

# Changes in Income and Income Inequality Among Seniors in Canada

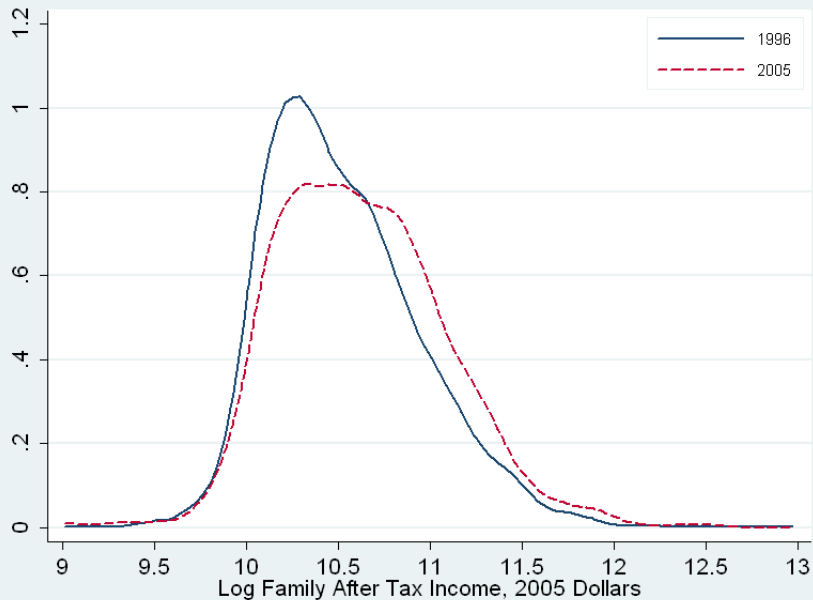
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## Motivation

- Concerned with the distribution of income among seniors
  - Canada's retirement income security programs
- Recent shifts in the senior income distribution
  - general increase in incomes
  - increase in inequality - larger increase for the top half of the income distribution.



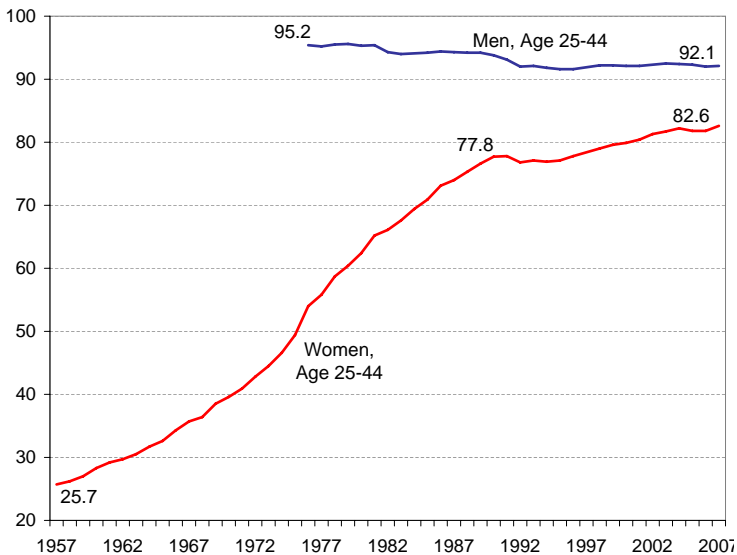
## Concerns

- Why did the distribution of income shift?
- Does this represent an increase in well-being?
- Does this represent a reduction in leisure at older ages?

## Potential Explanations

- Sources of income - employment, private and public pensions
- Characteristics of men and women - education
- Labour market experiences of men and women

## Labour Force Participation Rates in Canada



## Objectives

- Decompose the changes in the distribution of income among senior families into the contribution of each factor:
  - Employment, private pension and public pension access for men and women
  - Changes in education and labour market experiences of men and women
- Firpo, Fortin, Lemieux (2007)
  - Similar to Oaxaca-Blinder decomposition
  - any measure of income distribution
  - use recentered influence function (RIF) regressions
- Married couples in Canada, eldest member is 65-79.

## Main conclusions

- Key factors raising inequality:
  - women's increase in access to private pensions
  - men's and women's increase in employment and education
- Equalizing factors:
  - women's higher experience
  - women's increase in access to public pension income

## Younger families

- Fortin and Schirle (2006, Canada) and Daly and Valletta (2006, US) - increase in earnings inequality 1980s-90s.
- due to changes in family structure, assortative mating and characteristics.
- offset by increase in female participation
- DFL (2006) methodology - cannot separate (continuous) factors



## Seniors incomes

- Myles (2000) falling inequality in 1980s associated with changes in public pension incomes
- Milligan (2008) falling poverty rates associated with public pensions

## Women and Retirement

- Blau and Kahn (2008) - added workers - inelastic labour supply
- Schirle (2008) - cohort effects driving increases in older women's participation led to increases in older married men's participation

## Data and Measurement

- Canadian Survey of Labour and Income Dynamics (1996-2005) public use files (*future - use RDC access*)
- After tax family income (market income + transfers), 2005 dollars
- Married couples, oldest member is 65-79

## Changes in the senior family income distribution

Percentile	1996	2005	% Change
10	23260	24275	4.4
50	34806	39790	14.3
90	66451	75180	13.1
Mean	40627	45854	12.9
Mode	29437	30638	4.1

## Changes in senior family income inequality

	1996	2005	Change
Gini	0.251	0.265	0.013
Theil	0.113	0.120	0.008
90-10	1.050	1.130	0.081
50-10	0.403	0.494	0.091
90-50	0.647	0.636	-0.010

## What has changed for seniors?

### Income sources:

- More likely employed - middle income men and high income women
- More private pensions - middle and high income women
- More CPP pensions - low income women

### Characteristics

- Higher education levels - low income are more likely to have high school, high income women have university
- More full time experience - low income women from 0 to 10 years, high income women from 10 to 20 years

See tables 2 and 3.

## Decomposition Methodology

- Stage 1 - total composition effect vs. total income structure effect
  - ie. endowments vs. coefficients in Oaxaca-Blinder
  - Dinardo, Fortin, Lemieux (1996)
  - Creates 3 distributions: 1996, 2005 and a counterfactual
  - Counterfactual represents the distribution that would have prevailed under the income structure of 1996 and the characteristics observed in 1005.

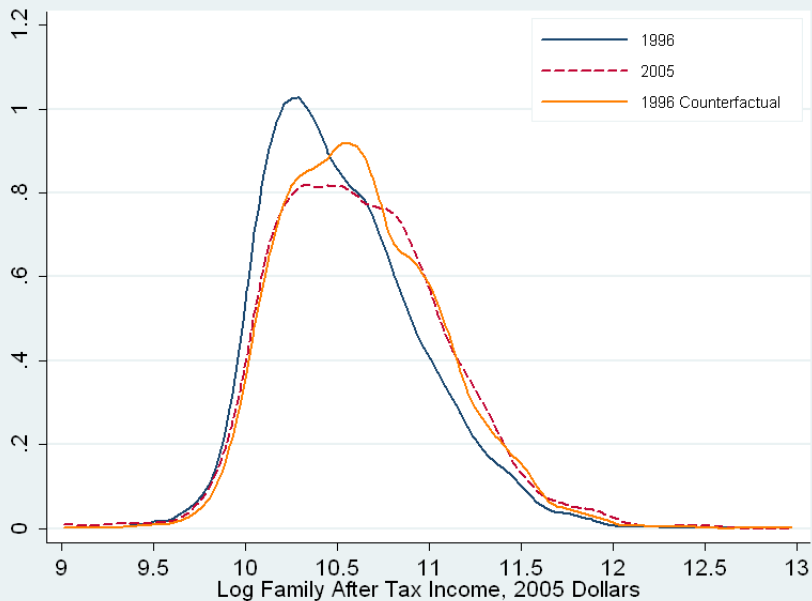
$$\hat{\Delta}_O^\nu = (\hat{\nu}_1 - \hat{\nu}_C) + (\hat{\nu}_C - \hat{\nu}_0) = \hat{\Delta}_S^\nu + \hat{\Delta}_X^\nu. \quad (1)$$

- Stage 2 - contributions of each factor
  - Firpo, Fortin, Lemieux (2007) - apply Oaxaca-Blinder type decompositions to any distributional statistic
  - RIF regression - similar to quantile regressions

$$\hat{\Delta}_S^\nu = \left( \sum_{i=1}^N \hat{\omega}_1^*(T_i) \cdot X_i \right) \cdot (\hat{\gamma}_1^\nu - \hat{\gamma}_C^\nu)$$

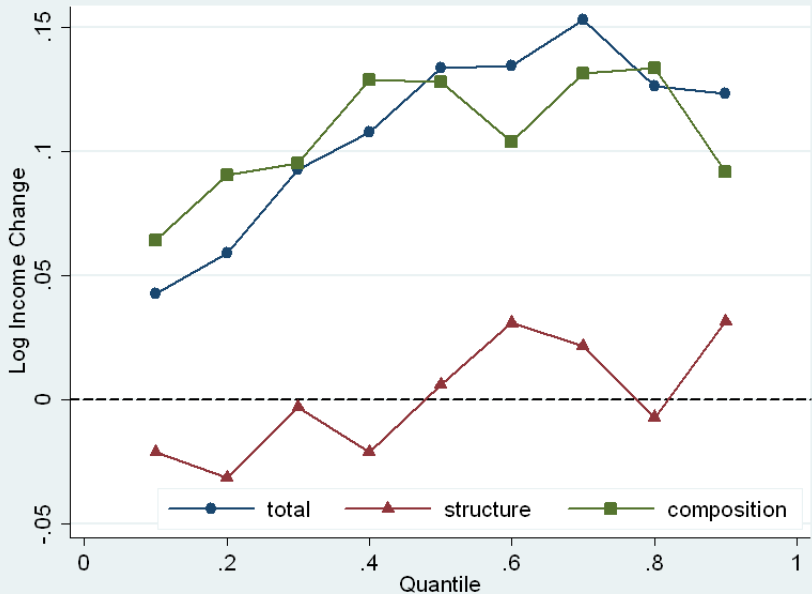
$$\hat{\Delta}_X^\nu = \left( \sum_{i=1}^N \hat{\omega}_1^*(T_i) \cdot X_i \right) \cdot \hat{\gamma}_C^\nu - \left( \sum_{i=1}^N \hat{\omega}_0^*(T_i) \cdot X_i \right) \cdot \hat{\gamma}_0^\nu$$

## Results - Stage 1





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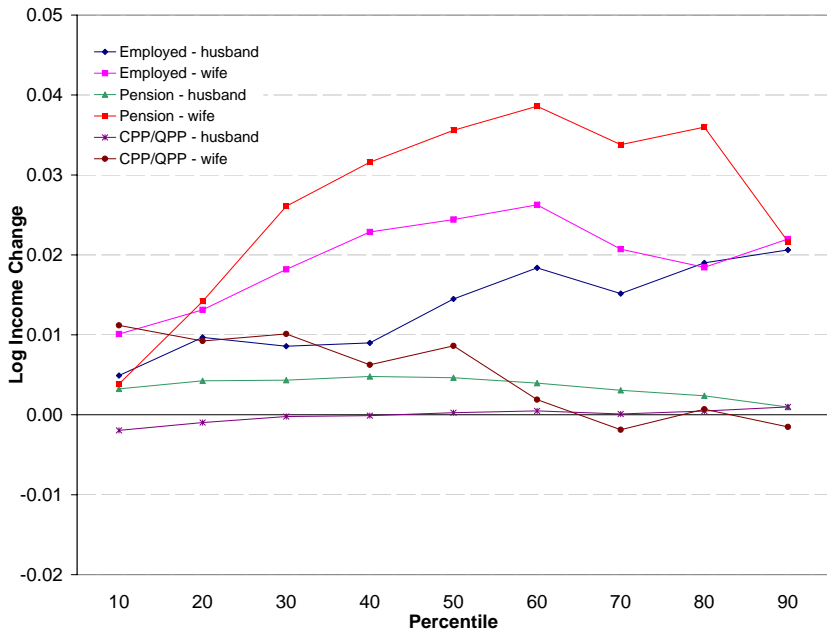
## Results - Stage 1

	Total $\Delta$	Income Structure	Composition
Gini	0.013	0.011	0.002
Theil	0.008	0.009	-0.001
90-10	0.081	0.053	0.028
50-10	0.091	0.027	0.064
90-50	-0.010	0.026	-0.036

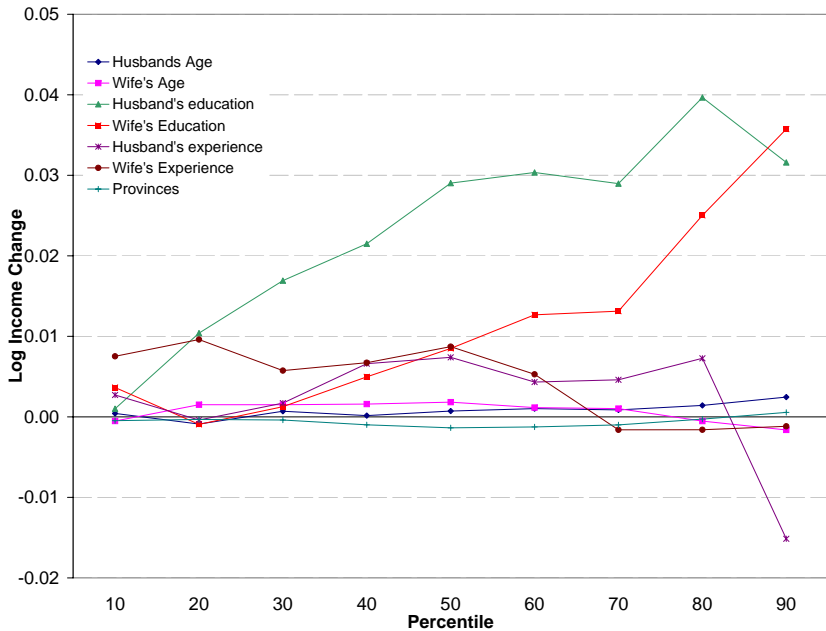
## Results - Stage 2 RIF regression

Year:	1996	1996	1996
Quantile:	10	50	90
Employed - husband	0.0959 (.0232)	0.1714 (.0318)	0.2284 (.0530)
Employed - wife	0.1328 (.0319)	0.2978 (.0373)	0.4005 (.0617)
Pension - husband	0.3291 (.0334)	0.275 (.0320)	0.1093 (.0449)
Pension - wife	0.071 (.0203)	0.3238 (.0325)	0.1612 (.0470)
CPP/QPP - husband	0.1757 (.0832)	-0.0347 (.0662)	-0.1033 (.0921)
CPP/QPP - wife	0.1237 (.0349)	0.0576 (.0327)	-0.0895 (.0458)

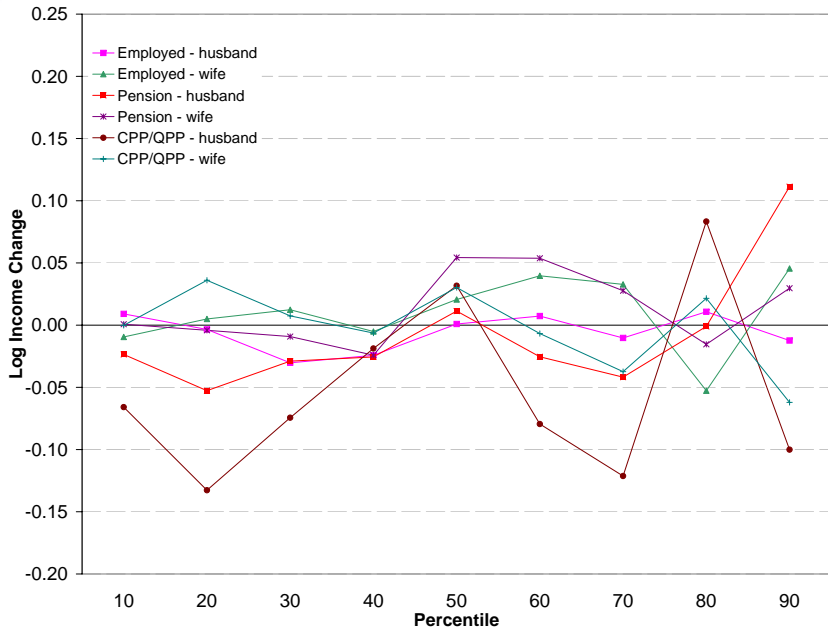
# Composition effects



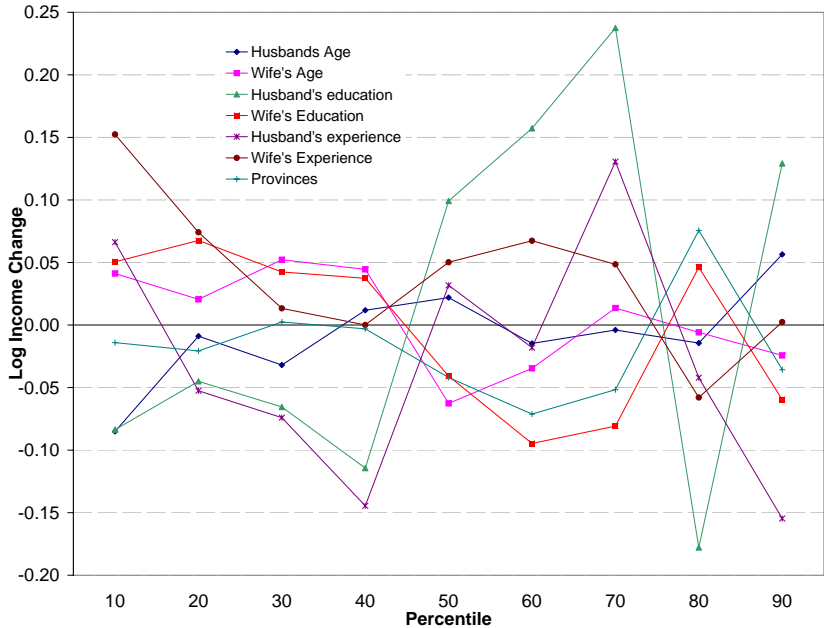
# Composition effects



# Income Structure



# Income Structure



	90-10	50-10	90-50
Total Change	0.0807	0.0911	-0.0104
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Composition effects			
Employed - husband	0.0157	0.0096	0.0061
Employed - wife	0.0119	0.0143	-0.0024
Pension - husband	-0.0023	0.0014	-0.0037
Pension - wife	0.0178	0.0317	-0.0139
CPP/QPP - husband	0.0029	0.0022	0.0007
CPP/QPP - wife	-0.0127	-0.0026	-0.0101
Husbands Age	0.0020	0.0003	0.0017
Wife's Age	-0.0011	0.0023	-0.0035
Husband's education	0.0306	0.0280	0.0026
Wife's Education	0.0321	0.0049	0.0272
Husband's experience	-0.0179	0.0047	-0.0225
Wife's Experience	-0.0087	0.0012	-0.0099
Provinces	0.0010	-0.0009	0.0019



	90-10	50-10	90-50
Total Change	0.0807	0.0911	-0.0104
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Income structure effects			
Employed - husband	-0.0214	-0.0081	-0.0132
Employed - wife	0.0550	0.0301	0.0249
Pension - husband	0.1349	0.0349	0.1000
Pension - wife	0.0290	0.0536	-0.0247
CPP/QPP - husband	-0.0342	0.0976	-0.1318
CPP/QPP - wife	-0.0619	0.0304	-0.0923
Husbands Age	0.1415	0.1070	0.0346
Wife's Age	-0.0655	-0.1038	0.0383
Husband's education	0.2129	0.1829	0.0300
Wife's Education	-0.1102	-0.0914	-0.0188
Husband's experience	-0.2209	-0.0345	-0.1864
Wife's Experience	-0.1500	-0.1022	-0.0478
Provinces	-0.0216	-0.0279	0.0063

## Main conclusions

- Key factors raising inequality:
  - women's increase in access to private pensions
  - men's and women's increase in employment and education
- Equalizing factors:
  - women's higher experience
  - women's increase in access to public pension income