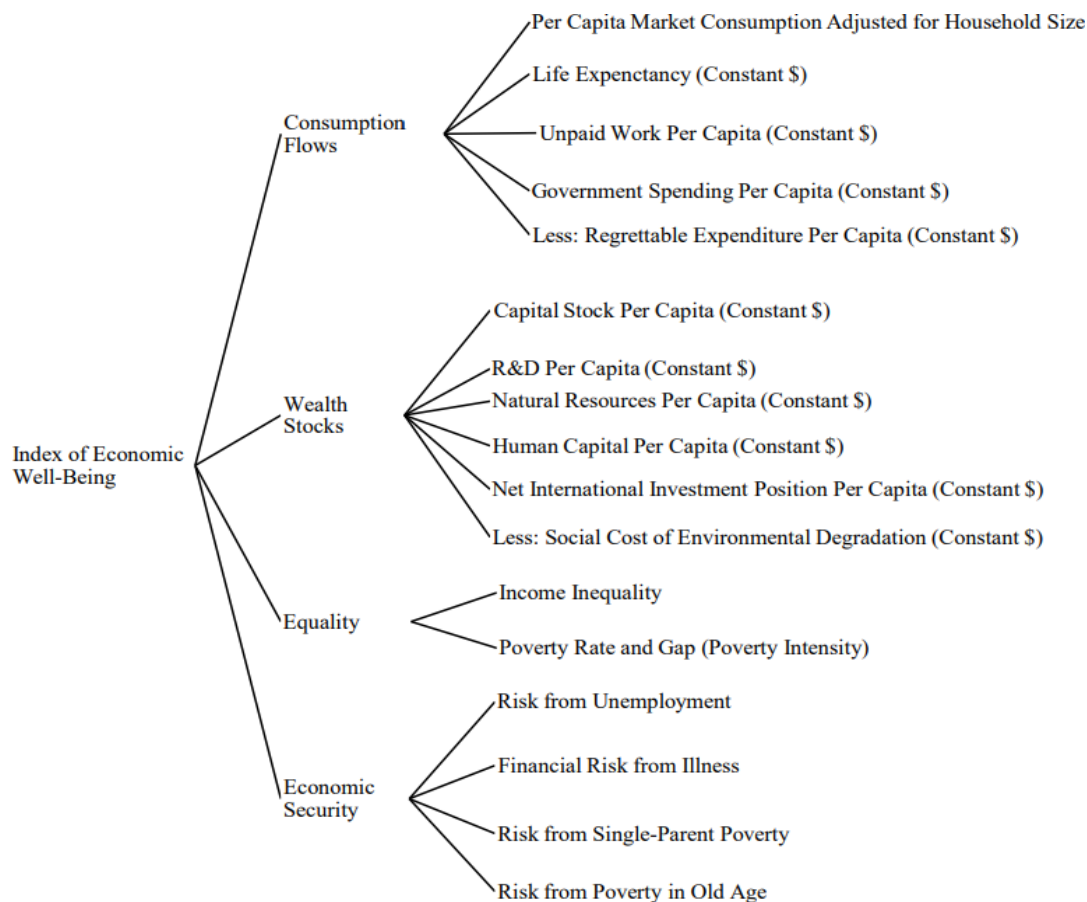
## Current Debates mingle Facts & Values

- ECONOMIC WELL-BEING =  
     $\alpha_1$  [ CONSUMPTION ]  
    +  $\alpha_2$  [ TOTAL WEALTH ]  
    +  $\alpha_3$  [ DISTRIBUTION ]  
    +  $\alpha_4$  [ SECURITY ]
- DIFFERENT VALUES IMPLY DIFFERENT WEIGHTS, BUT DOES TREND CHANGE?
  - how much does aggregate trend actually depend on value weightings or on perceptions of fact trends?
  - WHERE is the disagreement if assessment trends differs?

# Scaling Procedure

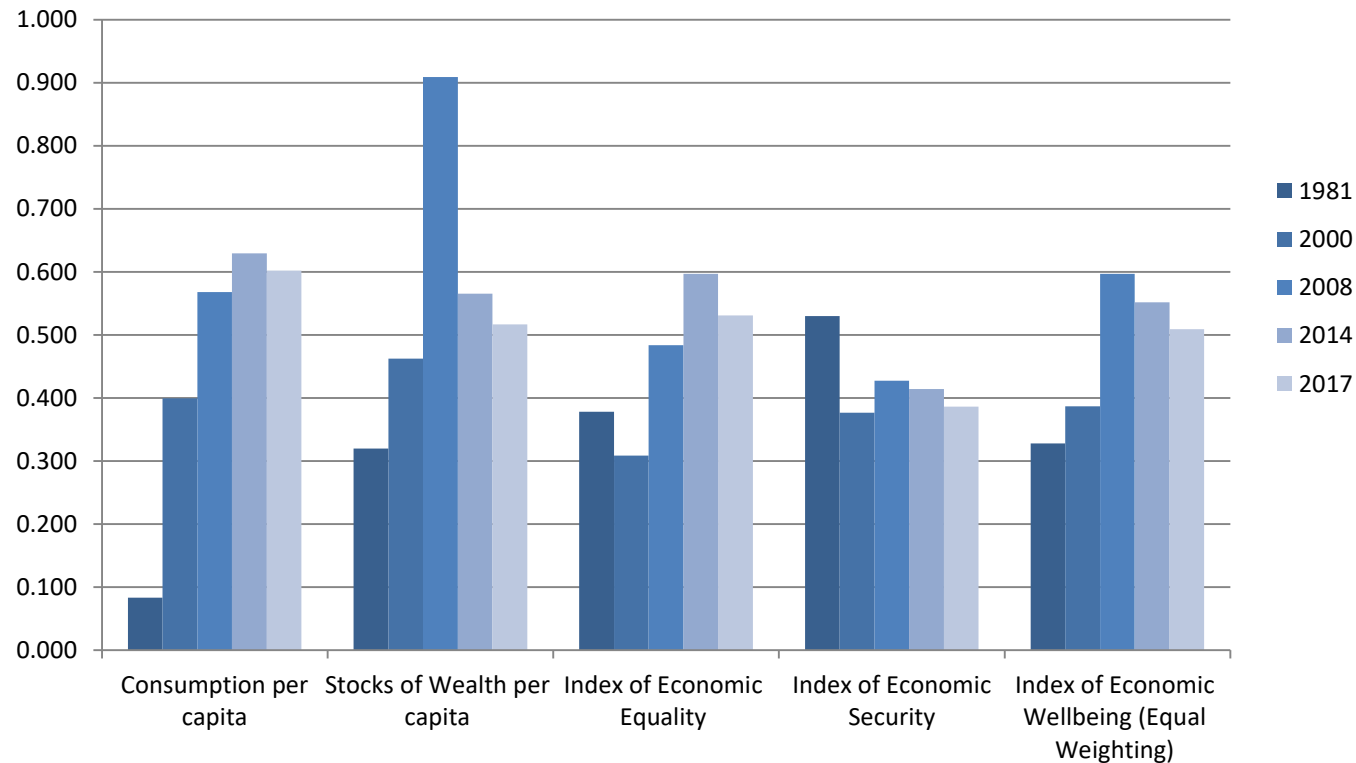
- Normalized to Unit Interval - Linear Scaling
  - $(1.05 * \text{Max} - \text{value}) / (\text{Max} - \text{Min}) * 1.1$

# Schematic of the Index of Economic Well-Being



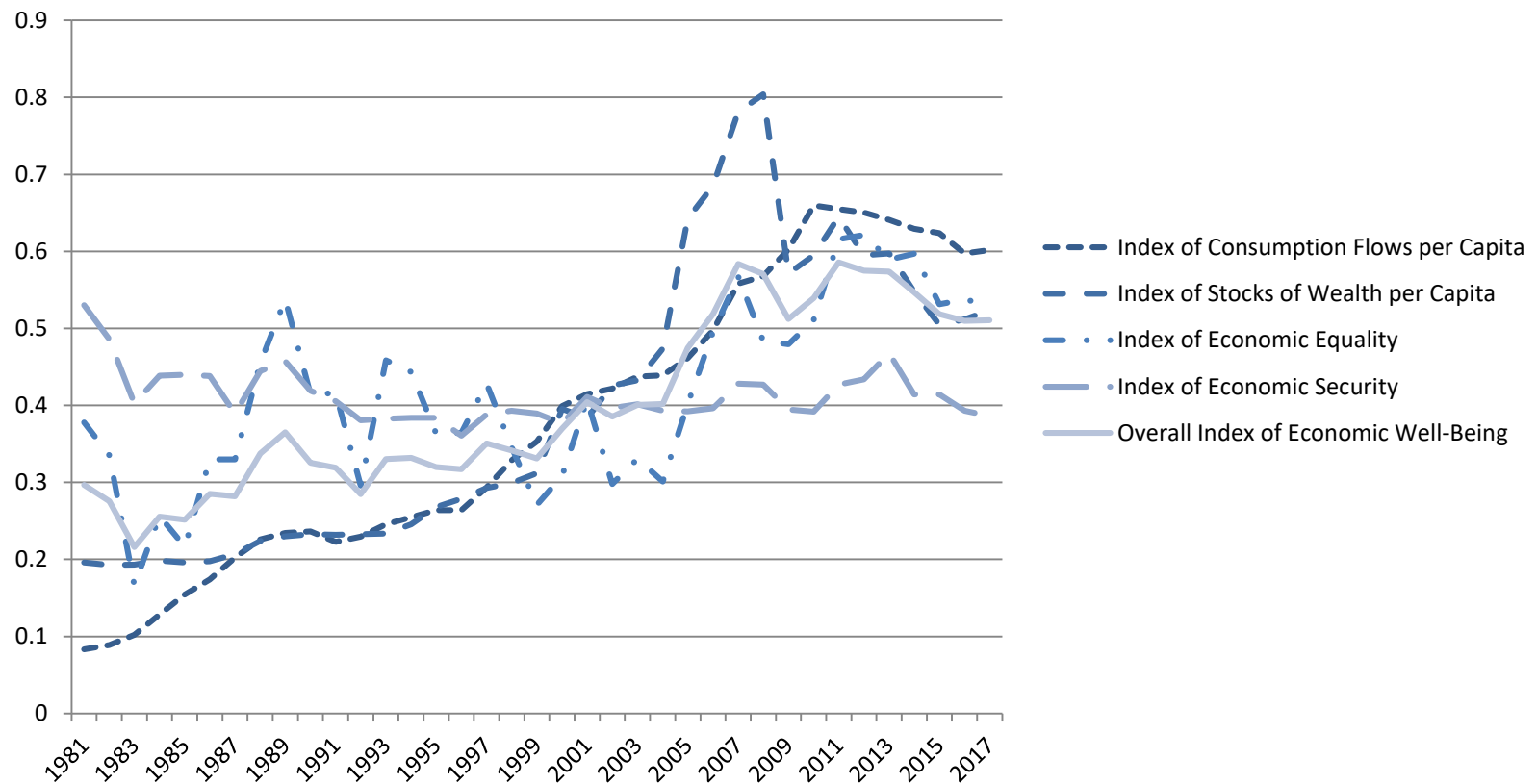
Source: CSLs

# The Index of Economic Well-Being for Newfoundland and Its Domains in 1981, 2000, 2008, 2014, and 2017, 2007 Dollars



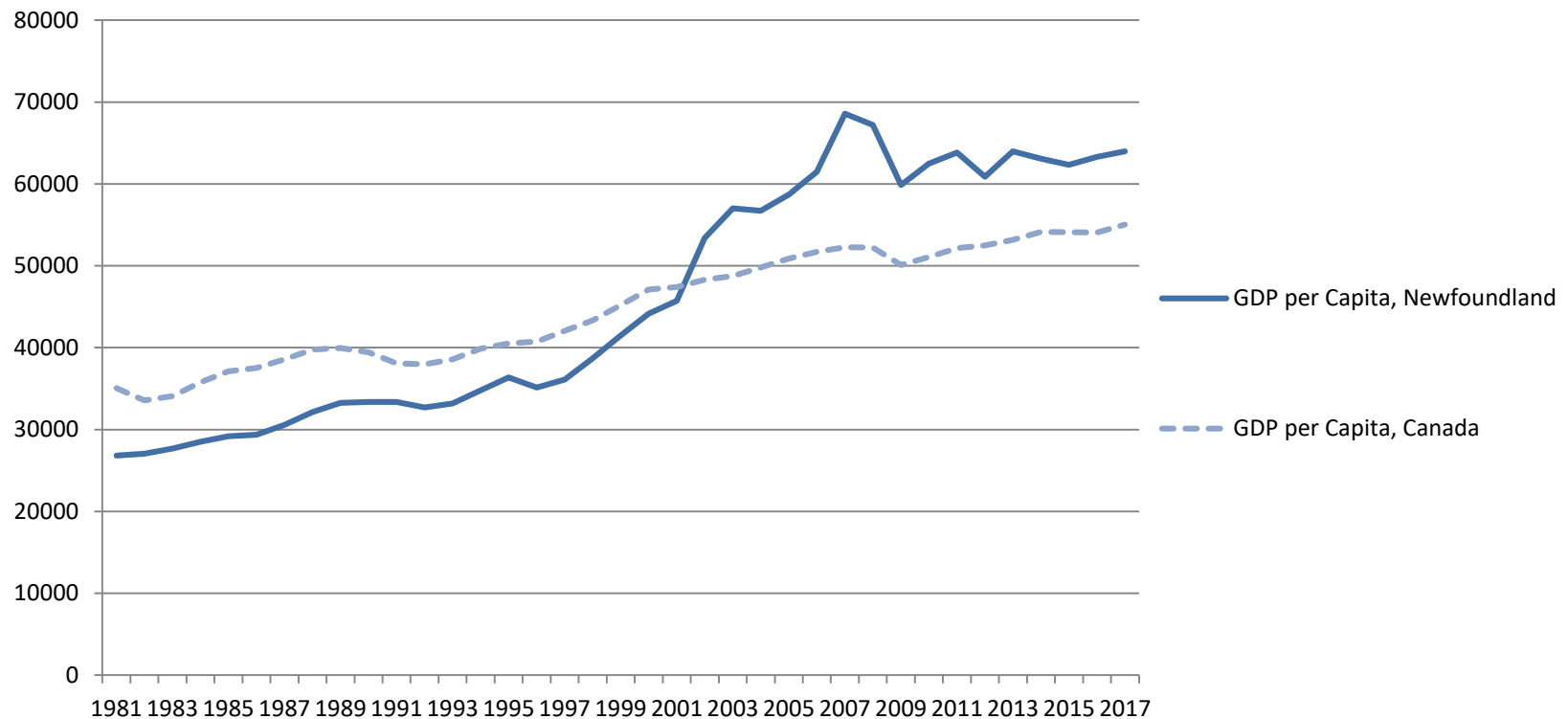
Source: IEWB Database, Calculations by Author

# Trends in the Index of Economic Well-Being for Newfoundland and Its Domains, 1981 - 2017



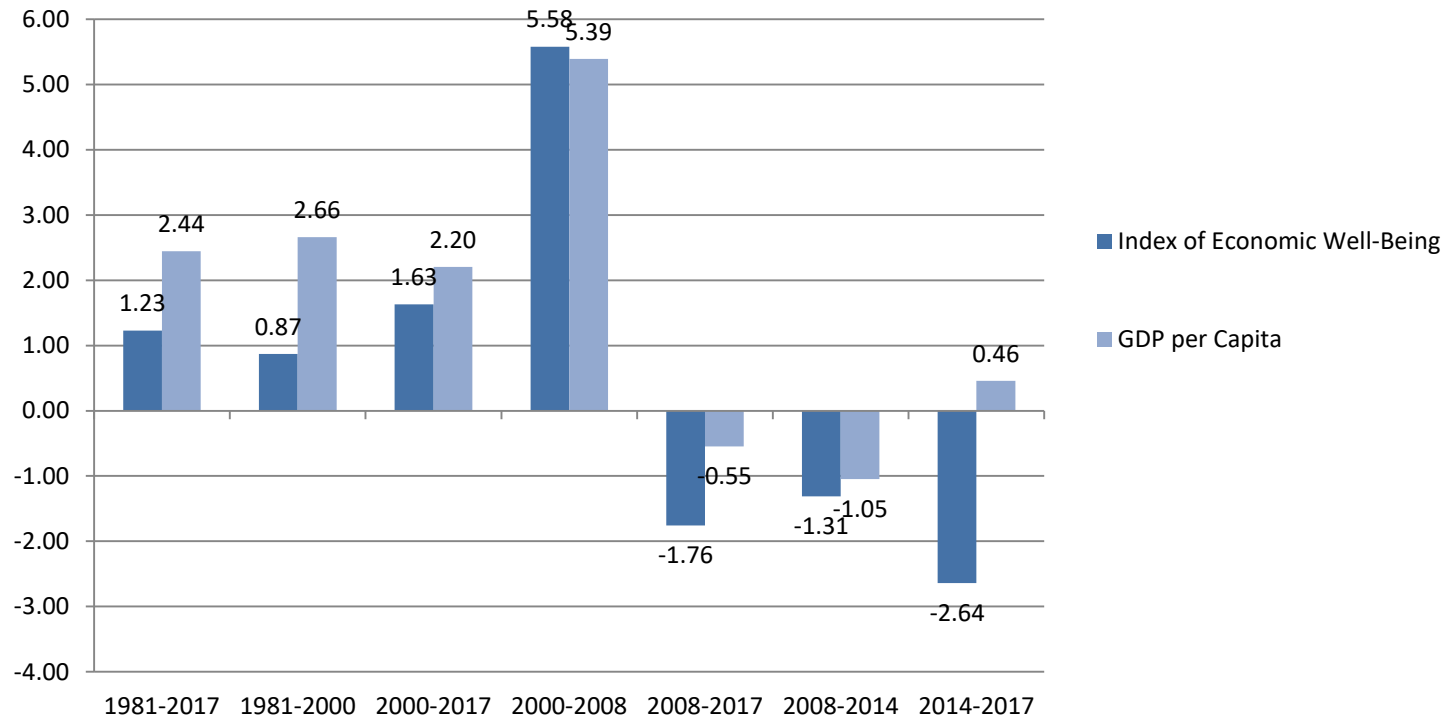
Source: IEWB Database, Calculations by Author

# GDP per Capita in Newfoundland vs. in Canada, 1981 – 2017, 2007 Dollars



Source: IEWB Database, Calculations by Author

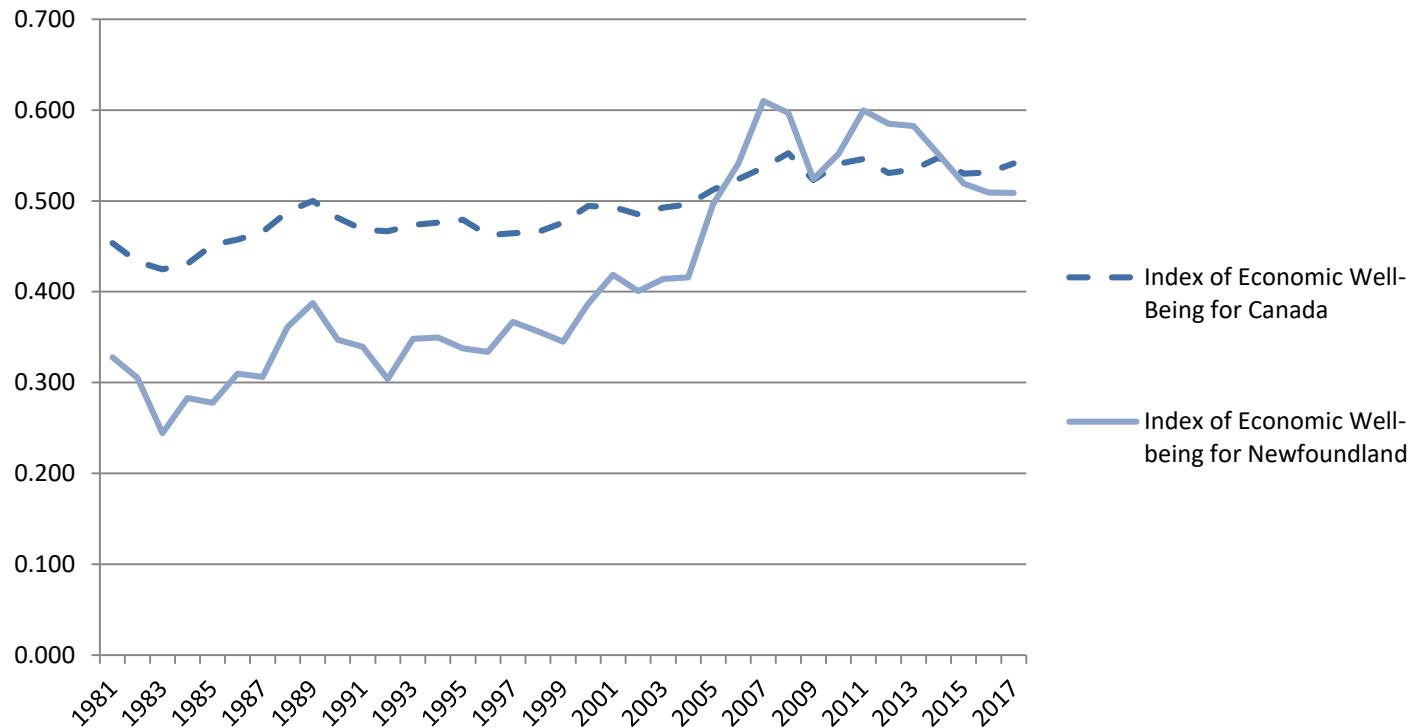
# Compound Annual Growth Rates of the Index of Economic Well-Being for Newfoundland and Newfoundland GDP per Capita, 1981-2017



Source: IEWB Database, Calculations by Author

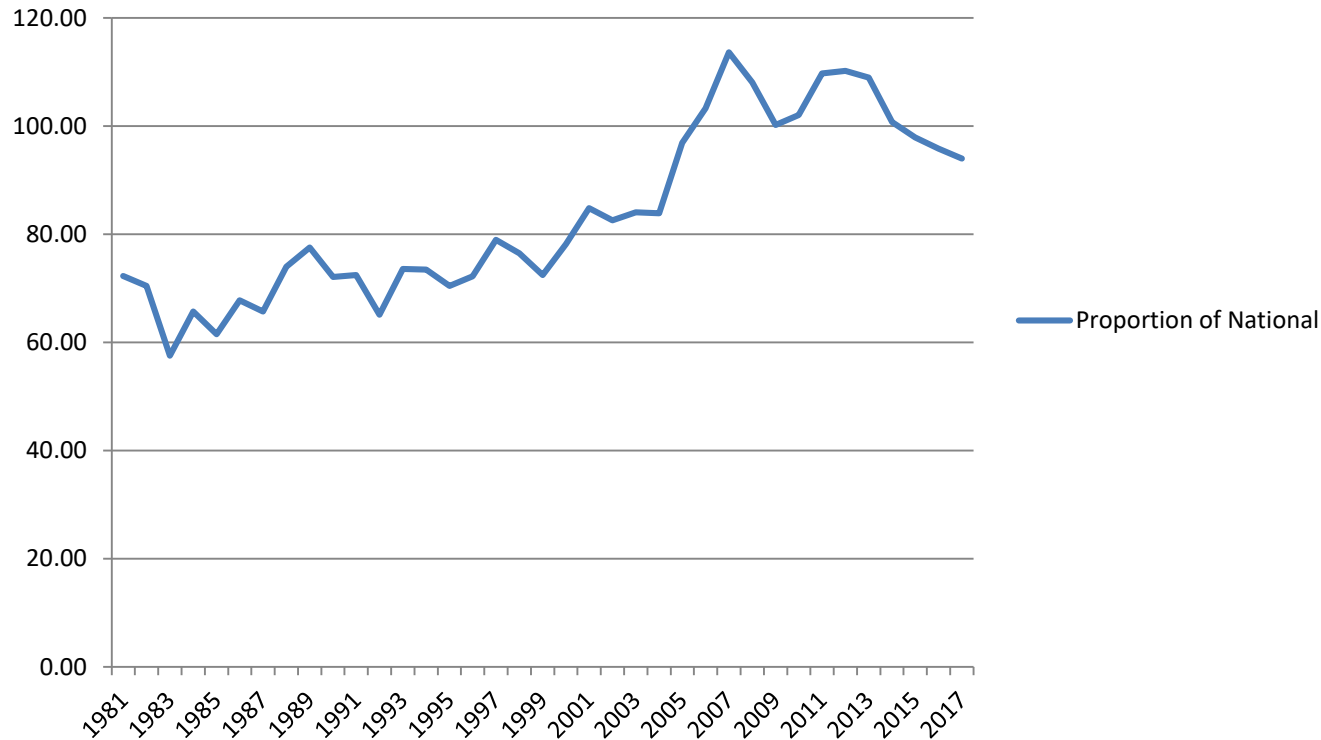


# The Index of Economic Well-Being for Newfoundland vs. for Canada, 1981 - 2017

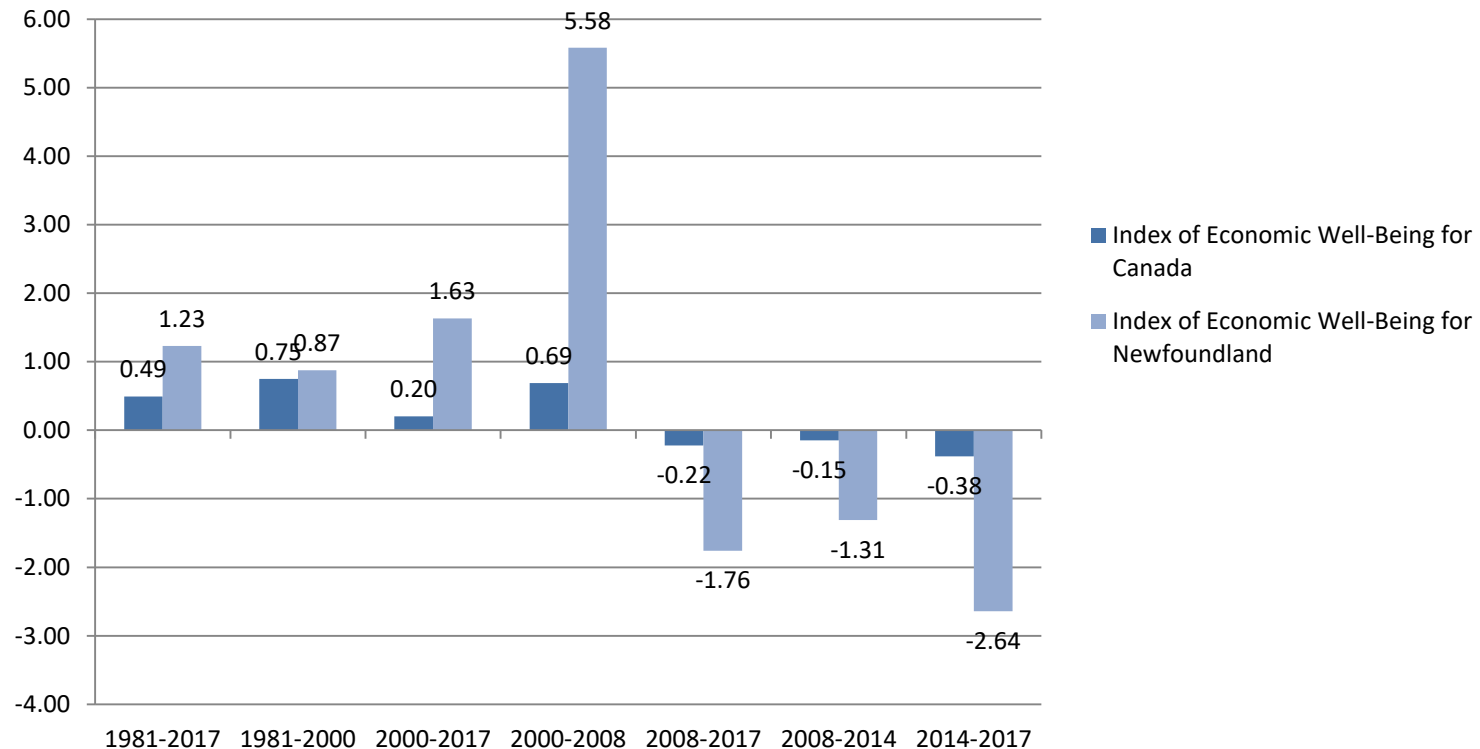


Source: IEWB Database, Calculations by Author

# The Index of Economic Well-Being for Newfoundland as a Proportion of the National Index, 1981 - 2017



# Compound Annual Growth Rates of the Index of Economic Well-Being for Canada and Newfoundland, 1981 - 2017

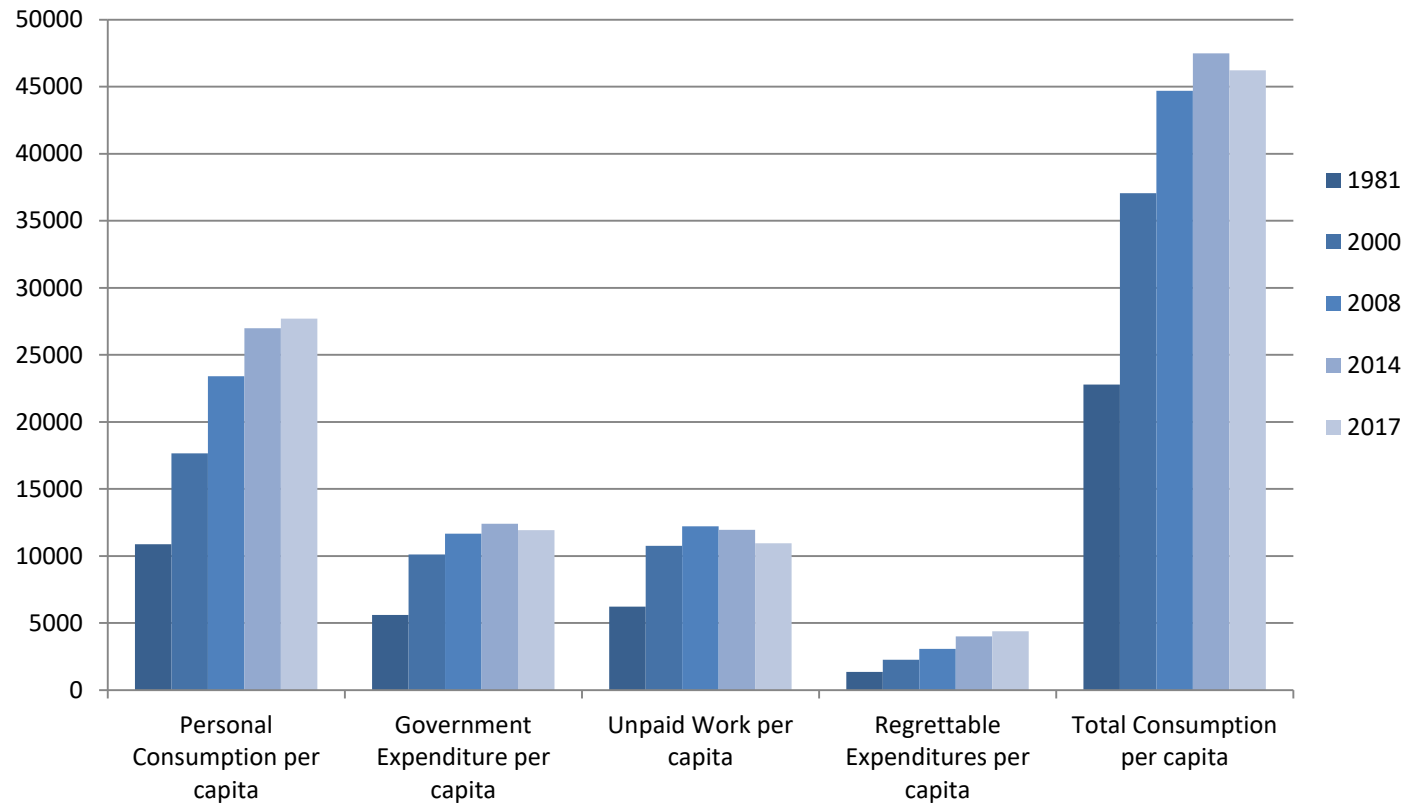


Source: IEWB Database, Calculations by Author

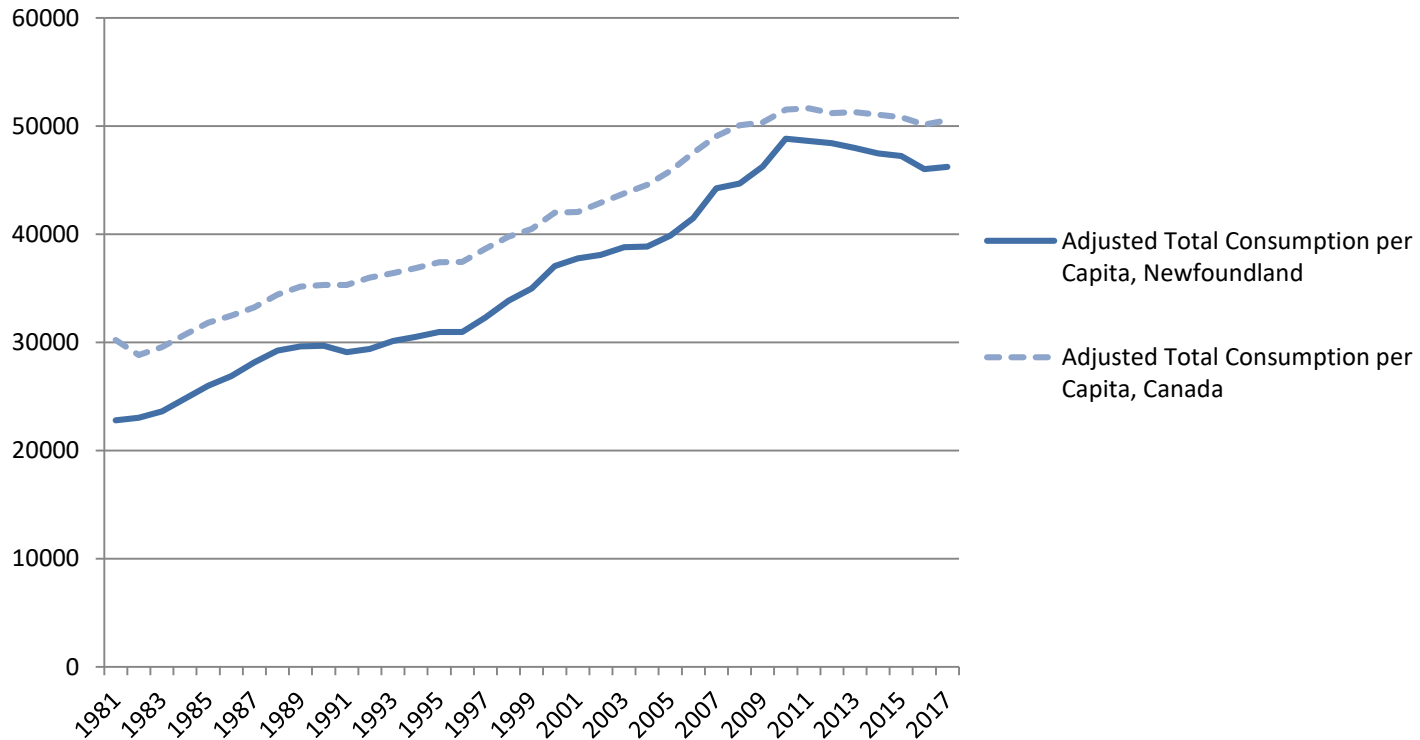
# Ranking by Index of Economic Well-Being and GDP per Capita of Canada and the Provinces

Level in 2017			Growth Rate, 1981 - 2017	
Rank	Index of Economic Well –Being	GDP per Capita	Index of Economic Well –Being	GDP per Capita
1	British Columbia	Alberta	Quebec	Newfoundland
2	Alberta	Saskatchewan	Newfoundland	Prince Edward Island
3	Ontario	Newfoundland	New Brunswick	New Brunswick
4	Quebec	Canada	British Columbia	Saskatchewan
5	Canada	Ontario	Ontario	Nova Scotia
6	Manitoba	British Columbia	Manitoba	Manitoba
7	Newfoundland & Labrador	Manitoba	Nova Scotia	Canada
8	New Brunswick	Quebec	Prince Edward Island	Ontario
9	Nova Scotia	New Brunswick	Canada	Quebec
10	Prince Edward Island	Nova Scotia	Alberta	Alberta
11	Saskatchewan	Prince Edward Island	Saskatchewan	British Columbia

# The Consumption Domain for Newfoundland and Its Components in 1981, 2000, 2008, 2014, and 2017, 2007 Dollars

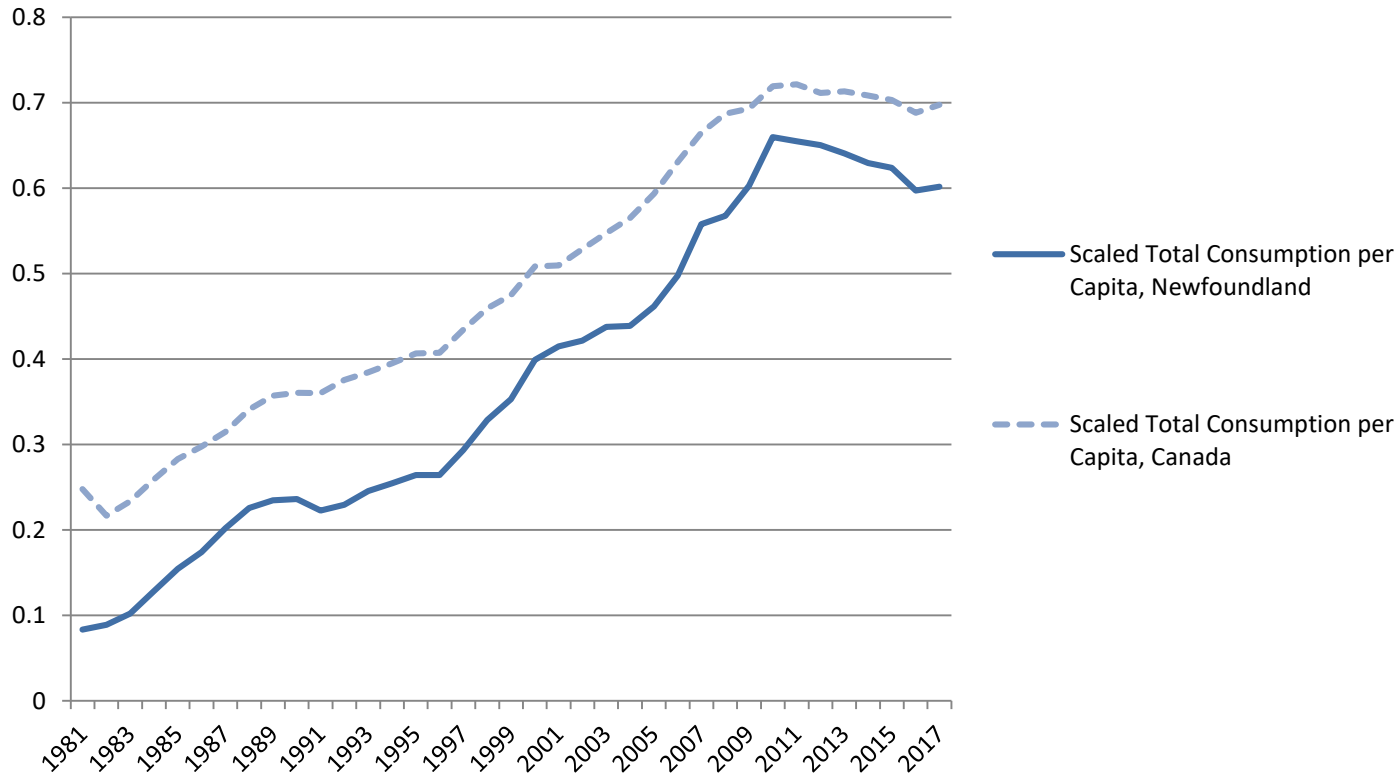


# Actual Total Consumption per Capita in Newfoundland vs. in Canada, 1981 – 2017, 2007 Dollars



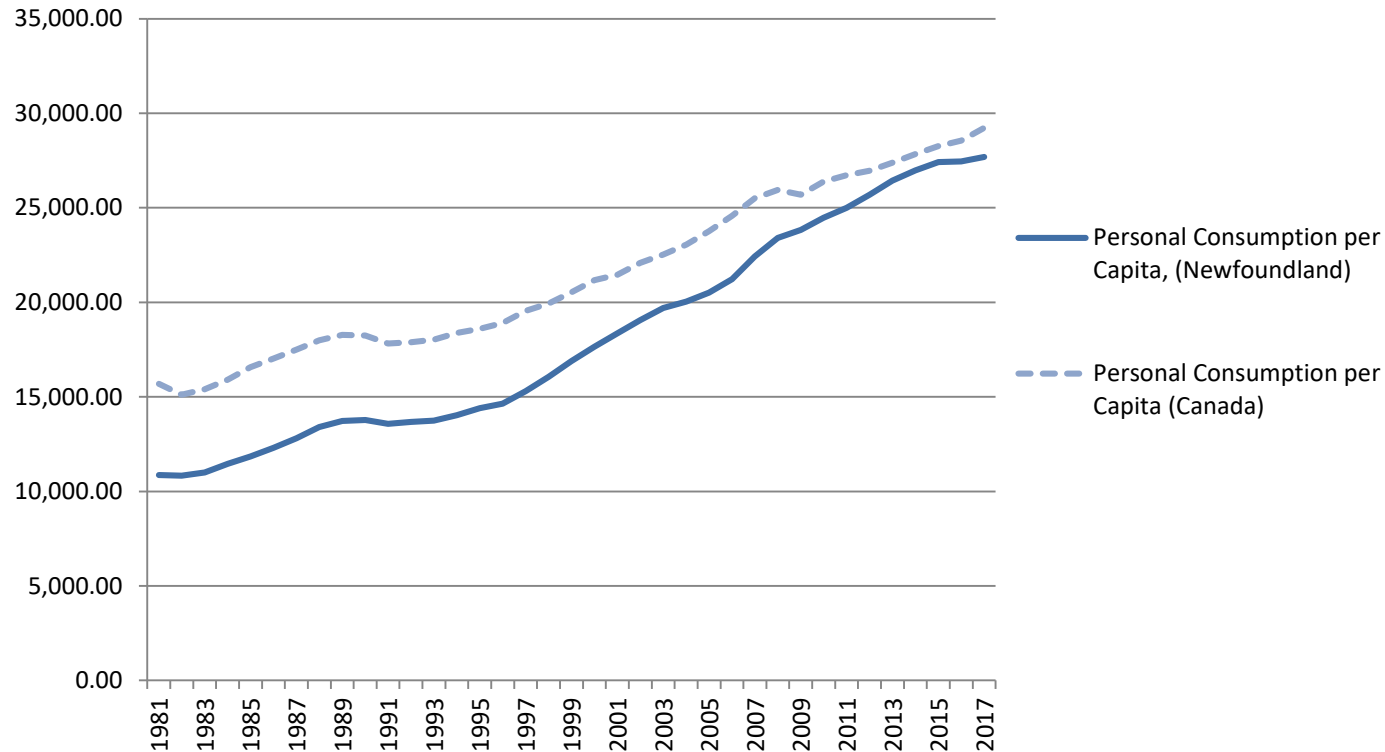
Source: IEWB Database, Calculations by Author

# Scaled Total Consumption per Capita in Newfoundland and in Canada, 1981 – 2017



Source: IEWB Database, Calculations by Author

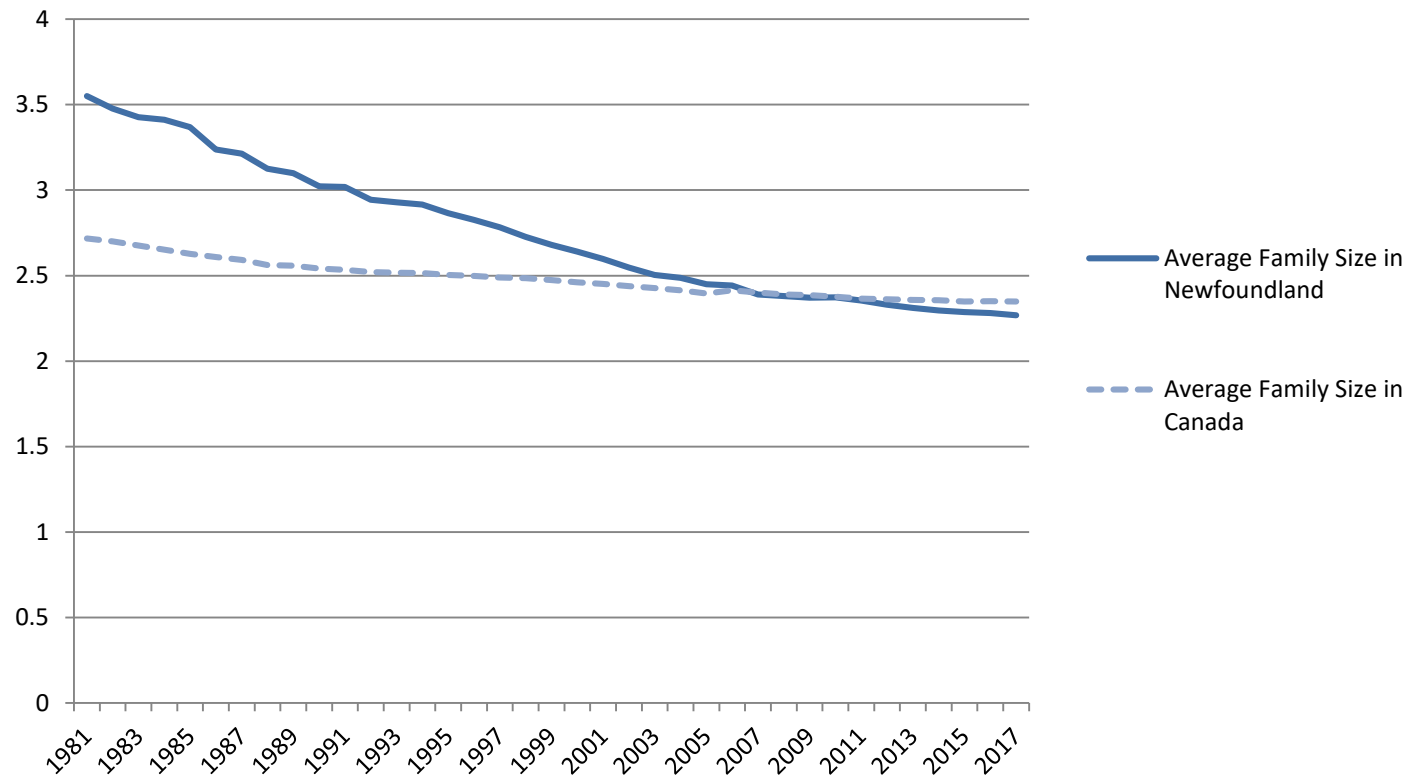
# Personal Consumption per Capita in Newfoundland and in Canada, 1981 – 2017, 2007 Dollars



Source: IEWB Database, Calculations by Author

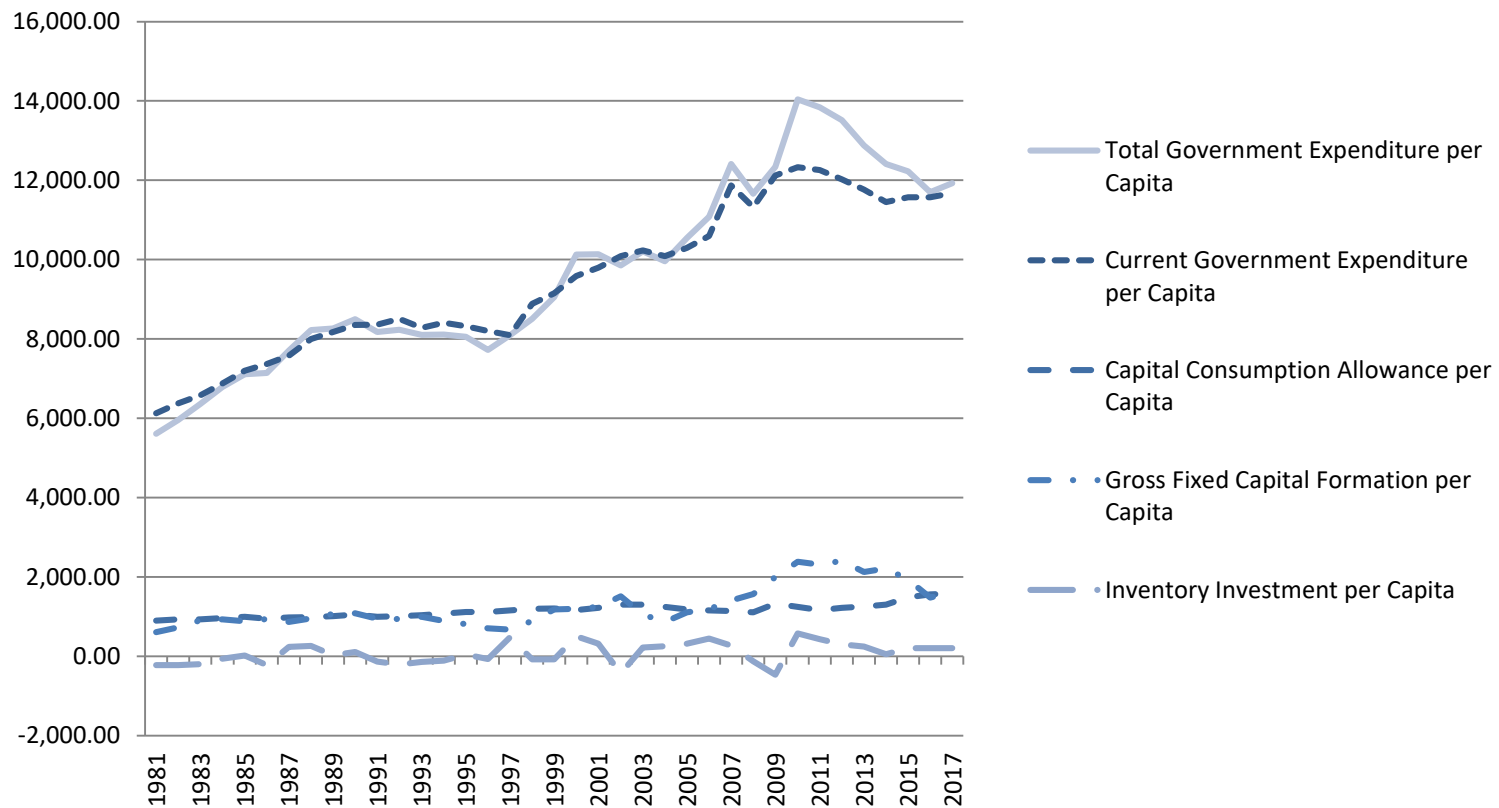


# Average Economic Family Size in Newfoundland and in Canada, 1981 - 2017



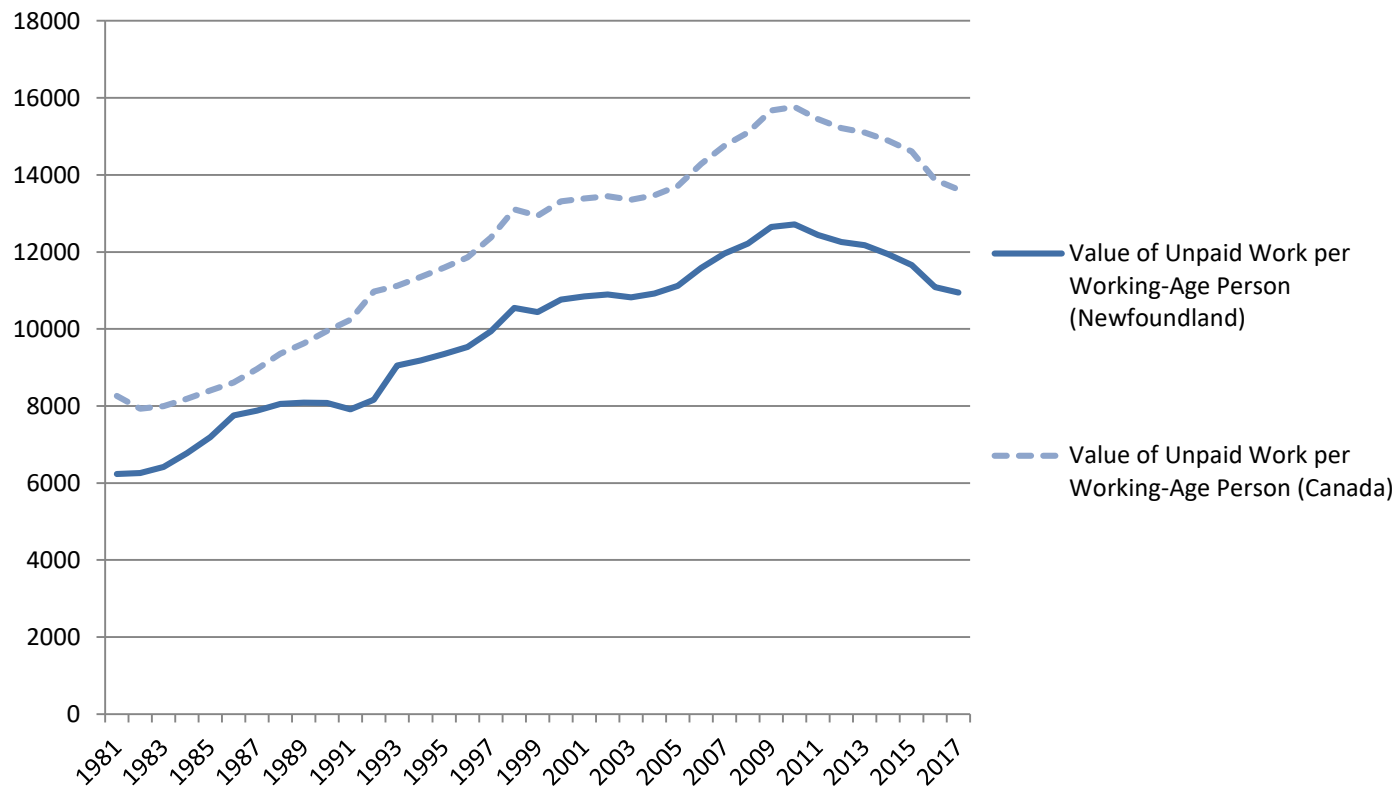
Source: IEWB Database, Calculations by Author

# Government Expenditure per Capita and Its Sub-Components in Newfoundland, 1981 – 2017, 2007 Dollars



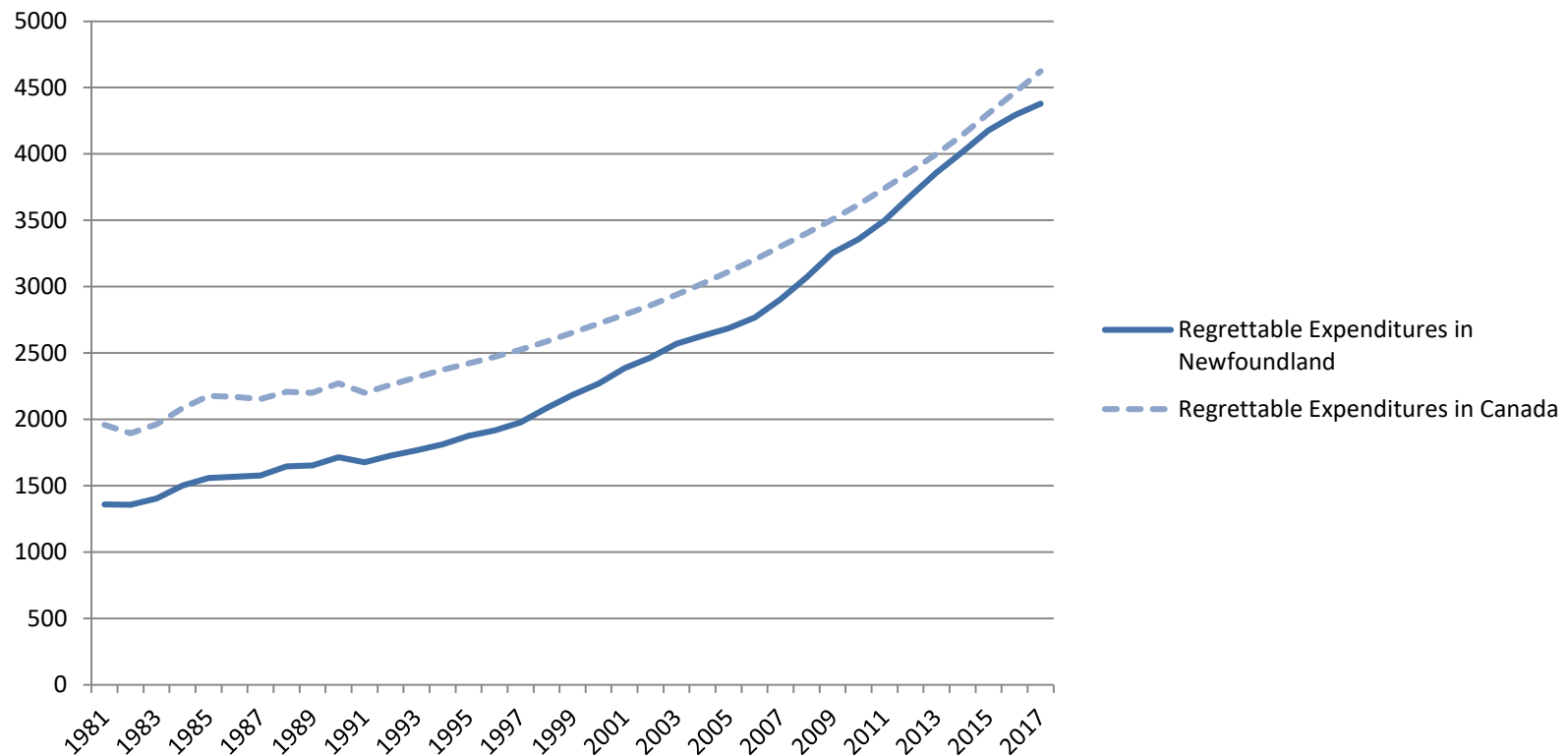
Source: IEWB Database, Calculations by Author

# Value of Unpaid Work in Canada vs. in Newfoundland, 1981 – 2017, 2007 Dollars



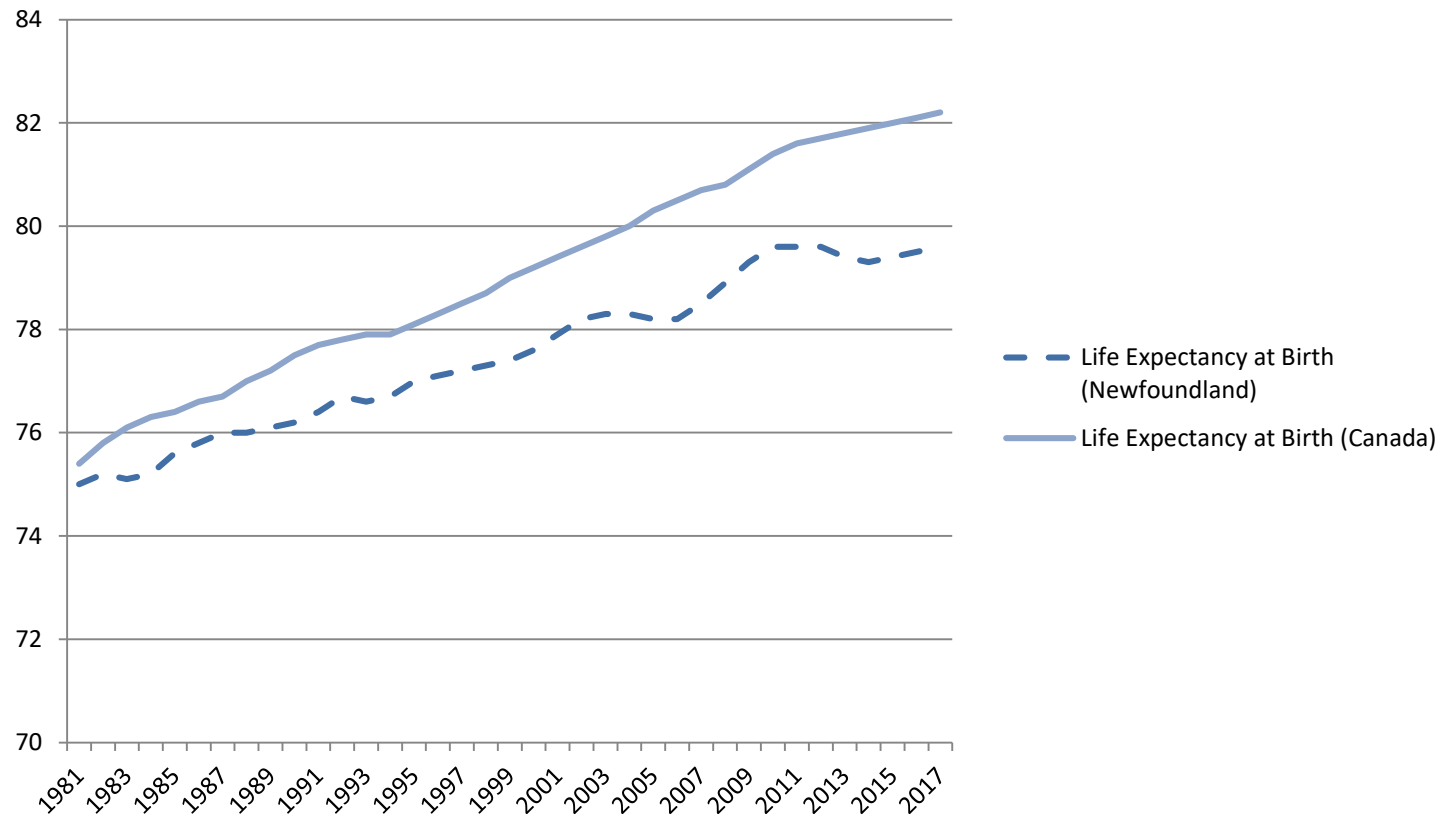
Source: IEWB Database, Calculations by Author

# Regrettable Expenditures per Capita in Newfoundland vs. in Canada, 1981 – 2017, 2007 Dollars



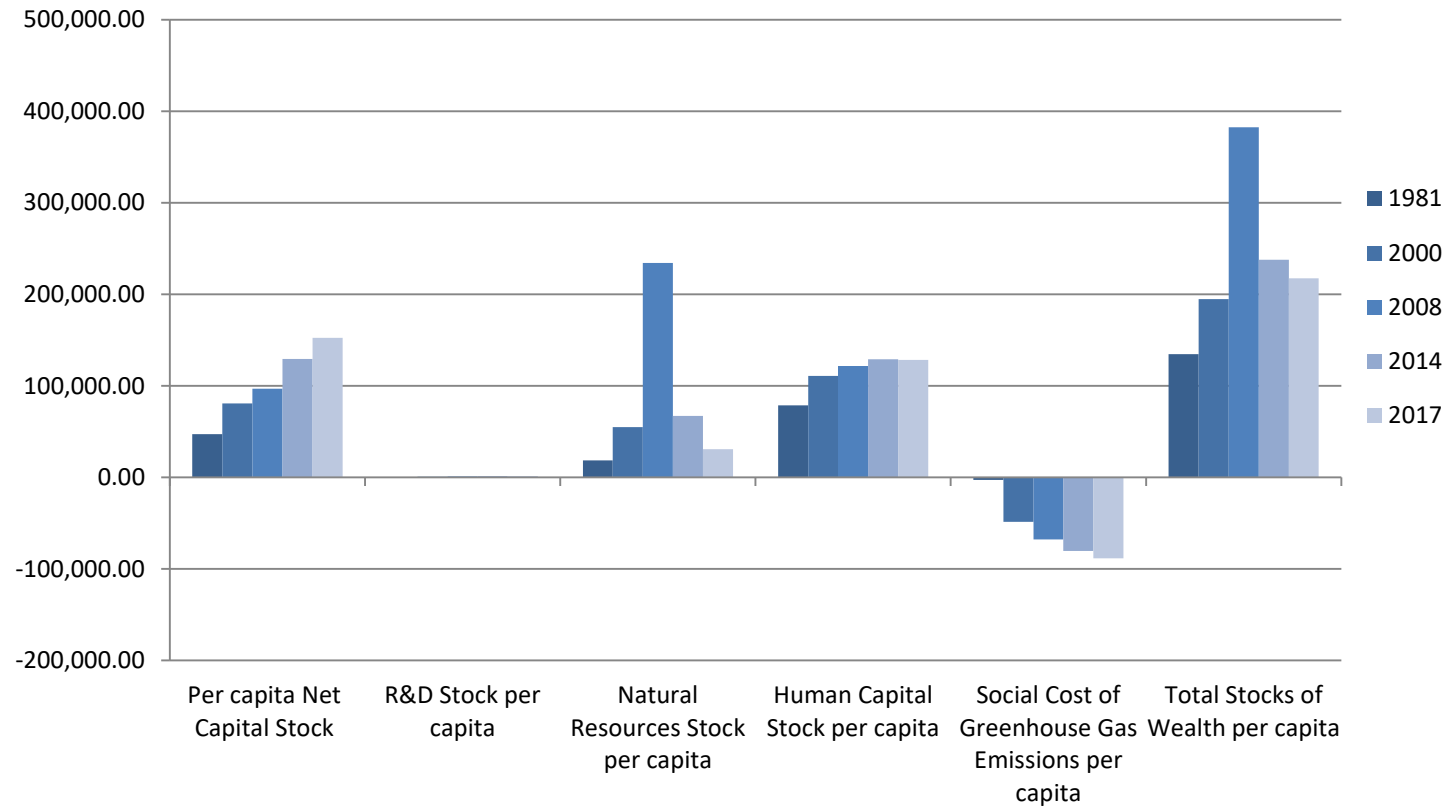
Source: IEWB Database, Calculations by Author

# Life Expectancy at Birth in Canada and in Newfoundland, 1981 - 2017



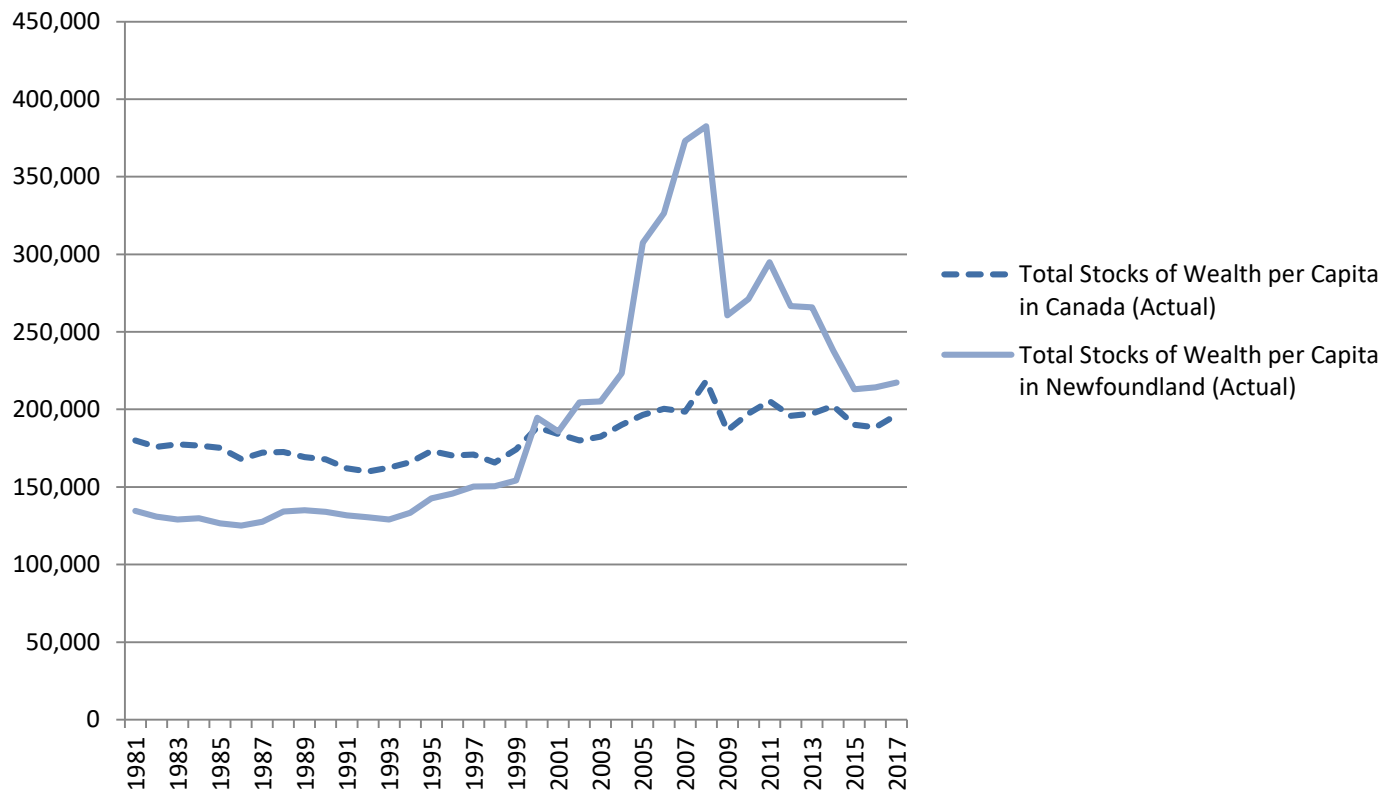
Source: IEWB Database, Calculations by Author

# Levels of Components of the Stocks of Wealth Domain in Newfoundland in 1981, 2000, 2008, 2014, and 2017, 2007 Dollars



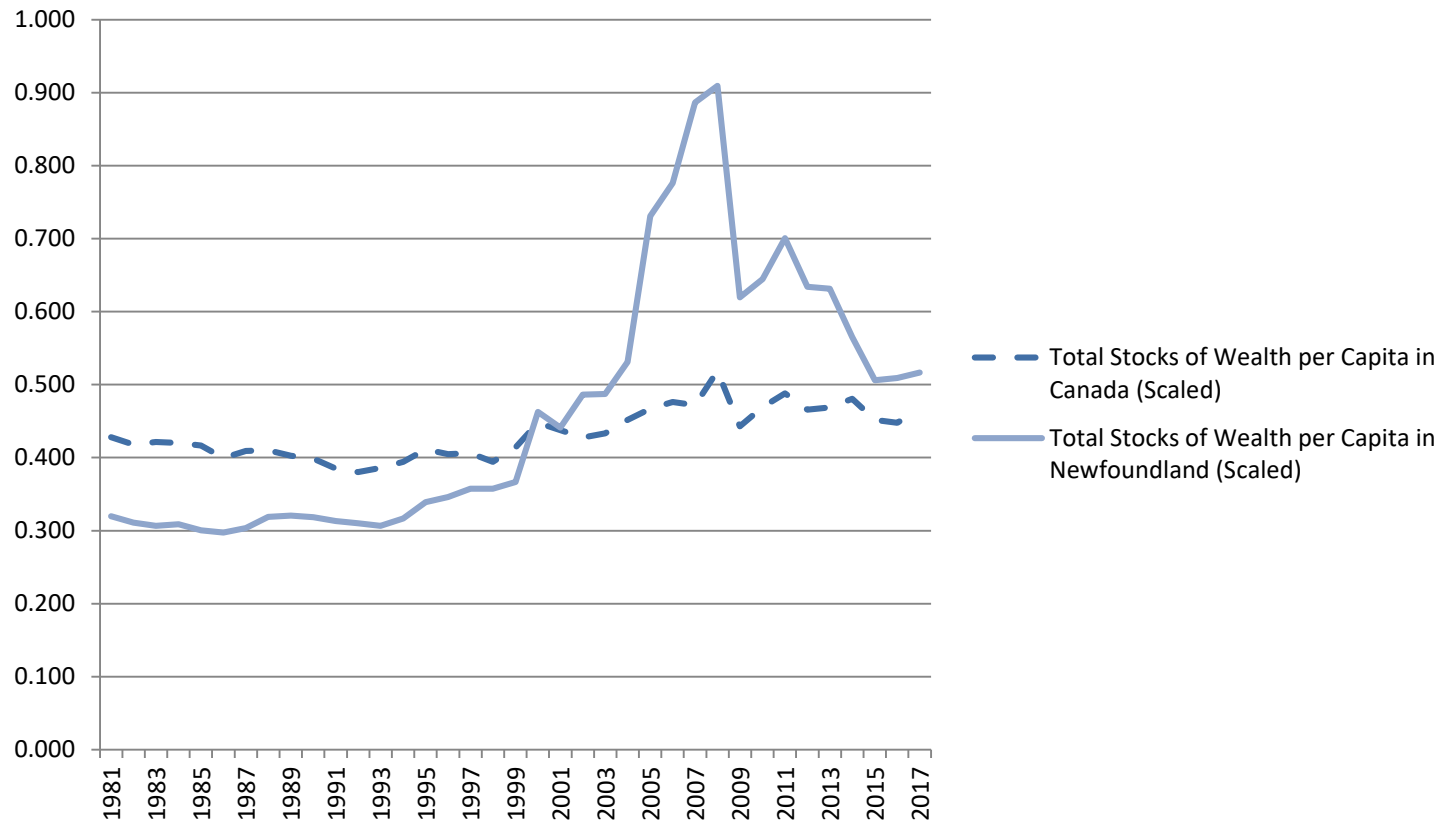
Source: IEWB Database, Calculations by Author

# Actual Total Stocks of Wealth per Capita in Newfoundland vs. in Canada, 1981 – 2017, 2007 Dollars



Source: IEWB Database, Calculations by Author

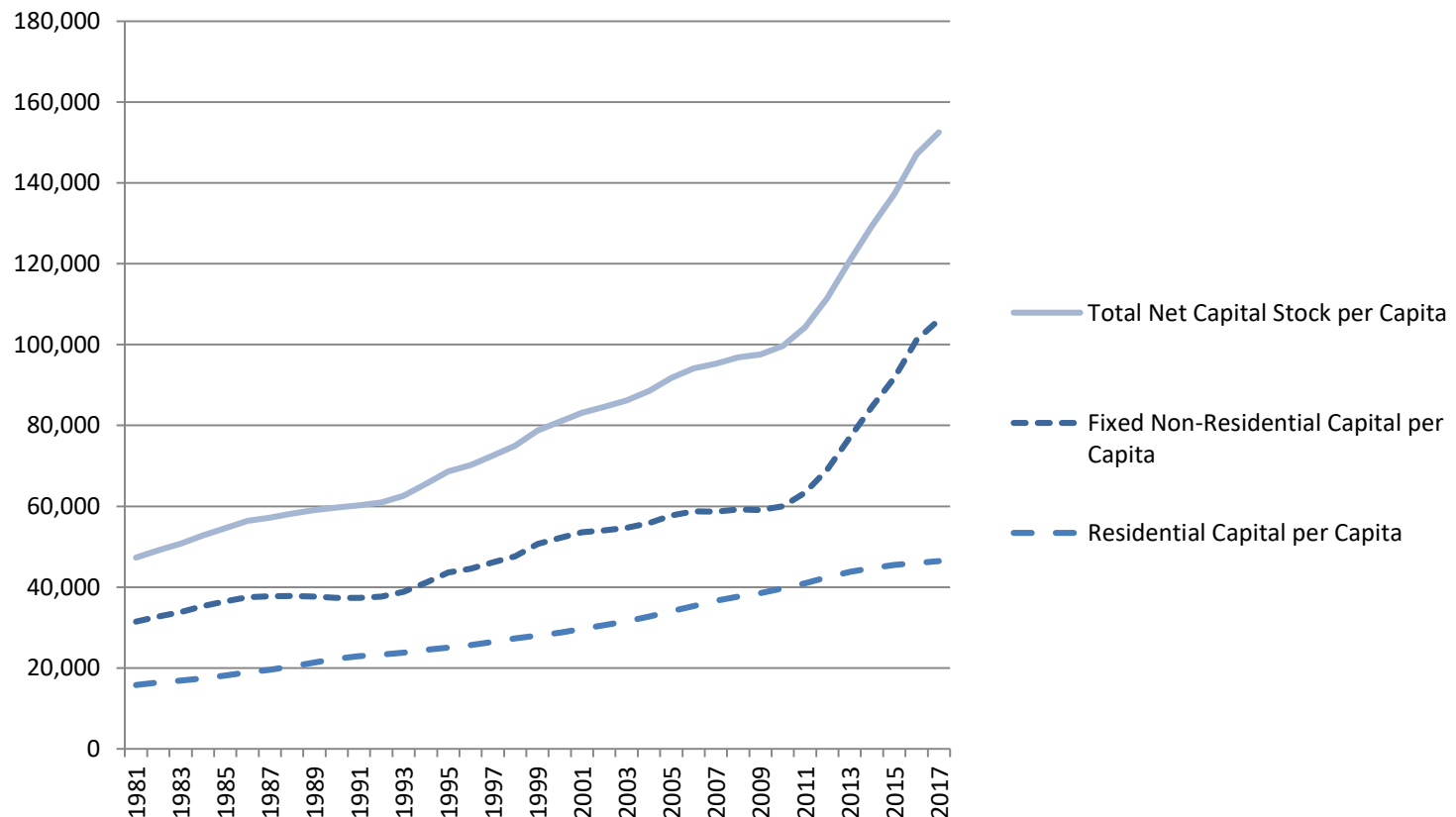
# Scaled Total Stocks of Wealth per Capita in Newfoundland vs. in Canada, 1981 - 2017



Source: IEWB Database, Calculations by Author

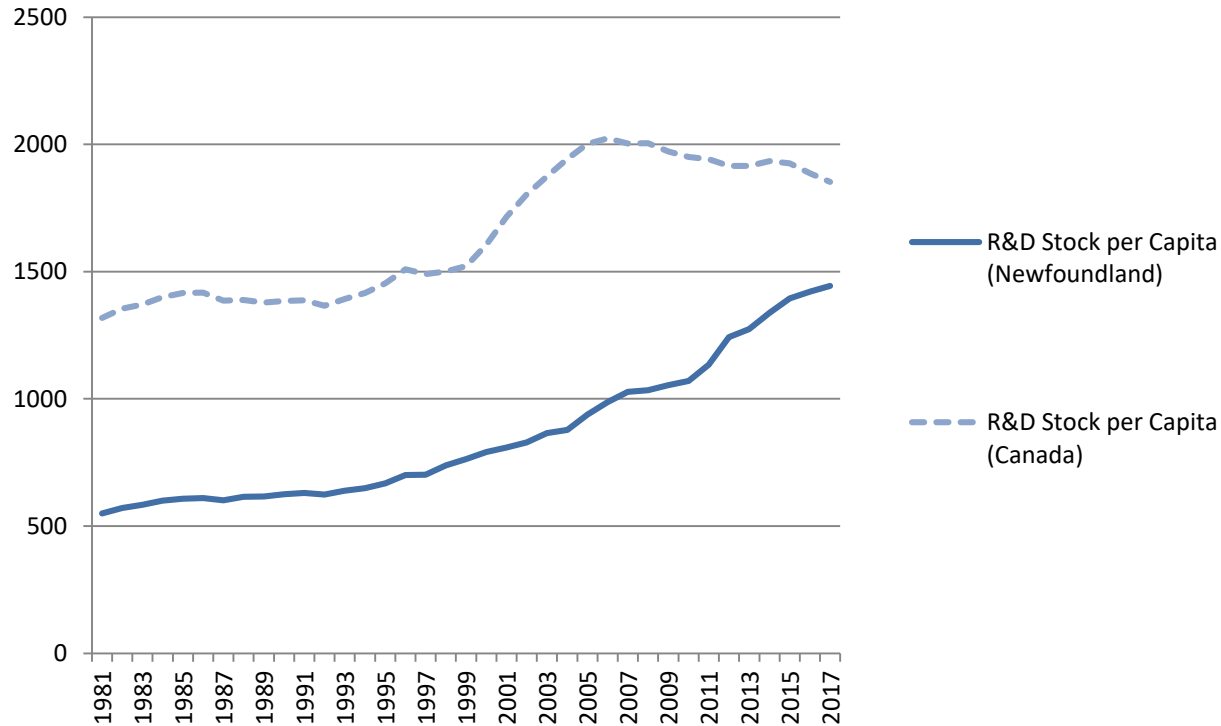


# Net Capital Stock per Capita and Its Sub-Components in Newfoundland, 1981 – 2017, 2007 Dollars



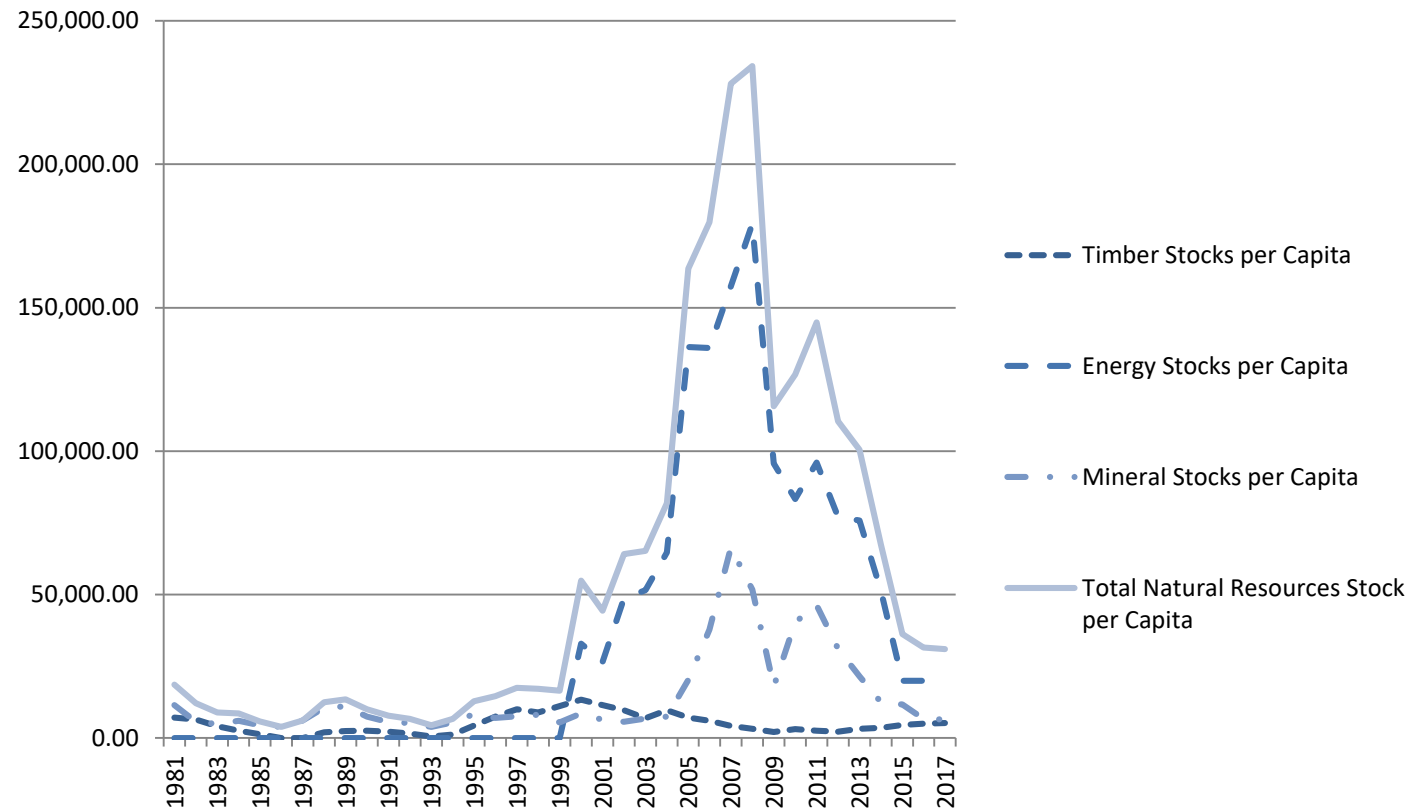
Source: IEWB Database, Calculations by Author

# R&D Stock per Capita in Newfoundland and in Canada, 1981 – 2017, 2007 Dollars



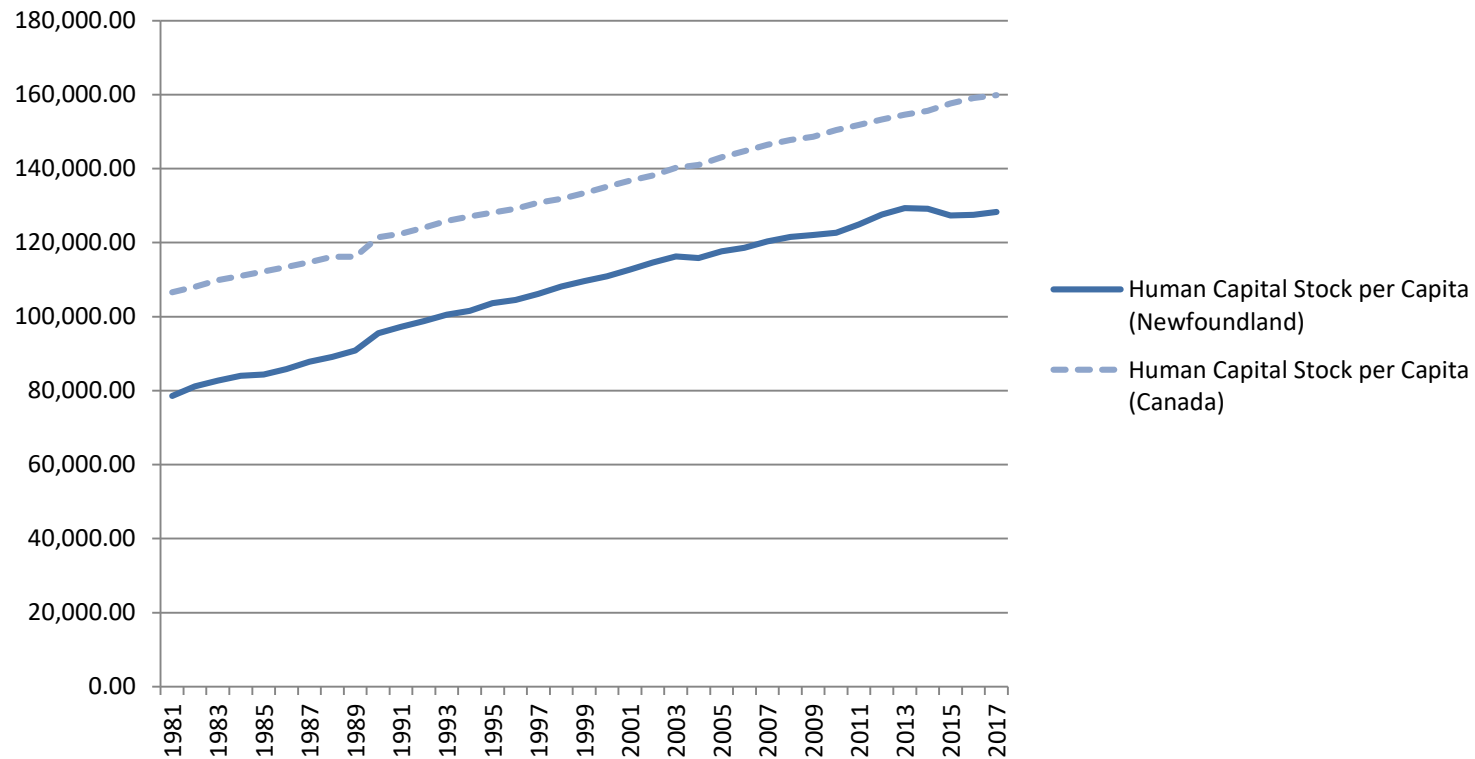
Source: IEWB Database, Calculations by Author

# Resources Stock per Capita and Its Sub-Components in Newfoundland, 1981 – 2017, 2007 Dollars



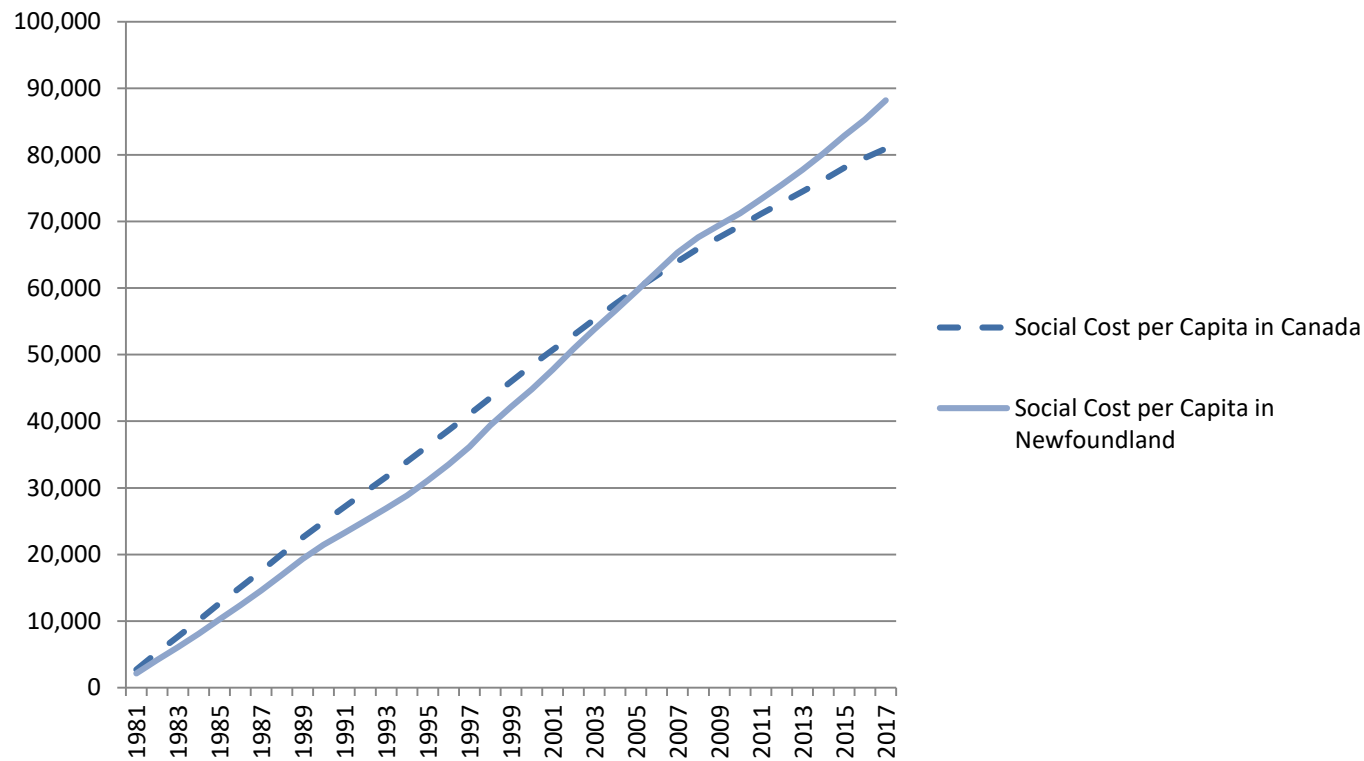
Source: IEWB Database, Calculations by Author

# Human Capital Stock per Capita in Newfoundland and in Canada, 1981 – 2017, 2007 Dollars



Source: IEWB Database, Calculations by Author

# Social Cost of Greenhouse Gas Emissions per Capita in Newfoundland Compared to In Canada, 1981 – 2017, 2007 Dollars



Source: IEWB Database, Calculations by Author

# Compound Annual Growth Rates of the Index of Economic Well-Being for Newfoundland Under Various Weighting Schemes and Costs For Carbon, 1981 – 2017

IEWB	Equal Weighting $= .25C + .25W + .25E + .25S$	Consumptionist Weighting $= .7C + .1W + .1E + .1S$	Consumption Weighted More Heavily Than Wealth $= .4C + .1W + .25E + .25S$	Anti-Egalitarian Weighting $= .33C + .33W + .0E + .33S$	Equality and Security Weighting $= .2C + .1W + .4E + .3S$
\$51.25 in 2016	1.40	3.30	1.69	1.57	0.99
\$125 in 2016 (Baseline)	1.23	3.21	1.62	1.34	0.93
\$250 in 2016	0.35	2.89	1.30	0.08	0.60

Source: IEWB Database, Calculations by Author

# Compound Annual Growth Rates of the Index of Economic Well-Being for Newfoundland Under Various Weighting Schemes and Costs For Carbon, 1981- 2000

IEWB	Equal Weighting $= .25C + .25W + .25E + .25S$	Consumptionist Weighting $= .7C + .1W + .1E + .1S$	Consumption Weighted More Heavily Than Wealth $= .4C + .1W + .25E + .25S$	Anti-Egalitarian Weighting $= .33C + .33W + .0E + .33S$	Equality and Security Weighting $= .2C + .1W + .4E + .3S$
\$51.25 in 2016	1.06	4.30	1.43	1.75	0.12
\$125 in 2016 (Baseline)	0.87	4.18	1.35	1.50	0.05
\$250 in 2016	-0.13	3.74	0.95	0.19	-0.35

Source: IEWB Database, Calculations by Author

# Compound Annual Growth Rates of the Index of Economic Well-Being for Newfoundland Under Various Weighting Schemes and Costs For Carbon, 2000 - 2008

IEWB	Equal Weighting $=.25C+.25W+.25E+.25S$	Consumptionist Weighting $=.7C+.1W+.1E+.1S$	Consumption Weighted More Heavily Than Wealth $=.4C+.1W+.25E+.25S$	Anti-Egalitarian Weighting $=.33C+.33W+.0E+.33S$	Equality and Security Weighting $=.2C+.1W+.4E+.3S$
\$51.25 in 2016	5.52	4.91	4.70	5.45	4.75
\$125 in 2016 (Baseline)	5.58	4.94	4.73	5.53	4.77
\$250 in 2016	5.80	4.97	4.75	5.80	4.80

Source: IEWB Database, Calculations by Author

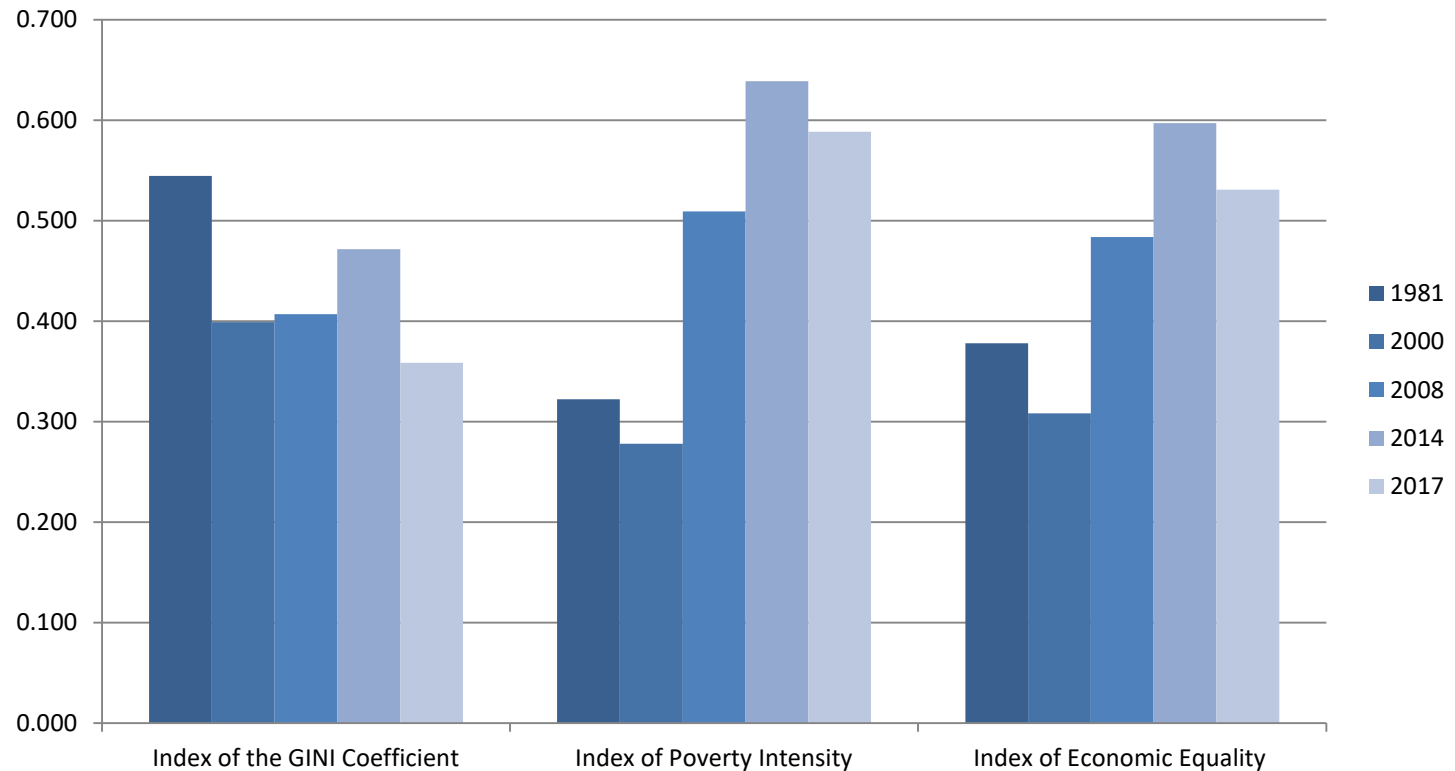


# Compound Annual Growth Rates of the Index of Economic Well-Being for Newfoundland Under Various Weighting Schemes and Costs For Carbon, 2008 - 2017

IEWB	Equal Weighting $= .25C + .25W + .25E + .25S$	Consumptionist Weighting $= .7C + .1W + .1E + .1S$	Consumption Weighted More Heavily Than Wealth $= .4C + .1W + .25E + .25S$	Anti-Egalitarian Weighting $= .33C + .33W + .0E + .33S$	Equality and Security Weighting $= .2C + .1W + .4E + .3S$
\$51.25 in 2016	1.43	2.93	1.74	1.87	0.92
\$125 in 2016 (Baseline)	1.39	2.92	1.73	1.83	0.90
\$250 in 2016	1.21	2.87	1.66	1.61	0.83

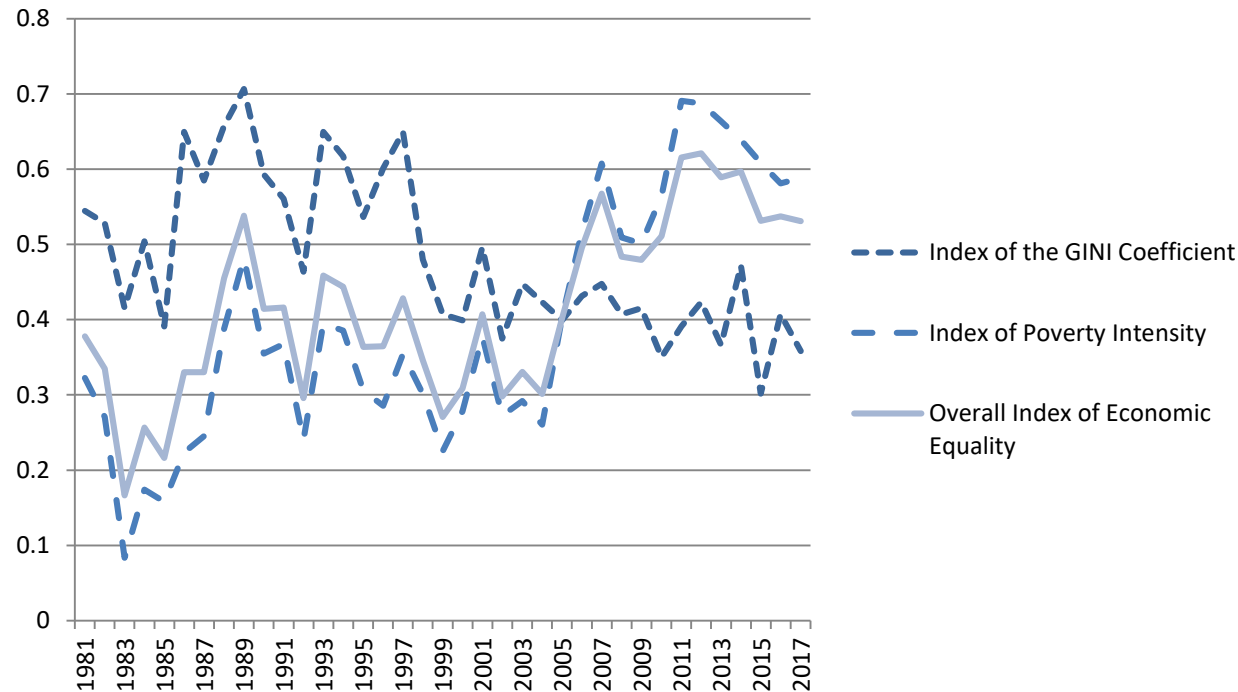
Source: IEWB Database, Calculations by Author

# The Index of Economic Equality and Its Components in Newfoundland in 1981, 2000, 2008, 2014, and 2017



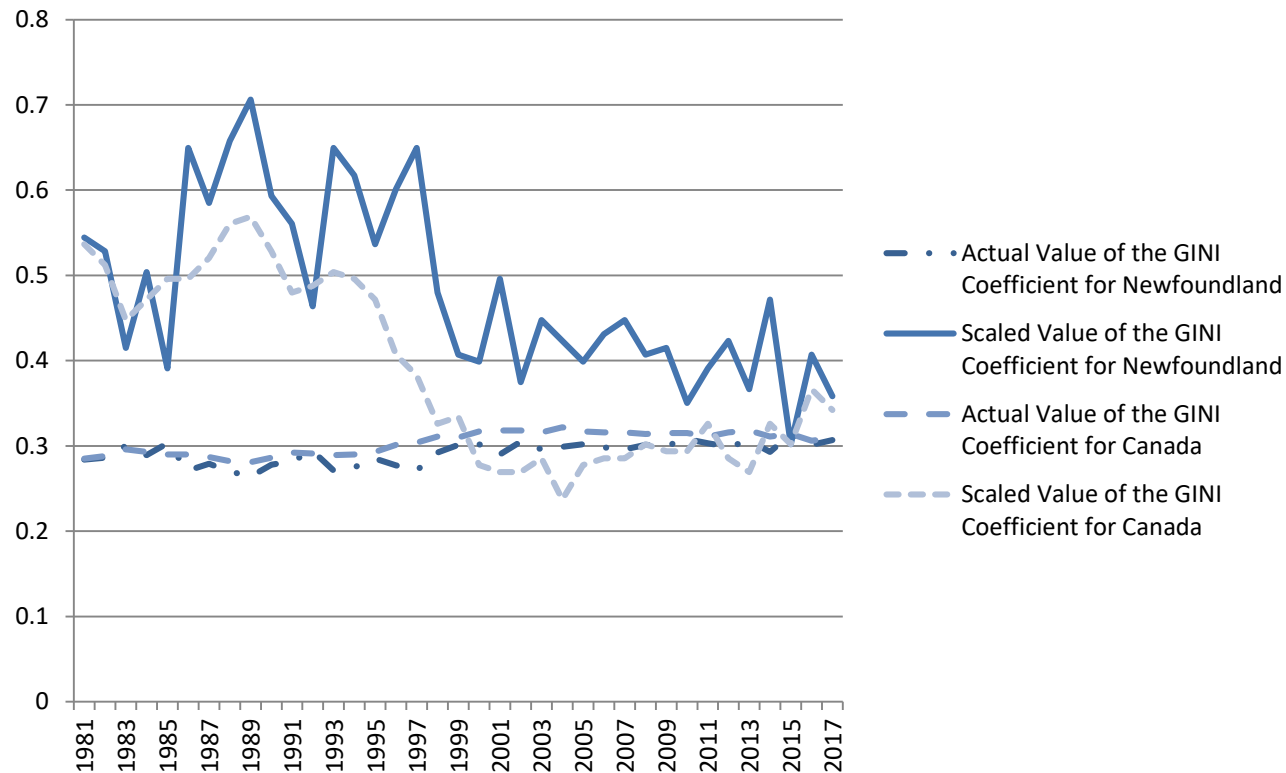
Source: IEWB Database, Calculations by Author

# Trends in the Index of Economic Equality and Its Components in Newfoundland, 1981 - 2017



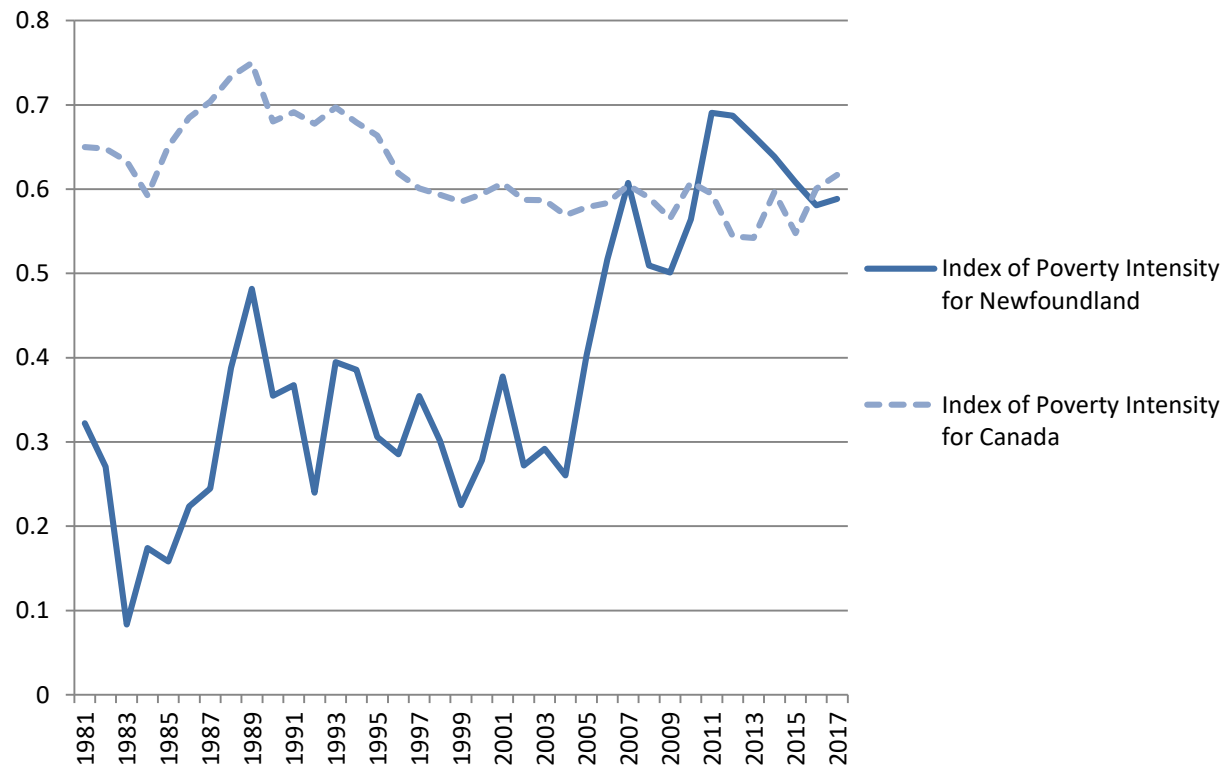
Source: IEWB Database, Calculations by Author

# The Index of the GINI Coefficient in Newfoundland vs. in Canada, 1981 - 2017



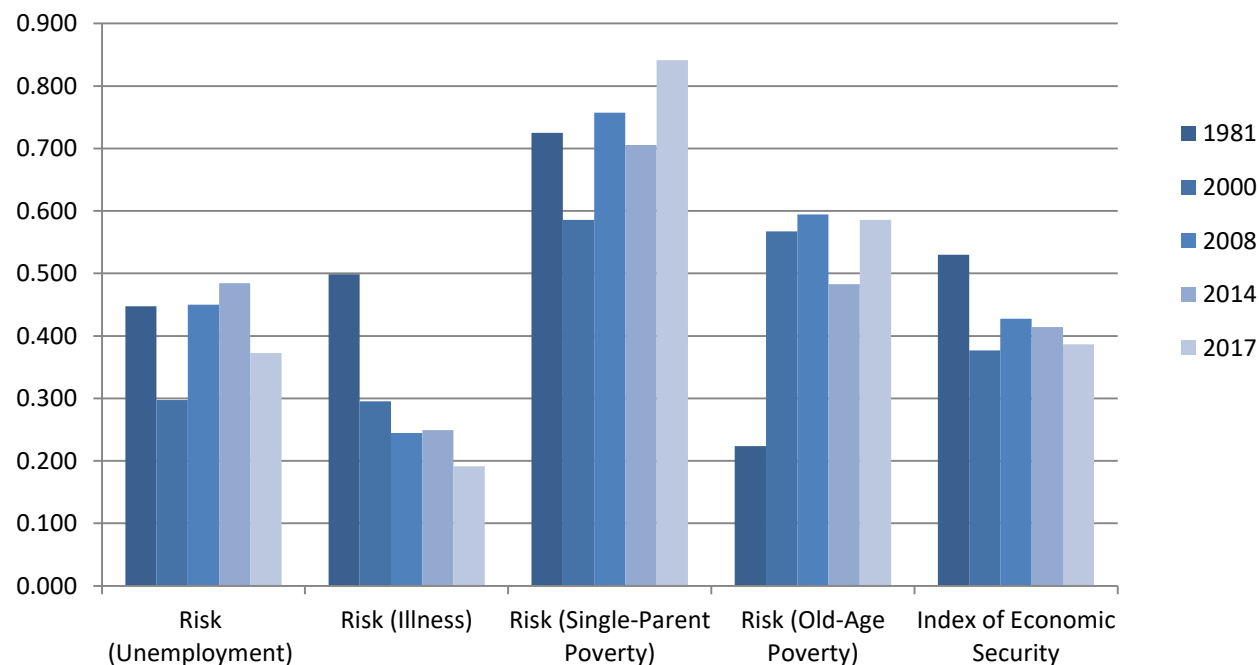
Source: IEWB Database, Calculations by Author

# The Index of Poverty Intensity in Newfoundland and in Canada, 1981 - 2017



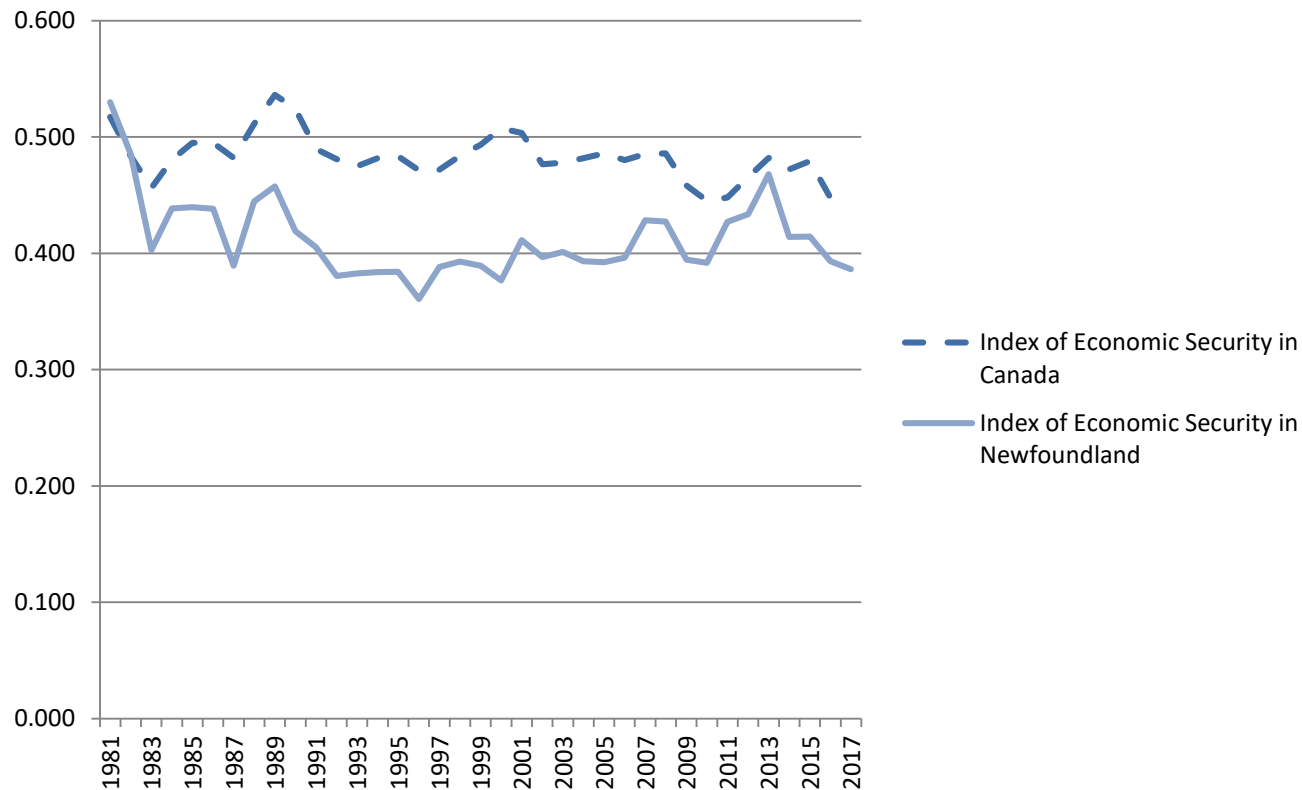
Source: IEWB Database, Calculations by Author

# The Index of Security and Its Components in Newfoundland in 1981, 2000, 2008, 2014, and 2017



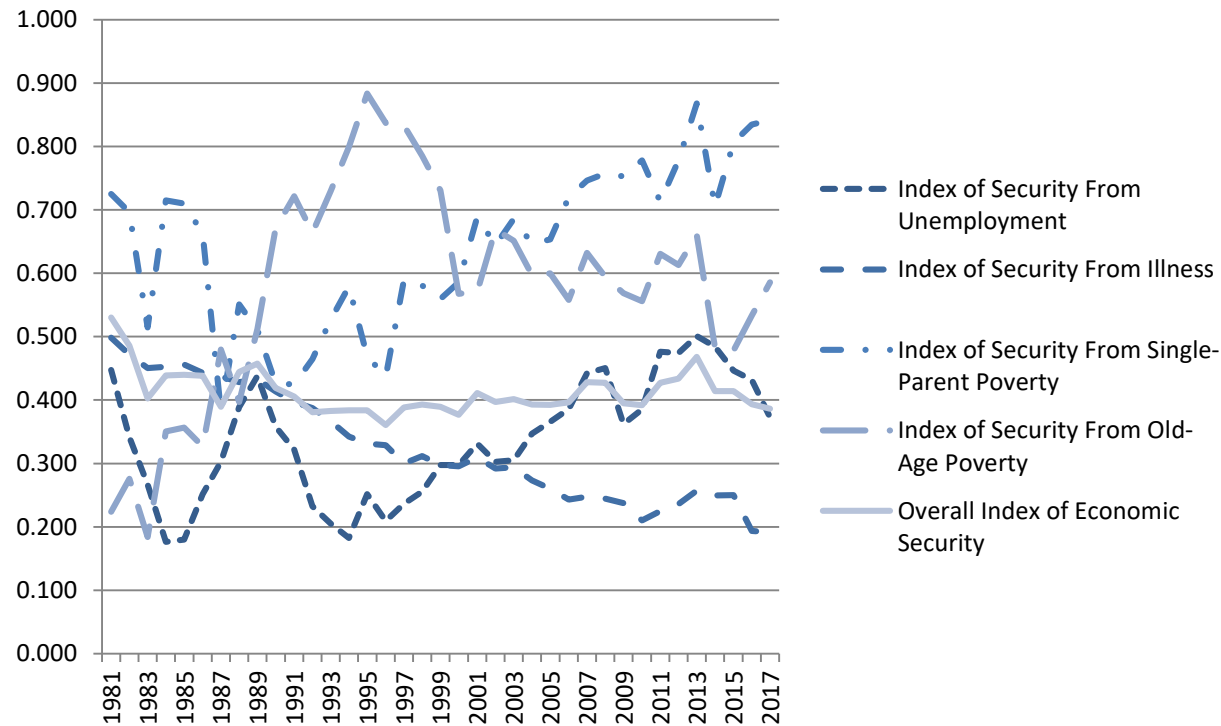
Source: IEWB Database, Calculations by Author

# The Index of Economic Security in Newfoundland Compared to the Index of Economic Security in Canada, 1981 - 2017



Source: IEWB Database, Calculations by Author

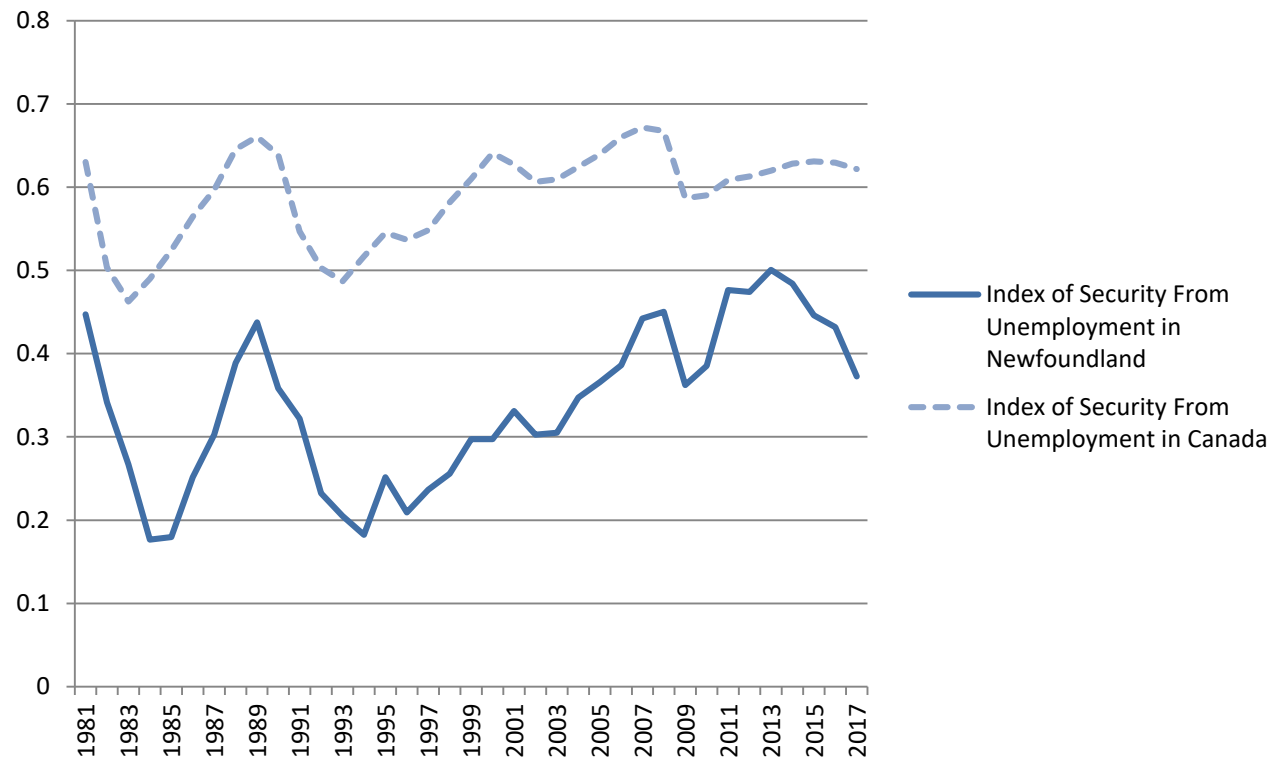
# The Index of Economic Security and Its Components in Newfoundland, 1981 - 2017



Source: IEWB Database, Calculations by Author

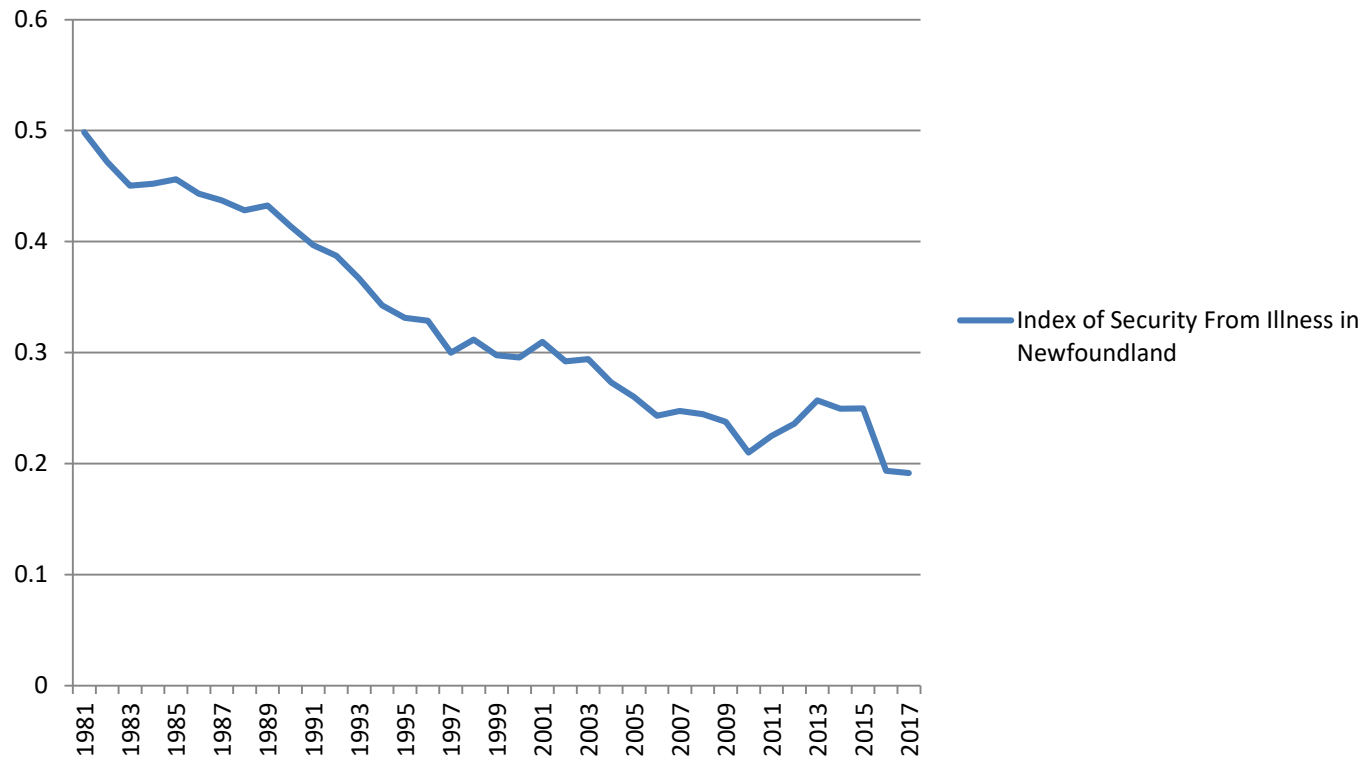


# The Index of Security From Unemployment in Canada and in Newfoundland, 1981 - 2017



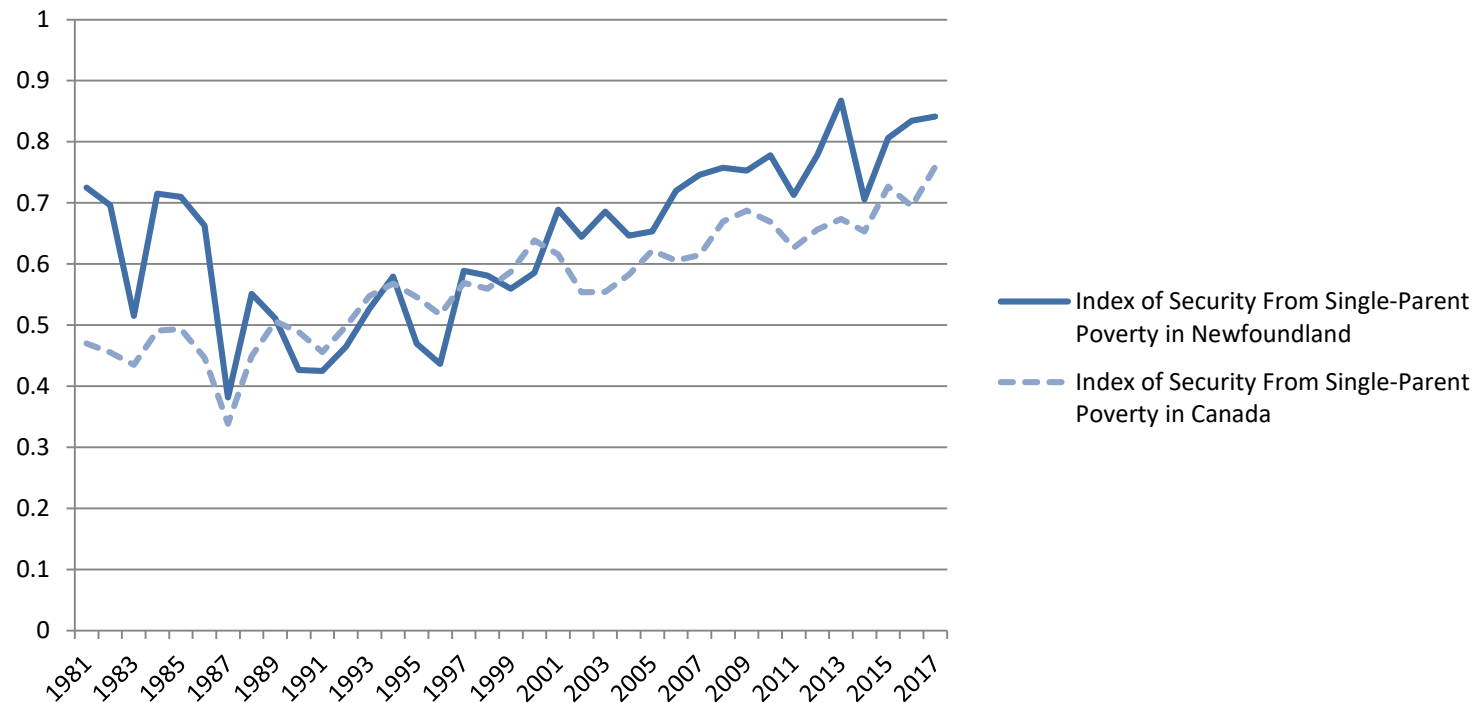
Source: IEWB Database, Calculations by Author

# The Index of Security From Illness in Canada vs. in Newfoundland, 1981 - 2017



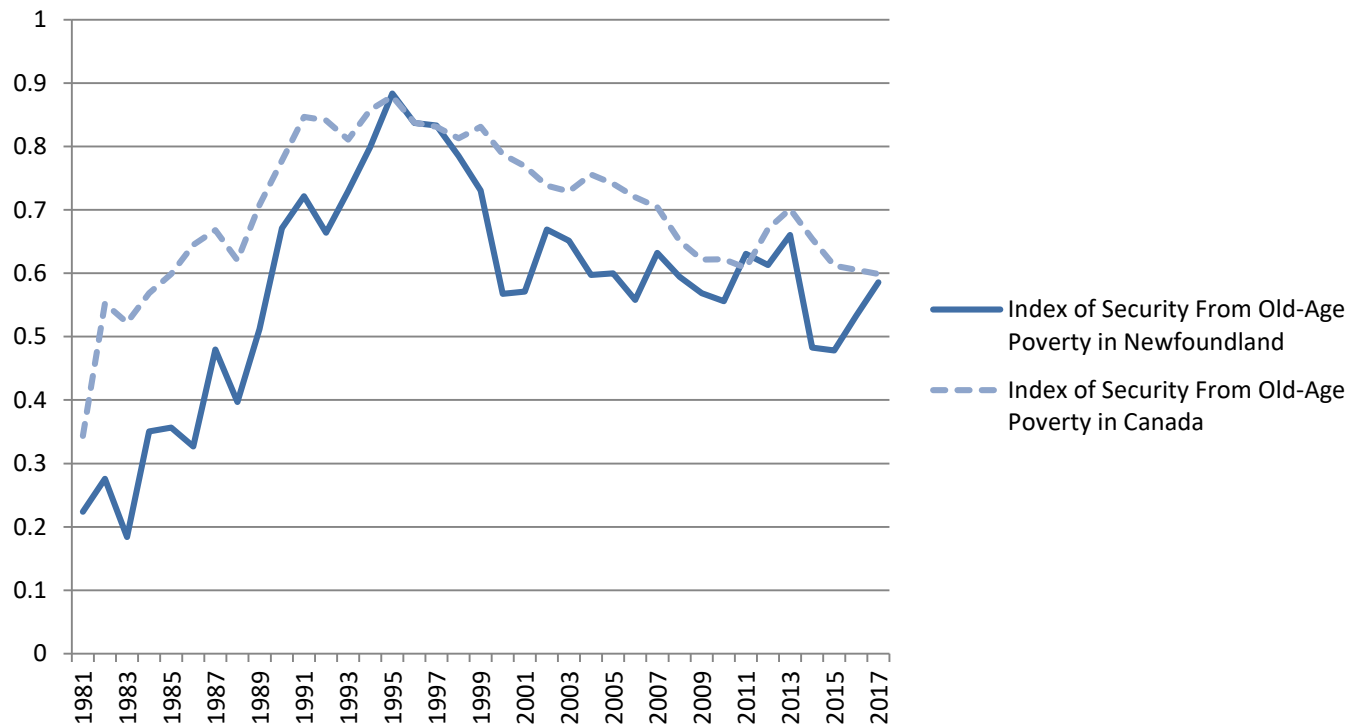
Source: IEWB Database, Calculations by Author

# The Index of Security From Single-Parent Poverty in Canada and in Newfoundland, 1981 - 2017



Source: IEWB Database, Calculations by Author

# The Index of Security From Old-Age Poverty in Canada Compared to in Newfoundland, 1981 - 2017



Source: IEWB Database, Calculations by Author