Canada's Middle Class – Forever Further Behind?[1]

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Abstract

Polling data reveals substantial discontent with middle class income growth in Canada. This paper uses data drawn from the census, from income tax records and from household surveys to demonstrate that within the "middle 60 to 80 percent" of the Canadian income distribution, the income stagnation of Canada's inflation killing period from 1980-2000 contrasts with income gains for some during Canada's oil boom period 2001-2014. Differences in income growth rates during the period 1980-2016 also produced some increase in inequality within the "middle class". However, differences within the middle class and changes in their growth rates over time have been much smaller than the very large difference between income growth in the middle and income growth among the top 1%. The paper argues that the macro-economics of aggregate labour demand and supply have been crucial to the growth rate of middle class earnings – restrictive aggregate demand management in the 1980-2000 period and the investment stimulus of oil sands development during 2001-2014. The paper ends by presenting some illustrative calculations of the growth rates of median income which would be necessary for Canada's middle class either to "keep up" or to "catch up" – i.e. either to stabilize the top/middle income ratio observed in 2014 or to restore the income ratio observed earlier. Comparison with current macro-economic growth forecasts indicates that neither is plausible.

Canada's Middle Class – Forever Further Behind?

Economic inequality has sometimes been justified as the "price" that market societies must pay for economic growth. The argument is that if financial incentives are important for hard work, saving, innovation and entrepreneurship and if some people respond to these incentives while others do not, then inequality in economic outcomes will be created – but because economic growth will also be created, supposedly everyone (or nearly everyone) benefits. But has this sort of inclusive growth been a believable rationale for economic inequality in Canada over the last 35 or 40 years – i.e. since about 1980? Polling data seem to indicate that many Canadians think economic inequality has increased but the promised growth has not been delivered, at least not to them. They feel "left behind" and appear to be unhappy about current economic outcomes and discouraged about future prospects. This discontent is striking because since 1980 there has been significant aggregate economic growth – between 1981 and 2016, Canada's real GDP per capita grew by 55.9%, almost $20,000 (CDN),[2] which is surely an appreciable increase.

So why might middle class Canadians be unhappy about the income distribution? What objective economic trends in the past could have produced subjective pessimism? Have the last thirty-five years all been the same or have there been distinct episodes of good and bad performance? Can one expect that future growth will "solve the problem"? Although the largest income changes have occurred at the top of Canada's income distribution,[3] the middle class is the majority of the population. Hence, this paper examines the evolution of inequality in Canada with a particular emphasis on what has been happening since approximately 1980 to 'ordinary living standards' – i.e. to the middle class[4].

In asking "what has been happening to ordinary living standards?" this paper focuses on trends in the actual distribution of income and divides the period 1980 - 2017 into three main episodes: (1) Canada's 1980 – 2000 "Killing Inflation" period of high unemployment and real wage stagnancy; (2) the 2001-2014 "Resource Boom" episode of growing real wages and declining unemployment (marred by the Great Recession of 2008) and (3) the post 2014 phase of uncertain growth which Canada is now attempting to navigate. It begins by discussing middle class earnings trends and the changing impacts of taxes and transfers before summarizing briefly the changing share of top income recipients. The paper then asks how likely it is, given current

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[2] From $35,723 to $55,681 (in 2015 $ CDN) – a compound growth rate of 1.31% annually. CANSIM Table 380-0084 Gross domestic product at 2007 constant prices, expenditure-based.
[3] See Osberg (2014).
[4] As many (e.g. Cross and Sheikh, (2015) or Atkinson and Brandolini (2011) have noted, "middle class" is a commonly used term with many definitions. In the economics literature, person based and income range based perspectives (e.g. the "middle 60% of people" or "people with 75%-125% of median income") compete for influence. This paper emphasizes the former, and occasionally also discusses the "middle 80%".

forecasts of aggregate growth, that Canada's middle class will be able to keep up or to catch up with income growth at the top end.

1. Polling Evidence on Canadians' Perceptions of Middle Class Outcomes

How do Canadians *perceive* the trend of middle class incomes? Graves (2014) noted that although 85% of Canadian respondents agree that *"A growing and optimistic middle class is an essential component of societal progress"*, most are in fact deeply pessimistic. In EKOS data, a declining fraction of Canadians are even willing to identify themselves as "middle class" (67% in 2000 falling to 47% in 2014) and almost three quarters (74%) agree that "*The middle class is shrinking and falling backward.*" When asked whether the next generation will be worse off or better off than the current generation, a majority (60%) believe that their children's generation will be worse off. Only 12% thought the next generation will be better off (23% thought there will not be much change). When asked "*comparing your current annual income to what your father earned at the same age as you are now, would you say that, using inflation-adjusted dollars, you earn more, less, or about the same as your father?*" under a third (32%) of 25 to 44 year olds responded they were doing better than their fathers at the same age, and only 40% among those aged 45 to 64.

Other polls are quite consistent. Pollara (2014) data[5] provide a slightly different estimate of Canadian self-identification as 'middle class' (52%) and 'working class' (36%), but they also indicate that a majority feel that they are either "just getting by, with no savings" (45%) or "falling behind on monthly expenses" (8%). Faced with a two-way choice of whether or not respondents think that they themselves are better off or worse off than their parents, the result is basically a coin-toss.[6] In the Pollara data, 85% either 'agree strongly' (38%) or 'agree' (47%) with the statement that "*Income inequality is no longer about the gap between the rich and the poor, but rather the very rich and everyone else*" – a similarly worded EKOS question got 77% agreement. In both the EKOS and the Pollara data there is pessimism about Canada's future and personal anxieties about retirement and the employment prospects of children.

Both the EKOS and Pollara data reflect a widespread perception in Canada that the middle class has missed out on economic growth and government has not helped. The EKOS poll (Graves 2014:26,27) also asked "*How important are each of the following factors in causing the stagnation or decline of Canada's middle class?*" A nearly unanimous 95% thought wage and income stagnation was "important" (57%) or "somewhat important". A similar 94% thought "*Excessive concentration of wealth at the top*" was either 'somewhat important' (25%) or 'important' (69%). Only slightly less unanimously, 85% thought a "*Diminished role of*

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[5] http://www.pollara.com/wp-content/uploads/2015/01/Report.pdf

[6] Pollara did not allow the fence-sitting response category "about the same". The data split 51%/49% depending on which alternative is mentioned first.

government in providing universal social programs" was "important" (39%) or "somewhat important" (46%) while 82% thought the "*Sharp decline in corporate and individual tax rates*" to be "important" (34%) or "somewhat important" (48%). In a similar vein, 79% agreed that '*the fuel which drives middle class progress is the fair sharing of the financial rewards of a healthy, productive economy'.*

       Disappointment is something which depends on the divergence between prior expectations of events and the actual outcomes experienced. Economic growth is something that most Canadians had, until 1980, good reason to expect as personally "normal" – so the actual evolution of middle class living standards in Canada since then has been a major shock. Figure 1 documents the abrupt end of growth in real hourly labour compensation and its stagnancy from approximately 1981 to 2000. Although there was substantial income inequality in Canada from 1946-1980, incomes were growing strongly at roughly the same rate for rich and poor alike.[7] When everybody's incomes grow at roughly the same rate, income inequality remains roughly constant and throughout the 1950s, 1960s and 1970s, Canadians came to believe that balanced growth in income was, is and should be the "normal" state of affairs.
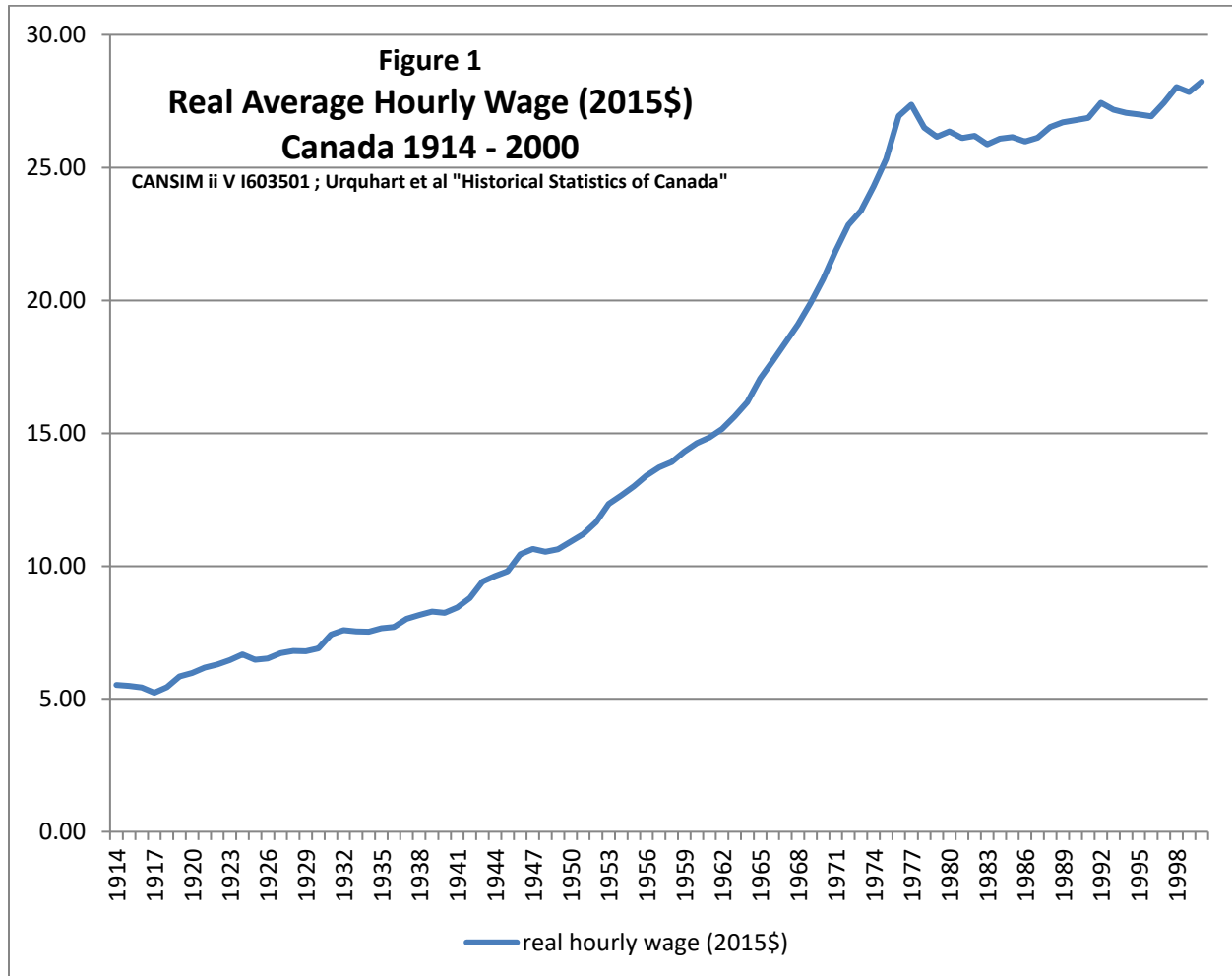
       In many ways, the lack of change in income inequality over the 35 years from 1946 to 1981 in Canada was quite remarkable, because Canada changed profoundly in many other ways. The 'Baby Boom' and high immigration doubled the total population but because GDP in 1981 was 4.5 times larger, per capita real output also more than doubled - to 227% of its 1946 level.[8] Urbanization and industrialization transformed the country – from 27.1% of the population in 1941, farmers declined to less than 5% by the 1970s. Among other things, women joined the labour force in unprecedented numbers, massive social policy changes were introduced (Medicare, public pensions,[9] unemployment insurance) and post-secondary education expanded dramatically. But throughout all these changes in Canada's economy and society, the distribution of annual household money income between income quintiles hardly budged, because balanced growth meant that the rich, the middle class and the poor all shared in economic prosperity. And although the post-war period of shared prosperity (and roughly constant inequality) ended in 1980/1981 – over 35 years ago – the rhetoric of Canadian politics still routinely demonstrates a deep nostalgia for the days of balanced growth and stable income shares.

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[7] Osberg (1981:205) concluded that "economic inequality has remained roughly constant since the Second World War."

[8] see CANSIM v480567, v466668, v742084-6, v742092-4

[9] Note that although Americans got Social Security in 1935, Canadians had to wait until 1965 for the Canada Pension Plan. Canada's reputation as being more "social democratic" than the U.S. is of post 1970 manufacture – as Riddell (1993) documents, during the 1950s and 1960s, Canada's union density was less than that of the U.S.

2. Killing Inflation: Implications and Aftermaths, 1980 – 2000

Figure 1
Real Average Hourly Wage (2015$)
Canada 1914 - 2000
CANSIM ii V I603501 ; Urquhart et al "Historical Statistics of Canada"

real hourly wage (2015$)

Somewhere around 1980, as Figure 1 shows, the reliable growth of average real hourly labour compensation in Canada came to a sudden stop.[10] However, since total labour compensation of all employees includes executive pay, rising top executive compensation both increases the inequality of wages and makes the average less reliable as a measure of the central tendency of wages. Table 1 (which uses data from Duclos and Pellerin (2016-Table 3)) therefore examines the real hourly wage at the 10th, 50th, 90th , 99th and 99.9th percentiles of the hourly

11 Figure 2.1 splices together two data series (for 1914 to 1961 and for 1961 to 2000). It shows "Average hourly labour compensation" defined as total labour compensation (from the National Income accounts, and adjusted for changes in the consumer price index) divided by total hours worked in the same year. This includes the employer cost of fringe benefits (such as any employer pension contributions) and is therefore greater than average money wages as recorded in census or household survey data.

wage distribution in order to unpack the trends going on within the distribution of hourly real wages.

Table 1
Hourly Real Wage among Full-Time Workers (2015$)

	Average	10th Percentile	50th Percentile Median	90th Percentile	99th Percentile	P99.9th Percentile	CV
1980	25.73	11.64	23.37	41.50	71.93	150.99	0.62
1985	25.15	10.23	22.97	41.22	71.19	156.2	0.67
1990	25.64	10.16	23.29	42.24	75.69	170.47	0.73
1995	25.21	9.64	22.65	41.69	76.19	190.52	0.82
2000	26.52	9.79	22.97	44.03	91.87	265.53	1.10
2005	28.31	10.31	23.67	46.64	102.64	372.16	1.42
2010	31.00	11.40	26.07	52.06	112.04	340.52	1.26
Compound annual growth rates							
1980-2010	0.62%	-0.07%	0.36%	0.76%	1.48%	2.71%	2.36%
1980-2000	0.15%	-0.87%	-0.09%	0.30%	1.22%	2.82%	2.87%
2000-2010	1.56%	1.52%	1.27%	1.68%	1.98%	2.49%	1.36%

Source: Duclos and Pellerin (2016-Table 3) plus author's calculations; CV = coefficient of variation

Duclos and Pellerin (2016) use confidential micro-data from the long form version of Canada's census. A great advantage of this data is that with millions of observations they are able to examine directly the very top end of the hourly wage distribution – a disadvantage is the five year frequency. Their findings repeat the often repeated conclusion: "Most of the action has been at the very top." Although Figure 1 gives the impression that average real wages recovered a bit towards the end of the 1990s, and although an increase in average wages can also be seen in the first column of Table 1, this increase in the average hourly real wage comes entirely from the very large increases in hourly wages of the very top end (99th percentile and P99.9th percentile).

Table 1 has three main messages – much more rapid income growth at the very top of the wage distribution, a slight widening of wage differentials among the middle 90% and a sharp difference between wage growth before and after 2000.

Nevertheless, in 2010 the real hourly wage of the 10th percentile was still below its 1980 level. The median hourly wage only got back to its 1980 level around 2005. Although the median

wage then surged until 2010, almost all of the 10.5% increase in real hourly median wage for the thirty years from 1980 to 2010 was concentrated in the last five years. For the full period 1980 to 2010, the thirty year compound annual growth rate of median real hourly wages of full time workers was an anaemic 0.36% annually.

Increasing dispersion within the bottom 90% was driven by stagnation at the bottom and some growth at the top – the 90/10 ratio grew from 3.57 in 1980 to 4.57 in 2010. Still, this increase in inequality was much smaller than the changes at the very top. Because the top 99.9th percentile considerably more than doubled their hourly real wage between 1980 and 2010, the dollar gap between the median hourly real wage and the 99.9th percentile grew by $187 per hour – an increase that was more than twenty time larger than the $8 growth in the gap in hourly wages between 90th percentile and the median (2015 dollars). Both the coefficient of variation of hourly real wages and the P99.9/P50 ratio also more than doubled.

The sudden stop in the growth of most real hourly wages in Canada in 1980-1981, and the continued stagnation of the 1980s and 1990s, occurred despite many structural changes that would have been expected to increase middle class wages. Canada's Baby Boom generation aged into their most highly paid years[11] and there was a substantial increase in the education levels of the Canadian workforce – the fraction of full time workers with some college or more increased by 26.6 percentage points over the 1980-2010 period.[12] Duclos and Pellerin (2016:261) conclude, however, that: "Wages within educational and potential experience groups have stagnated between 1980 and 2010. Hourly compensation growth among full-time workers is driven largely by rising educational attainments. Once we remove the wage effects of changes in the composition of the labour force, average hourly compensation stagnates or even declines over the period."
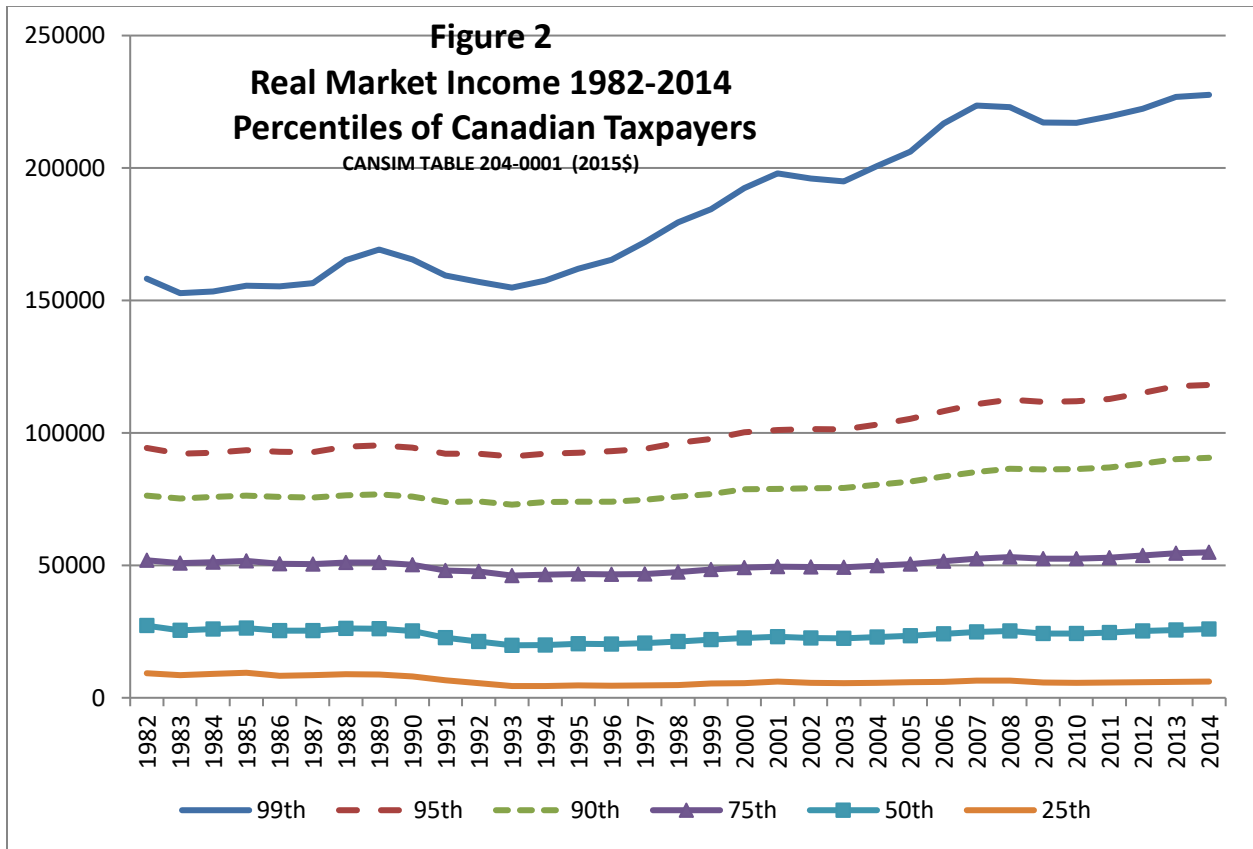
Much the same patterns can be observed in individual market incomes. In Canada, income tax is filed by individuals and since some social benefits are delivered through the tax system, coverage has been nearly complete in recent years. Summaries of tax histories are available since 1982 and CANSIM data enables Figure 2 to plot the real market income of the 25th, 50th (median), 75th, 90th, 95th and 99th percentiles of Canadian taxpayers from 1982 to 2014 and Table 2 to compute the compound growth rate of market income at these percentiles and also at the 99.5th, 99.9th , 99.95th, 99.99th and 99.995th percentiles[13]. Since this data is available annually, growth rates can be computed both for the entire period 1982-2014 and for the 1982-

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[11] As well, the Capital/Labour ratio increased and technological change transformed production. Canadian governments also made many institutional reforms with the stated objective of increasing market efficiency – such as de-regulation, freer trade (e.g. signing the FTA, NAFTA and WTO accords) and privatization of crown corporations.

[12] see Table 4, Duclos and Pellerin (2016)

[13] The higher percentiles are not plotted in Figure 2 since their incomes have to be measured in millions, not thousands, of dollars, which implies that including them in the same graph would obscure movements in lower percentile incomes.

2001 period of middle class wage stagnancy, the 2001-2007 years which preceded the onset of the Great Recession and 2008-2014 period since.

Figure 2
Real Market Income 1982-2014
Percentiles of Canadian Taxpayers
CANSIM TABLE 204-0001 (2015$)

Source: CANSIM TABLE 204-0001, Author's calculations

Table 2
Compound Growth Rates of Real Market Income of
Canadian Taxpayers

Percentile	1982-2014	1982-2001	2002-2007	2008-2014
99.995th	2.93%	5.28%	3.36%	-3.67%
99.99th	2.47%	4.62%	3.03%	-3.69%
99.95th	2.10%	3.72%	3.37%	-3.23%
99.9th	1.87%	3.11%	3.14%	-2.43%
99.5th	1.29%	1.73%	2.26%	-0.60%
99th	1.10%	1.18%	2.03%	0.26%
95th	0.67%	0.37%	1.53%	0.91%
90th	0.50%	0.17%	1.31%	0.87%
75th	0.14%	-0.25%	1.02%	0.62%
median	-0.19%	-0.88%	1.27%	0.57%
25th	-1.34%	-2.19%	1.03%	-0.92%

Source: CANSIM TABLE 204-0001, Author's calculations

As can be seen from either Table 2 or Figure 2, movement over time for most of the market income distribution in Canada has been minimal, both absolutely and relative to income growth at the top. For the 1982-2014 period as a whole, the income of the 25th percentile of taxpayers declined at a -1.34% compound annual rate while the median taxpayer's real income declined at 0.19% yearly. There is some fanning out among the bottom 90% - the 75th percentile grew at 0.14% annually and the 90th percentile grew at 0.5% yearly. Within the top 1%, the further up one goes, the greater is growth rate of earnings. The very top income percentiles grew at a compound annual rate of almost 3% for the full thirty year period – albeit divided into three sub periods, with very rapid market income growth 1980 to 2000 (over 5% annually) and market income declines during the Great Recession and its aftermath.

But for middle class Canadians, reading Tables 1 and 2 together, the big question is – why? Why did the real hourly wages and labour earnings of middle class Canadians stagnate for the twenty years between1980 and 2000? Why was there some recovery after 2000?

In continental Europe, wage-setting is often quite institutionalized, sometimes with the wage patterns agreed in collective bargaining being extended automatically to all workers in a particular industry. Canada has never been like that – roughly 90% of workers are covered by provincial labour legislation[14] and all jurisdictions follow the Wagner Act model of the U.S. in the sense that labour boards certify a single bargaining agent to negotiate a written wage contract

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[14] The federal government's jurisdiction includes roughly 10% of employment.

at the company or establishment level. Although the overall rate of unionization in Canada has only fallen from 37.6% in 1981 to 28.8% in 2014, the stability of public sector unionization rates contrasts with declines in the private sector – by 2014, the private sector unionization rate was down to 15.2%.[15]

In Canada, aggregate demand and supply in the labour market therefore drives both the general level of unemployment and the general growth rate of real wages. And the 1980s and 1990s constituted a regime shift for Canadian unemployment. As Figure 3 shows, between 1946 and 1975, Canada's unemployment rate averaged 4.7% and was never above 7%.[16] However, unemployment was consistently greater than 8% throughout the 1980s and 1990s, averaging 9.5% over these two decades. So the obvious question is – why did Canada shift for twenty years to a high unemployment regime?

Figure 3
National Unemployment Rate
Canada 1946-2016
CANSIM v2461224 + LFS

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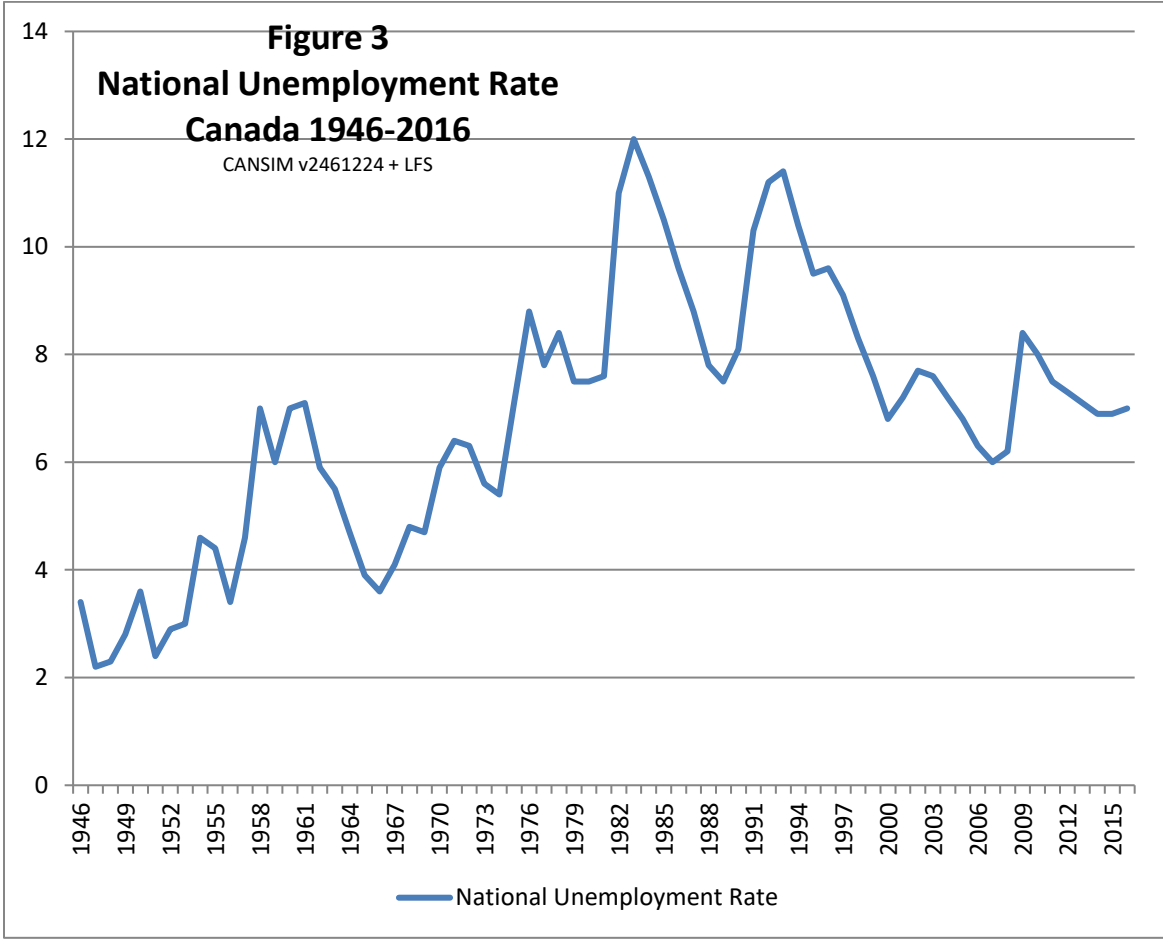
[15] http://www.statcan.gc.ca/pub/11-630-x/11-630-x2015005-eng.htm
[16] The 1959-1961 recession was the only spell of unemployment in excess of 6% until the late 1970s. It was also induced by a high interest rate policy initiated by the Bank of Canada, which has entered Canadian history as "The Coyne Affair" – see Siklos (2010) for details.

Supply side rationalizations for higher unemployment cannot explain the upward surge of Canadian unemployment in 1981 and its continuing high level for the next twenty years. There is no credible evidence of any sudden shift in Canadians' preferences for leisure time and the generosity of Canada's unemployment and social assistance systems was reduced, not increased, throughout the 1980s and 1990s.

The alternative hypothesis is the demand side explanation – that two decades of high unemployment was collateral damage in Canada's successful war against inflation. During the 1970s, price inflation rose steadily in Canada, as in the U.S. and other countries, partly because energy and other commodity prices rose dramatically following the oil price shock of 1973-1974. Canadian economists had long known that governments can always kill price inflation if the central bank is willing to engineer a severe enough recession. But throughout the post-war period in Canada, until 1980, governments of both major political parties had been reluctant to increase unemployment and looked for other solutions - Canada even experimented with wage and price controls from 1975 to 1978 (which reduced but did not eliminate inflation[17]). But when the world price of oil spiked upward again in late 1979, and threatened to set off a new upward spiral of prices, getting inflation under control became the federal government's dominating macro-economic policy priority and the decision was made to raise interest rates by whatever was necessary to reduce inflation.

When, as an example, the average residential mortgage lending rate for 5 year term in Canada went from 11.8% in August 1979 to 21.3% in August 1981, aggregate demand collapsed and the unemployment rate in Canada shot up, reaching 12% in 1983, and only declining slowly thereafter. The 1980-1981 recession established clearly that if the central bank is willing to raise interest rates and unemployment high enough and long enough, inflation can be reduced – consumer price inflation fell precipitously from its 12% peak during 1981 to an average of 3.81% from 1984-1988. But by 1988, the federal Department of Finance was worried about a possible resurgence of inflation. In Ontario (which has 40% of Canada's population), a new provincial Liberal government was spending heavily. The Conservative federal government of Brian Mulroney was proposing to replace the old Manufacturers Sales Tax by a new value-added tax system (the Goods and Services Tax or GST), but was concerned that introduction of the new consumer tax, especially in an "over-heated" Ontario economy, might change inflationary expectations and set off an upward wage/price spiral.[18]

As part of this new anti-inflation push, in January of 1988 John Crow, then the Governor of the Bank of Canada, articulated, in his Hansen Lecture at the University of Alberta, the Bank of Canada's belief that monetary policy should have a single objective: "a path that leads

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[17] In the last quarter of 1974, consumer price inflation averaged 12.2%, compared to 8.8% in the last quarter of 1978 – CANSIM Table 326-0020.

[18] The senior macro-economic forecaster from the Department of Finance explained to me, over lunch in the Dalhousie Faculty Club in 1988, why a small recession would be necessary to cool the economy and prevent "cost-push" inflation.

towards underlying price stability."[19] Shortly thereafter, it began raising interest rates. Between March 1988 and March 1990, Bank Rate went up by over five and a quarter percentage points, from 8.7% to 14.05% (nominal). Other short-term interest rates followed in rough parallel, and by October 1990, the real interest rate on home mortgages was 9.4%.

Raising interest rates to that level had quite predictable impacts – investment and consumer spending collapsed and unemployment increased. Unlike the early 1980s, this was a "Made in Canada" recession – U.S. monetary authorities have never adopted the inflation targeting Canadian model and U.S. interest rates did not follow the same path. But because higher interest rates in Canada produced a historically large interest rate differential with the U.S., financial capital flowed north and the inflow of foreign exchange bid up the value of the Canadian dollar (from 0.72 to 0.89 cents U.S.), which priced Canada's exports out of foreign markets and decimated manufacturing employment.[20] Although Canada's macro-economic decision-makers had forecast, and indeed had intended, some of this, nobody had expected Saddam Hussein to invade Kuwait in August 1990. When he did, investor and consumer confidence in the U.S. evaporated and the U.S. also went into recession from 1990 to 1992. With the U.S. recession now overlaying the domestic recession that was already under way, Canadian unemployment surged upward – averaging 10.3% nationally in 1991, 11.2% in 1992 and 11.4% in 1993.
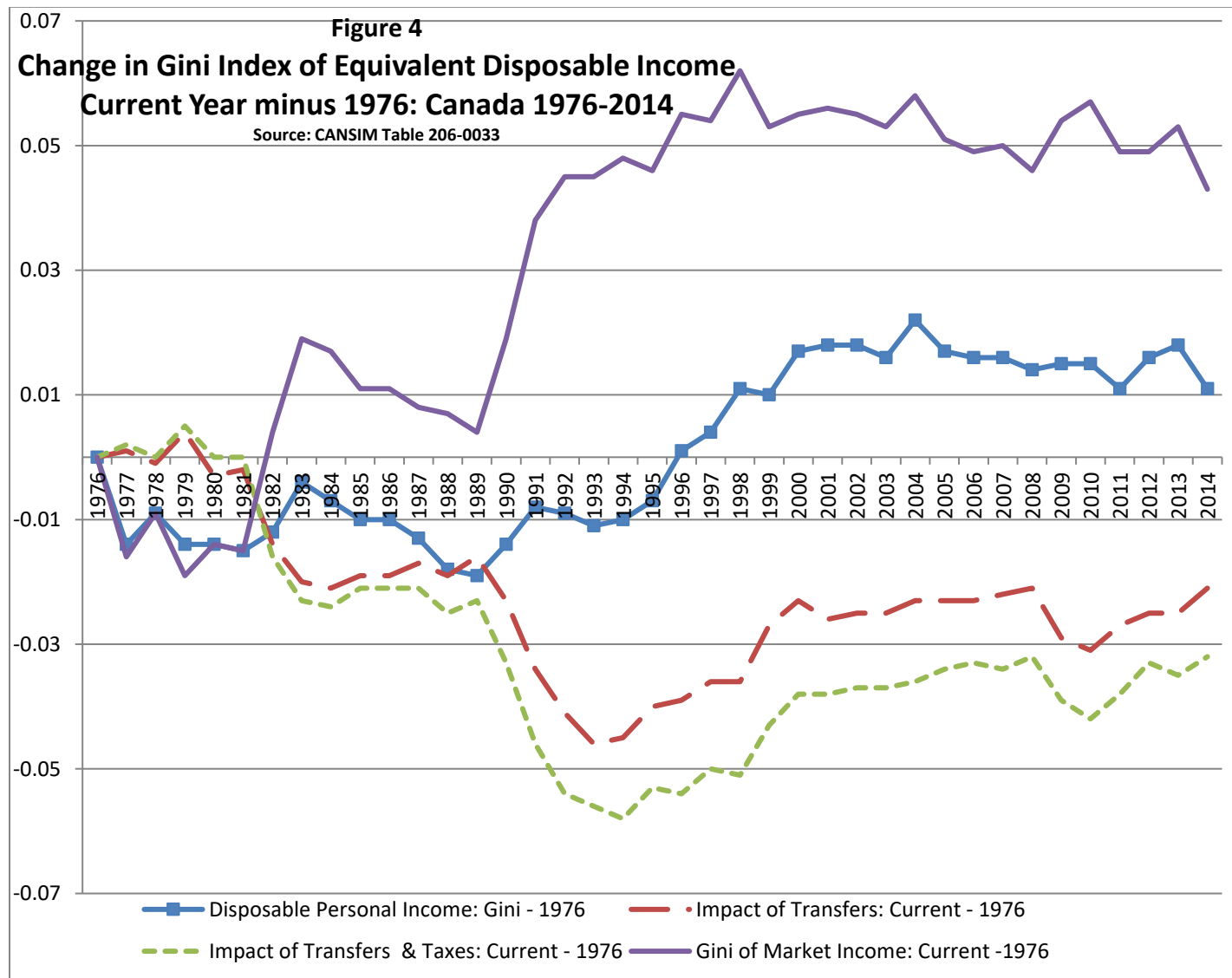
The recessions of the early 1980s and early 1990s and the "Twin Peaks" of unemployment in Canada that they caused (see Figure 3) correspond exactly to the two big upward surges in the Gini index of inequality of market incomes in Canada (see Figure 4). When the unemployment rate surged upward in these two recessions, older workers, with higher pay rates, were often somewhat protected from layoff by their greater seniority. In these two recessions, it was the youth cohort who had not yet acquired seniority in a permanent job, along with other marginalized groups, who lost the most in earnings, and since their earnings were lower to begin with, the inequality of market incomes increased.

Figure 4 plots the most commonly used index of income inequality – the Gini index – from 1976 to 2014. It is constructed to emphasize changes in inequality by subtracting the initial 1976 level of the Gini index from its current level, for each year and for each concept of income. Up to this point, we have discussed trends in the hourly real wages and annual market income of individuals, but most people live in households and share consumption, to some degree, with other people. Because larger households benefit from "economies of scale" in consumption when they are able to save by buying in bulk or sharing utilities, etc., Figure 4 reports the "equivalent

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[19] John W. Crow (1988) "The Work of Monetary Policy" The Eric John Hanson Memorial Lecture Series Volume II, Winter 1988, Department of Economics, University of Alberta, January 18, 1988.
[20] Between August 1989 and August 1993, 17.1% of manufacturing employment (366,000 jobs) disappeared. [CANSIM Table 282-0088; v122497] See McCracken (1996) and other chapters in Osberg and Fortin (1996).

income" of individuals – i.e. it adds together the income of all household members and adjusts that average household income for the economies of scale that larger household enjoy. Arguably, the effective consumption that household income enables is what determines 'ordinary living standards'. The Gini index of inequality measures shifts in the middle part of the income distribution much better than it indicates the impact of shifts in the extremes of the income distribution. (Osberg, 2016). Hence, Figure 4 summarizes shifts in the income sources underlying inequality of 'ordinary living standards'.

Figure 4

Change in Gini Index of Equivalent Disposable Income Current Year minus 1976: Canada 1976-2014

Source: CANSIM Table 206-0033

Legend:
- Disposable Personal Income: Gini - 1976
- Impact of Transfers: Current - 1976
- Impact of Transfers & Taxes: Current - 1976
- Gini of Market Income: Current -1976

The top solid line in Figure 4 shows the change in the Gini index of inequality of market income in Canada, compared to 1976. As can be seen, from 1976 to 1979 the Gini index of inequality of market income actually fell, but there was a sharp increase from 1981 to 1983, mirroring exactly the recession and the increase of unemployment observed in Figure 3. The

second big surge upwards in the Gini index of market income in Canada was from 1989 to 1992, followed by a more gradual increase until 1996 – again matching exactly the surge upwards in unemployment in the recession and reflecting the long period of high unemployment which followed.
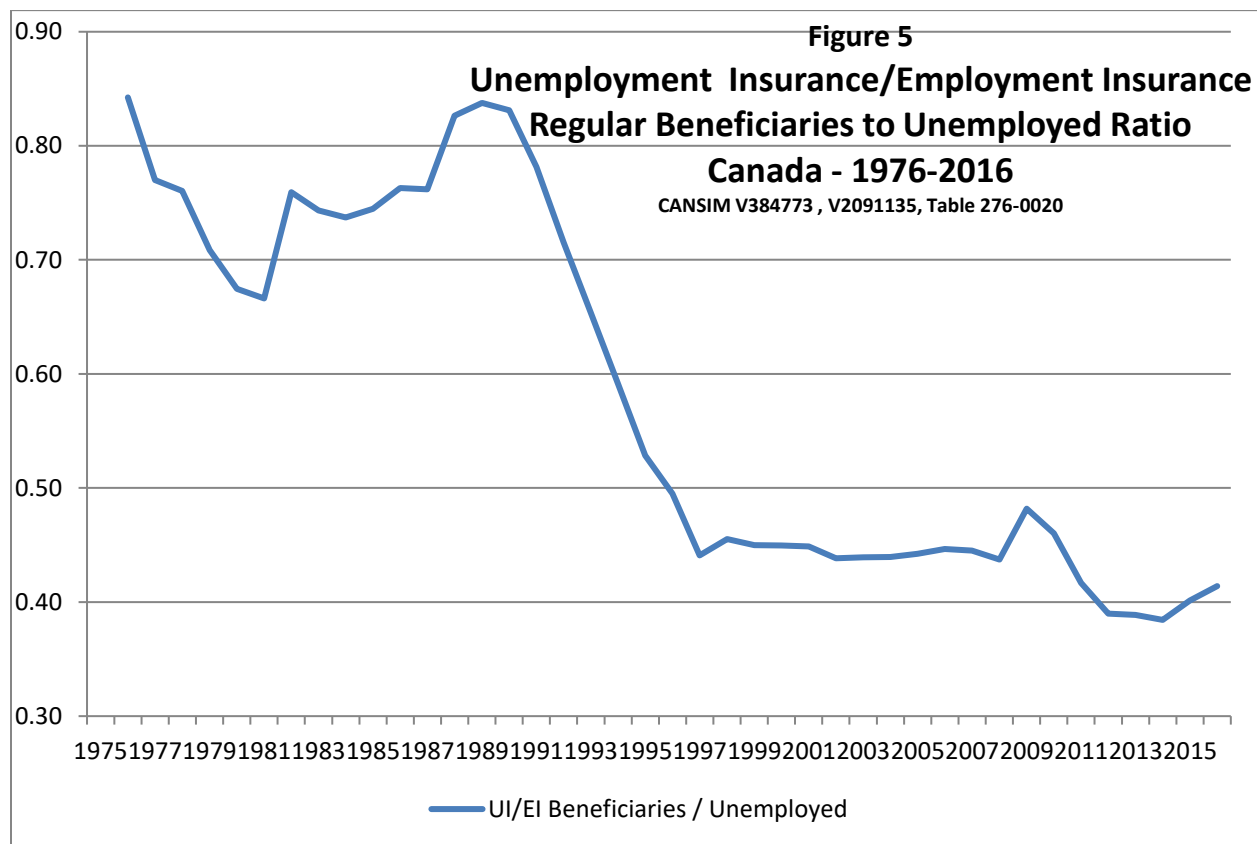
However, transfers and taxes have always made a considerable difference to inequality in Canada. The second line (with square markers) in Figure 4 is the Gini index of Household Disposable Personal Income (DPI). Since it includes the impact of taxes and transfers, and reports "equivalent disposable income" (i.e. household money income after tax adjusted for household size), it is arguably more relevant than market income alone for the inequality of 'ordinary living standards'. Between 1976 and the late 1970s, DPI inequality declined, mirroring the decline in the Gini of market income. But in 1981-1983 they diverged – the market income Gini shot up, while the DPI Gini rose by much less.

Inequality in Disposable Personal Income can differ from inequality in market income because of the impacts of taxes and transfers. To see the separate impacts of transfers, one can compare the Gini index of market income (i.e. before receipt of any government transfers) with the Gini index of total income (i.e. including transfers). In 1976, for example, when the Gini index of market income in Canada was 0.384, the Gini index of total income (i.e. market income plus transfer income) was 0.33. So in 1976, one measure of the impact of transfer payments on income inequality in Canada was the reduction of 0.054 (= 0.384 – 0.33) Gini points.

The large dashed line in Figure 4 plots the change since 1976 in the impact of transfer payments on the Gini index. As one can see in Figure 4, it plots at almost exactly zero from 1976 to 1981 – i.e. over those years there was essentially no change in the impact of transfers on the Gini index of inequality in Canada. In Figure 4, the line with short dashes follows the same logic to compute the impact of taxes on the Gini index – with the same result from 1976 to 1981, approximately zero change in the impact of taxes. Since the Gini index of total after tax income ("Disposable Personal Income" or DPI) was 0.3 in Canada in 1976 while the Gini index of total income before tax was 0.33, the additional contribution which the income tax system made to reducing inequality can be calculated as the difference between the two, which was 0.03 Gini points in 1976 (=0.33 – 0.30). The short dashed lines in Figure 4 plot the change since 1976 in how much impact the tax system has had on the Gini index – as one can see the change in the impact of the tax system on the Gini index was also about zero from 1976 to 1981.

As Figure 5 below shows, in Canada in the 1980s a far higher percentage of the unemployed were able to claim unemployment benefits than is the case today. Provincial social assistance payments were also then, in real terms, considerably higher than they became after 1996. As unemployment surged upward in the early 1980's recession, increased transfer payments were able to offset a large part of the 1981-1983 increase in market income

inequality.[21] As Figure 4 shows, from 1981 to 1983 the impact of transfers has a sharp downward impact on the Gini because rising transfers offset a large part of the market income inequality increase. Combining greater inequality in market incomes (an increase from 0.369 in 1981 to 0.403 – i.e. 0.034 Gini points) and a greater impact of transfers in offsetting inequality, the result in 1981-1983 was a much smaller increase (from 0.285 to 0.296 = 0.011 Gini points) in the Gini index of Disposable Personal Income inequality.

Figure 5
Unemployment Insurance/Employment Insurance Regular Beneficiaries to Unemployed Ratio
Canada - 1976-2016
CANSIM V384773 , V2091135, Table 276-0020

UI/EI Beneficiaries / Unemployed

From 1983 to 1989, the large dashed line in Figure 4 indicating changes in the impact of transfers is fairly flat, reflecting the fact that there was not much change in the inequality reducing impacts of transfer payments. As a result, when the market income Gini declined as unemployment fell, the disposable income Gini declined in parallel. When unemployment and the Gini index of market income simultaneously surged upward again during the 1989-1992 recession, the offsetting impact of the transfer system kicked in, just as it had in the recession of the early 1980s. A larger impact of transfer payments on the Gini index offset much of the

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[21] Market income inequality rose by 0.034 Gini points but total income inequality rose by less than half that - 0.016 Gini points.

increase in market income inequality, leaving the Gini index of disposable income inequality with a much smaller increase.

Indeed, although the Gini index of Disposable Personal Income moved upward in the early 1990s, it was not until 1995 that it actually rose above its 1976 level. Throughout those years, whenever Canadian inequality was mentioned in international conferences on economic inequality, the standard observation was that, unlike other countries, Canadian inequality was not increasing because Canada had a tax/transfer system that successfully offset greater inequality of market incomes.

Adding taxes and transfers together, the total impact of the Canadian tax and transfer system on income inequality in Canada has always been quite significant – in 1976, a reduction of 0.084 Gini points and in 2014 a reduction of 0.116 Gini points. During the peak unemployment years of the 1990s recession, the impact was even greater - in 1994, the tax and transfer system reduced the Gini index by 0.142 Gini points and in 1996 by 0.138 Gini points. But while transfers and taxes played an increasing role in offsetting rising market income inequality in Canada up until the mid 1990s, they have played a decreasing role since then. As Figure 4 shows, from the mid 1990s on, changes in the impact of transfers and taxes accentuated the changes in the Gini index of market income inequality, instead of offsetting them. What can explain this shift in the role of Canadian taxes and transfers, from offsetting to accentuating rising market income inequality?

As already noted, the Canadian recessions of the early 1980s and 1990s were policy induced – the expected result of raising interest rates to reduce aggregate demand and thereby cool inflation. But higher interest rates both slow down GDP growth <u>and</u> simultaneously speed up the compounding impact of interest rates on the accumulation of debt. As Kneebone has noted: "tight monetary policy can have disastrous effects on government finances."[22] The affordability and stability of the public debt depends on the debt/GDP ratio. However, while the denominator of that ratio grows at the rate of GDP growth, the numerator grows at the rate of interest, unless there is a primary balance surplus of tax revenue over program expenditure.[23] Whenever the interest rate exceeds the income growth rate, past debt tends to compound faster than income is growing – and when the stock of past debt is large, debt starts to feed on itself

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[22] Kneebone (1996:57) Chapter 3 in Osberg and Fortin (1996)

[23] The 'debt stability' equation derives directly from the accounting identity that $D_t = (1 + r_t)* D_{t-1} - PB_t$ where D_t = Debt in period t; r_t = average rate of interest in period t; PB_t = Primary Balance in period t and Y_t = GDP. Dividing by GDP, lagging and manipulating gives: $\Delta (D/Y)_t = (r_t - g_t)*(D_{t-1}/Y_t) - (PB_t / Y_t)$ where g_t = growth rate of GDP; $\Delta (D/Y)_t$ = change in Debt/GDP ratio

and expenditure surpluses must be continual and increasing in size just to stabilise the Debt/GDP ratio.

The higher interest rates which precipitated the 1990s recession and the slower growth of that recession destroyed the debt stabilization plans of Canadian governments[24]. The debt to GDP ratio soared to new heights, and by 1995 all Canadian governments perceived no alternative but to engage in major cuts in program expenditure. In 1996, the federal Minister of Finance declared that he was going to eliminate the budget deficit of the federal government "come hell or high water" by cutting expenditures. Massive cuts to unemployment insurance benefits, and a name change to "Employment Insurance", were combined with cuts to federal transfers to provincial governments, who then cut social assistance payments. (In Canada, transfer payments to the working age population are partly federal (earnings related unemployment benefits) and partly provincial (means tested social assistance benefits)). As Figure 5 shows, during the federal budget cuts of the mid 1990s unemployment insurance benefit recipients fell, as a percentage of the unemployed, by roughly 40 percentage points (i.e. by half). Federal cost-sharing of provincial social assistance was also abolished and most provinces cut social assistance benefits substantially (e.g. a 24% cut in Ontario)[25].

During the 1970s and before, the Bank of Canada, like the US Federal Reserve, had had a mandate[26] which recognized that since there might be costs in higher unemployment to achieving better inflation performance, the Bank should find a balance between these objectives. Unlike the US Federal Reserve, since the 1980s macro-economic policy-makers at the Bank of Canada have focused solely on low inflation – a focus which was formalized in explicit inflation targets after 1991 (2% - with a target band of plus or minus 1%). The Bank of Canada was thus an "early adopter" of the new dogma of targeting only the inflation rate – and it must be said that the 2% target has now been consistently achieved for nearly thirty years.

However, minimizing the probability of inflation is not really that difficult – it has long been known that money wages and prices will not go up if unemployment is kept high enough, for long enough (and high enough interest rates can always achieve that objective). The difficult

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[24] In Canada, the federal debt/GDP ratio peaked during World War II. In the post-WWII period, the debt/GDP ratio declined until 1975, before growing again in three distinct phases - 1975-1980, 1981-1988 and 1989-1995. By the latter part of the 1980s, both provincial and federal governments had raised taxes considerably, and were by 1989 running sufficiently large surplus on their primary balances to begin to reduce the debt to GDP ratio. See chapters by Gillespie, Fortin and Kneebone in Osberg and Fortin (1996).

[25] Although the late 1990s saw a recovery in federal public finances, transfer payments were never restored – the decision of the Liberal government of 2000 was to cut personal and corporate tax rates and thereby lock in the decline in public spending as a fraction of GDP. See Ferris and Winer (2007).

[26] More exactly, the Bank of Canada Act (1934) mandated a balancing of objectives: "to regulate credit and currency in the best interest of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment." This legislation has never been formally amended but by agreement with successive governments the Bank of Canada has limited its objectives to "keeping inflation low, stable, and predictable", specifically interpreted as a target CPI inflation rate of 2%, plus or minus 1%.

part is maintaining growth – but policy formation is simpler when trade-offs are not perceived. Once the objectives of the Bank of Canada were limited to inflation control, its policy mandate was to raise interest rates, and unemployment, whenever it grew anxious about higher inflation[27] - which it often was. Figure 3 plotted the unemployment rate and Figure 1 has plotted the resultant trend in average real hourly wages. Since the recessions of the early 1980s and 1990s were extremely costly and were both induced by monetary policy aimed at reducing inflation, the Bank of Canada has had a lot of institutional credibility invested in continuing to achieve inflation targets. Until 2001, all the Governors of the Bank of Canada were promoted from within.

In Canada, success in killing inflation with demand restraint has had both direct and indirect impacts on "ordinary living standards". For roughly the first fifteen years of the 1980 to 2000 period, Canada was a case study in how the direct impact of monetary policy choices on unemployment and the priority given to "price stability" can choke off the growth of market income of the middle classes, by restricting the aggregate level of labour demand, raising unemployment and thereby smothering growth in real wages. However, the second round impact of anti-inflation monetary policy was arguably more important for long run inequality in Canada because when high interest rates destabilized the public debt, that produced lasting changes to income transfer programs. After 1996, Canadian governments shifted from offsetting to accentuating increased market income inequality, and the influence of those policy changes has remained, even as unemployment declined during Canada's later resource boom. For middle class inequality in Canada, monetary policy mattered from 1980 to 2000, in major ways.

3. The Short Lived Income gains of Canada's Resource Boom:

Unlike most other OECD nations, Canada is a significant exporter of oil, natural gas and other resource commodities, and its terms of trade are quite sensitive to their international prices.[28] Figure 7 documents the long swings and the short term variabilities in the real price[29] of oil between 1974 and 2017. Between 2001 and 2014, Canada's labour market was heavily influenced by the fact that the steady surge in real oil prices from $22 (U.S.)[30] per barrel in late 2001 to $142 per barrel in June 2008 spawned a confident expectation that real energy prices

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[27] When potential output (above which inflation would accelerate) is estimated using past data on output and inflation and a Hodrick-Prescott filtering technique (which is essentially a weighted moving average of past events), higher unemployment and lower output growth in the past generate lower estimates of future potential output, which can be used to justify restraining growth in aggregate demand in future periods.

[28] The terms of trade of Norway and Australia also vary with resource prices. Within Canada, the terms of trade of Alberta, Saskatchewan and Newfoundland are sensitive to commodity prices, but those of the other provinces, home to 85% of the population, are not. See Osberg et al (2016a and 2016b).

[29] Throughout this section, the real price of oil refers to the average nominal price per barrel of imported crude oil deflated by U.S. Consumer Price Index, first quarter, 2017. Source: https://www.eia.gov/outlooks/steo/realprices/

[30] All oil prices reported in U.S. dollars.

could only continue to go up. Although the upward march of oil prices was interrupted by a collapse to $42 per barrel in December 2008 as the Great Recession hit, price recovery was swift, rebounding to $119 per barrel in March of 2012.

Throughout the Harper era (2006-2015), the federal government was clear about its belief in "Canada's emergence as a global energy powerhouse – the emerging "energy superpower" our government intends to build[31]." High oil prices were widely believed to be a near certainty, in Canada and elsewhere. For example, a technically excellent IMF study by Benes et al. (2012:31), after analyzing geological data on world oil reserves, technological capabilities in the petroleum industry and economic projections of world oil demand, concluded with a forecast 2016 price of $130 per barrel, continuing on up to $180 per barrel in 2020[32]. This expectation of continued increases in oil prices and the fact that Alberta's oil sands[33] are the third largest oil reserves in the world, after Venezuela and Saudi Arabia, combined with Canada's status as a secure supplier to the nearby U.S. market to produce a surge of investment. In the end, between 1999 and 2013 approximately $201 billion (CDN) was invested in the Alberta oil sands industry.[34] Hence, the evolution of the Canadian distribution of earnings over the period 2001-2014 reflects the impact of a very large surge of investment in a highly paid sector[35] of the economy. During the oil boom, as charter flights flew crew changes into Fort McMurray construction sites from Atlantic Canada and rural B.C. and places in between, labour market impacts were apparent to Canadians from coast to coast.
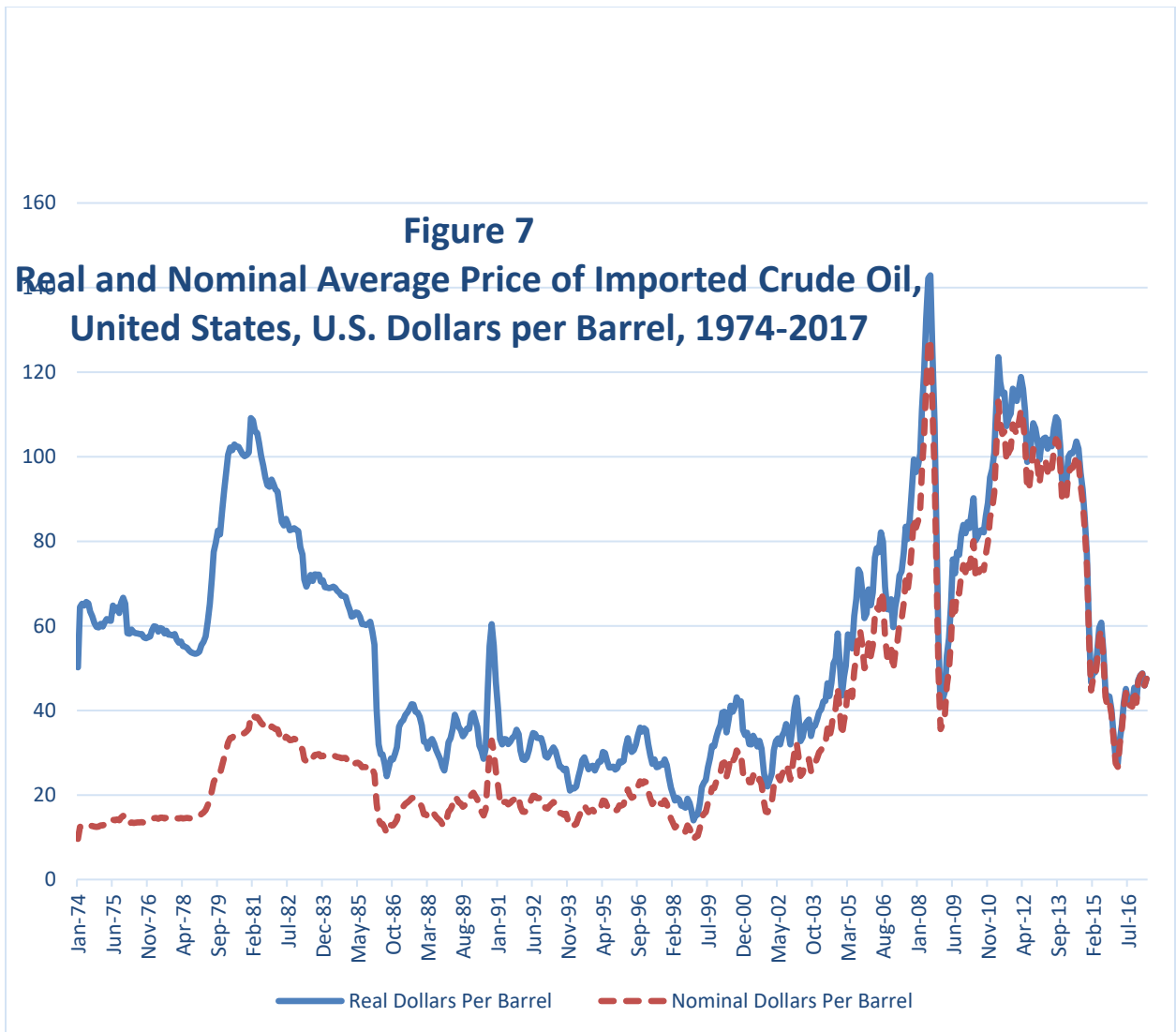
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[31] Quoted in Hester (2007)

[32] The actual unfolding of events has been that during the last half of 2014, the real price of oil fell from just over $100 (U.S.) per barrel (July 2014) to under $50 per barrel (January 2015), before falling even lower over the next year to $28 per barrel in January 2016 and then recovering somewhat to $45.83 in March 2017. The IMF forecast came with scientifically precise estimates of its uncertainty – a 90% confidence interval with an upper bound of $170 per barrel and a lower bound of $100 per barrel in 2016. The actual price of oil was thus, in 2016, less than half the lower bound of the 90% confidence interval of the 2012 IMF prediction of world oil prices. The 2014 price drop, and the absence of a recovery to date (May 2017), were definitely not expected.

[33] The original, and technically more accurate, name for these bitumen deposits was the Athabasca Tar Sands – for contemporary political correctness, we adopt here the more recent terminology.

[34] http://www.energy.alberta.ca/OilSands/791.asp In current dollars, Canada's GDP at market prices at the end of 2013 was 1,904 Billion (CDN), so on a per year basis oil sands investment was of the order of 1% of GDP.

[35] Hays (2014) estimated average annual salaries in Canada's oil and gas industry at $123,000 (U.S.) in 2013, which is higher than the CANSIM (Table 281-0063) broader aggregate measure for "Mining, quarrying, and oil and gas extraction" of average weekly earnings of $1,878 (CDN) in 2013. Both are more than twice as high as the Industrial Aggregate average of $911 weekly for Canada in 2013.
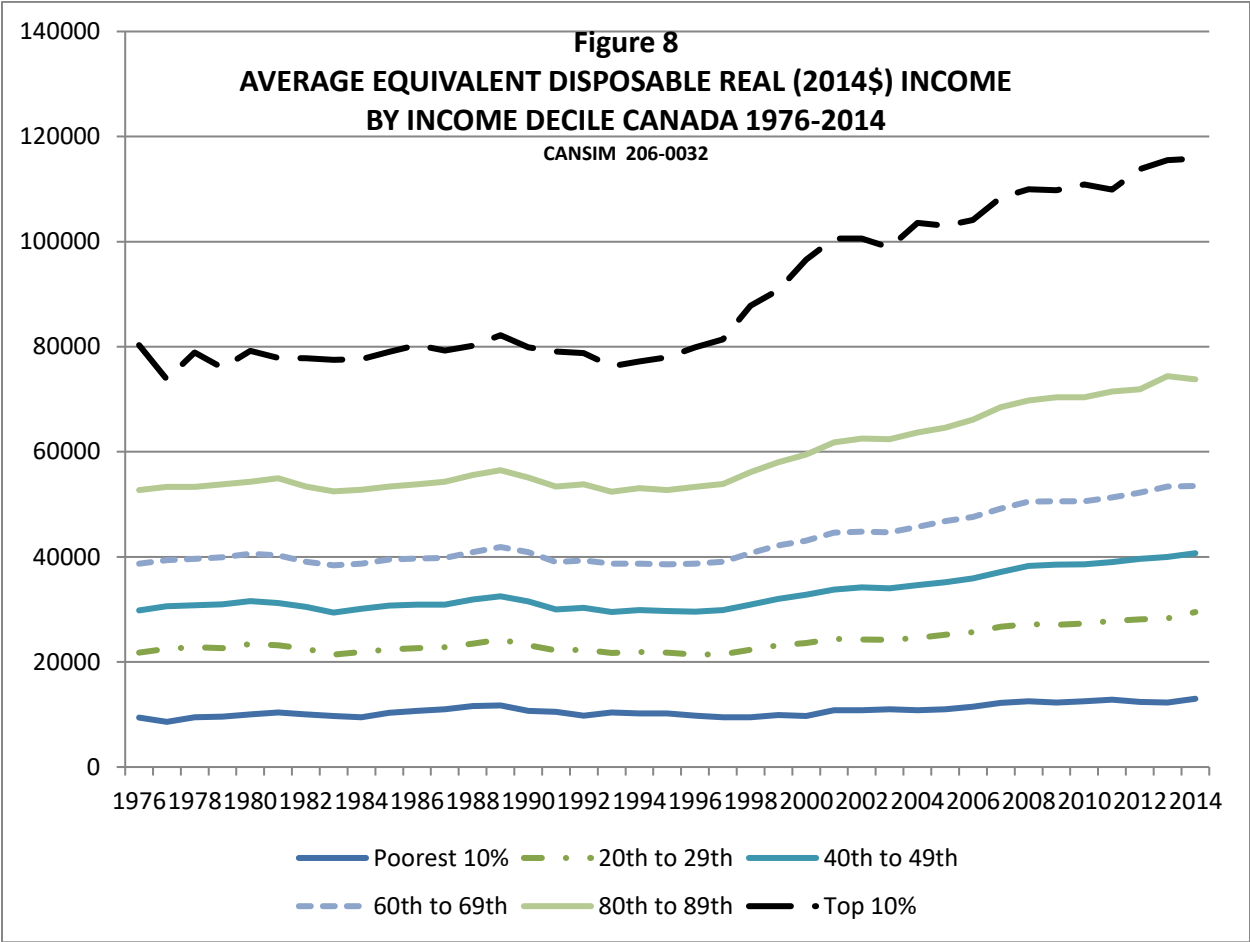
Figure 7
Real and Nominal Average Price of Imported Crude Oil, United States, U.S. Dollars per Barrel, 1974-2017

Source: EIA Short-Term Energy Outlook, https://www.eia.gov/outlooks/steo/realprices/

David Green (2016) has argued convincingly that although Canada's oil and gas sector directly employs only a small percentage of Canadian workers, the rapid expansion of oil sands investment established new reference points for wage setting nation wide. With Governors who after 2001were appointed from outside, the Bank of Canada allowed national unemployment to trend down. Low unemployment and high wages in Alberta attracted substantial interprovincial migration, which combined with the explosive growth of interprovincial commuting to bid up real wages throughout the country.

Canada's resource boom also offset much of the impact of the Great Recession of 2008-2009. As Figure 3 indicates, the increase in Canadian unemployment in 2009 was relatively small and quickly peaked. The rapid recovery of oil prices following the 2008-2009 Recession

seemed to validate the general expectation of continued energy price increases and continued investment in oil sands production facilities.

As Figure 8 shows, for most of Canada's income distribution the growth of average real disposable equivalent household income during the 2001 to 2014 period was a welcome contrast to the flat-lining experienced from 1980 to 2000.

Figure 8
AVERAGE EQUIVALENT DISPOSABLE REAL (2014$) INCOME
BY INCOME DECILE CANADA 1976-2014
CANSIM 206-0032

As a picture of trends in "ordinary living standards", it is the average incomes of the middle deciles in Figure 8 which are most informative. The average income of Canada's top 10% has been heavily influenced by the very rapid income growth of the top 1%, which has in turn been inflated by the even higher income growth of the top 0.1%. The average income of the bottom decile has been heavily affected by the mid 1990s cuts to social assistance and unemployment insurance. Nevertheless, the shift from stagnation to growth for the middle deciles of households is apparent.

Table 3 looks at the working age[36] households – specifically, movements in the real equivalent household disposable income of the people at the decile cut points– i.e. the 10th, 20th, 30th,…..90th percentiles. If one defines the "middle 60%" as the "middle class", the 20th percentile is its bottom, the 50th percentile is its middle and the 80th percentile is its top.
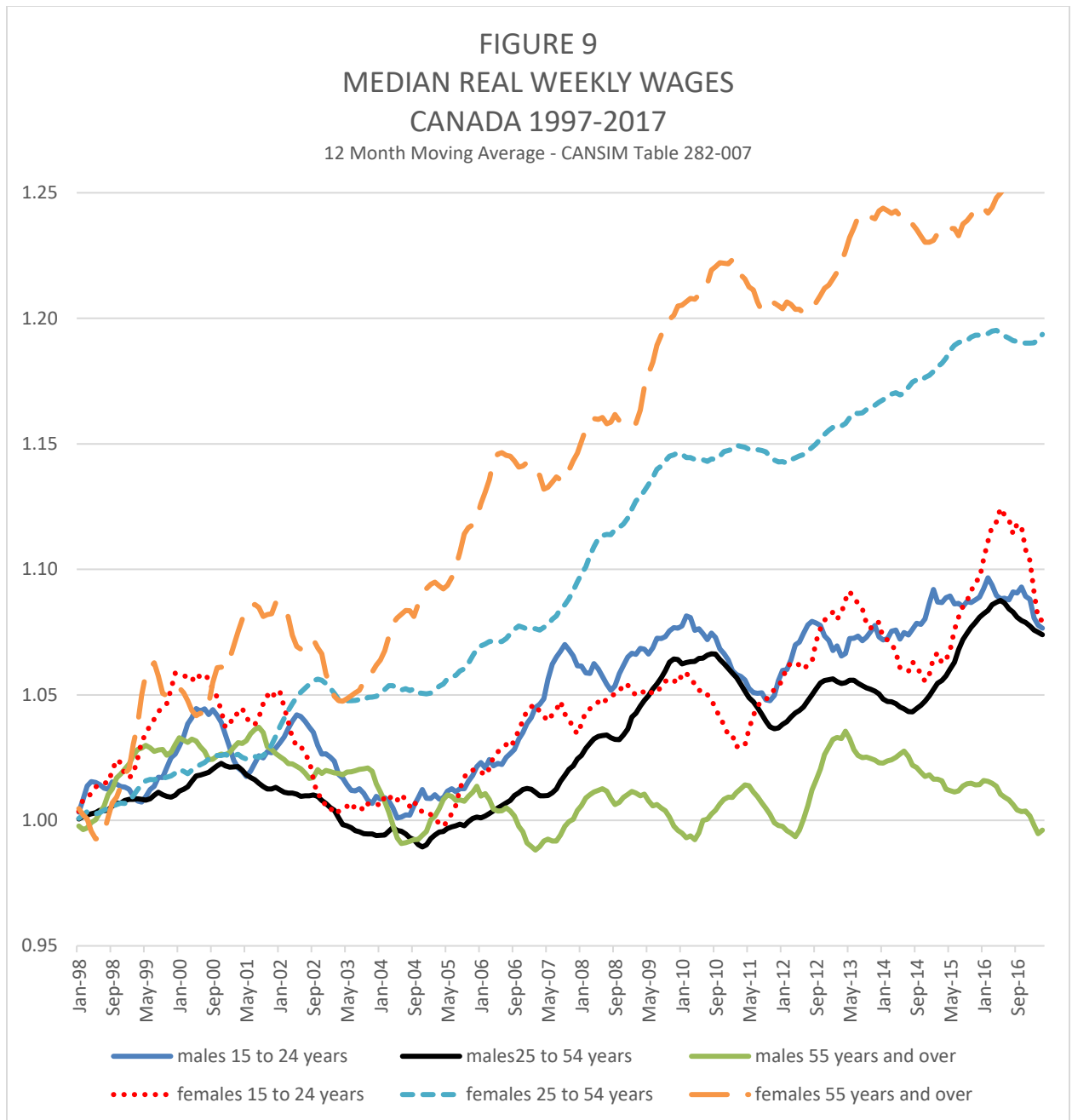
Table 3

RATIO OF REAL PER CAPITA DISPOSABLE HOUSEHOLD INCOME TO 1981 LEVEL: WORKING AGE CANADIANS 1981-2010

	P10	P20	P30	P40	P50	P60	P70	P80	P90
1981	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1987	1.056	1.046	1.036	1.024	1.022	1.029	1.021	1.017	1.017
1991	1.065	1.042	1.037	1.034	1.020	1.034	1.022	1.005	1.013
1994	1.082	1.052	1.045	1.048	1.043	1.050	1.035	1.040	1.044
1997	1.054	1.031	1.034	1.053	1.059	1.061	1.039	1.034	1.042
1998	1.055	1.037	1.054	1.068	1.066	1.078	1.065	1.047	1.061
2000	1.056	1.045	1.051	1.067	1.078	1.083	1.077	1.061	1.062
2004	1.117	1.099	1.127	1.147	1.158	1.167	1.158	1.154	1.160
2007	1.268	1.231	1.232	1.255	1.256	1.267	1.255	1.254	1.274
2010	1.305	1.253	1.280	1.304	1.300	1.303	1.302	1.283	1.307

ANNUAL COMPOUND RATE OF GROWTH

	P10	P20	P30	P40	P50	P60	P70	P80	P90
1981-2010	0.92%	0.78%	0.85%	0.91%	0.91%	0.91%	0.91%	0.86%	0.92%
1981-2000	0.29%	0.23%	0.26%	0.34%	0.39%	0.42%	0.39%	0.31%	0.32%
2000-2010	2.12%	1.81%	1.98%	2.00%	1.88%	1.85%	1.89%	1.90%	2.07%

Source: Author's Calculations from data of Nolan, Roser & Thewissen (2016)

Both Figure 8 and Table 3 are based on after-tax, household income. However, a sustainable income growth has to depend on market incomes. Although cutting taxes was a top priority of the Harper government (in power federally from 2006-2015), such tax cuts can only produce temporary growth in disposable income, since budget balance implies that eventually a minimum level of public services is reached[37].

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[36]Defined as members of households headed by someone aged between 18-65.
[37] En route, disposable household income increases due to tax cuts also do not reflect changes in well-being, due to the welfare cost of reduced in kind public services received (e.g. roads. Health care).

FIGURE 9
MEDIAN REAL WEEKLY WAGES
CANADA 1997-2017
12 Month Moving Average - CANSIM Table 282-007

Source: - CANSIM Table 282-007, author's calculations

Figure 9 relies on the median weekly wage data that is available after 1997 from Canada's Labour Force Survey. It expresses the real weekly wage as a ratio of its level in January 1997 and illustrates the fact that: (1) women aged 25-54 and 55+ have had robust long term growth in real weekly wages – a twenty year compound rate of growth from 1997 to 2017 of 1.04% and 1.29% respectively; (2) the weekly real wages of men over 55 have barely risen in twenty years (a compound 0.01% growth rate) and (3) there was a period, from 2004 to 2009, when all demographic groups (except males over 55) experienced fairly strong real wage growth,

but both before and after that period the real weekly wages of men and of young women had no strong trend.

Whether one analyzes trends in the real hourly wages of full time workers based on Census data (Table1), the real market annual incomes of taxpayers from income tax data (Table 2 and Figure 2) or the real equivalent annual disposable income of working age households from survey data (Table 3), there is a common finding. Within the middle 60% or 80% of the income distribution, whatever the data used, in Canada there was a common experience of income stagnancy from 1981 to 2000, when annual income growth averaged at most 0.3% to 0.4% throughout the middle class. After 2004 there was some growth, for some demographic segments.

A long term increase in individual income differentials within the middle 60% or 80% is also a common finding[38]. For the full period 1980-2010, census data on real hourly wages at the 10th percentile fell at 0.07% yearly but rose by 0.76% yearly at the 90th percentile. For real individual market income from income tax data 1982-2014, the 25th percentile declined at 1.34% while the 75th percentile rose at 0.14%. Some authors – e.g. Cross and Sheikh (2015) – have interpreted this fanning out of incomes as the divergence of fortunes of the highly educated professional and technical occupations in Canada's upper middle class and the poorly educated factory workers of the lower middle class. Beach (2016a, 2016b), who defines 'middle class' in terms of individual earnings, as those individuals within 50% and 150% of the gender specific median, suggests that hollowing out of the middle class has been the result of a long term job polarization combined with upskilling of a segment of the workforce.

However, the absolute size of income gaps within the middle class grew by far less than the growth of income gaps with the top – for example, measured in 2013 dollars, between 1982 and 2014 the gap between the market income of the 99.5^{th} percentile taxpayer and the median taxpayer increased by \$109,572 while the gap between the 75th percentile taxpayer and the median increased by \$4,347. Differentials in income growth within Canada's the middle deciles of individual earnings have been much, much smaller than the differences in income growth rates between the middle percentiles and the top percentiles (see Tables 1 and 2).

Trends in living standards depend, moreover, on how individual market incomes are combined within households, and on the workings of the tax and transfer systems – i.e. on trends in <u>household</u> disposable income. Compared to trends in individual earnings, real equivalent disposable household income showed much less fanning out from 1981 to 2010 - for the 20th percentile household disposable real income grew at 0.78% annually, which is only slightly less than the 0.86% yearly growth of the 80th percentile. In Table 3 the similarity in total income growth across income percentiles from the 10th to the 90th is really quite striking. Looking along

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[38] "Fanning out" of decile cut-points is equivalent to a "hollowing out" of the middle class, when the "middle class" is defined with reference to a specific income range, since the percentage of people within the fixed middle income band falls.
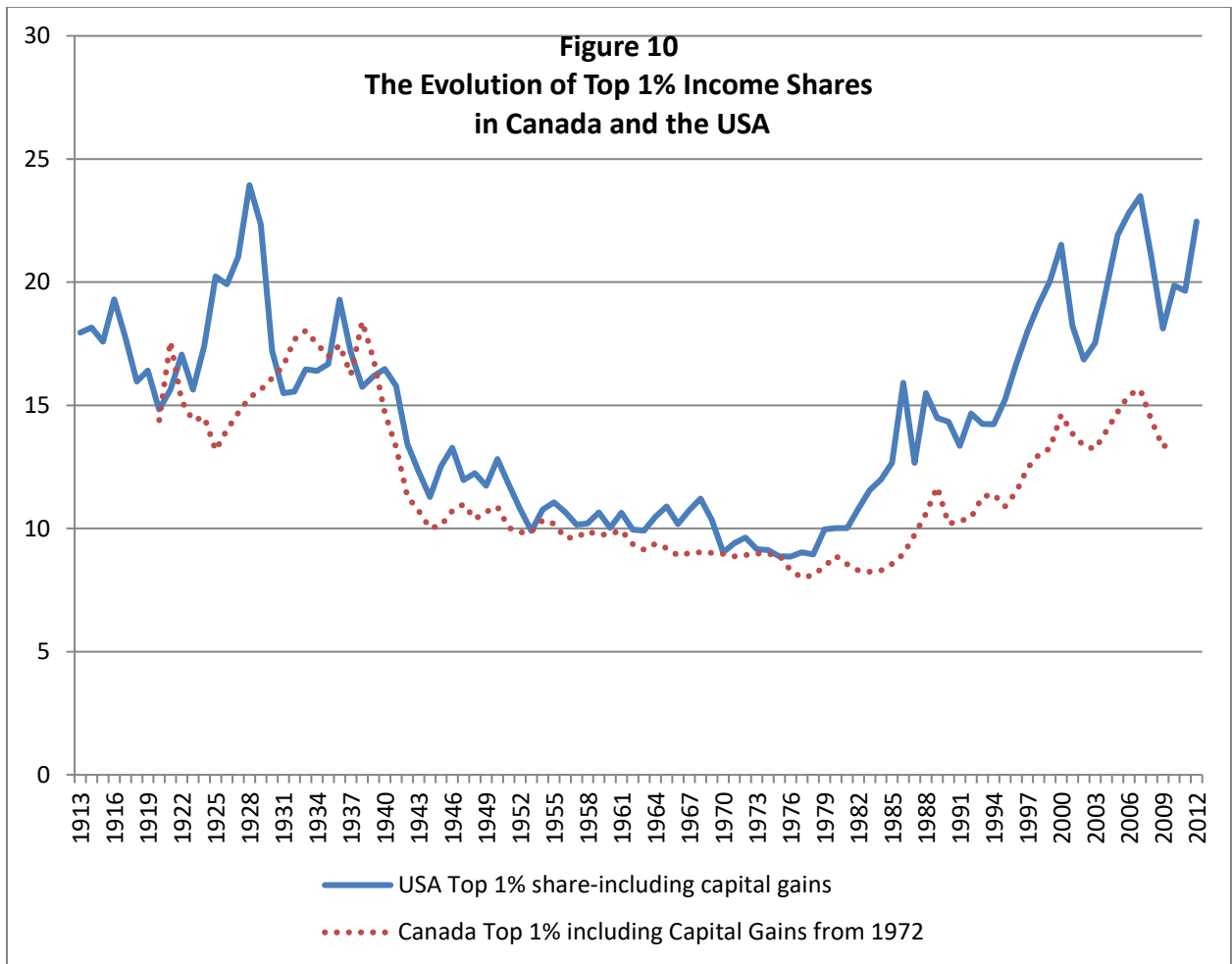
the rows of Table 3, particularly for the middle 60% (P20 to P80) after 2000, one often has to look to the third decimal place in any given year to find differences across deciles.[39]

4. Where the Action has been: Top End Income Shares

If Table 3's data on household after tax income were all that was happening to Canada's income distribution, it would be difficult to explain the polling data from 2014 discussed in Section 1. Those polls were collected before the decline in commodity prices pricked Canada's resource boom balloon in real wages and after a period (as Table 3 shows) in which relative real household incomes within the middle part of the income distribution changed very little. So why were so many Canadians in 2014 pessimistic about the middle class? Why did the Pollara data report 85% agreement with the statement that "*Income inequality is no longer about the gap between the rich and the poor, but rather the very rich and everyone else*" and why did a similarly worded EKOS question get 77% agreement?

Figure 9 may help to explain the conundrum. Men over 55 are often married to women over 55, If her real weekly wage was rising at that age group's median real weekly wage's average growth rate of 1.29% (1997 to 2017) while his real weekly wage was stagnating at the male median's average growth rate of 0.01%, their household income would be noticeably increasing – but greater gender parity might not lessen his dissatisfaction with economic outcomes. The male/female differential in the 1997-2017 annual growth rate of the median weekly real wage is less for younger cohorts – 0.36% among men aged 25-54 compared to 1.04% for women and among males 15-24 years old, 0.12% compared to 0.31% for females, but slow growth in the median real weekly wage of men has been the norm – and likely the source of unhappiness.

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[39] Because the Gini index is most sensitive to middle income differences (see Osberg, 2016), the similarity of household income growth rates implies the Gini Index of inequality in Disposable Household Income is almost flat after 2000 at approximately 0.317, for the population as a whole (as Figure 4 showed).

Figure 10
The Evolution of Top 1% Income Shares
in Canada and the USA

—— USA Top 1% share-including capital gains

· · · · · Canada Top 1% including Capital Gains from 1972

All these real wage growth rates are also far less than what has been happening at the top end of the income distribution – as Tables 1 and 2 showed. Figure 10 uses data from the World Top Incomes Data Base[40] to show the evolution of top 1% income shares in Canada and the United States.[41] Its main message has become, by now, familiar - the essential similarity in pattern of a declining, and then stable, top 1% income share in Canada and the U.S. for the roughly 50 years from 1930 to 1980, followed by a sharp upward acceleration of top 1% share in the U.S. in the early 1980s. Canada followed with an appreciable lag, and from the mid 1980s to the Great Recession of 2008 Canada clearly mirrored U.S. trends in top 1% income share.

Canadian and U.S. top end income trends are likely even more similar than Figure 10 suggests, because the tax treatment of Canadian Controlled Private Corporations (CCPCs)

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[40] http://wid.world/data/
[41] This data has the advantage of coming from the same source, but the disadvantage of not incorporating more recent years now available for the U.S. and for Canada. See CANSIM Tables 204-0001 and 204-0002 (http://www5.statcan.gc.ca/cansim/a03) which as of April 2017 had 2014 data available.

produces an important difference between U.S. and Canadian data. Wolfson, Veall and Brooks (2014, 2016) note that for high-income individuals in Canada there can be major tax advantages in flowing income through a CCPC in deferral of taxation, the potential to income split with family members in lower tax brackets and the potential to restructure income as capital gains. Although not usually an option for most salaried employees, it is relatively cheap to incorporate and receive professional or business income through a CCPC – income that does not appear in the statistics on top-end incomes (such as those reported earlier in this paper – e.g. in Table 2 or in Figure 2)[42]. In total, they estimate a lower bound to CCPC income in 2010 to be $48 billion, which is about 44% of the total declared income of the top 1% of tax filers in that year. This lower-bound estimate implies that: "When CCPC income is added, the share of the top 1% rises by 3.3 percentage points to 13.3%. (2014:12)" And they note (2014:13): "For the top 1%, taking account of CCPC income adds over $100,000. CCPC income adds more than $600,000 for the top 0.1%, and it adds from $2.7 to $3.5 million to measured annual income for the top 0.01%."

Even if understated in Figure 10, the surge in top 1% income share in Canada since the mid 1980s is unmistakeable– and is the logical implication of the much more rapid growth of incomes of the top 1% which was documented earlier in Tables 1 and 2 and in Figure 2. With a lag, Canada emulated U.S. trends in top incomes between 1982 and 2010. Canadians typically see this as unremarkable, since subsidiaries of U.S. firms are ubiquitous in Canada and comparisons with U.S. salary levels have always been a staple of the Canadian conversational diet. As well, the signing of the Canada / U.S. Free Trade Agreement in 1987 ushered in an era of greater continental economic integration, complete with provisions for easier cross-border mobility for senior managers and skilled professionals. Econometric evidence also comes from Milligan and Smart (2014), who estimated a regression model of the relationship between Canadian top 1% income share and top marginal tax rates, with and without a control for the top 1% share in the U.S.. Their test of whether top end pay rates in Canada in the post-FTA era are driven by comparisons with peers in the U.S., found the U.S. share variables to be highly significant, tightly determined (about 1:1), providing much improved R^2 and rendering local tax rates statistically insignificant at the standard 5% significance level. Hence, one reading of their results is that pay norms within the broader North American business community primarily drive pre-tax top end incomes in Canada.[43]

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[42] Wolfson, Veall and Brooks (2014:9) note that sophisticated tax planning may often involve multiple layers of CCPCs (in total there were about 1.95 million in 2010, of which 1.7 million were traceable). They emphasize the complexity of CCPC structures and ownership – fewer than 5% of tax filers in the bottom half of the income distribution owned shares in a CCPC (and these could be family members who are income splitting), but roughly 70% of tax filers at the very top 0.01% own one or more CCPCs.

[43] Milligan and Smart prefer to develop their other results [column (5) in their Table 2], and the potential influence of U.S. top shares receives no further mention in their work – thereby implying an important omitted variable problem for their other regressions. Note also that their results are a strong reason for thinking that the much slower recovery of top 1% incomes in Canada from the 2008 recession, compared to the U.S., is a temporary delay, rather than the start of a fundamental divergence in top 1% income trends in the two countries.

However, as in the U.S. and the U.K., top end income growth in Canada is quite concentrated geographically. Murphy and Veall (2016) note that about half of the growth in top 1% income shares in Canada between 1982 and 2010 came from two cities, Toronto and Calgary.[44] Toronto's dominant role in Canadian banking, finance and corporate head offices implies it is likely to continue to accumulate top end income share. But Calgary's surge in top incomes from 1982 to 2010 was undoubtedly largely due to its dominant role in the oil industry during a resource boom. As of the time of writing (May 2017), it was still an open question how much the collapse of oil prices after 2014 will prolong the cyclical slump in top 1% income share that especially affects Calgary and is still apparent in Canadian data.[45] As Lemieux and Riddell (2016:128) have noted, the occupational composition and pay levels of Canada's top 1% vary substantially by urban area. In Canada's smaller cities, which have few of the top jobs in banking and finance that pay the really big bucks observed in New York or London, top incomes have risen far less than in Toronto.

Nevertheless, the polling data cited in Section 1 indicated that in 2014 there was widespread agreement in Canada that "*Income inequality is no longer about the gap between the rich and the poor, but rather the very rich and everyone else.*" Nation-wide advertising may be partly responsible for dissemination of awareness of trends in top incomes. When incomes at the very top of the income distribution grow rapidly, a growing market for luxury goods is created. However, the images of status and exclusivity which the sales of luxury brands depend on are produced and maintained by advertising. The growing income share of the Top 1% thus implies that advertising messaging is increasingly oriented towards the buying power of the Top 1% and the promotion of luxury brands, which therefore increasingly often reminds the middle class of the desirability of goods they cannot possibly afford. As more rapid income growth at the top attracts consumer advertising, income inequality at the top therefore becomes increasingly visible to, and resented by, the middle of the income distribution[46]. In short, to understand the implications of what has been happening to 'ordinary living standards', it is not enough to track trends in just the absolute income of the middle class (as Table 3 does) – discontent with income distribution is driven by perceptions of trends in *relative* income.

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[44] A further 30% of the growth of top 1% income share was contributed by Montreal, Vancouver, Edmonton and Ottawa-Gatineau.

[45] In the U.S. the top 1% income share fell from 22.6% in 2007 to 17.2% in 2009 before climbing back up to 22% in 2015 (see http://wid.world/data/). Canadian data are slower to arrive. CANSIM Table 204-0001 reports the top 1% share of total income including capital gains fell less than in the U.S. during the Great Recession (from 13.7% in 2007 to 11.4% in 2009) but has remained roughly at that level (11.6% in 2014). It is unknown how much including the income sheltered in CCPCs would alter perceived trends in top 1% income share in Canada.

[46]See Osberg (2014:31)

5. The Resource Bust and the Future:

Given the polling data reported in section one, it is not surprising that all political parties in Canada's 2015 election emphasized increasing income growth for the middle class – or that the new Liberal government incessantly repeated the same mantra after its election. But what are the chances of an acceleration of middle class income growth in Canada that would be sufficiently large to "catch up" – i.e. to restore, over the next decade, the relative income ratios of earlier years (e.g. 1982)? Much more modestly, what would it take to "keep up" – to stabilize relative income inequalities at their current level, and what are the chances of that?

"Catching up" over the next decade would require a very substantial acceleration of middle class income growth. Supposing, for illustrative purposes, that top incomes in Canada grow at roughly 1.5% annually (which for most of the top 1% would be a significant deceleration, compared to their income growth rates from 1982-2007 – see Table 2). If so, then over the next 10 years somebody at the middle of the top 1% (i.e. at the 99.5th percentile) would see their market income for income tax purposes (in 2014$) grow from $310,700 in 2014 to $360,580[47] in 2024. If market income of the median taxpayer also grew at the same rate of 1.5% yearly, it would increase to $29,709 in 2024. As Table 2 indicated, 1.5% would be much faster growth than the median taxpayer has experienced over the last thirty years. Even during Canada's oil boom, median taxpayer real market income grew at only 1.3% (see Table 2). Still, if both the 99.5th percentile income and the median income grew at the same 1.5% annual rate, that would at least prevent the 2014 income ratio (12.3 to 1) between 99.5th percentile and the median from increasing further.

However, catching up – i.e. restoring the 1982 ratio (7.6 to 1) between the 99.5th percentile and the median – would require even faster income growth at the middle. Specifically, catching up over ten years would mean that median income would have to grow to $47,652 in 2024, which would require median income growth accelerating to a rate of 6.2% annually. Catching up over twenty years would not require as fast a growth surge – median income growth at 3.9% annually would restore the 1982 income ratio by 2034 (assuming top incomes continued to grow at 1.5%).

These calculations are not forecasts – they are only intended to illustrate the order of magnitude of the acceleration of middle class income growth necessary for Canada's middle class to "catch up" or at least not fall further behind. How likely is it that middle class Canadians will enjoy income growth at anything like these sorts of rates?

Drummond, Capeluck and Calvert (2015:vii) summarize recent Canadian GDP forecasts: "At the national level, our projected average growth rate of real GDP of 1.6 per cent annually from

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[47] Data here is for market income, as reported for income tax – see CANSIM Table 204-0001

2014 to 2038 is quite similar to recent projections by TD Economics and the Parliamentary Budget Office. This suggests that growth in real GDP will be more modest than the rate of 2.0 per cent observed between 2000 and 2014. We assume that labour productivity will grow at a rate of 1.0 per cent annually and that labour supply will grow at a rate of 0.6 per cent." Similarly, Finance Canada (2016:11) predicts 1.8% GDP growth annually until 2021 and 1.6% per year from 2022 to 2030. Since these projections assume population growth will be 0.85% annually[48], a 1.6% growth rate of total GDP implies real GDP per capita growing at 0.75% annually.

Growth at 0.75% annually would be a sharp deceleration from the 1.3% growth rate in real per capita GDP which Canada enjoyed over the 1982-2017 period. These forecasts are largely driven by projection of the impacts of the entry of Canada's large baby boom generation into their retirement years. Notwithstanding increasing labour force participation by older Canadians, average hours worked per person are forecast to decline significantly. However, these forecasts otherwise assume the continuation of past trends – the terms of trade impact of continued low resource prices and Summer's (2016) "secular stagnation" argument that global growth rates are slowing as excess global savings confront a dearth of profitable investment opportunities are both not addressed.

The assumption that past productivity growth trends will continue unaltered also ignores Gordon's (2012, 2016) perspective that technological change inevitably hits diminishing returns at some point, which may be about now – as evidenced by recent declines in multi-factor productivity growth. The fact that Gordon's "six headwinds to growth" argument also includes the impact of issues specific to the U.S[49]., such as inadequate quality of education, is of only limited consolation to Canada, since the U.S. is by far Canada's most important market and Canadian GDP growth prospects thus depend heavily on U.S. trends[50].

Of course, the unpredictability of oil prices does mean that there is a chance that oil prices will bounce back up and Canada's oil boom will return. But as oil prices continue to stagnate and competing energy technologies, such as solar, continue to drop in cost, the "low for long" scenario for oil prices seems ever more plausible. But although the decline in oil prices has produced a significant depreciation of the CDN $ since 2014, and although the exchange rate has historically lead manufacturing employment in Canada by a little under two years, as of the time of writing in May 2017, no resurgence of manufacturing jobs had happened. Until recently, Canadians could depend on the proposition that when the Canadian dollar was cheap, exports

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[48] M1 scenario from Statistics Canada's official population projections - http://www.statcan.gc.ca/pub/91-520-x/91-520-x2014001-eng.pdf

[49] Gordon (2012) suggests that future growth in consumption per capita for the bottom 99 percent of the U.S. income distribution could fall below 0.5 percent per year for an extended period of decades.

[50] In the short term, Canada and Mexico, having integrated their economies so thoroughly into a continental market, are also uniquely exposed to the hazards to international trade posed by the current U.S. government – and the uncertainties of that regime are already paralyzing some investment planning – see Poloz (2017).

boomed and imports slumped and Canadian manufacturers made money and hired workers. But although the normal two year lag means that manufacturing jobs should have started to return in 2016, and although the earnest hope of Canadian policy-makers continues to be that the historic pattern will hold and manufacturing jobs will return to Canada, the seasonally-adjusted estimate of 1,677,000 manufacturing jobs in February 2017 was the lowest recorded total since CANSIM data began in 1976[51].

Growth optimists may object that Gordon has it wrong in predicting a relatively small productivity impact of the "Third Industrial Revolution" of computers, telecommunications and the Internet. If the impacts of a technological innovation can take, as in the examples of electricity or the internal combustion engine, 80 to 100 years to work out, perhaps machine learning, new sensors and "Big Data" computer technology are only now just beginning to have their full impact on labour productivity[52].

However, the problem for "ordinary living standards" is that if these technologies really do mean that "it is largely already technologically possible to automate almost any task, provided that sufficient amounts of data are gathered for pattern recognition" (Frey and Osborne 2013:23), then middle class occupations from truck driver to legal assistant that were once thought to be "safe" from replacement by computers may soon also become obsolete. Estimates of possible disruptive impacts on employment vary widely. In addition to the impacts on manufacturing employment which automation and robotics have already had, Frey and Osborne (2013) used an occupational classification to argue that 47% of all persons employed in the US are now working in jobs that could be performed by computers and algorithms within the next 10 to 20 years. Using a disaggregated task-based approach, Arntz, Gregory and Zierahnon (2016:4) have a much pleasanter (but still large) estimate – that "on average across the 21 OECD countries, 9 % of jobs are automatable". These studies agree that the highly skilled and the well-educated have been and will be less affected, but jobs for low-skill workers are at severe risk. Hence, even faster shrinkage of employment opportunities for the poorly educated (particularly for poorly educated men) is a likely implication, if more rapid productivity growth occurs – which implies declining incomes for displaced labour, increased income dispersion within the middle class and increasing insecurity for all those who fear displacement.

On balance, the risks to a forecast of approximately 0.75% long term annual growth in real per capita GDP in Canada seem largely to be on the downside. But if 1.5% growth is needed for median income just to "keep up" with the top 1%, is that at all plausible? Can middle class earnings grow more than twice as fast as per capita real GDP in Canada in the long term?

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[51] CANSIM Table 282-0088 – Manufacturing employment in March and April 2017 was estimated to be very slightly higher, but well within standard error of estimate.

[52] Beaudry, Green and Sand (2016) also raise the possibility that the widening differential between college and high school earnings up to 2000, and its narrowing since, may reflect a one-time transition to the new job structure required by the new information technologies.

6. Conclusion

This paper began by documenting the discontent with income distribution in Canada that polling data reveals. It then presented data drawn from the census, from income tax records and from household surveys which agree in three important respects. (1) Within the "middle 60 to 80 percent" of the Canadian income distribution, the differences in income growth rates during the period 1980-2016 produced some increased inequality. However, (2) those increases in differences within the middle class were much smaller than the very large difference between income growth in the middle and income growth among the top 1%. Furthermore, (3) the stagnating middle class incomes of Canada's inflation killing period from 1980-2000 contrasted with some income gains during Canada's oil boom period. The paper argued that the macro-economics of aggregate labour demand and supply were crucial to the growth rate of middle class earnings in both periods – restrictive aggregate demand management in the former period and the investment stimulus of oil sands development in the latter. It then reprised the rapid increase of the income share of the top 1% since 1980 in order to try to explain why so many Canadians are unhappy about stagnant middle class wages.

The paper ended by presenting some illustrative calculations of the growth rates of median income which would be necessary for Canada's middle class either to "keep up" or to "catch up" – i.e. either to stabilize the top/middle income ratio observed in 2014 or to restore the income ratio observed earlier. Comparison with current macro-economic growth forecasts indicated that neither seems very plausible.

In a paper written in May 2017, after the electoral shocks of Brexit and the Trump election, it seems inadequate to expect that the discontent of many Canadians with trends in "ordinary living standards" documented in Section 1 will simply disappear without trace if it turns out to be true that, as Section 5 suggests, middle class income growth will continue to lag behind top income growth. The question is whether Canada's political and economic elites will recognize in time that something has to change or whether they will continue working within the same policy framework that has been applied, fairly consistently, for the last 35 years and which has succeeded in delivering substantial growth in real after-tax income to Canada's top 1%. Although it may no longer be possible to deliver rapid income growth for Canada's middle class, even in a low-GDP-growth environment it is possible to deliver more economic well-being – e.g. by increasing the economic security with which middle class[53] people can confront their futures. Time will tell if Canada's economic policy makers can recognize the need for such change.

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[53] When EKOS asked "*How important are the following aspects to your definition of what it means to be middle class?",* security was clearly the most important dimension (specifically *"Being able to retire with a secure income," "Having a secure job," "Being financially secure"* Graves (2014:22)

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