

# Top Incomes in Canada: Evidence from the Census

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# Objective

- To better understand the factors behind the rise on top incomes since the early 1980s
- To do this we use Census master file data over the period 1981 to 2006

# Background

- After a period of relative stability, Canada's earnings and income distributions have changed substantially in recent decades
- One of most striking developments has been the dramatic rise in incomes at the very top of the income distribution
- Previous research on the evolution of top incomes has used administrative tax filer data
- A disadvantage of tax filer data is absence of many socio-demographic characteristics
- Thus role of characteristics like education and occupation in rise of top incomes remains to be investigated

# Our contribution

- Use Census Master File (MF) data to examine composition of top income earners between 1981 and 2006
- Particular attention paid to role of educational attainment, field of study, occupation, industry and hours of work
- Use this new information to shed light on competing explanations for dramatic growth in top incomes

# Competing Explanations I

- Explanations for growing inequality in whole income distribution have focused on technological change, globalization and labour market institutions (unions, minimum wages)
- Factors specific to top incomes include changes in how CEOs are paid, role of finance sector, and “superstar”/ size of market effects

# Competing Explanations II

- Two broad classes of explanations for dramatic growth in top incomes
- “Market-based” view – a broad-based phenomenon due to increased demand for unique skills and abilities of top earners
- Increased demand is linked to tech change, globalization and market size/scale effects
- “Economic rents” view – increased ability of top earners to extract rents
- Declines in marginal tax rates provide greater incentive to extract rents

# Advantages of Census Data

- Responses to “long form” provide information on socio-demographic characteristics not available in tax filer data
- Detailed information on education, field of study, industry and occupation
- Much of information is collected on a consistent basis over 1980 to 2005 period
- Large sample size – 20% of population: key for studying small groups like top 1%
- Can examine narrowly defined sub-groups like medical doctors or those with degrees in accounting and finance

# Some limitations of Census data

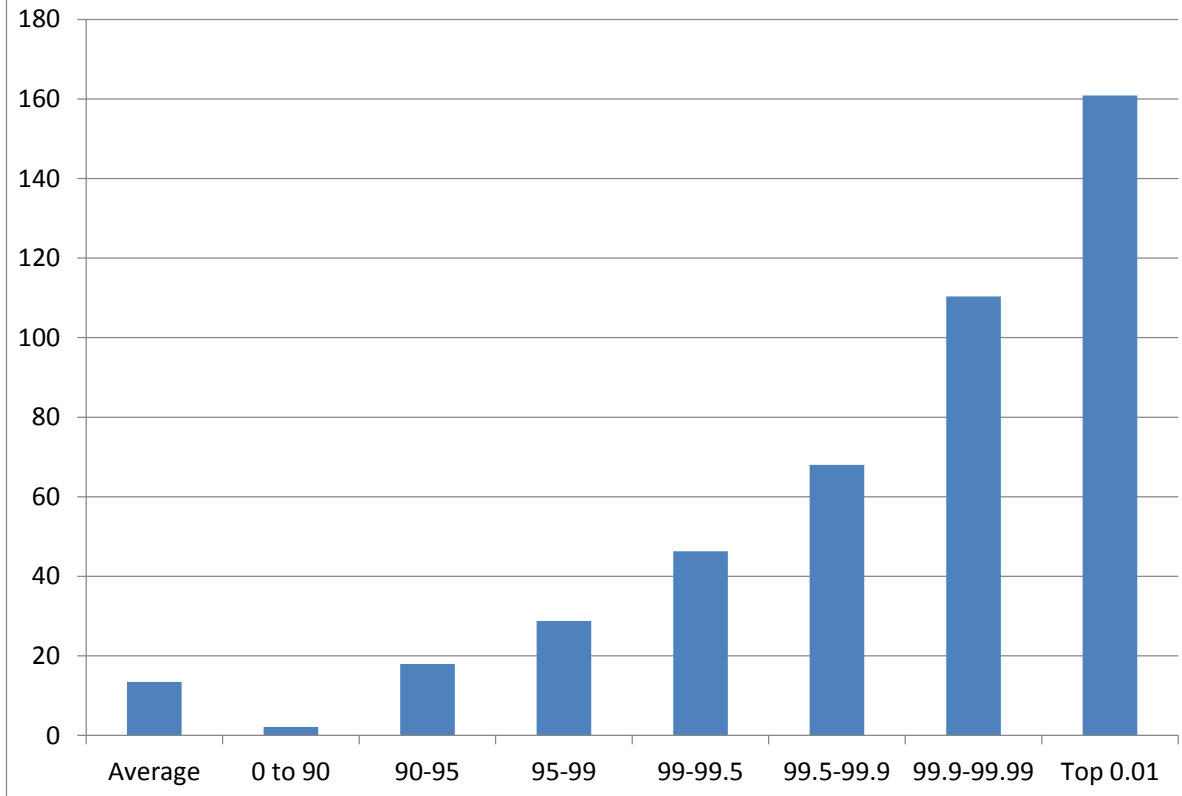
- Two changes introduced in 2006 create some comparability problems
- Respondents given option of allowing access to their tax returns – 80% chose this option
- Information on education simplified – limits number of education categories we can use
- Nonetheless, can identify 6 education categories that are consistent over time
- FOS introduced in 1986 and classification system changed in 2006



# Trends in Inequality & Top Incomes

- Tax data show large increase in top income shares in Canada since early 1980s
- Fig 2a illustrates this by showing real income growth between 1982 and 2010 at various points in income distribution
- Average real income grew by 13.5%
- But virtually no change among those below top 10%
- As we move up distribution gains become much larger –eg 160% for top 0.01%

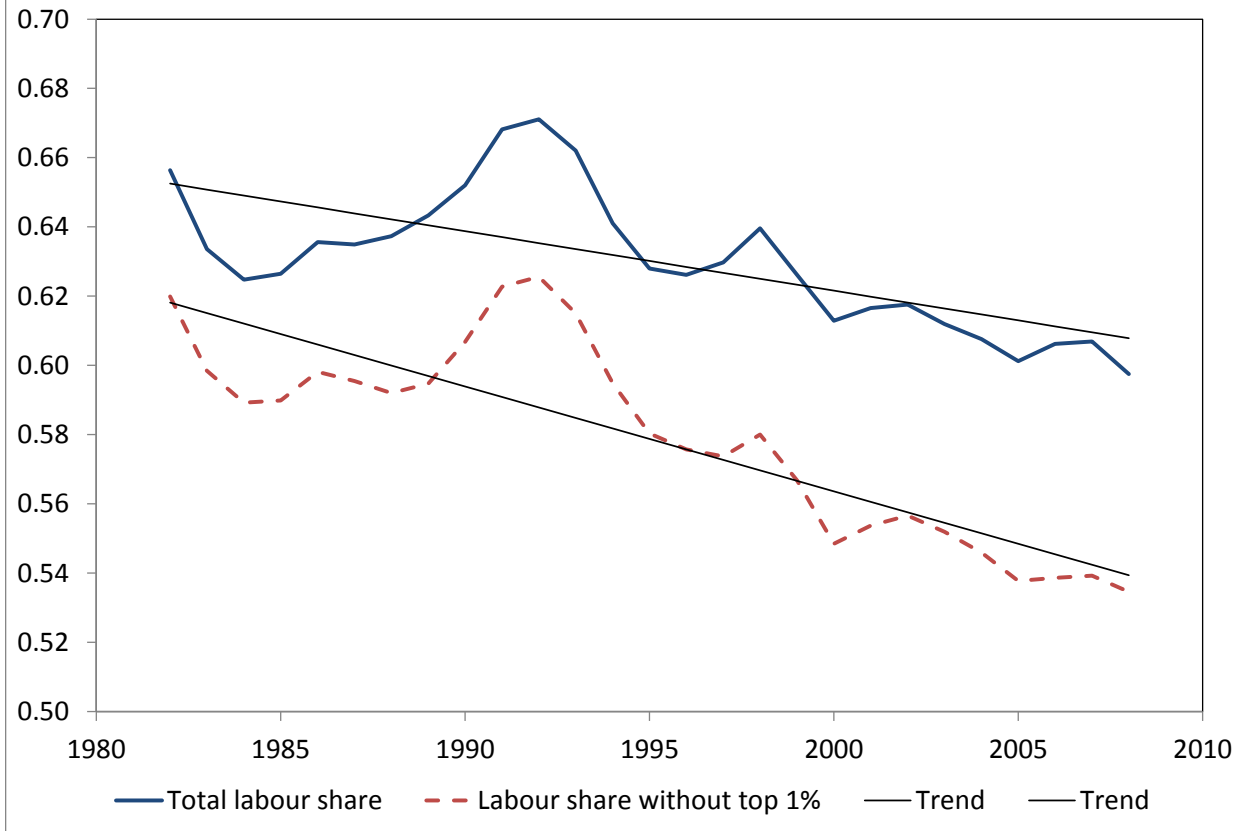
**Figure 2a: Total Income Growth by Fractiles, 1982-2010**



# Evolution of labour share

- Overall labour share has fallen to about 60% after being stable at 67% for a long period
- But when top 1% of income earners are excluded, labour share declines from 62% in early 1990s to 54% recently
- These changes correspond to huge transfers:
- \$ 3.2 billion annually from labour to capital
- \$ 2.5 billion annually from bottom 99% to top 1%

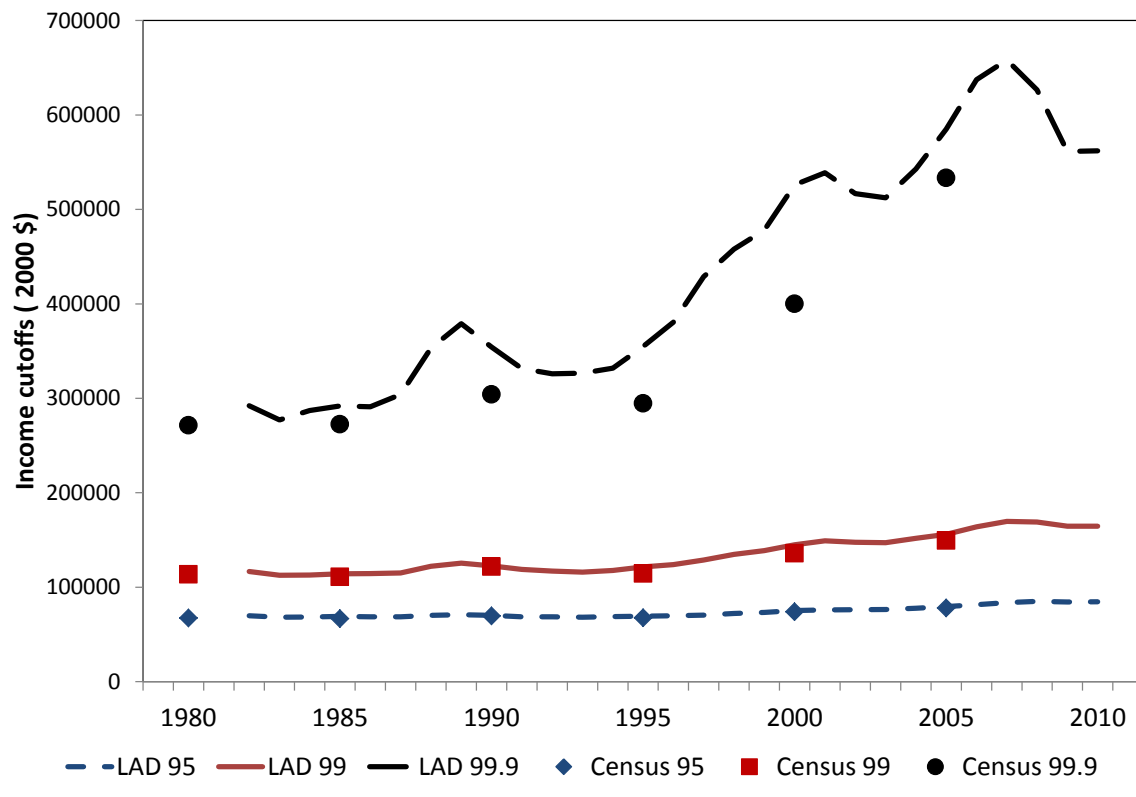
**Figure 3: Labour share with and without the top 1%**



# Comparing Census and Tax Data

- One concern is that self-reported income data may systematically understate incomes at very top of distribution
- Fig 4a compares income cut-offs from Census and LAD
- Income cut-offs for 95<sup>th</sup> and 99<sup>th</sup> percentiles are remarkably similar
- At 99.9<sup>th</sup> percentile a more substantial gap
- Gap narrows in 2006 with greater use of tax data

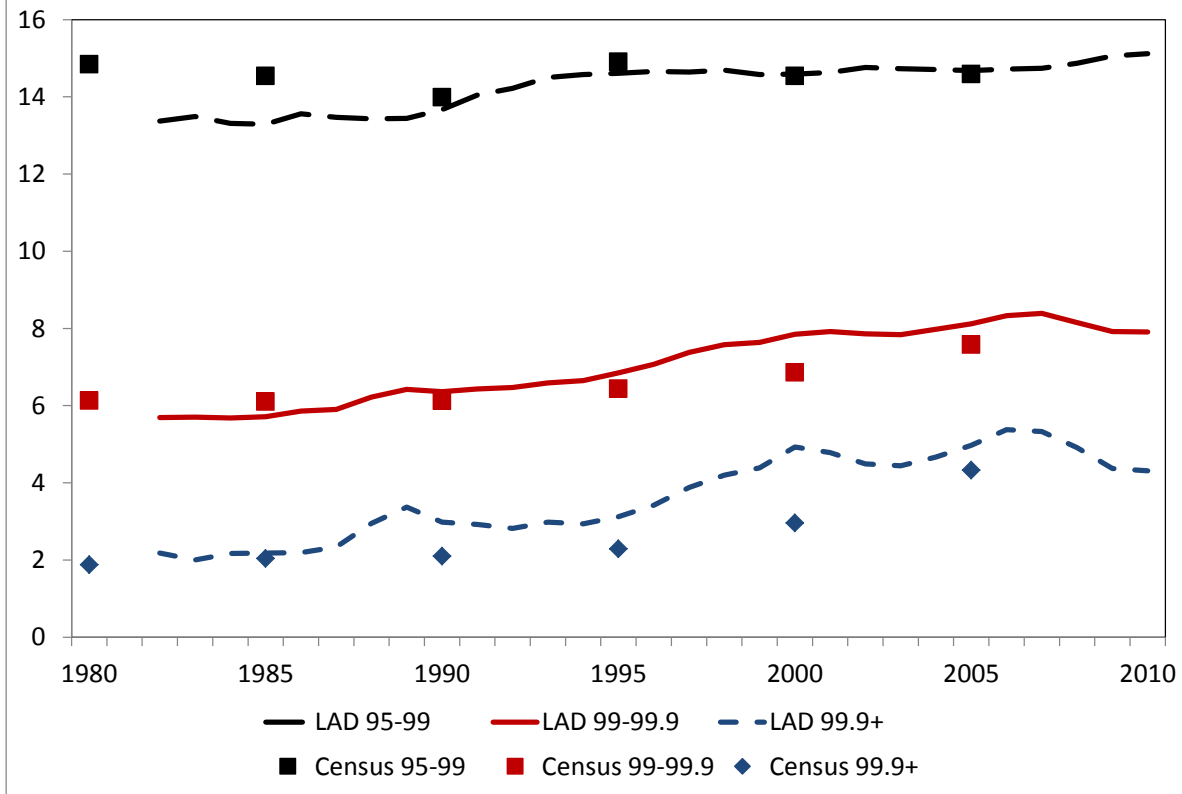
Figure 4a: Top income cutoffs: LAD vs. Census



# Comparing Census and Tax Data

- Fig 4b compares income shares from Census and LAD
- Again, these are very similar at 95<sup>th</sup> to 99<sup>th</sup> and 99<sup>th</sup>-99.9<sup>th</sup> percentiles, with somewhat more of a gap at very top
- Overall we conclude that the Census provides very accurate information on top end incomes that is quite close to that obtained with tax data

Figure 4b: Top income shares: LAD vs Census





# Detailed Analysis of Census Data

- Large sample of income earners (age 15+ with non-zero earnings)
- Even for top earners (top 1 percent) we have close to 50,000 observations by 2006
- Top 1 percent income cutoff steadily increasing over time, reaching over \$170K by 2006

## Hours of work and gender

	1981	1986	1991	1996	2001	2006
<b>Top 1 percent</b>						
Positive hours	86.9%	87.1%	85.5%	86.7%	88.5%	87.8%
50+ hours a week	46.5%	48.0%	46.9%	53.5%	52.7%	54.4%
Men	91.5%	90.0%	86.5%	84.9%	83.1%	81.2%
<b>All income earners</b>						
Positive hours	64.6%	63.4%	62.6%	60.3%	61.6%	61.8%
50+ hours a week	14.3%	15.8%	15.0%	17.7%	17.9%	18.2%
Men	53.8%	52.3%	50.8%	50.3%	49.2%	48.9%

## Education

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	1981	1986	1991	1996	2001	2006
<b>Top 1 percent</b>						
Less than a BA	53.9%	46.7%	46.7%	40.9%	37.5%	35.4%
Bachelor's degree	17.6%	21.3%	21.2%	24.6%	28.1%	29.5%
Medicine, dentistry	14.7%	15.8%	14.0%	14.2%	12.3%	12.1%
Graduate degree	13.8%	16.2%	18.2%	20.4%	22.1%	22.9%
<b>All income earners</b>						
Less than a BA	90.9%	89.4%	87.9%	86.0%	84.0%	81.2%
Bachelor's degree	5.9%	7.1%	7.9%	9.2%	10.5%	12.0%
Medicine, dentistry	0.4%	0.4%	0.5%	0.5%	0.5%	0.5%
Graduate degree	2.8%	3.1%	3.7%	4.3%	5.0%	6.2%

## Top 5 fields of study

1986 1991 1996 2001

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### Top 1 percent

Business and Commerce	5.9%	6.6%	8.5%	11.2%
Medicine — General	10.2%	9.8%	9.7%	8.8%
Financial Management	6.8%	6.6%	7.6%	8.2%
Law and Jurisprudence	6.2%	7.2%	7.2%	6.9%
Economics	1.7%	1.9%	2.2%	2.6%

### All income earners

Business and Commerce	1.4%	1.7%	2.1%	2.8%
Medicine — General	0.3%	0.3%	0.3%	0.3%
Financial Management	1.7%	2.0%	2.3%	2.5%
Law and Jurisprudence	0.4%	0.5%	0.5%	0.5%
Economics	0.3%	0.4%	0.4%	0.5%

## And a few others...

1986 1991 1996 2001

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### Top 1 percent

Electrical/Electronic Engin.	1.2%	1.2%	1.2%	1.9%
Computer Science	0.2%	0.4%	0.7%	1.6%
Mechanical Engineering	1.5%	1.1%	1.3%	1.1%
Surgery	1.7%	1.2%	1.3%	1.1%
Civil Engineering	1.6%	1.5%	1.2%	1.0%

### All income earners

Electrical/Electronic Engin.	0.3%	0.3%	0.3%	0.4%
Computer Science	0.2%	0.3%	0.4%	0.5%
Mechanical Engineering	0.2%	0.2%	0.3%	0.3%
Surgery	0.0%	0.0%	0.0%	0.0%
Civil Engineering	0.2%	0.2%	0.3%	0.3%

## Industry

1981 1986 1991 1996 2001 2006

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### Top 1 percent

Mining, oil & gas	3.0%	3.7%	2.5%	2.7%	2.9%	5.7%
Finance & insurance	5.4%	6.5%	6.7%	8.3%	10.2%	10.8%
Business service	11.9%	13.6%	15.5%	16.7%	20.8%	19.0%
Educational service	3.2%	3.3%	3.2%	3.2%	1.9%	1.8%
Health & social serv.	15.6%	17.3%	15.8%	16.4%	15.0%	15.2%

### All income earners

Mining, oil & gas	1.4%	1.2%	1.0%	0.8%	0.8%	1.0%
Finance & insurance	2.9%	2.8%	3.1%	2.6%	2.7%	2.7%
Business service	3.4%	3.7%	4.4%	4.8%	6.1%	6.7%
Educational service	5.4%	5.2%	5.4%	5.2%	5.2%	5.4%
Health & social serv.	6.0%	6.5%	7.0%	7.2%	7.5%	7.9%

## Occupation

	1991	1996	2001	2006
<b>Top 1 percent</b>				
Management	35.0%	34.8%	38.2%	38.5%
Senior management	13.7%	13.6%	16.0%	16.8%
Business, finance and administrative	8.7%	11.2%	11.7%	12.7%
Business and finance	5.6%	7.7%	8.9%	9.1%
Natural and applied sciences	5.0%	5.4%	7.8%	7.5%
Health	15.8%	16.1%	14.6%	15.2%
<b>All income earners</b>				
Management	7.4%	6.4%	7.5%	7.0%
Senior management	0.7%	0.7%	0.9%	0.9%
Business, finance and administrative	15.0%	13.9%	13.2%	13.4%
Business and finance	2.1%	2.2%	2.6%	2.7%
Natural and applied sciences	3.6%	3.6%	4.7%	4.8%
Health	3.8%	3.6%	3.8%	4.1%

## Province

1981 1986 1991 1996 2001 2006

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### Top 1 percent

Quebec	20.8%	19.4%	18.2%	17.8%	16.7%	16.7%
Ontario	38.9%	45.2%	49.3%	48.1%	51.1%	47.1%
Alberta	14.5%	12.4%	9.9%	10.9%	12.9%	17.0%
British Columbia	14.4%	11.7%	13.0%	13.8%	11.5%	12.0%

### All income earners

Quebec	25.6%	25.3%	25.0%	24.7%	24.2%	24.1%
Ontario	36.5%	37.1%	37.6%	37.4%	37.8%	38.2%
Alberta	9.3%	9.2%	9.1%	9.2%	10.0%	10.3%
British Columbia	11.8%	11.6%	12.2%	13.2%	13.2%	13.2%