PROMOTING TAX FAIRNESS
IN NEWFOUNDLAND AND LABRADOR THROUGH THE PERSONAL INCOME TAX SYSTEM

Wade Locke, Scott Lynch, Doug May, Noel Roy, Michael Sullivan and Craig Wiseman

April 23, 2015
St. John's, NL

1

Introduction (1)

- The scenarios that were generated and the preparation of this paper represent the effort solely of CARE team members.

- These scenarios are meant to be suggestive and informative, rather than being either exhaustive or offered as recommendations.

- This study was designed to

  – address a real policy issue,

  – build capacity, both in the faculty and students of the Department of Economics and in the provincial bureaucracy, to undertake research

  – utilize state-of-the-art economic techniques and methodologies,

  – access and generate up-to-date data,

  – to communicate effectively to decision makers and the public

  – and to facilitate and encourage debate of the issues of income equality and tax progressivity

Introduction (2)

- This is a collaborative effort between the Department of Finance, Government of Newfoundland and Labrador and a team of economists from CARE at Memorial University of Newfoundland

- We thank Alton Hollett, Assistant Deputy Minister of the Economics and Research Analysis Division for directing the Department of Finance's involvement.

- We thank Dr. Cory Giles, Ken Hicks, Phil Hoskins, and Jay Griffin of the Department of Finance.

- We thank Chantal Hicks, the manager of the SPSM, and her team at Statistics Canada, for assisting our team in developing the best possible database for the model.

- We thank Brian Murphy of Statistics Canada for providing much valued data and insights into income inequality.

What is progressivity

- If the average tax payable increases with income (ability to pay), then the system is progressive.

  – This can be achieved by having either a marginal tax rate that increases for higher income levels as happens in NL's tax (7.7% < $34,254, 12.5% between $34,254 and $68,508, and 13.3% beyond) or a flat tax with a fixed exemption (12.5% combined with $10,000 basic exemption)
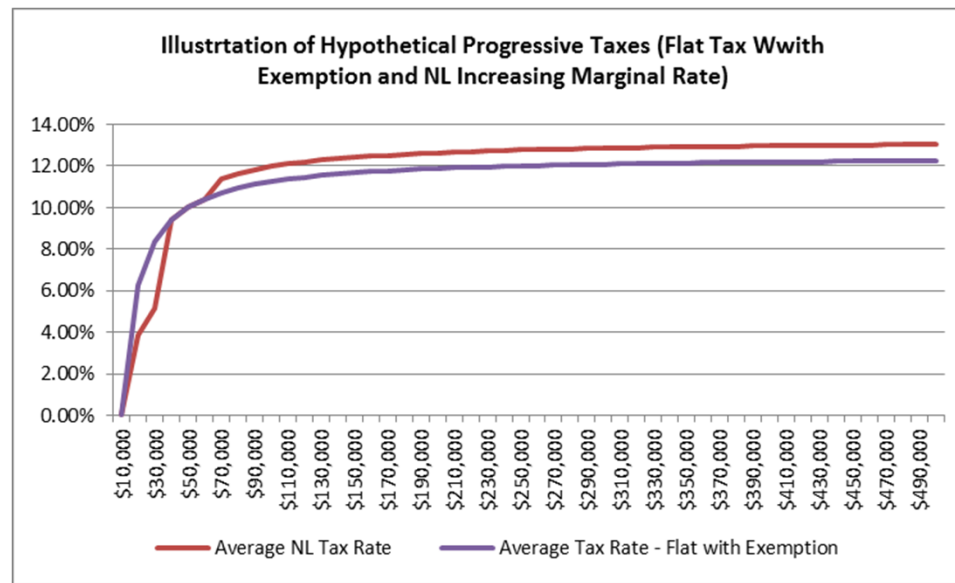
- The more progressive is the tax structure, the greater the improvement in the after-tax income distribution relative to the pre-tax distribution

Income Distribution – Why Should we Care?

- Increases in inequality could reduce long-term economic growth

  - OECD (2014) "when income inequality rises, economic growth falls"

  - Federal Reserve Chair Janet Yellen "she's "greatly" concerned by the most sustained rise in U.S. wealth and income inequality since the 19th century…"

  - Cingano (2014, p. 6) "econometric analysis suggests that income inequality has a negative and statistically significant impact on subsequent growth…what matters most is the gap between low income households and the rest of the population…no evidence is found that those with high incomes pulling away from the rest of the population harms growth."

  - World Economic Forum reported that "Inequality is one of the key challenges of our time"

- Existing income and wealth distributions are perceived to be unfair/unjust

  - The Economist October 13, 2012 that the "Growing inequality is one of the biggest social, economic and political challenges of our time."

- Fairness and equity involve subjective value judgements by members of a society.

  - Thresh (2002, p. 15) highlights that: "A perfectly functioning market system can assure an efficient allocation of resources…But…a perfectly functioning market economy cannot guarantee that the distribution of goods and services will be socially optimal." Thresh (2002, p. 9) also notes that: "The equity criterion is more difficult to define because neither economists nor anyone else have reached a consensus on what is equitable or fair in the realm of economic affairs."

  - it is generally accepted that people with higher incomes should pay relatively larger shares of their earnings in taxes. However, the real disagreement is over how much

What is the evidence for NL?

- The Lorenz curve and the Gini coefficient are standard techniques used to measure income inequality — both their levels and changes

- In last 30 years, disposable income inequality has grown for all provinces, except Prince Edward Island

- In last 30 years, NL's rank in terms of inequality improved from fourth to fifth, in terms of most unequal

- That is, NL has improved one rank, even though the Gini coefficient has gotten slightly worse.

- Utilizing Statistics Canada's Longitudinal Administrative Database (LAD), the 99th percentile (top 1% of income earners) is 6.4 times that of the 50th percentile in 2007-11

  – That is, for every dollar that an individual in the middle of the income distribution in NL earned, the person at the 99th percentile earned $6.40 or 6.4 times as much

# Change in Rank of Inequality by Province in the Last 30 Years
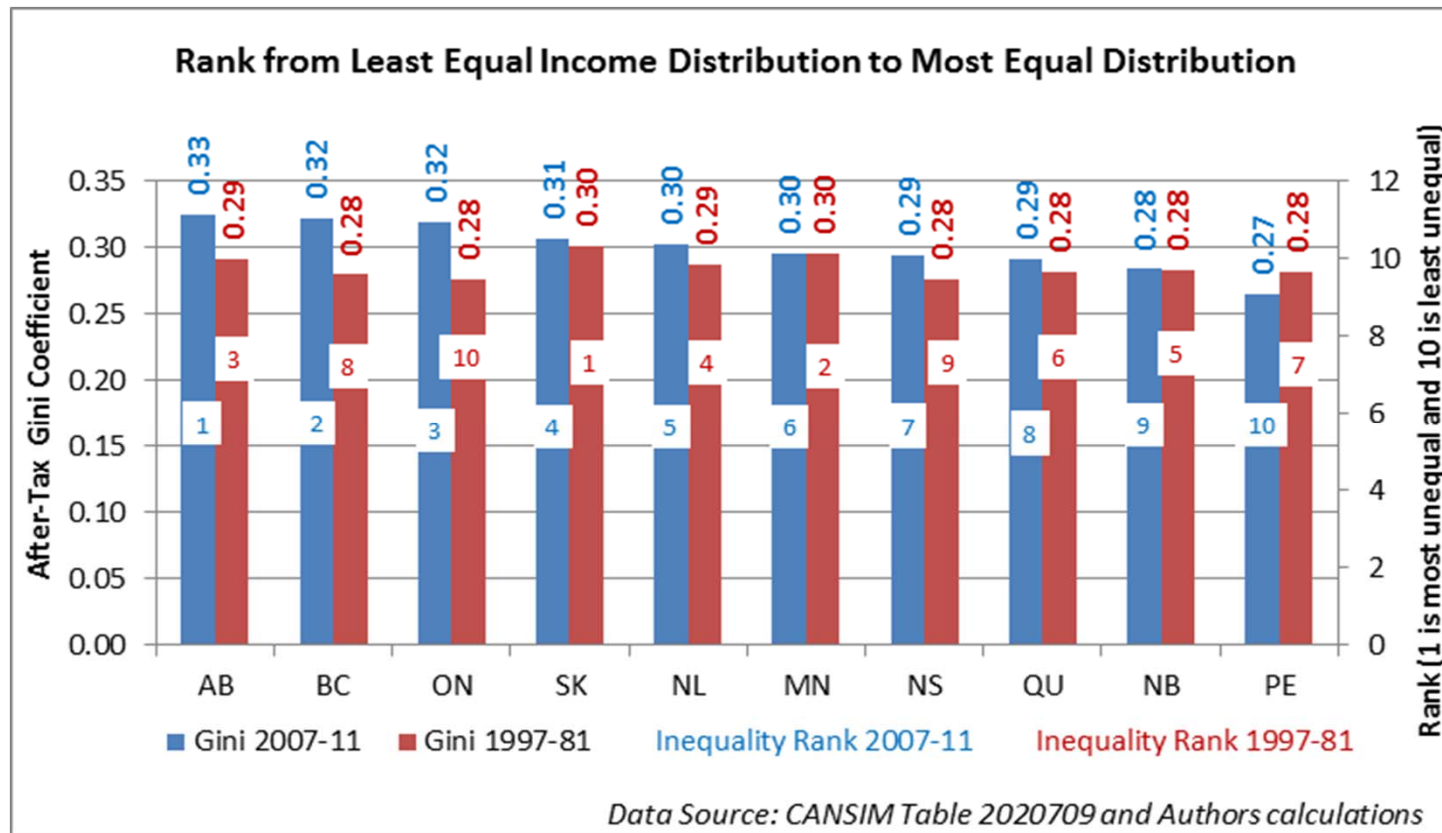
While Gini coefficient has increased, NL is more or less in the middle and that really has not changed appreciably

Lorenz Curves and Gini Coefficients – An Illustration
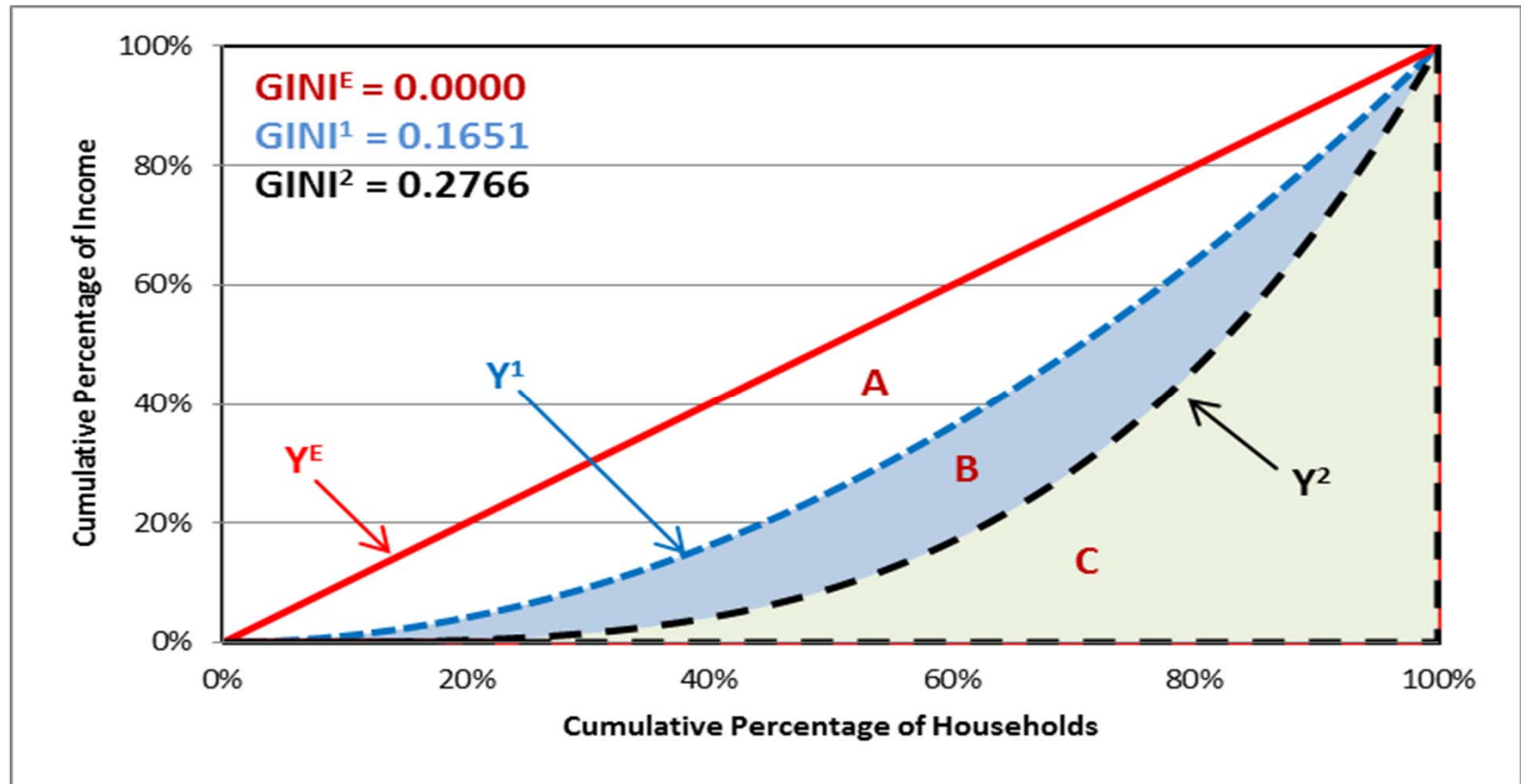
These are standard techniques for measuring income inequality

Top 1% in Canada and the US

Income share of the top 1%, 0.1%, and 0.01%,
Canada, 1920 - 2009; United States, 1920- 2010
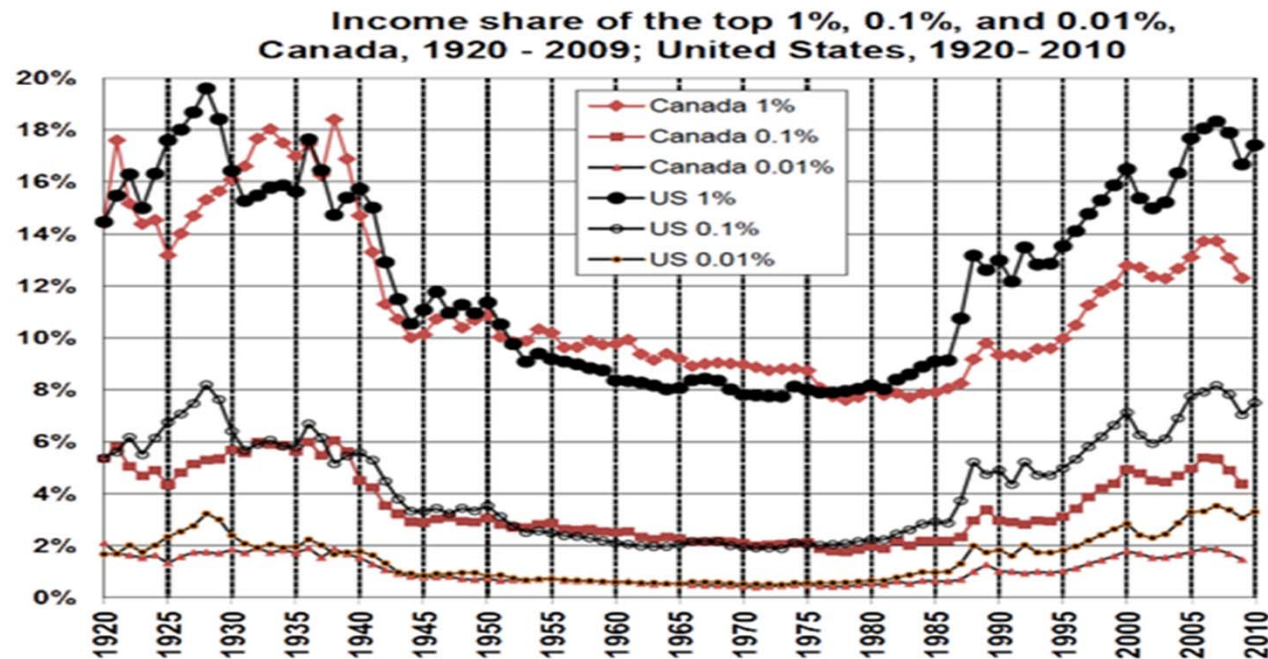
Source: Veall (2012)

Note: Canadian results are by taxfiler. United States results are by family. Source: Canada: Author's calculations based on special order results provided to him by Statistics Canada using the Longitudinal Administrative Database; United States: Piketty and Saez (2003), as updated to 2010 at the website of Emmanuel Saez, http://elsa.berkeley.edu/~saez/TabFig2010.xls, March 2012, as accessed August 2, 2012.

- **The problem of income inequality appears more pronounced in the US than in Canada, but clearly the top 1% are capturing an increasing share of income**

Top 1% of Income Shares by Provinces

Top 1% income shares by province, 1982-2009
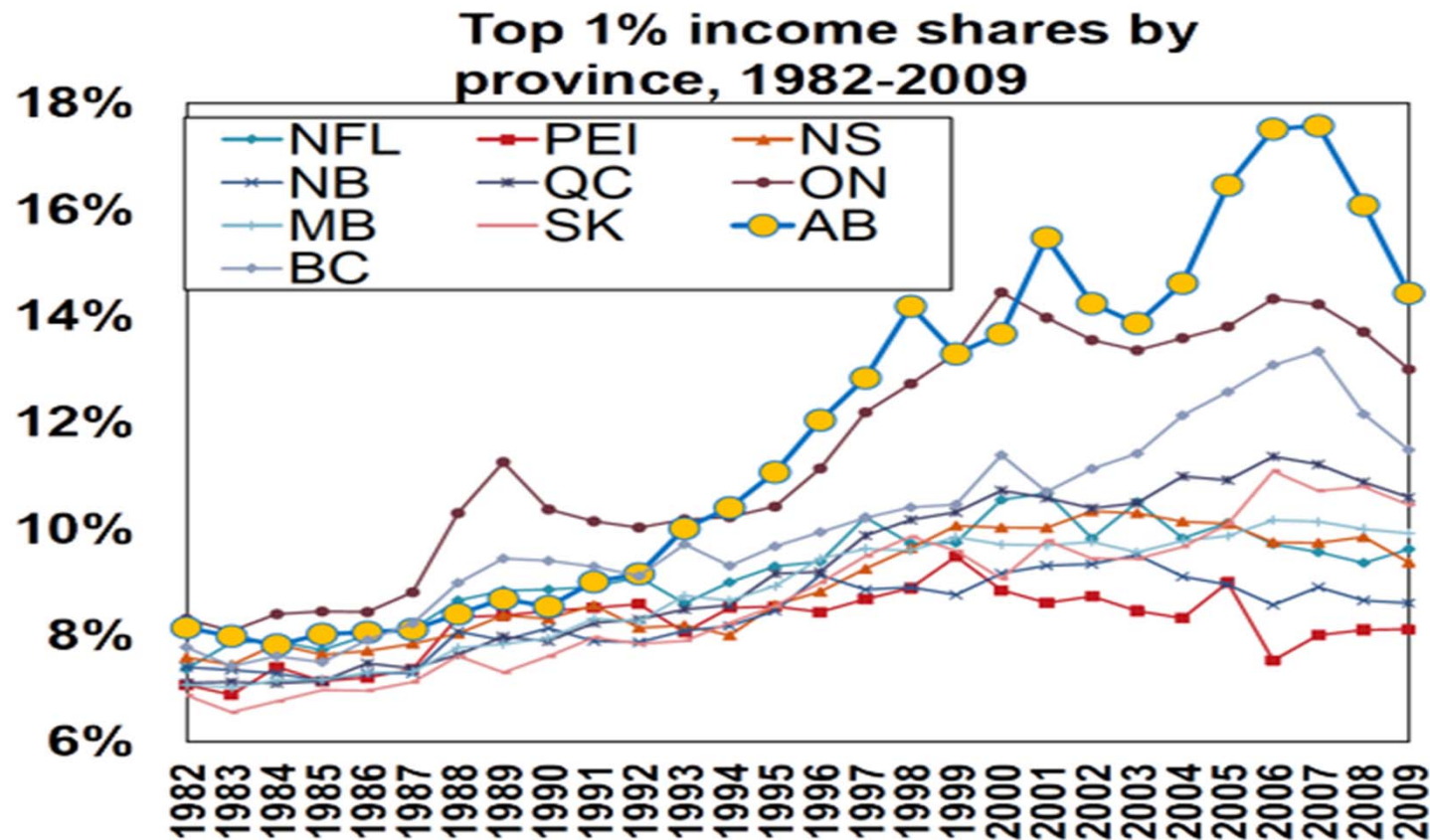
Source: Veall (2012)

Note: Results are by taxfiler. Source: Author's calculations based on special order results provided to him by Statistics Canada using the Longitudinal Administrative Database.

The situation in NL does not appear as pronounced as in most other provinces – most recent data puts NL around 4th

Ratio of After-Tax Income Thresholds for the top 1% and 10% of Earners to Median Income in Newfoundland and Labrador 1982-2012

Data Source: CANSIM Table 2040002
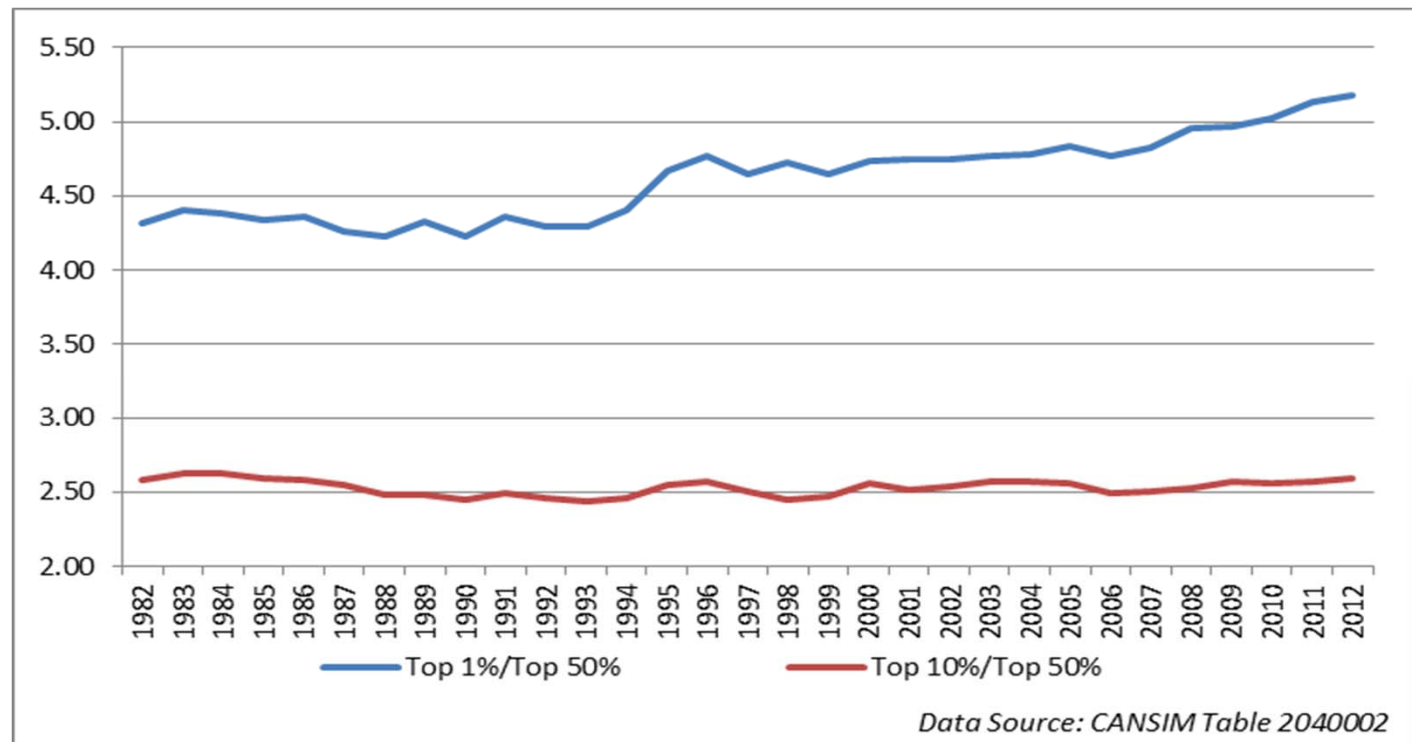
The top 10% compared to the median was relatively constant over the whole period, but the top 1% to the median has increased in NL after 1994

# Average Market Incomes, Adjusted and Unadjusted by Quintile, All Family Units, NL, $2011

Data Source: CANSIM Table 2020706
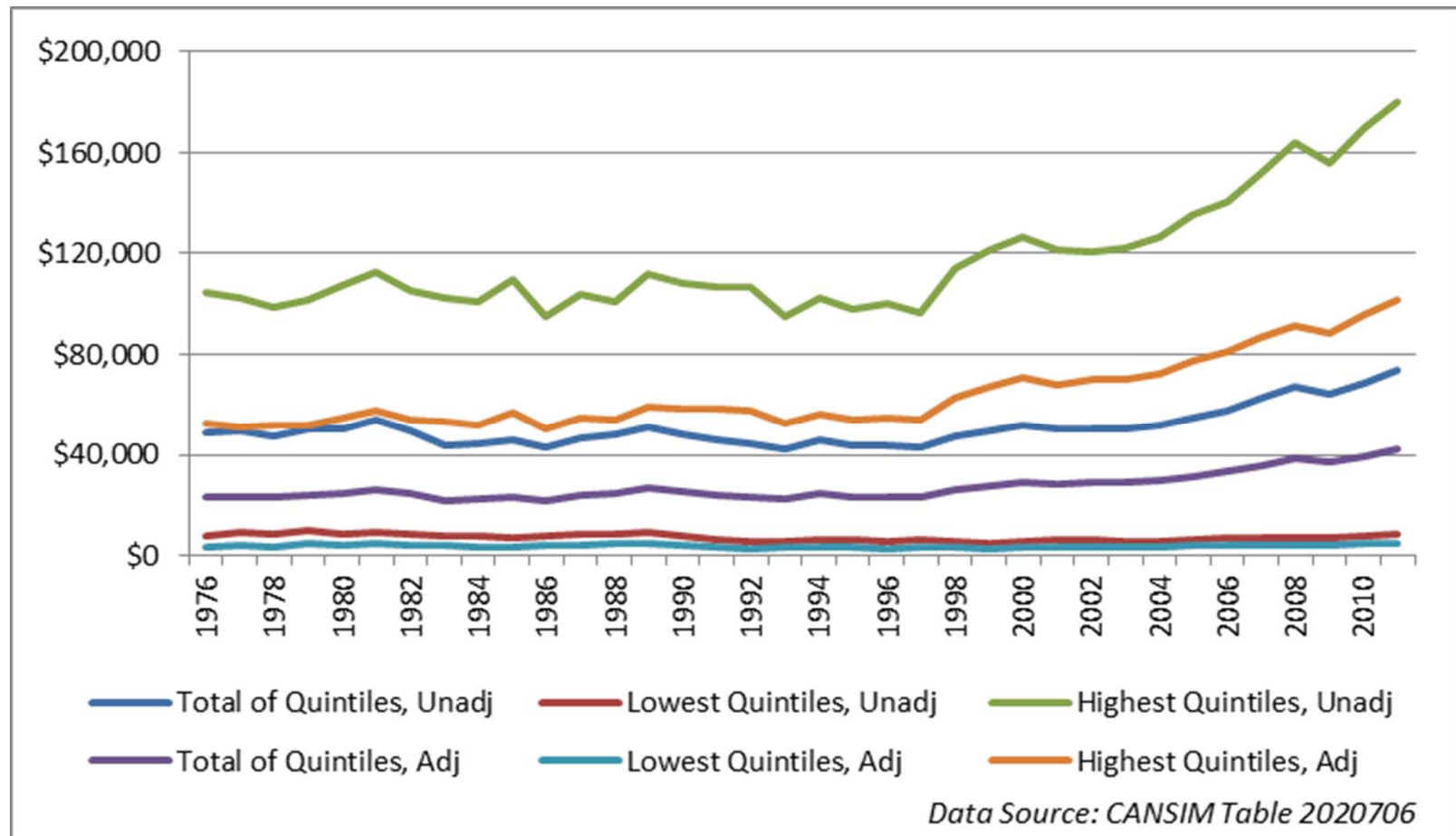
**While all groups are growing, incomes for the highest income groups are growing faster**

This is the kind of evidence that people would point to with respect to a problem concerning income inequality

Adjusted Average After-Tax Income, by Quintile, All Family Units, NL, $2011
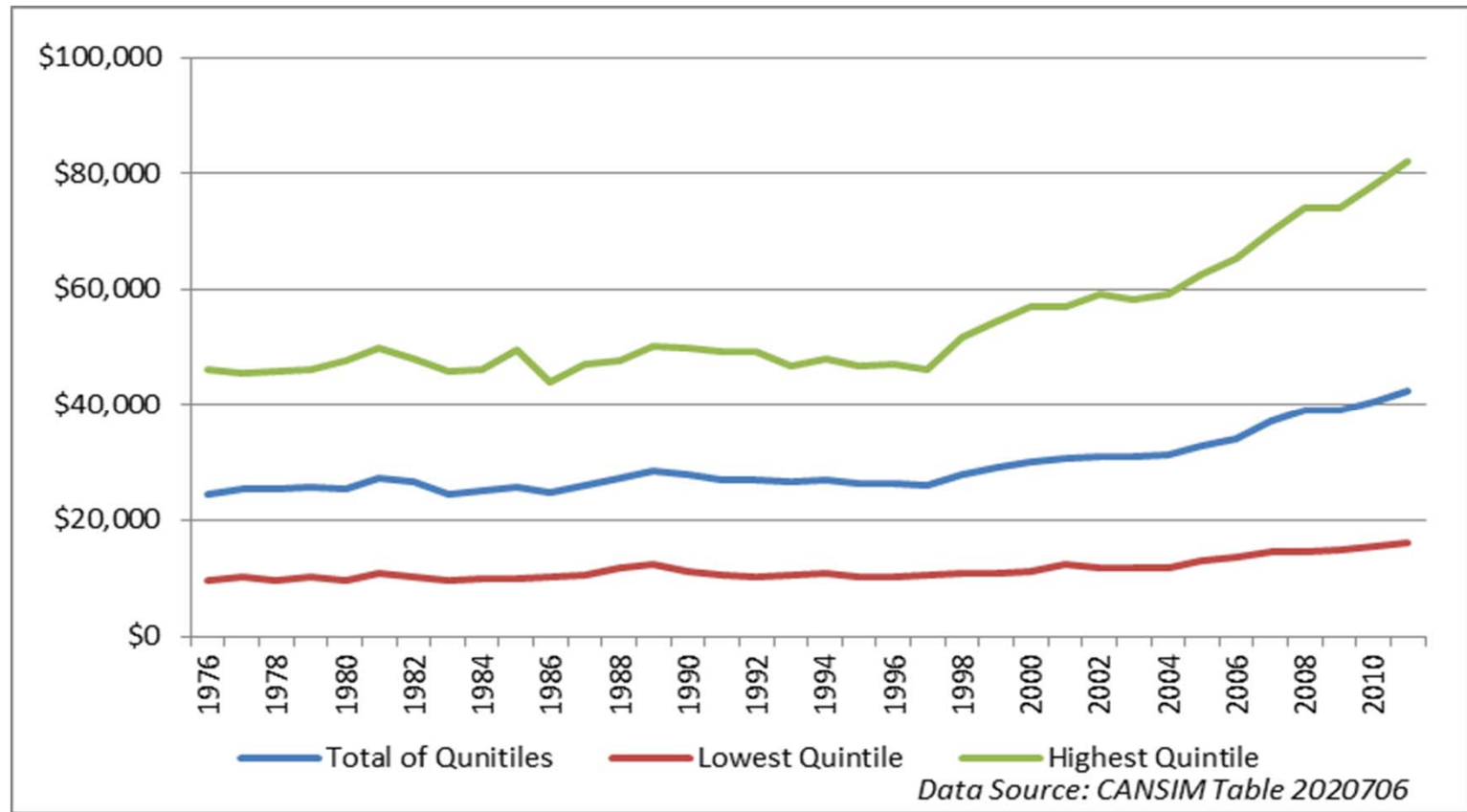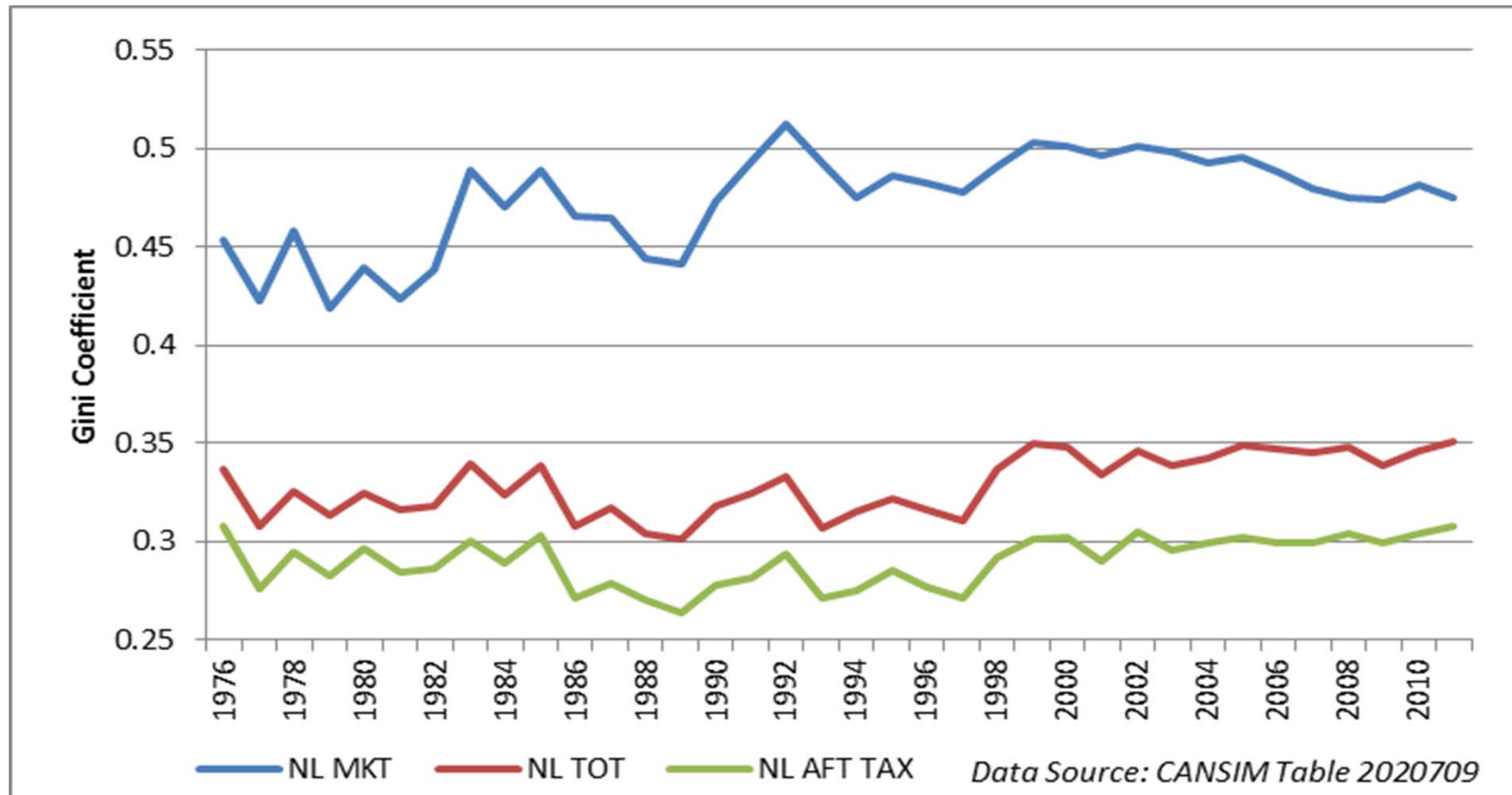

This is same point – incomes for higher income groups are rising faster than for lower income groups

Adjusted After-Tax Income Shares in NL by Income Quintiles for All Family Units ($2011)
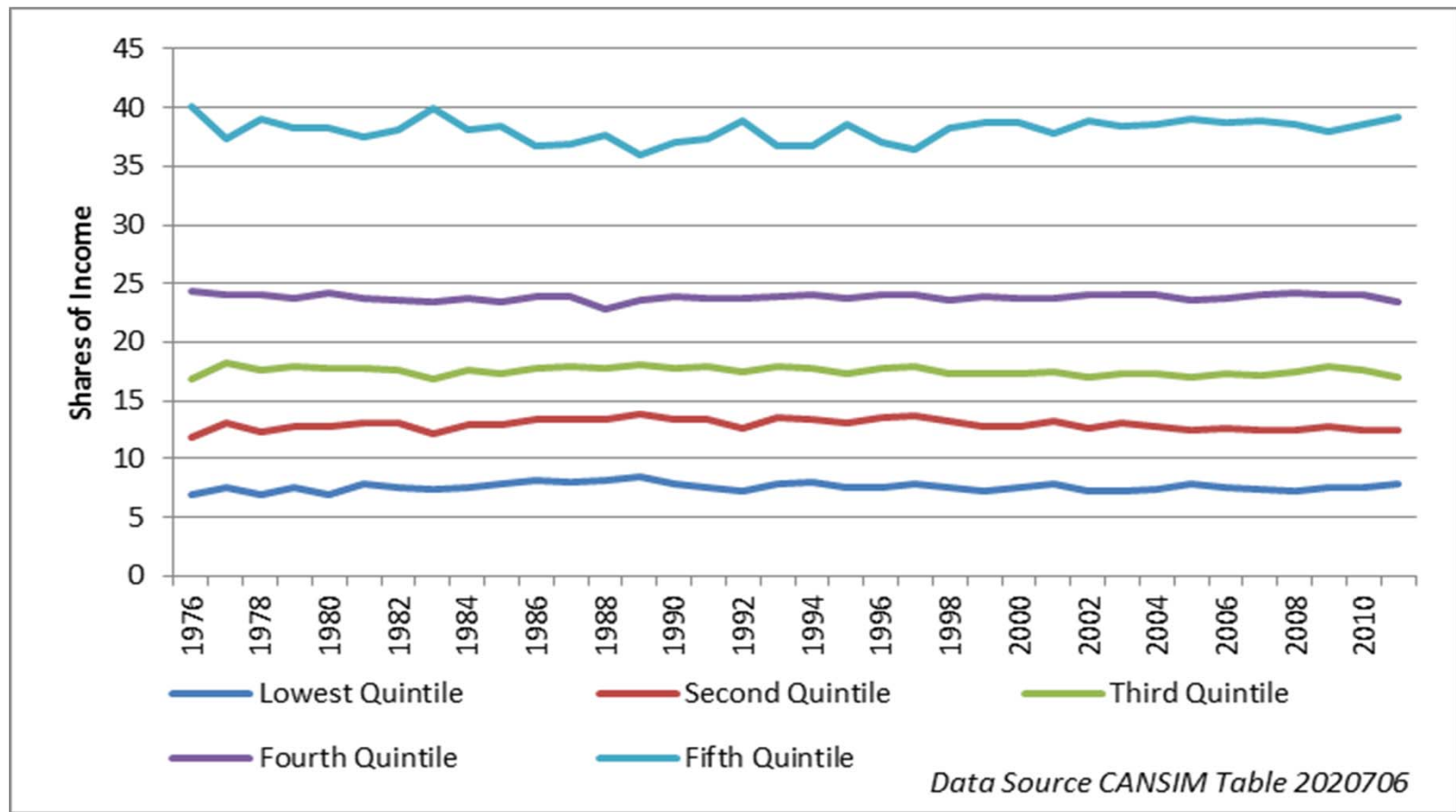

While incomes are rising, after-tax income shares are surprisingly constant

Gini Coefficients of Adjusted Market, Total and After-Tax Income of All Family Units, NL


Inequality in market income has been rising, but transfers and taxes have worked and made the after-tax/transfer income distribution more equal than the market income distribution and it is relatively flat

A Comparison of Provincial Income Tax Rates by Income Tax Brackets – Newfoundland and Labrador and the Maritime Provinces
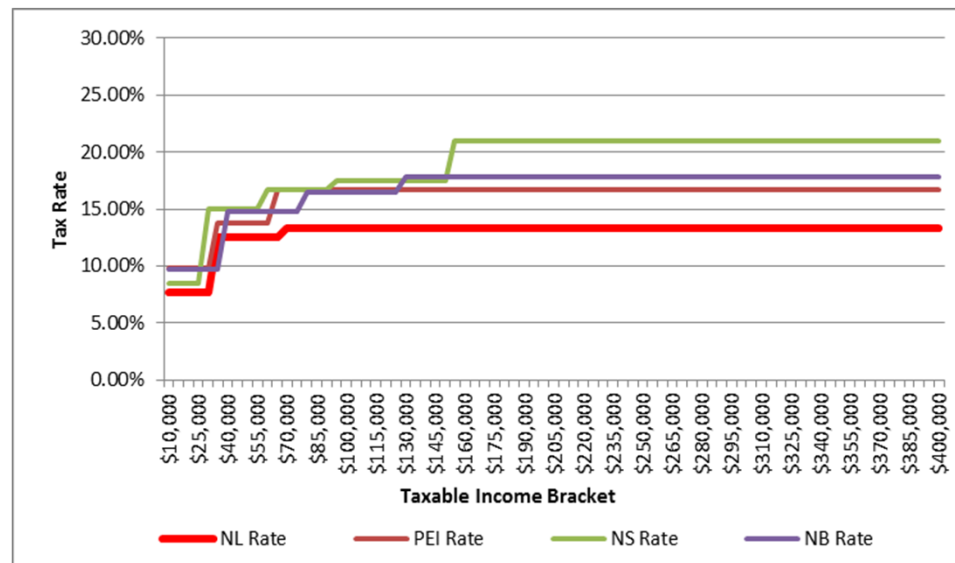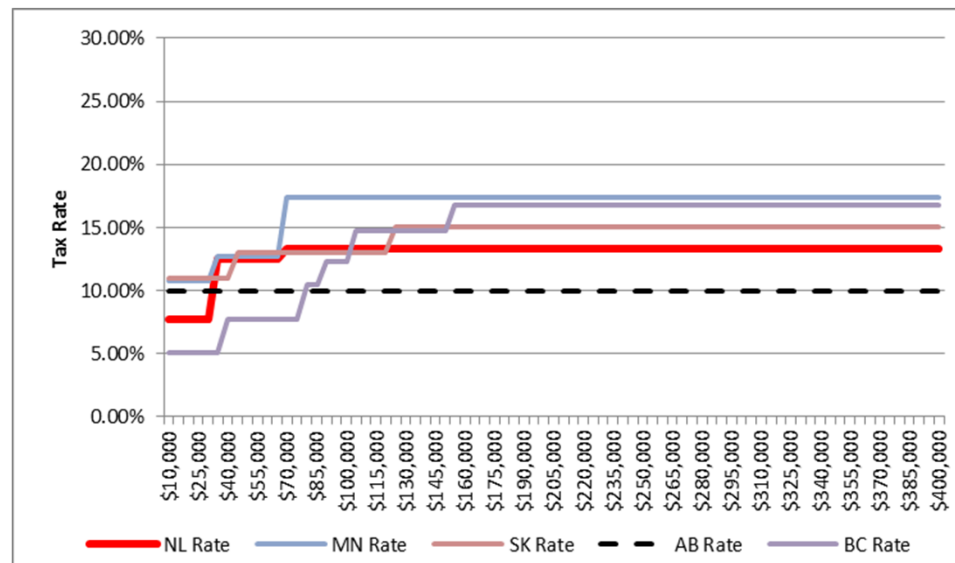

Current tax rate on NL high income taxpayers is the lowest taxes in Atlantic Canada

A Comparison of Provincial Income Tax Rates by Income Tax Brackets – Newfoundland and Labrador, Quebec and Ontario
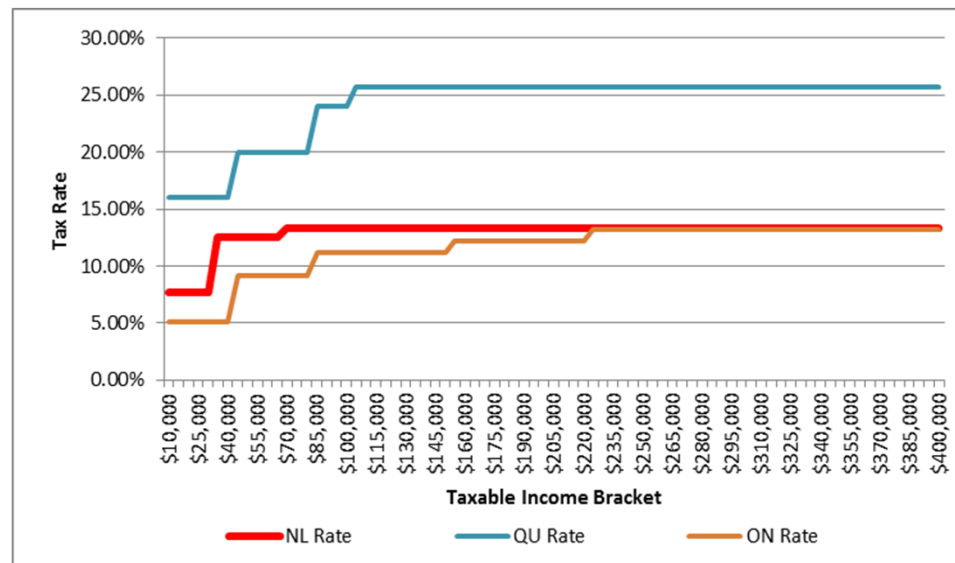
Current tax rate on NL high income taxpayers is the lower than in central Canada, especially when Ontario's surtaxes are taken into account
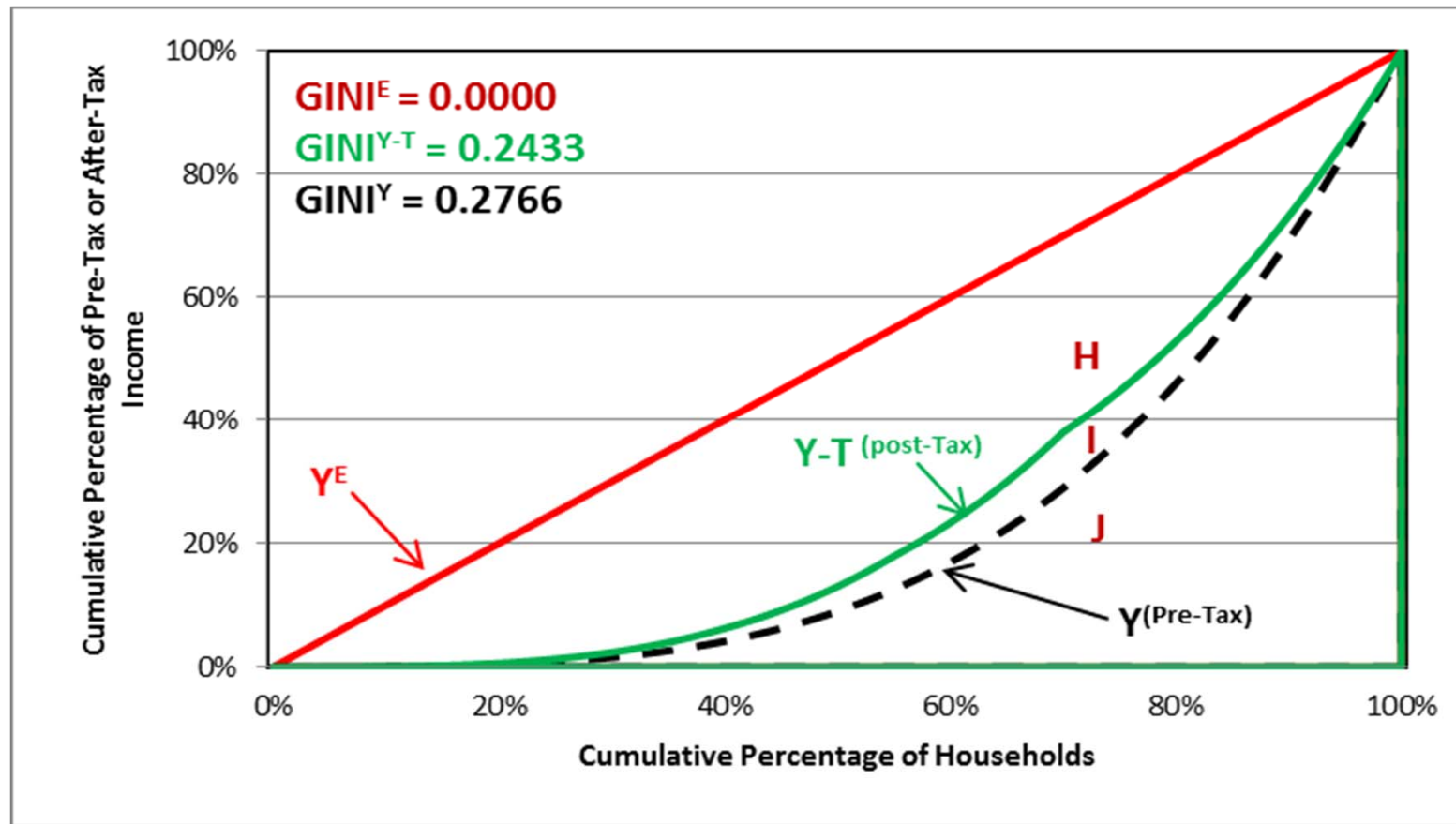
A Comparison of Provincial Income Tax Rates by Income Tax Brackets –Newfoundland and Labrador and the Western Provinces

Current tax rate on NL high income taxpayers is the lower than in western Canada, except Alberta

Redistributive effect

$$RE = GINI^{PRETAX} - GINI^{POSTTAX} \qquad eqn.(1)$$

GINI^E = 0.0000
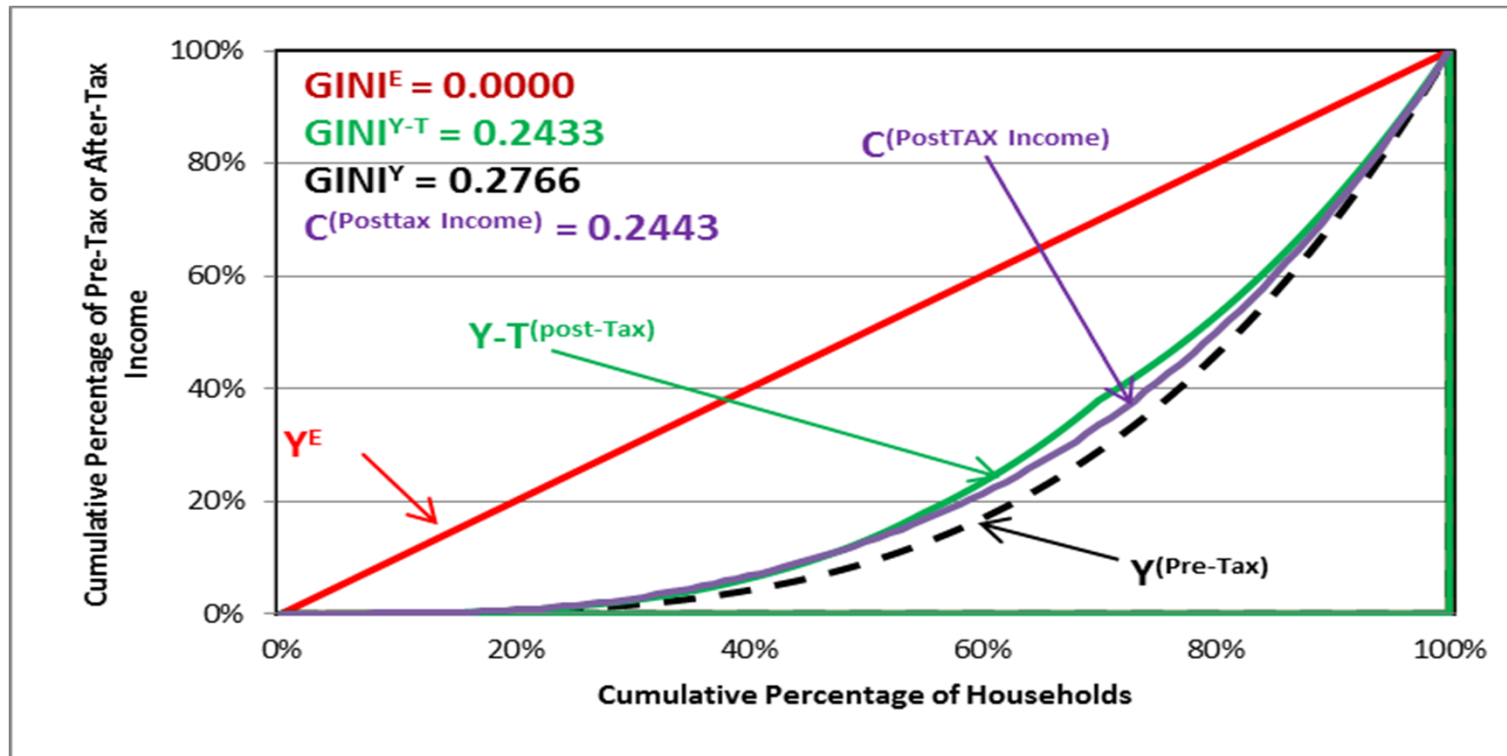**GINI^{Y-T} = 0.2433**
GINI^Y = 0.2766

RE index of 0.0333 – calculated as 0.2766 – 0.2433, the after-tax income distribution is more equal than the pre-tax income distribution.

Reynolds-Smolensky index (RS index)

$$RS = GINI^{PRETAX} - CONC^{PROGRESSIVE}_{POSTTAX}$$

$$RR = GINI^{POSTTAX} - CONC^{PROGRESSIVE}_{POSTTAX}$$

GINI^E = 0.0000
GINI^{Y-T} = 0.2433
GINI^Y = 0.2766
C$^{(Posttax\ Income)}$ = 0.2443

C$^{(PostTAX\ Income)}$

Y-T$^{(post-Tax)}$

Y^E

Y$^{(Pre-Tax)}$

Cumulative Percentage of Pre-Tax or After-Tax Income

Cumulative Percentage of Households

RS index would have an implied value of 0.0233 and the re-ranking effect is 0.0100

Kakwani index (K)

$$K = CONC^{PROGRESSIVE} - GINI^{PRETAX}$$
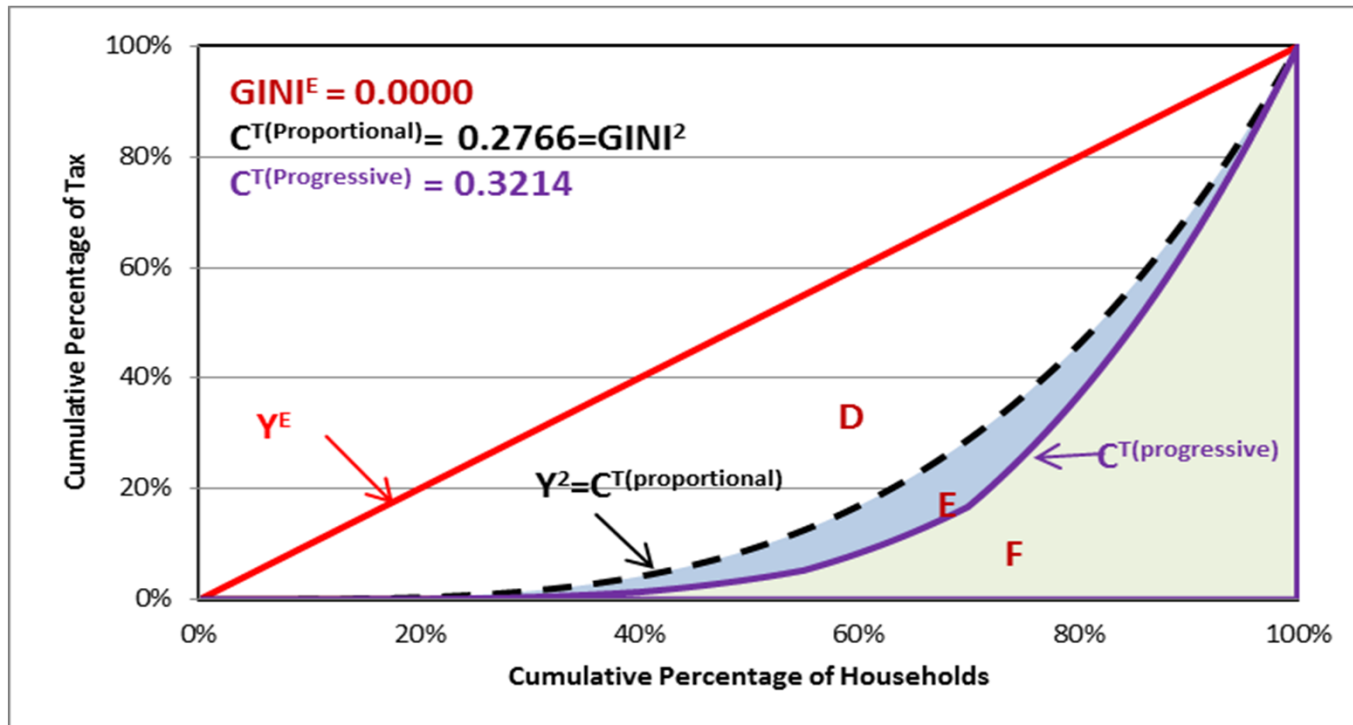
The concentration coefficient for the hypothetical progressive tax is 0.3214, which is larger in value than the pre-tax Gini coefficient (0.2766) or the Kakwani index has a value of 0.0448.

Other Indicators Used

Musgrave and Thin (1984) index

$$MT = \frac{1 - GINI^{POSTTAX}}{1 - GINI^{PRETAX}}$$

Suits index (S)

$$S = 1 - \frac{CONC^{PROGRESSIVE}}{CONC^{PROPORTIONAL}}$$

Atkinson-Plotnick (AP) index

$$AP = 0.5 * \frac{GINI^{POSTTAX} - CONC^{PROGRESSIVE}_{POSTTAX}}{GINI^{POSTTAX}}$$

# Selected Estimated Tax Revenues and Transfer Programs, 2015

Item	Magnitude (millions of dollars)
Provincial Taxes	**$2,623.1**
Provincial Income Tax	$1,393.3
Provincial Commodity Tax	$1,229.8
Provincial Transfers	**$462.1**
Family Programs	$11.4
Elderly Programs	$48.0
Worker's Compensation	$143.7
Social Assistance	$243.0
Other Prov. Transfers	$14.1
Prov. Refundable Credits	$1.9

Base Case Results

| Indicator	Value for Total Income	Value for Market Income
Pre-tax Gini	**0.4001**	**0.5210**
Post-tax Gini	**0.3511**	0.3501
Average tax rate	0.2136	0.0711
Reynolds-Smolensky net redistributive effect	0.0490	0.1709
Kakwani Progressivity Index	0.1857	2.3605
Vertical Equity	0.0504	0.1806
Reranking	0.0014	0.0097
Concentration coefficient of post-tax income	0.3497	0.3404
Suits Progressivity Index	0.1944	2.2660
Musgrave Progressivity Index	1.0817	1.3568
Atkinson-Plotnick Horizontal Inequality	0.0020	0.0138

Progressive structure currently

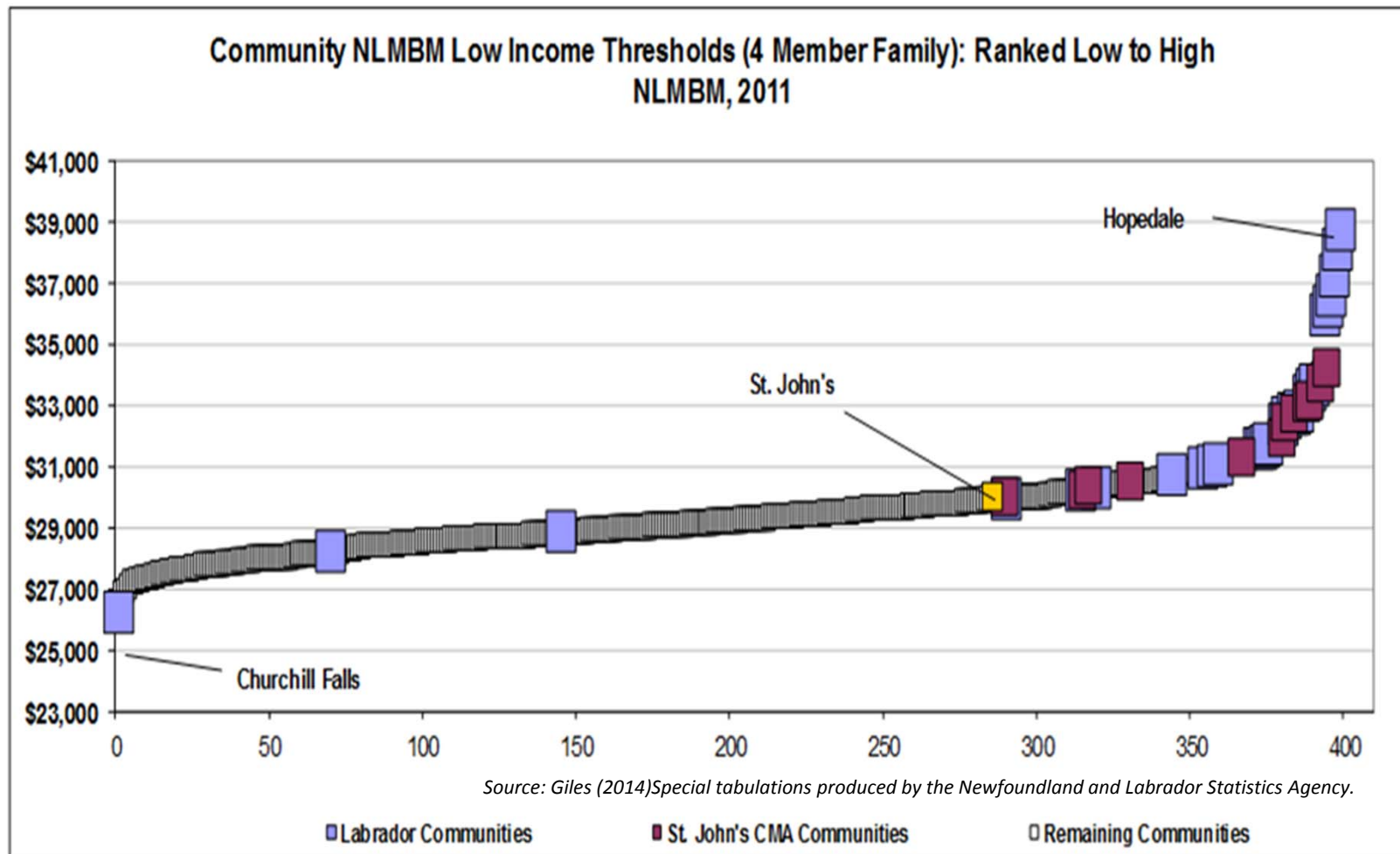# Effective Average Tax Rate for All Nuclear Families
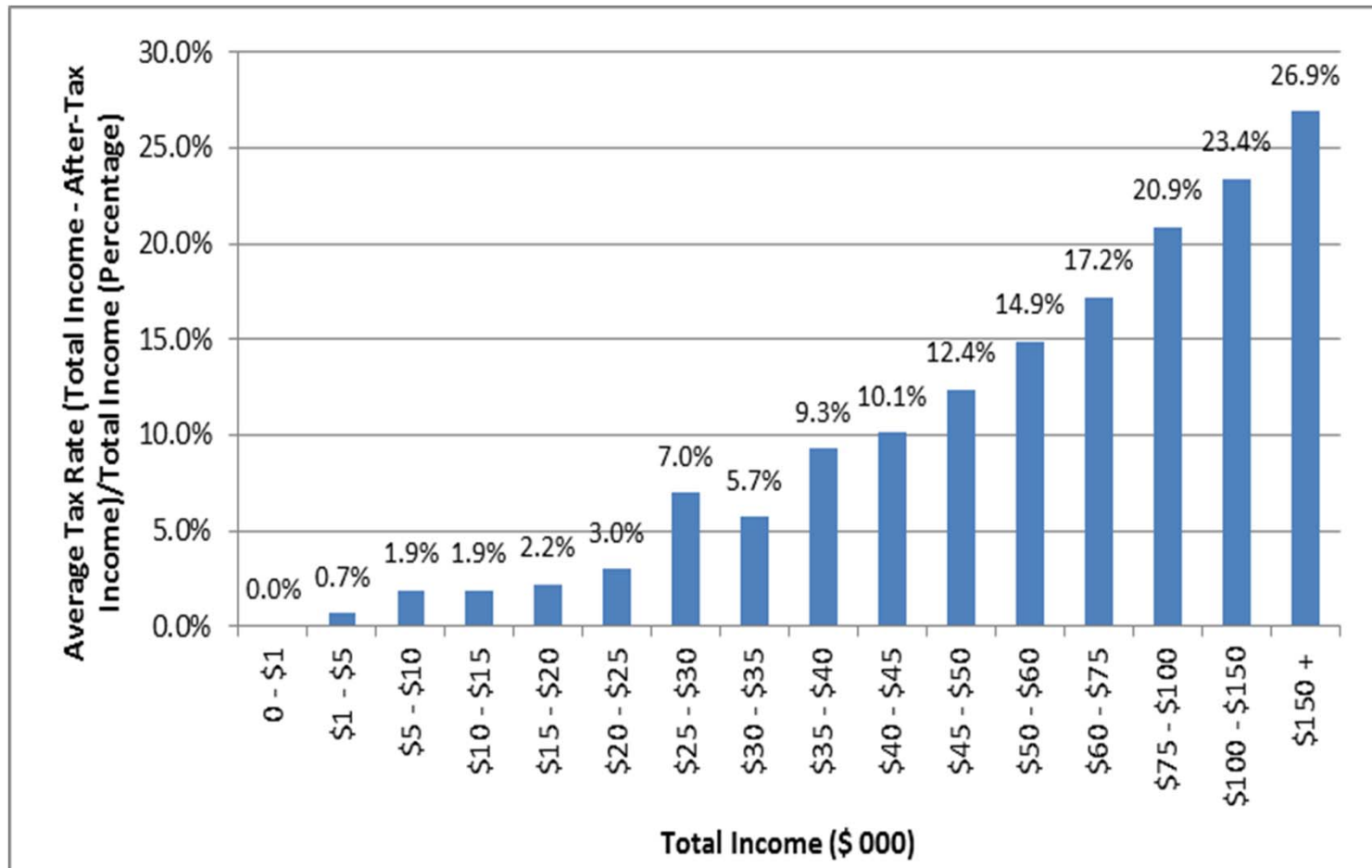
Increasing effective average tax rates confirms the progressive structure currently

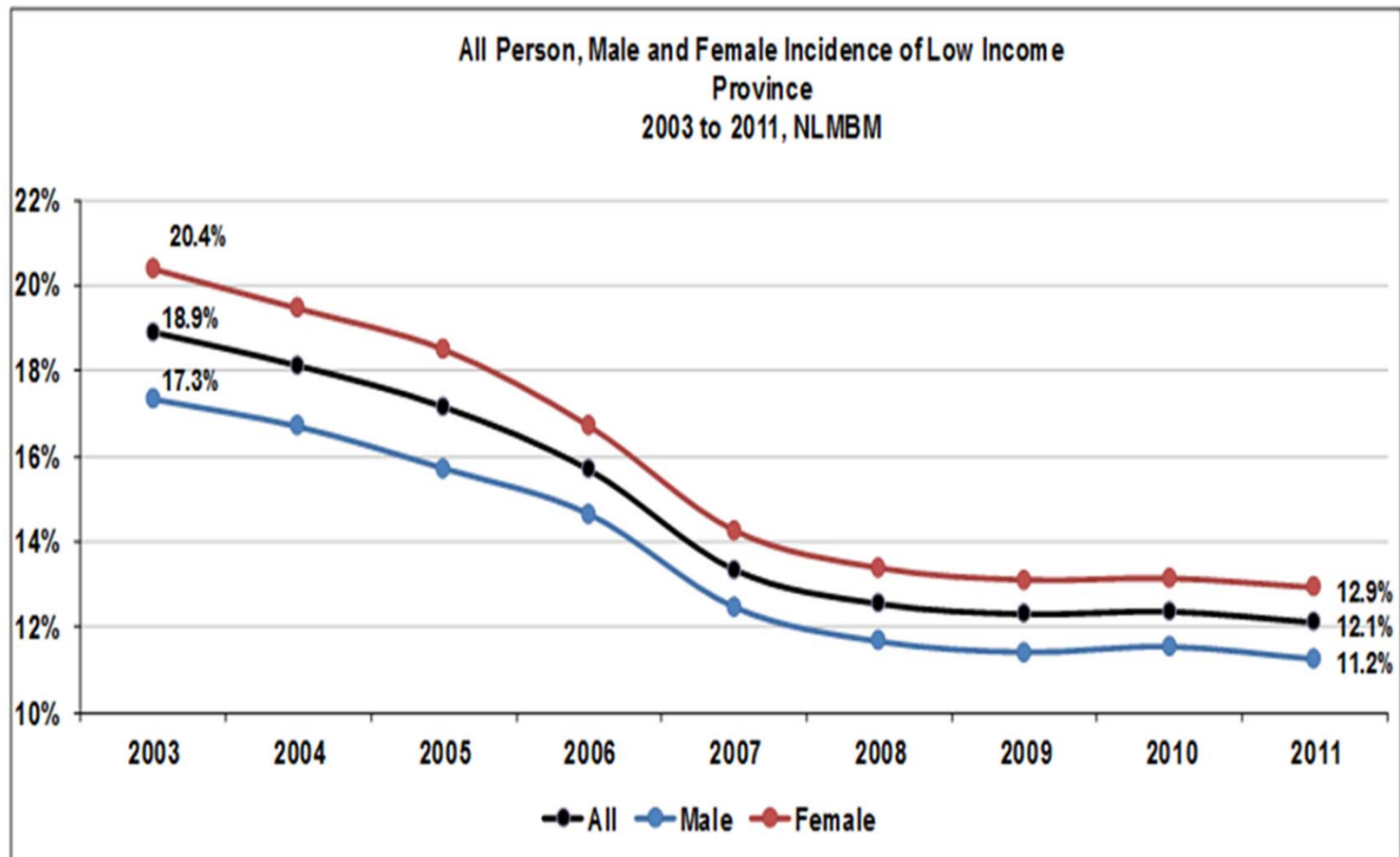# Distribution of All Nuclear Families by Total Income, 2015

285,339 families in 2015
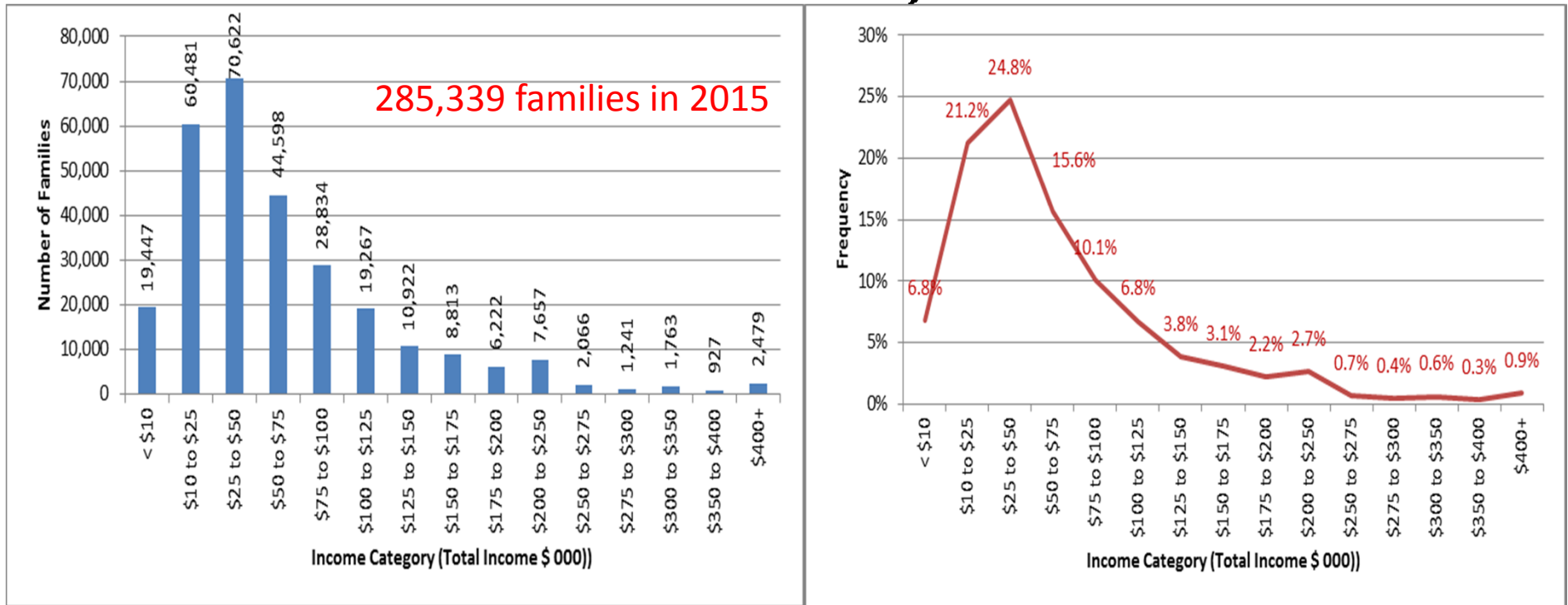
- The average "total" income was $72,428

- Median "total" incomes was $45,240

- 265 families in the simulation sample with income in excess of $1 million and

- 78.5% of families in the simulation sample had less than $100,000 in 2015.

Community NLMBM Low Income Thresholds (4 Member Family): Ranked Low to High NLMB, 2011

Community NLMBM Low Income Thresholds (4 Member Family): Ranked Low to High NLMBM, 2011

Source: Giles (2014)Special tabulations produced by the Newfoundland and Labrador Statistics Agency.

□ Labrador Communities ■ St. John's CMA Communities □ Remaining Communities

Low income threshold depends on where you live

All Person, Male and Female Incidence of Low Income, NLMBM, 2003 to 2011

All Person, Male and Female Incidence of Low Income
Province
2003 to 2011, NLMBM

20.4%
18.9%
17.3%
12.9%
12.1%
11.2%

2003 2004 2005 2006 2007 2008 2009 2010 2011

All Male Female

Source: Giles (2014)Special tabulations produced by the Newfoundland and Labrador Statistics Agency.

Things have been improving for both genders in terms of the incidence of low income

Incidence of Low Income by Family Type, NLMBM, 2003 to 2011

Incidence of Low Income by Family Type
Province
NLMBM 2003 to 2011

Source: Giles (2014)Special tabulations produced by the Newfoundland and Labrador Statistics Agency.
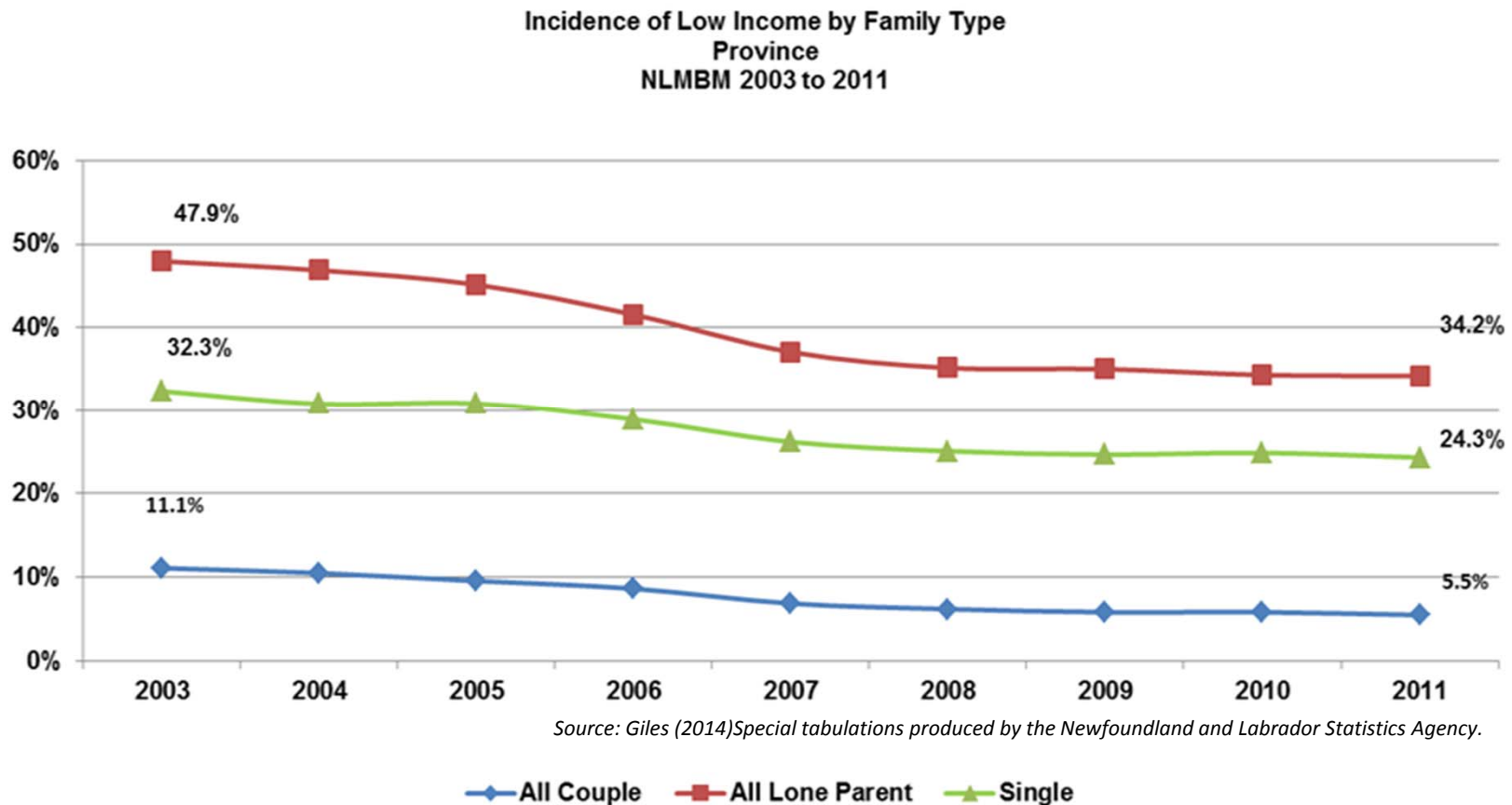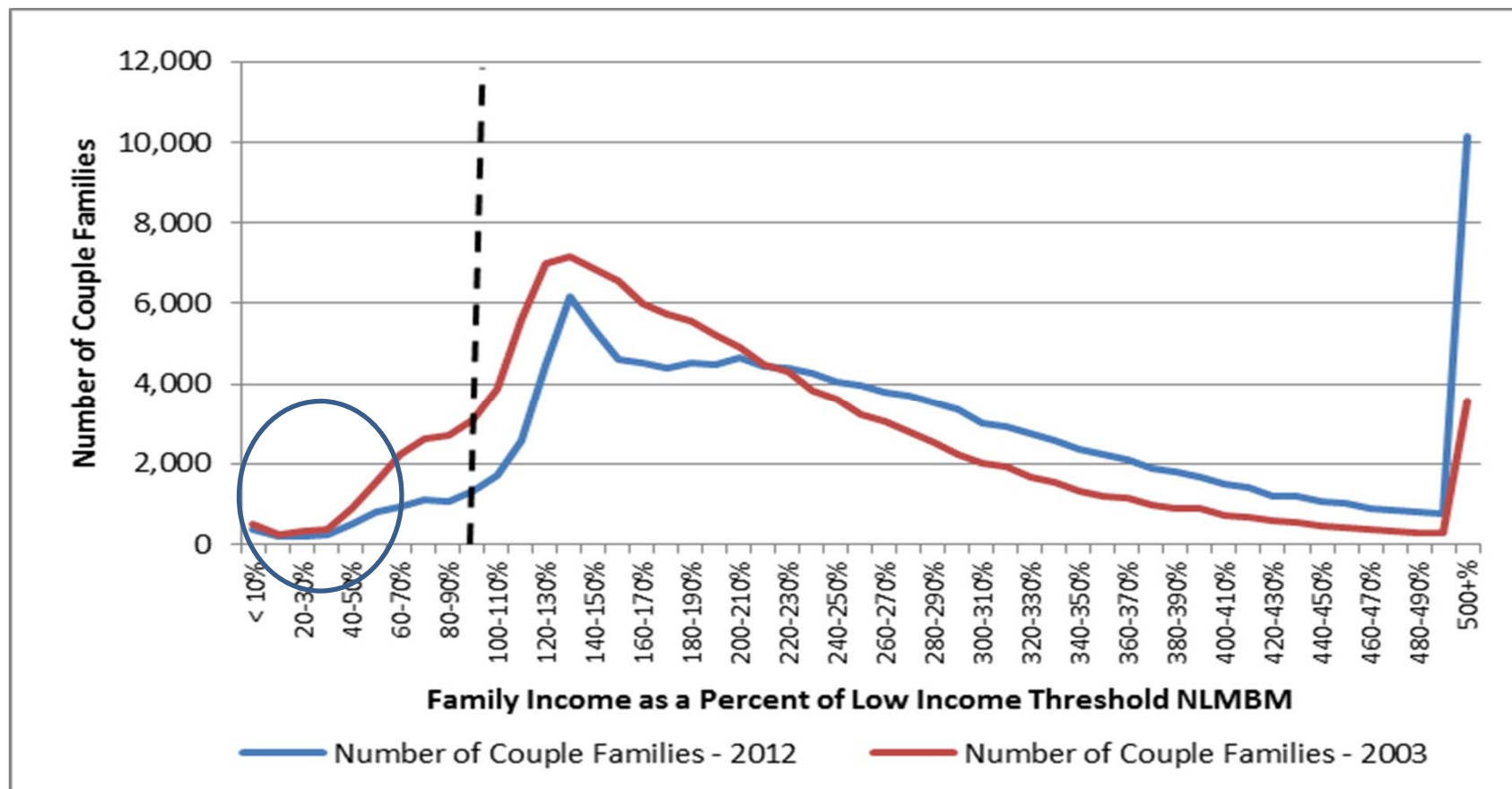
Things have been improving for all family types in terms of the incidence of low income

A Comparison of the Distribution of All Families by Family Income as a Percent of the Low Income Threshold, NLMBM for 2003 and 2012
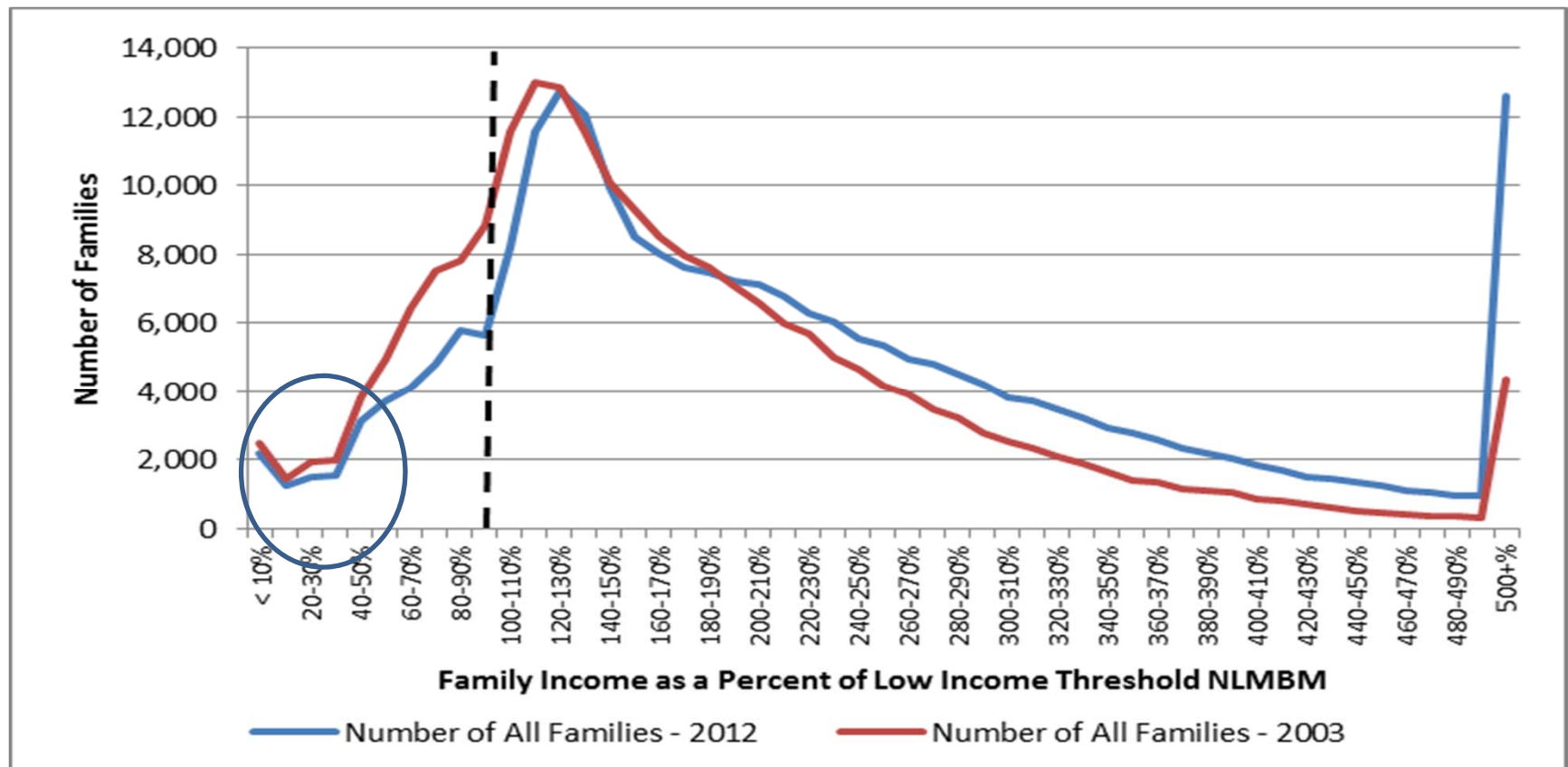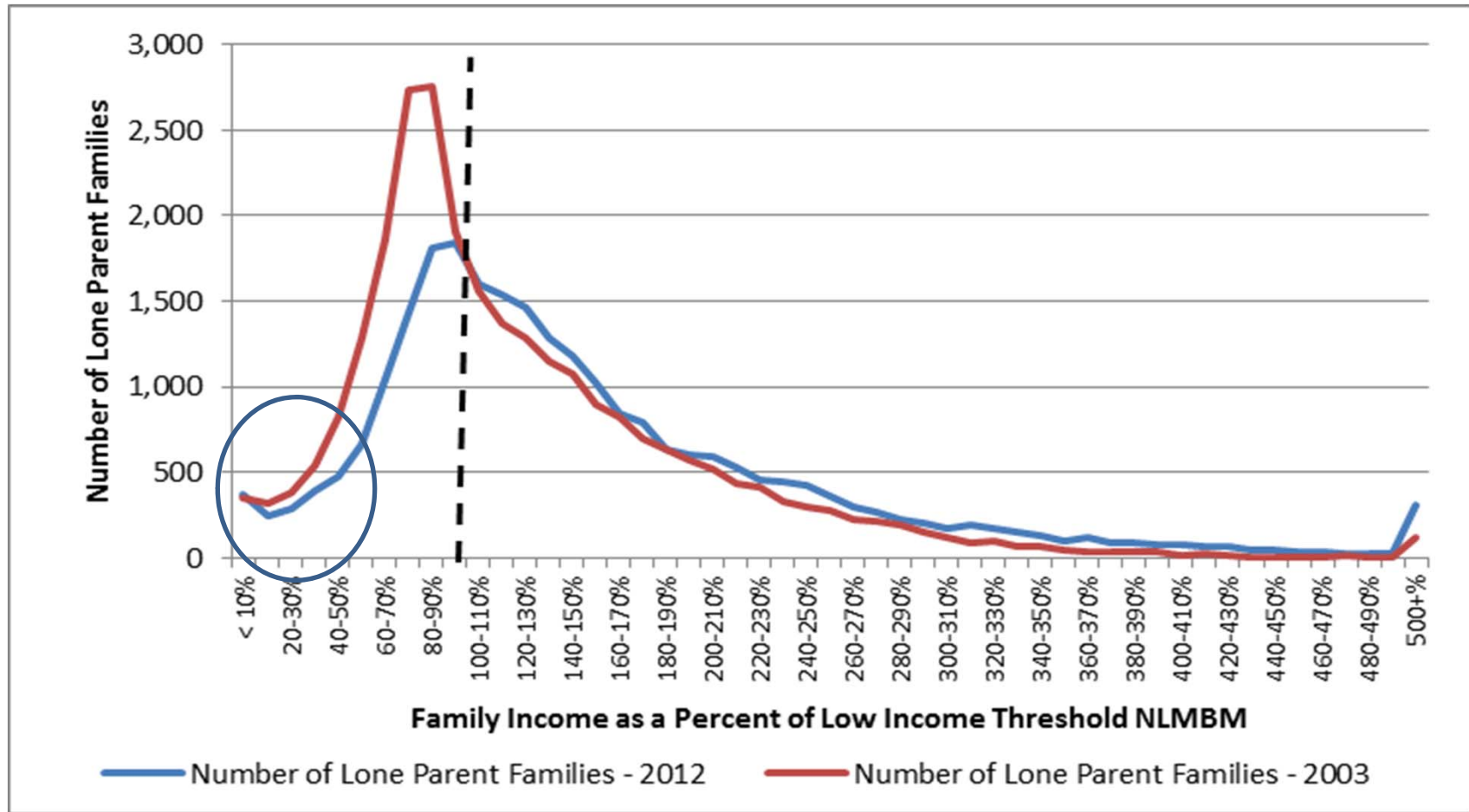

While most families doing better, the "poorest of the poor", not so much!

A Comparison of the Distribution of Couple Families by Family Income as a Percent of the Low Income Threshold, NLMBM for 2003 and 2012


Again for couple families, the "poorest of the poor", not improving much, while other families are improving

A Comparison of the Distribution of Lone Parent Families by Family Income as a Percent of the Low Income Threshold, NLMBM for 2003 and 2012

Same pattern with single parents

A Comparison of the Distribution of NFP Families by Family Income as a Percent of the Low Income Threshold, NLMBM for 2003 and 2012
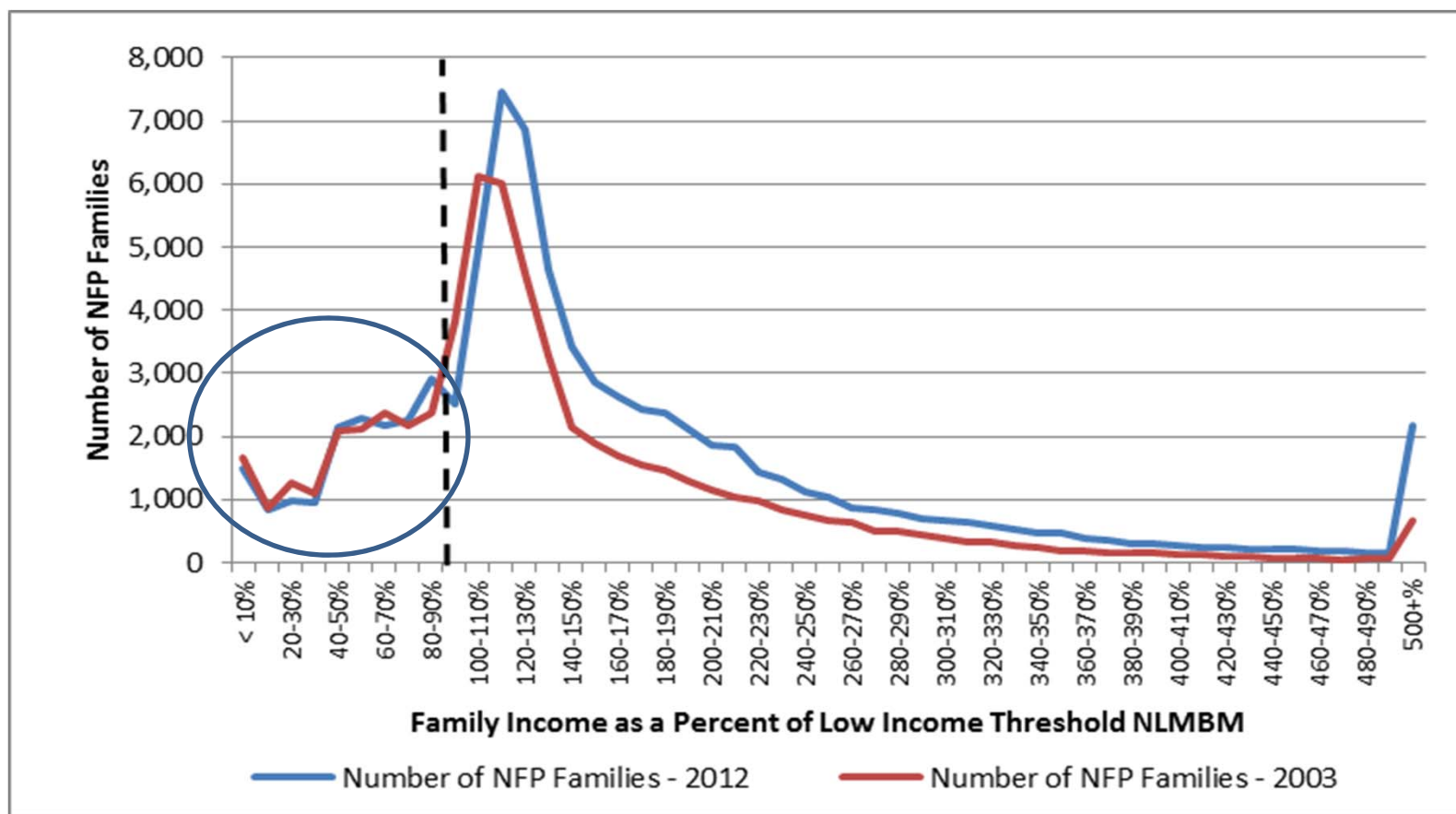
Same pattern with single individuals

Scenarios Analyzed

The following five scenarios beyond the existing base case were considered:

1. Enhanced low-income credit (NLMBM) funded by increases tax rates and tax brackets at the upper end of the income distribution;

2. Lower basic personal exemption funded by higher tax rates and brackets at the upper end of the income distribution;

3. Reduced tax rates for lower income individuals funded by higher tax rates and brackets at the upper end of the income distribution;

4. Enhanced HST credits funded by higher tax rates and brackets at the upper end of the income distribution; and

5. Enhanced low-income credit (NLMBM) funded by a surtax on the highest income tax bracket.

Scenario 1 – Higher Taxes & NLMBM Credit

Marginal Tax Rate Base Case	Income Bracket Base Case	Marginal Tax Rate Scenario 1	Income Bracket Scenario 1
7.7%	$35,008 and under	7.7%	$35,008 and under
12.5%	$35,009 to $70,015	12.5%	$35,009 to $70,015
13.3%	$70,016 and over	13.3%	$70,016 to $100,000
		13.8%	$100,001 to $160,000
		14.3%	$160,001 to $220,000
		17.6%	Over $220,000
Other Changes			
NL HST Credit	Unchanged for Base Case	NL HST Credit	Eliminated for Scenario 1
New NLMBM Credit	Not Introduced in Base Case	New NLMBM Credit	Introduced in Scenario 1
Basic Personal Exemption	Unchanged for Base Case	Basic Personal Exemption	Unchanged for Scenario 1
Surtax	Not Introduced in Base Case	Surtax	Not Introduced in Scenario 1

NLMBM Credit

- For 2015, NLMBM of the low-income threshold will be $16,455 on average across communities for a single individual and $32,910 for a family of four

- People in a single family whose income is at 50% of the threshold and below would receive $3,000 or slightly over 35% of the gap.

- The amount of the transfer would be reduced by 20% for each 10% above the 50%.

- A single person with an after-tax income at 90% of the threshold would therefore receive $500 per year.

- Subsequently, it was decided to increase the credit to those in the bottom 25% by 20% (or $600).

- This enhanced credit would imply that this particular family would receive $3,600 on an individual basis, or $7,200 for a family of four.

- The equivalized amount is determined taking square root of number of people in family – four people would be equivalent in expenditure need of $(4)^{0.5} = 2$

Estimated NLMBM Thresholds by Family Size, 2015

Family Size	Equivalized Size	Threshold
1	1.000	$16,455
2	1.414	$23,271
3	1.732	$28,501
4	2.000	$32,910
5	2.236	$36,794
6	2.449	$40,306
7	2.646	$43,536
8	2.828	$46,542
9	3.000	$49,365
10	3.162	$52,035
Max Credit		**$2,981**

Current HST Credit

- The current provincial portion of the HST credit (NLHSTC) is $40 per adult and $90 per child under 19 for family with net income of less than $15,000.

- The current credit is reduced by 5% by the amount that the family net income is above the $15,000.

- Under the current NLHST credit a single-mother with a net income of say $20,000 and two children would not receive a NLHST credit.

- Since her net income is $5,000 above the cut-off, all of her NLHSTC would be eliminated even though she and her family are in the NLMBM low-income group.

- Under the proposed NLMBM credit, her family's net income is just over 70% of the NLMBM threshold and therefore, she would receive 60% of the proposed credit or about $3,118.

Budgetary Impacts of Scenario 1 for 2015 – Effects of Combined Tax Changes and Enhanced NLMBM Credits

Scenario 1 Summary (NL - 2015)	Base ($M)	Scenario 1 ($M)	Net Change ($M)
Provincial Taxes	**$2,623.1**	**$2,677.8**	**$54.7**
Provincial Income Tax	$1,393.3	$1,448.0	$54.7
Provincial Commodity Tax	$1,229.8	$1,229.8	$0.0
Provincial Transfers	**$462.1**	**$516.9**	**$54.8**
Family Programs	$11.4	$11.4	$0.0
Elderly Programs	$48.0	$48.0	$0.0
Worker's Compensation	$143.7	$143.7	$0.0
Social Assistance	$243.0	$243.0	$0.0
Other Prov. Transfers	$14.1	$14.1	$0.0
Prov. Refundable Credits	$1.9	$0.0	-$1.9
NLMBM Credit	$0.0	$56.7	$56.7
Provincial Net Balance	**$2,161.0**	**$2,160.9**	**-$0.1**

Scenario 2 – Increase Basic Exemption

Marginal Tax Rate Base Case	Income Bracket Base Case	Marginal Tax Rate Scenario 2	Income Bracket Scenario 2
7.7%	$35,008 and under	7.7%	$35,008 and under
12.5%	$35,009 to $70,015	12.5%	$35,009 to $70,015
13.3%	$70,016 and over	13.3%	$70,016 to $100,000
		13.8%	$100,001 to $160,000
		14.3%	$160,001 to $220,000
		17.6%	Over $220,000
Other Changes			
NL HST Credit	Unchanged for Base Case	NL HST Credit	No Change for Scenario 2
New NLMBM Credit	Not Introduced in Base Case	New NLMBM Credit	Not Introduced in Scenario 2
Basic Personal Exemption	Unchanged for Base Case	Basic Personal Exemption	Increased to $11,312 for Scenario 2
Surtax	Not Introduced in Base Case	Surtax	Not Introduced in Scenario 2

Scenario 3 – Offsetting Tax Rates

| Marginal Tax Rate Base Case	Income Bracket Base Case	Marginal Tax Rate Scenario 3	Income Bracket Scenario 3
7.7%	$35,008 and under	**7.3%**	$35,008 and under
12.5%	$35,009 to $70,015	**12.1%**	$35,009 to $70,015
13.3%	$70,016 and over	**13.0%**	$70,016 to $100,000
		13.8%	$100,001 to $160,000
		14.3%	$160,001 to $220,000
		17.6%	Over $220,000
Other Changes			
NL HST Credit	Unchanged for Base Case	NL HST Credit	No Change for Scenario 3
New NLMBM Credit	Not Introduced in Base Case	New NLMBM Credit	Not Introduced in Scenario 3
Basic Personal Exemption	Unchanged for Base Case	Basic Personal Exemption	Unchanged for Scenario 3
Surtax	Not Introduced in Base Case	Surtax	Not Introduced in Scenario 3

Scenario 4 – Enhanced HST Credit

| Marginal Tax Rate Base Case	Income Bracket Base Case	Marginal Tax Rate Scenario 4	Income Bracket Scenario 4
7.7%	$35,008 and under	7.7%	$35,008 and under
12.5%	$35,009 to $70,015	12.5%	$35,009 to $70,015
13.3%	$70,016 and over	13.3%	$70,016 to $100,000
		14.3%	$100,001 to $160,000
		15.9%	$160,001 to $220,000
		18.0%	Over $220,000
Other Changes			
NL HST Credit	Unchanged for Base Case	NL HST Credit - Enhanced	Higher basic adult rate ($40 to $600) and child rates ($60 to $200) and higher income ($15,000 to $20,000) before claw back of the credit for Scenario 6
New NLMBM Credit	Not Introduced in Base Case	New NLMBM Credit	Not Introduced in Scenario 4
Basic Personal Exemption	Unchanged for Base Case	Basic Personal Exemption	Unchanged for Scenario 4
Surtax	Not Introduced in Base Case	Surtax	Not Introduced in Scenario 4

Scenario 5 – Surtax

| Marginal Tax Rate Base Case	Income Bracket Base Case	Marginal Tax Rate Scenario 5	Income Bracket Scenario 5
7.7%	$35,008 and under	7.7%	$35,008 and under
12.5%	$35,009 to $70,015	12.5%	$35,009 to $70,015
13.3%	$70,016 and over	13.3%	$70,016 and over
Other Changes			
NL HST Credit	Unchanged for Base Case	NL HST Credit	Eliminated for Scenario 5
New NLMBM Credit	Not Introduced in Base Case	New NLMBM Credit	Introduced in Scenario 5
Basic Personal Exemption	Unchanged for Base Case	Basic Personal Exemption	Unchanged for Scenario 5
Surtax	Not Introduced in Base Case	Surtax 12.7% for tax payable at the highest income threshold	Introduced in Scenario 5

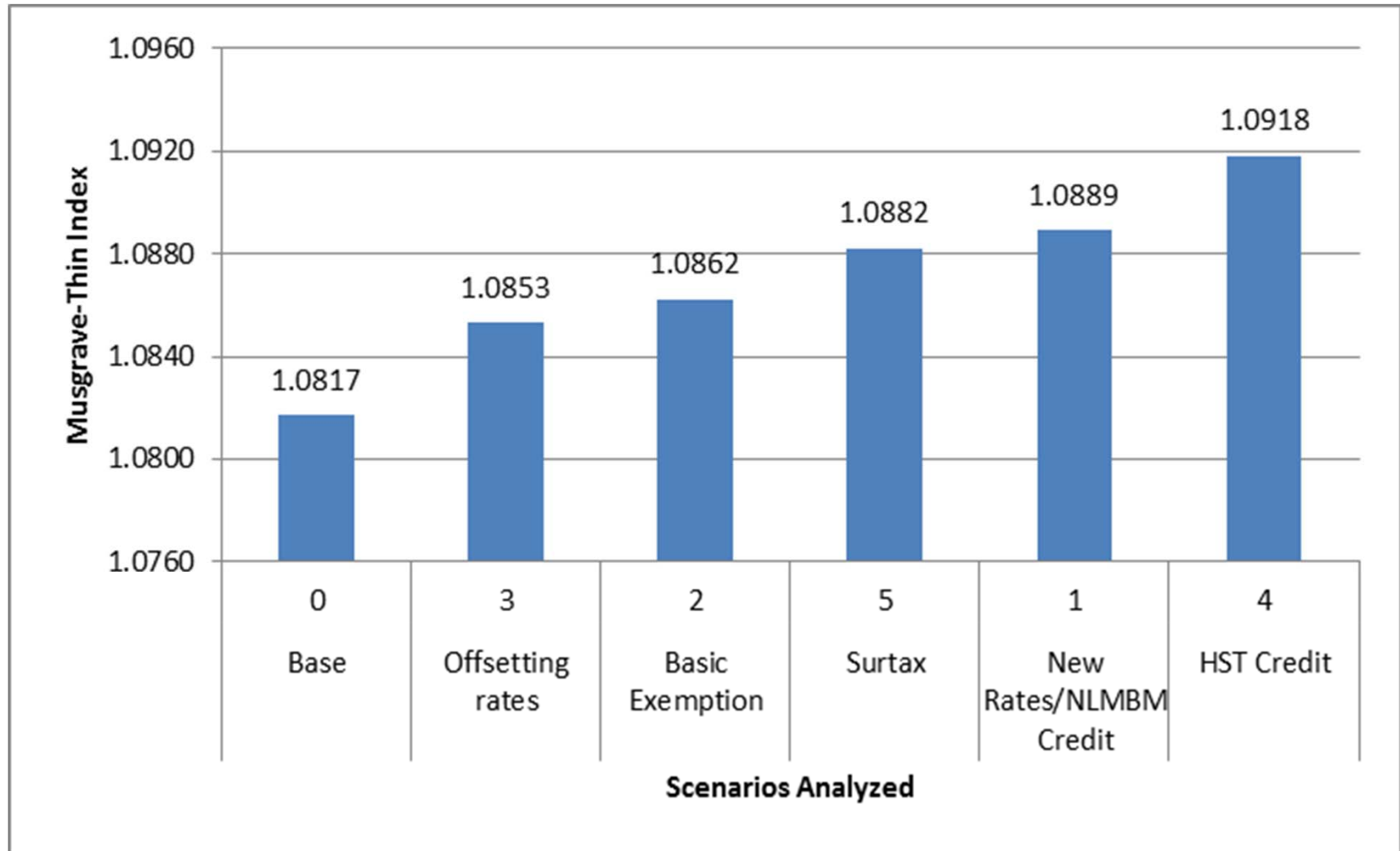# Change in Pre-Tax and Post-Tax Gini Coefficients for Each Scenario
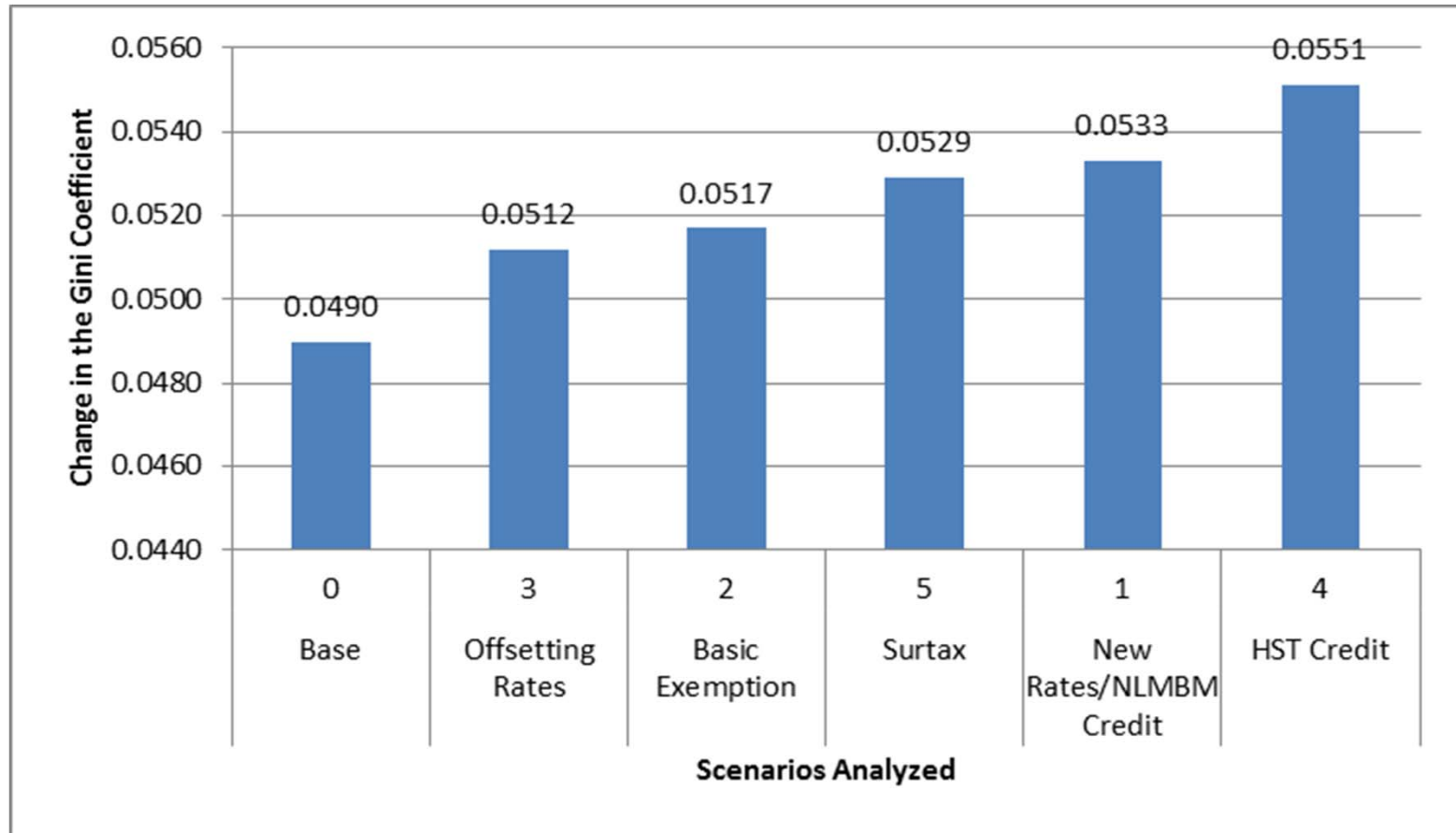
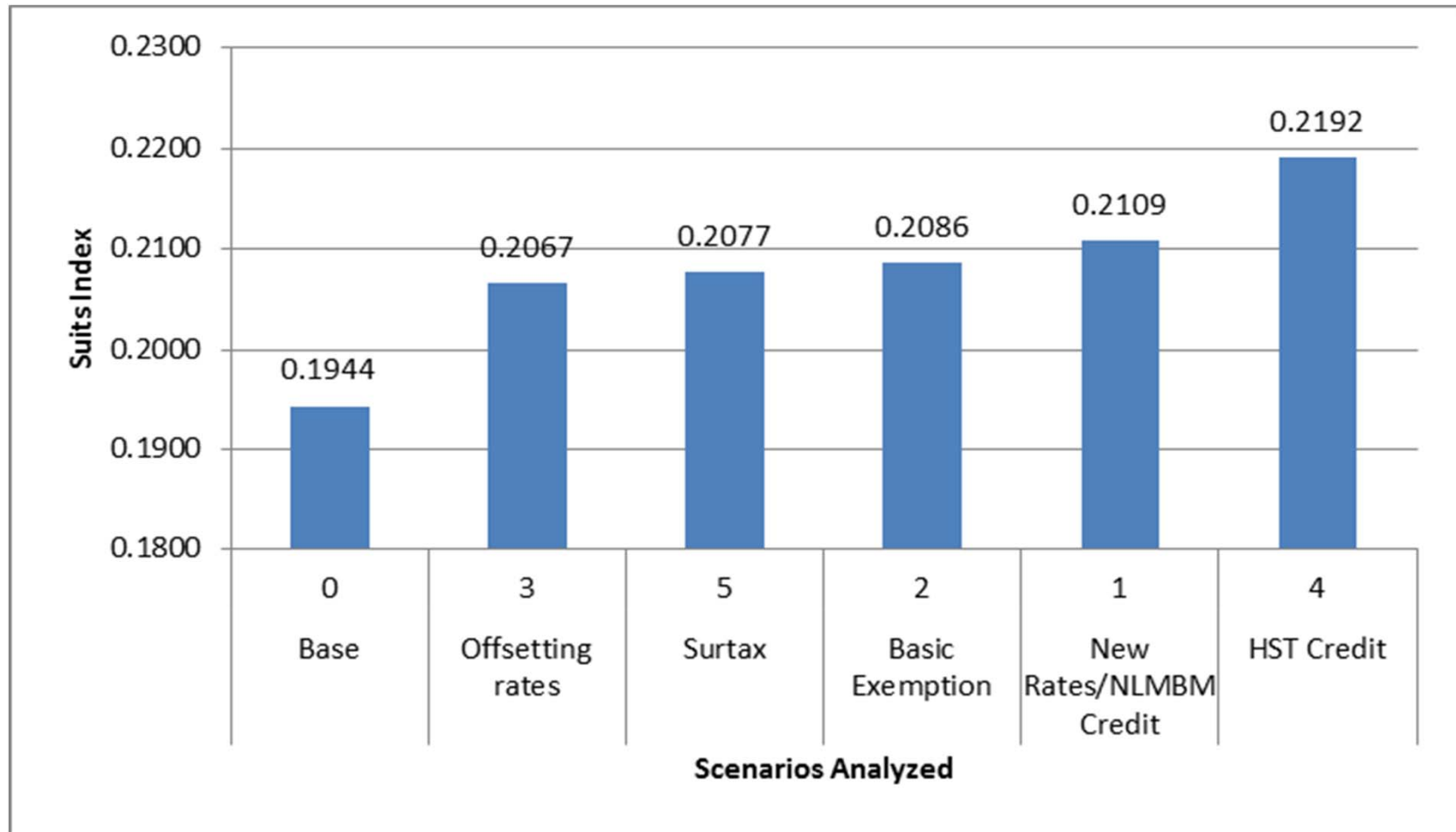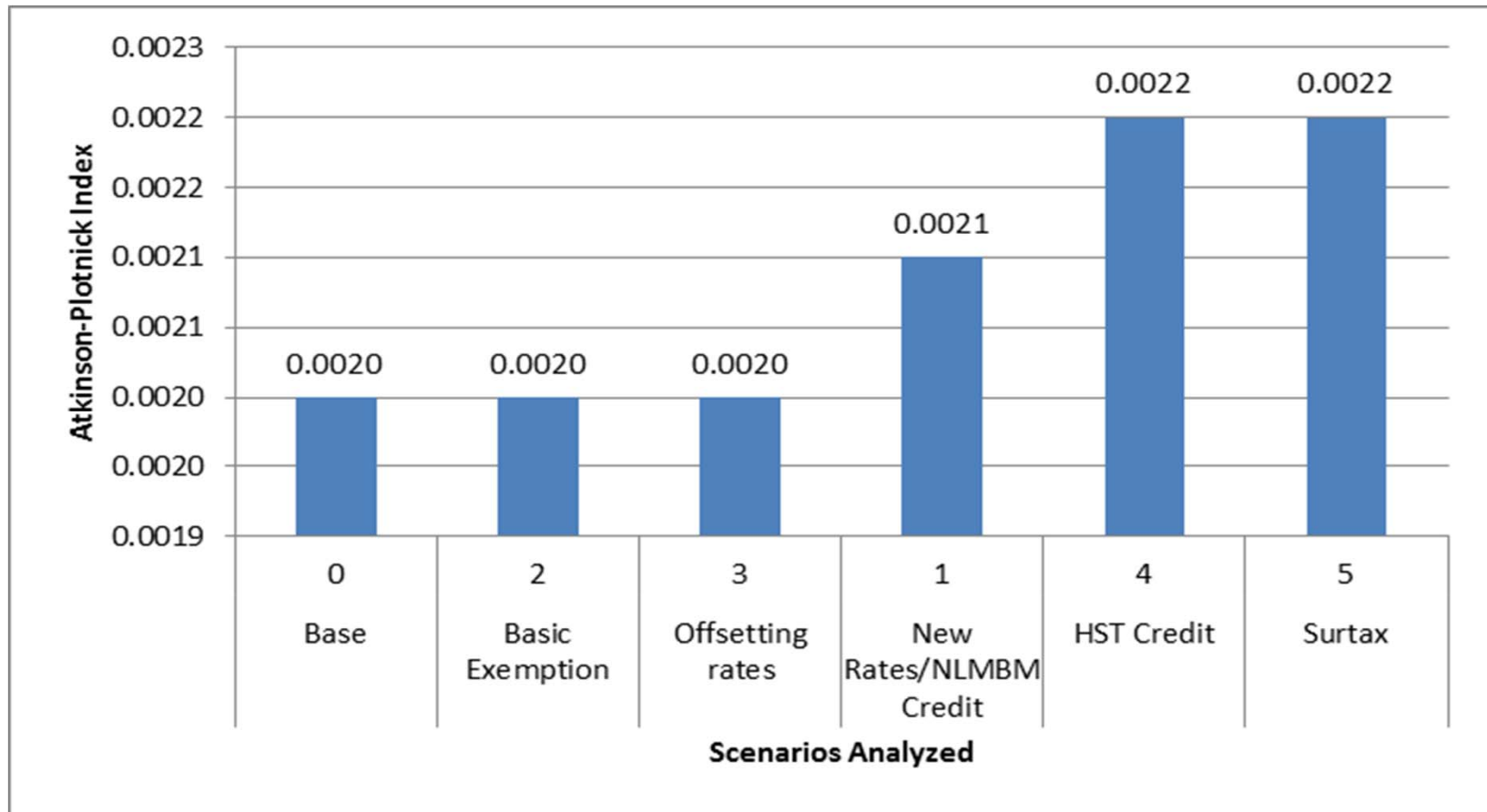# Reynolds-Smolensky Index for Each Scenario
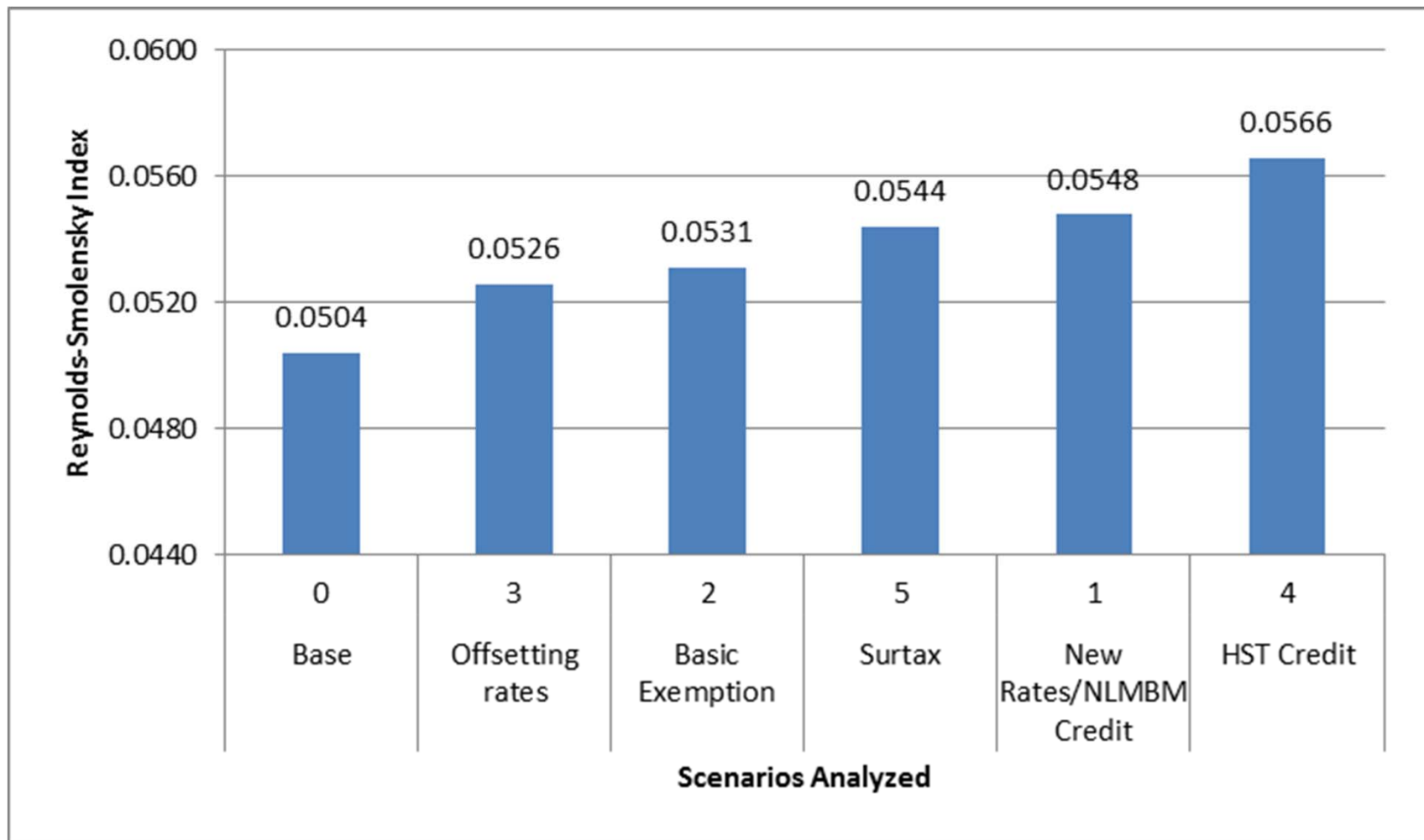
Kakwani Index for Each Scenario
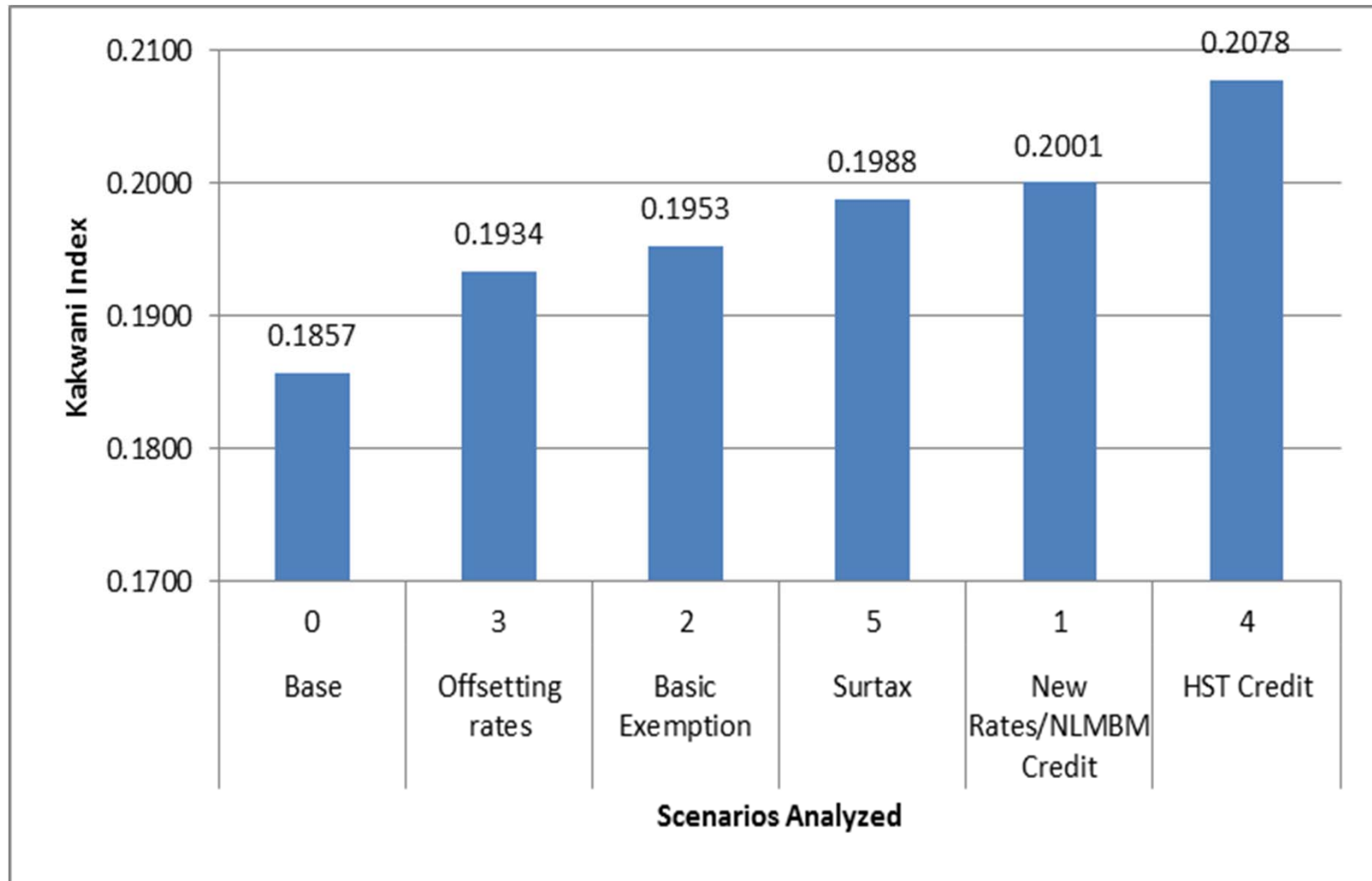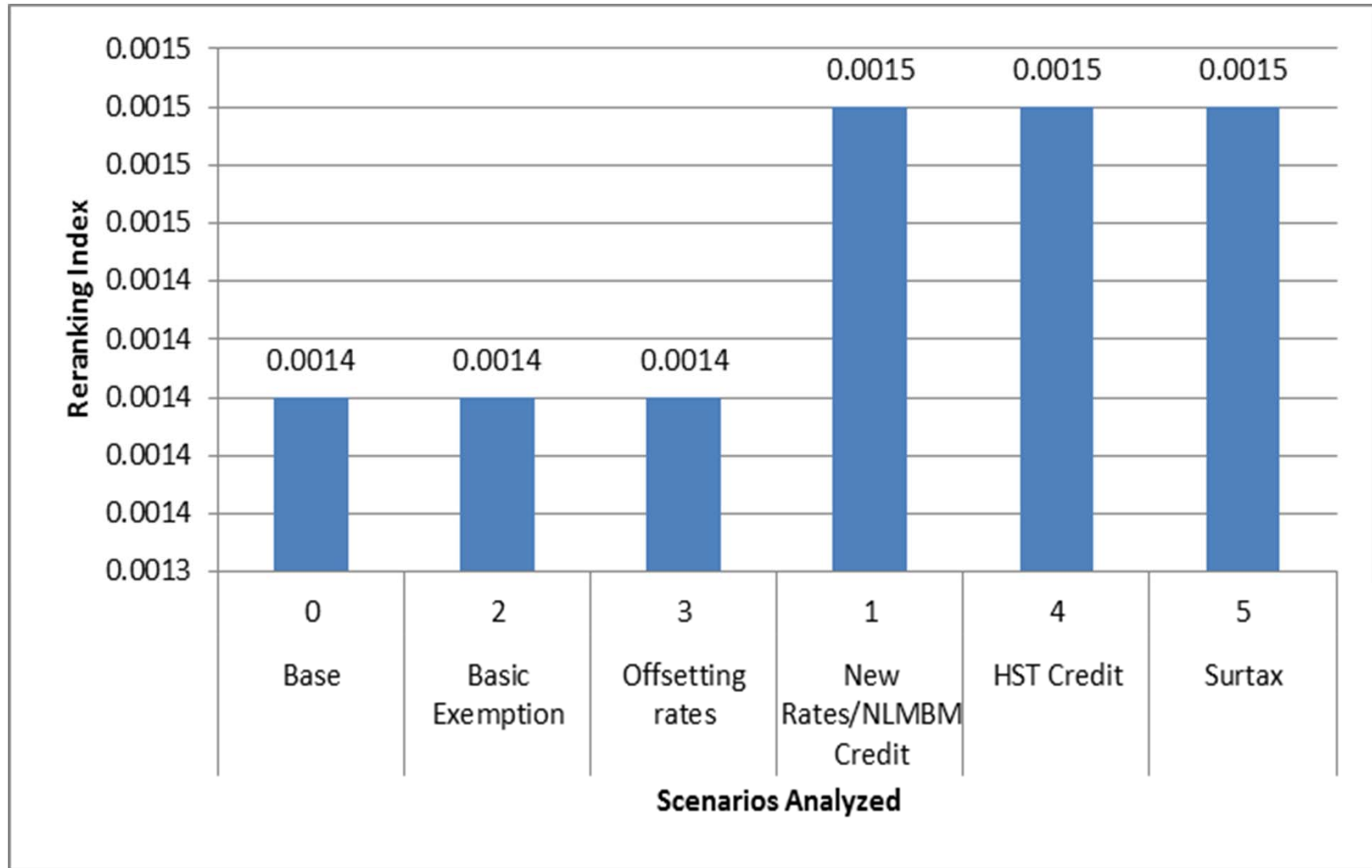
Musgrave-Thin Index for Each Scenario
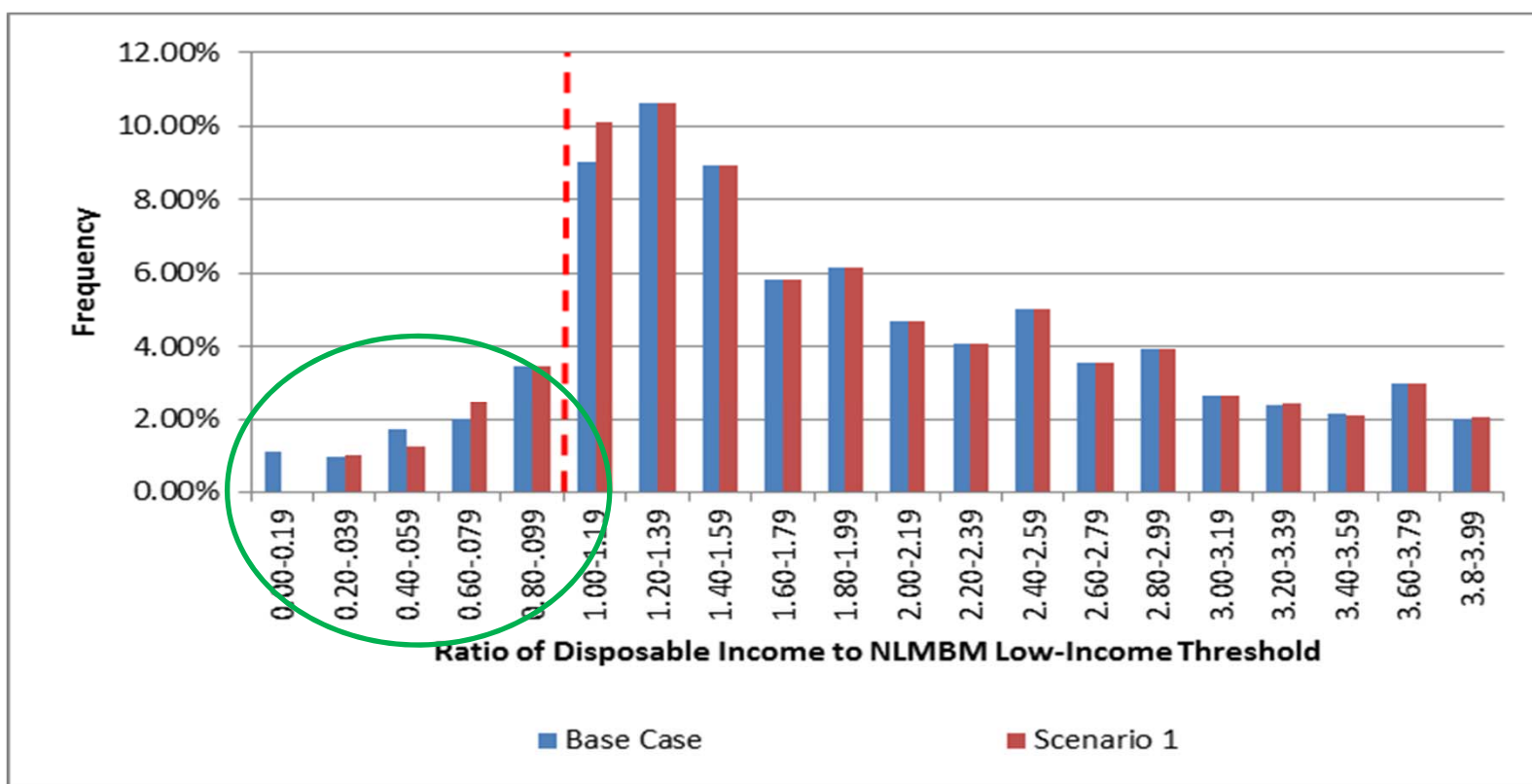
Suits Index for Each Scenario

Atkinson-Plotnick Index for Each Scenario
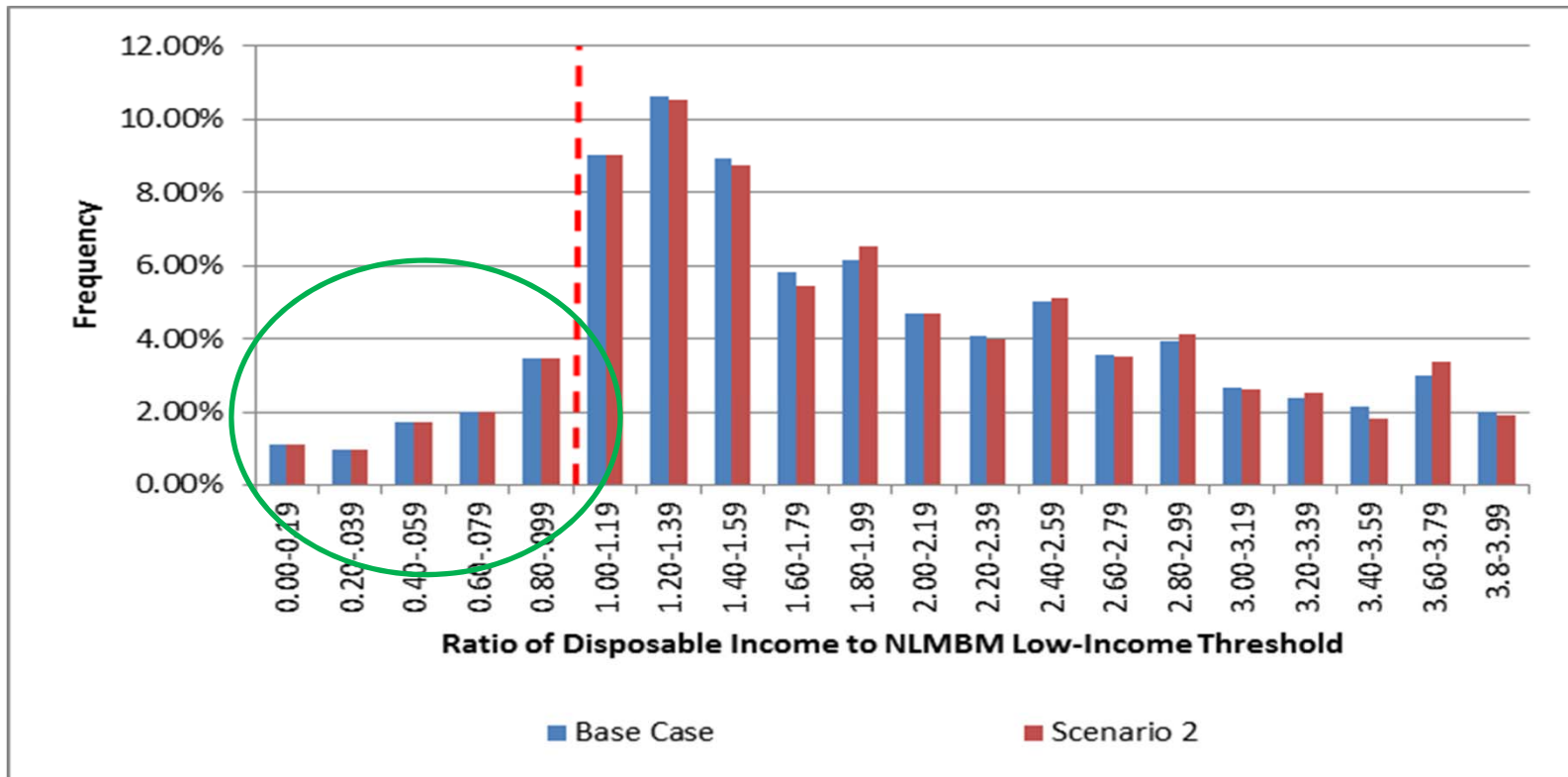
Reranking Index for Each Scenario

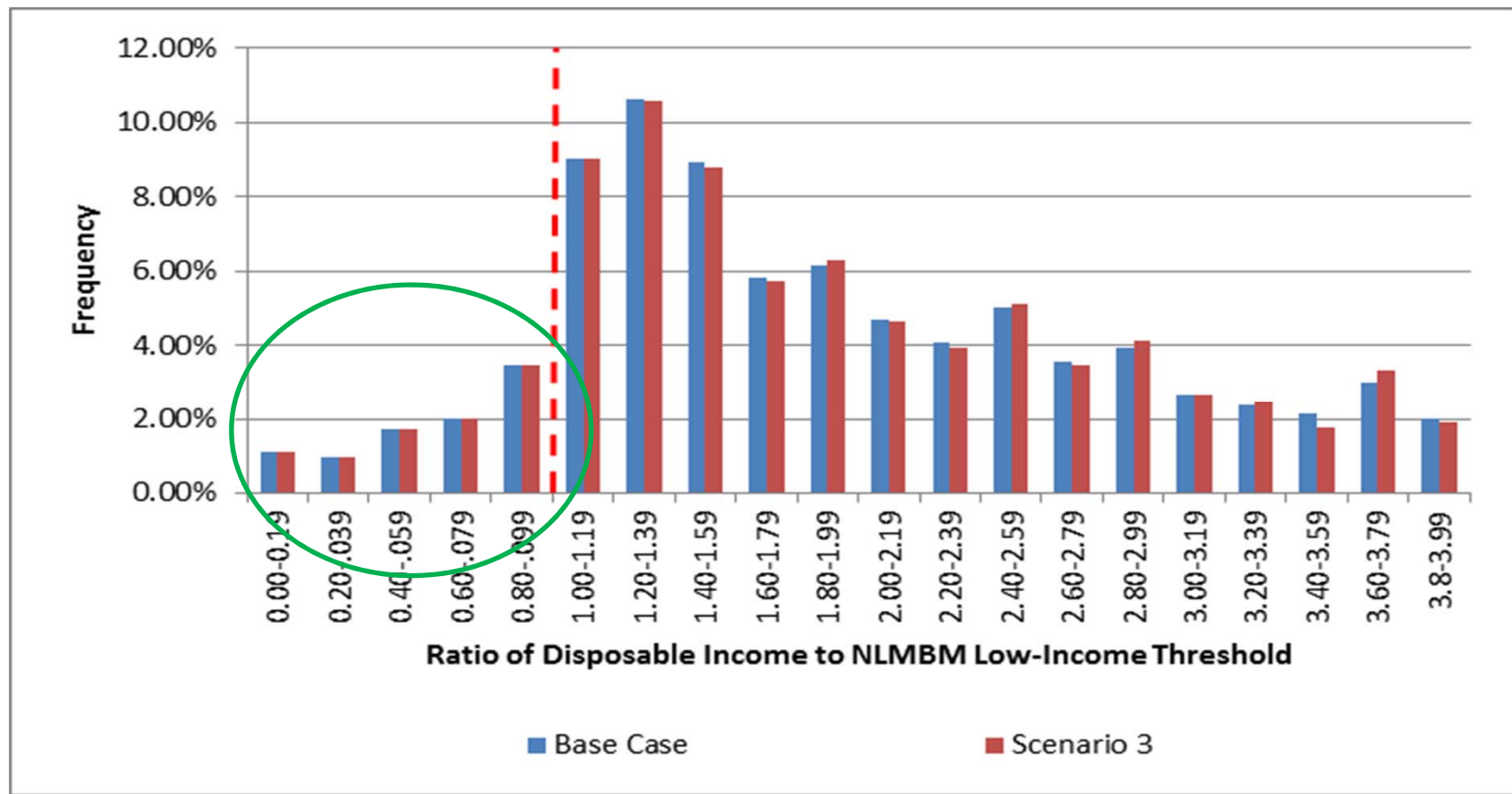# After-Tax/Transfers Income Distribution – Base Case Compared to Scenario 1 (Taxes & NLMBM Credit)

- The situation for low income families (the poorest of the poor) has noticeably improved with Scenario 1 – the "red bars" relative to the "blue bars" are lower at lowest income

- **Enhanced transfers targeted at the poorest families & 2nd best in improved progressivity**

After-Tax/Transfers Income Distribution – Base Case Compared to Scenario 2 (Taxes & Lower Basic Exemption)
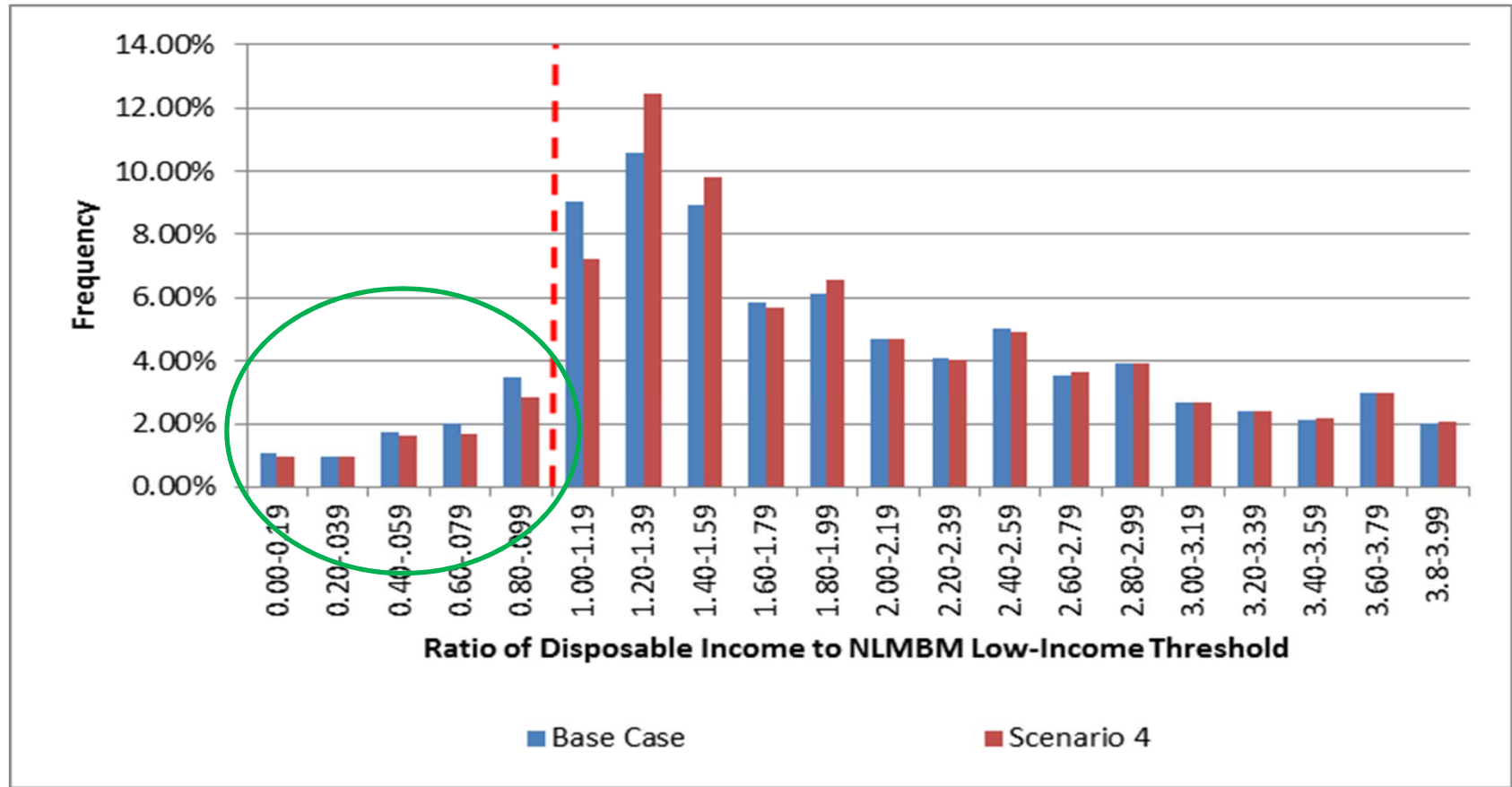

- The situation for low income families not improved with Scenario 2 – relative to the base case.

- **Poorest of the poor don't pay tax, so don't benefit from reduced basic exemption and 4th best in terms of progressivity**

After-Tax/Transfers Income Distribution – Base Case Compared to Scenario 3 (Offsetting Higher and Lower Rates)
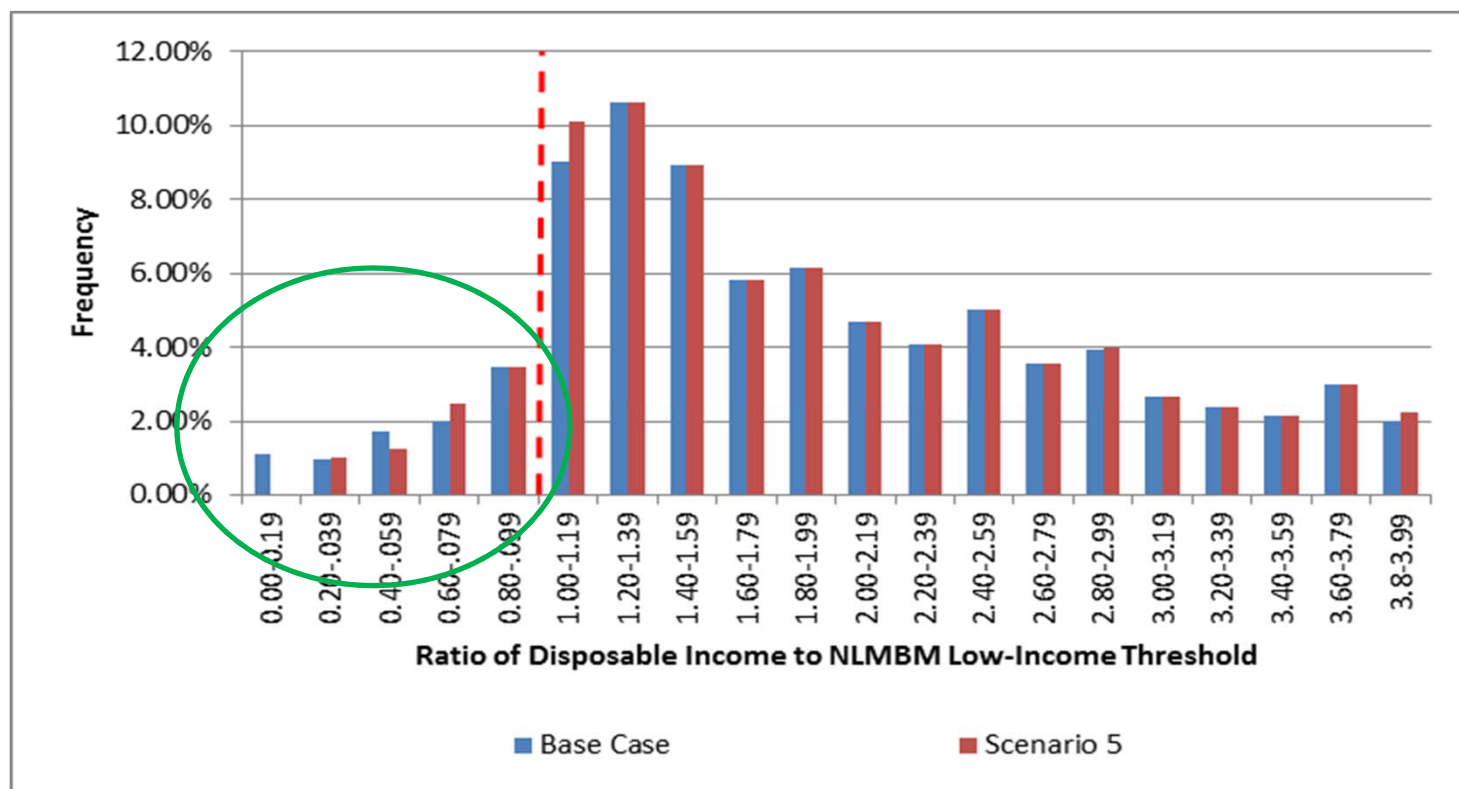

- The situation for low income families not significantly improved with Scenario 3 – relative to the base case.

- **Poorest of the poor don't pay tax, so don't benefit from low tax rates for lower income and worst in terms of progressivity**

# After-Tax/Transfers Income Distribution – Base Case Compared to Scenario 4 (Taxes and Enhanced HST Credit)

- The situation for low income families is improved with Scenario 4 – relative to the base case.

- **Enhanced HST benefits all poor, but not as much as credits specifically targeted at the poorest of the poor but highest in terms of progressivity**

After-Tax/Transfers Income Distribution – Base Case Compared to Scenario 5 (Surtax and NLMBM Credit)

- The situation for low income families is improved with Scenario 5 – relative to the base case.

- **Surtax revenue with targeted at the poorest of the poor is helpful, but 3rd best in terms of progressivity**

After-Tax/Transfers Income Distribution – Scenario 1 (Tax and NLMBM Credit Compared to Scenario 4 (Tax and Enhanced HST)
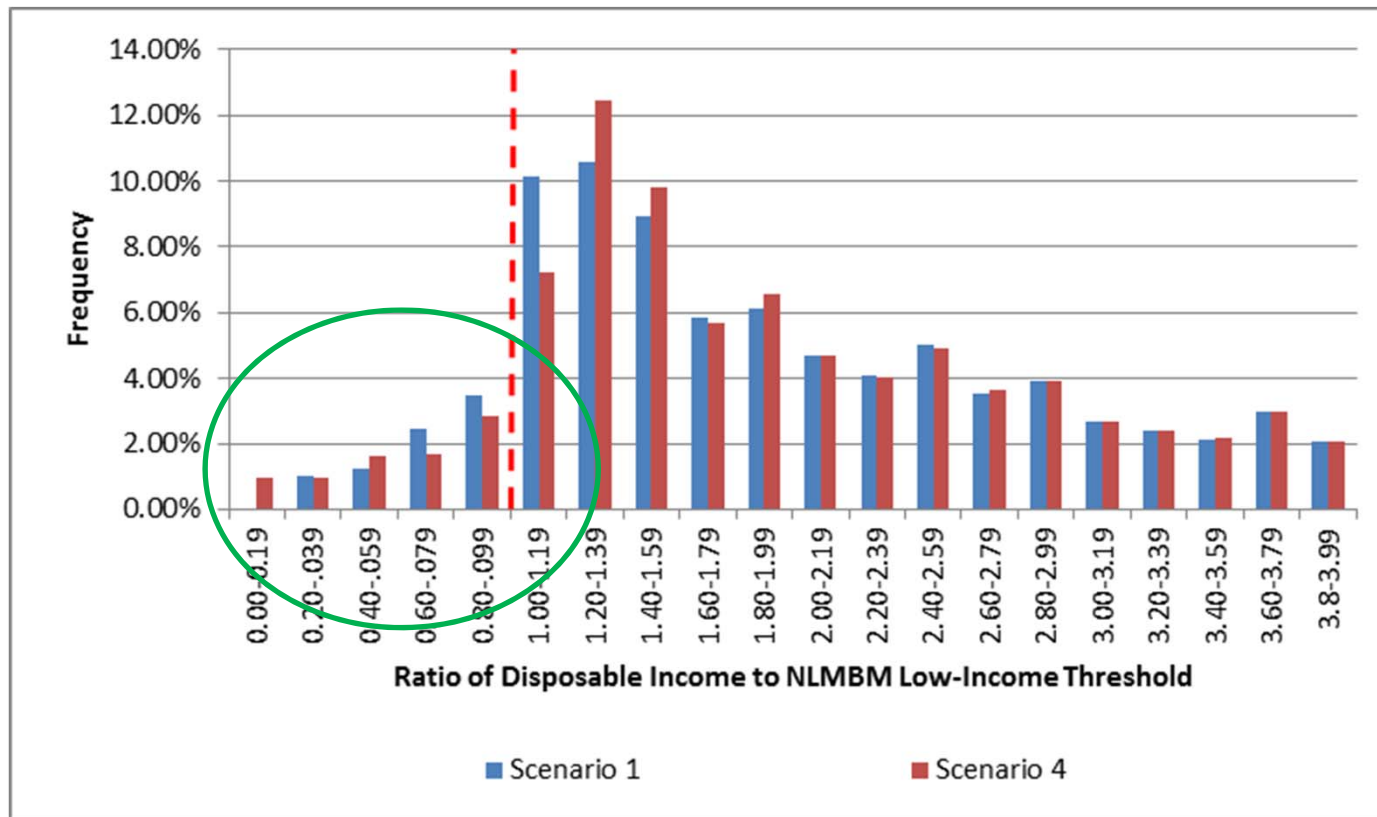
- Scenario 1 is more precisely targeted at the "poorest of the poor".

- **HST is more of a blunt instrument, it has a more significant impact on the Gini, and is probably easier to implement than a new NLMBM program**

Conclusion (1)

- The primary objective of this study was to review the province's personal income tax system and suggest revenue neutral changes to the provincial personal-income-tax/transfer system.

- The secondary objective was to demonstrate how one might go about assessing progressivity and tax fairness in a Newfoundland and Labrador context.

- All the scenarios increased the progressivity of the tax system

- Scenario 4 (enhancement of HST credit) seemed to dominate.

- Scenario 1 (new NLMBM credit targeted at the poorest of the poor) was second in terms of the contribution to reducing after-tax income inequality.

- Scenario 4 probably reduced income inequality more than Scenario 1 because it affected more people

- Scenario 1 affected fewer people, but targeted those most in need.

Conclusion (2)

- There was a modest increase in the threshold of the top 1% of income earners relative to the median income earner since 2006, but, surprisingly, there was no a marked increase in the total percentage of after-tax income held by the top 1% income earners.

- Income inequality in NL has not notably increase over the past couple of decades, even though the general standard of living has improved.

- The conclusion from this analysis is that both the tax and transfer system has made our system progressive

- It is interesting to note, however, that in terms of reducing income inequality associated with market incomes, government transfers seemed to play a greater role than taxes.

- It does appear that they may be room for changing the income tax rates to improve the progressivity of the income tax system and improve the perceived equity associated with funding public goods and services within Newfoundland and Labrador.

Conclusion (3)

- The numbers of individuals and families who could be classified as being in the "poorest of the poor" group seem to be relatively constant or they did not benefit from the improved prosperity to the same extent as other family units within NL.

- With limited funds available to transfer between income groups, it was decided to analyze specifically (in Scenario 1) where to target transfers to those most in need by utilizing the NLMBM low income threshold for the province.

Conclusion (4)

- The mandate of this study was not to make a recommendation, but to inform the public and the decision-makers and, by doing so, to promote informed discussion.

- We would be interested receiving feedback on our approach, especially if there is some type of conceptual approach that we have not analyzed

- The presentation will be on our website by early next week and the complete paper will follow shortly

http://www.mun.ca/care/