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Indexing of Canada Pension Plan and Old Age Security Benefits

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(Background Paper)

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INDEXING OF CANADA PENSION PLAN AND OLD AGE SECURITY BENEFITS

1 INTRODUCTION

The benefits provided by Canada's public pension plans – the Canada Pension Plan (CPP) and the Old Age Security (OAS) Program – follow Statistics Canada's Consumer Price Index (CPI), which reflects variations in the price of a basket of goods and services that represents average spending in Canada.

The pension programs have different indexing frequencies and reference periods. As well, because of a link between the CPP and the Guaranteed Income Supplement (GIS) – a component of the OAS Program geared to low-income seniors – the indexing of CPP benefits may affect the amount of GIS benefits.

Pegging the public pension plan benefits to the CPI can give rise to some questions: Is the basket of goods and services used by the CPI actually representative of spending by seniors? Is indexing based on the CPI – a national figure – inequitable when the average rate of inflation is higher in certain provinces than in others?

This paper describes the methods used to index the two public pension plans and briefly analyzes the fairness of using the CPI to index benefits.

2 METHODS FOR INDEXING BOTH PROGRAMS

CPP and OAS benefits are paid out in the last three banking days of each month.¹ The first OAS benefit payment is issued the month *after* the recipient turns 65; otherwise, a recipient whose birthday falls late in the month could receive his or her first benefit payment at 64 years of age. Recipients who wish to begin receiving CPP benefits before the usual age of 65 may do so, with a penalty, as early as the month following their 60th birthday.

All CPP and OAS benefits are indexed based on variations in the CPI, although using a slightly different method.² The only exception is the CPP death benefit, paid in full at death, whose maximum amount of \$2,500 is not indexed.

2.1 CANADA PENSION PLAN

The initial amount of the CPP retirement benefit is determined largely by earnings beginning at 18 years of age.³ The year's maximum pensionable earnings (YMPE) are calculated annually. This means that the premiums paid by a worker equal the contribution rate (4.95% in 2014) multiplied by the YMPE (less the basic exemption), when the worker's earnings are equal to or above the YMPE. Otherwise, the contribution rate is simply multiplied by the worker's earnings (less the basic exemption).

The YMPE is set each year based on average earnings growth in Canada, which is published by Statistics Canada. The result is rounded down to the nearest \$100. If average earnings decline, the YMPE is frozen until average earnings grow beyond their pre-freeze level.

The initial pension benefit is determined by calculating the ratio between the individual's earnings and the corresponding YMPE for almost every period of employment; this method excludes up to 17% of the periods where income was lowest compared to the YMPE. As a result, the initial benefit depends partly on the recipient's earnings growth over the course of employment, and, when the individual's earnings are higher than the average, partly on average earnings growth across the country.

After the initial benefit is determined, it increases based on variations in the CPI. At the end of each year, the rate at which CPP benefits will be increased as of 1 January the following year is announced. This rate is calculated by determining the average CPI for the period from November of the preceding year to October of the current year, subtracting the average CPI for the corresponding period of the year before that, and dividing the result by the latter average CPI. The result is rounded to three decimal places, then expressed as a percentage, by multiplying by 100.

For example, the average CPI was 122.6 from November 2012 to October 2013, and 121.5 from November 2011 to October 2012. The rounded result was 0.009, or 0.9%. Therefore, CPP benefits were increased by 0.9% on 1 January 2014.

If the average (in this case, 122.6) had instead been lower than for the preceding year (121.5), the result would have been less than 1. In this example, benefits would not have been decreased, but would instead have been frozen until the average from November to October exceeded the pre-freeze level (121.5).

The CPI for October is released during the second half of November so that the indexing rate for the following year may be calculated. Indexing is based on the all-items CPI, including all components.⁴ Raw data is used, meaning that the data is not seasonally adjusted.⁵

2.2 OLD AGE SECURITY

OAS benefits (OAS pension, GIS, Allowance and Allowance for the Survivor) were indexed annually until 1973.⁶ At that time, inflation was very high (particularly for energy and food), so the government believed that quarterly indexation would provide better protection against unexpected sharp increases in prices over the year. This meant that administrative changes were needed to reduce the time required to produce CPI data and prepare benefits.⁷

As is the case for the CPP, the OAS indexing calculation is based on the all-items CPI.⁸ Table 1 shows the various months where the CPI is used to index OAS benefits for each quarter. For example, to calculate the 1 January 2014 rate of increase for benefits from January to March 2014, the difference between the average monthly CPI from August to October 2013 and the average CPI from May to July 2013 is divided by the latter average. The result is rounded to three decimal places, then expressed as a percentage, by multiplying by 100. On 1 January 2014, then, OAS benefits were

increased by 0.1%, since the average CPI was 123.1 from August to October 2013, while it was 123.0 from May to July 2013, a ratio of 0.001, or 0.1%.

From November 2013 to January 2014, the average value of the CPI decreased to 122.9, which means that OAS benefits were not increased for the April to June 2014 period. They were increased again on 1 July 2014, since the average quarterly value of the CPI surpassed the average recorded before the decrease (123.1), to reach 124.7 between February and April 2014. Thus, OAS benefits were increased by 1.3%.

Table 1 – Benefit Periods and Monthly Consumer Price Index Used in Old Age Security Indexing Calculations

Benefit Period	Final Comparison Period	Initial Comparison Period
January to March 2014	August to October 2013	May to July 2013
April to June 2014	November 2013 to January 2014	August to October 2013
July to September 2014	February to April 2014	November 2013 to January 2014
October to December 2014	May to July 2014	February to April 2014

Source: Service Canada, [Old Age Security Amounts and the Consumer Price Index](#).

When completing their 2013 income tax returns, people whose incomes exceeded \$70,954 were required to repay 15% of the difference between their income and this threshold, up to the full amount of the benefits received during the year. This meant that a person whose income was higher than \$114,815 was required to repay all of the OAS pension received. The threshold is also indexed, based on the fiscal indexation system, which itself is based on the average increase in the CPI from October to September over the same period the preceding year. Thus, for 2014, the new threshold is set to \$71,592.

The GIS is an additional amount provided to OAS recipients whose incomes are beneath a certain threshold. In June 2014, this threshold was \$16,728 for a single individual. Excluded from the threshold calculation are OAS benefits, CPP and Quebec Pension Plan death benefits, social assistance benefits and the first \$3,500 of employment earnings.

The maximum GIS amount is reached when an individual's or a couple's income is zero. For each \$24 of annual income for a single individual or \$48 for a couple, \$1 is deducted from the maximum monthly benefit. This benefit is indexed based on variations in the CPI, just like the OAS pension. Therefore, the maximum amount for a single individual increased from \$747.11 for the period between October and December 2013 to \$747.86 for the period between January and March 2014, an increase of 0.1%. However, anyone receiving an amount less than the maximum received an additional \$0.75. The rate of increase was therefore highest for those receiving the lowest benefits, namely those with the highest incomes.

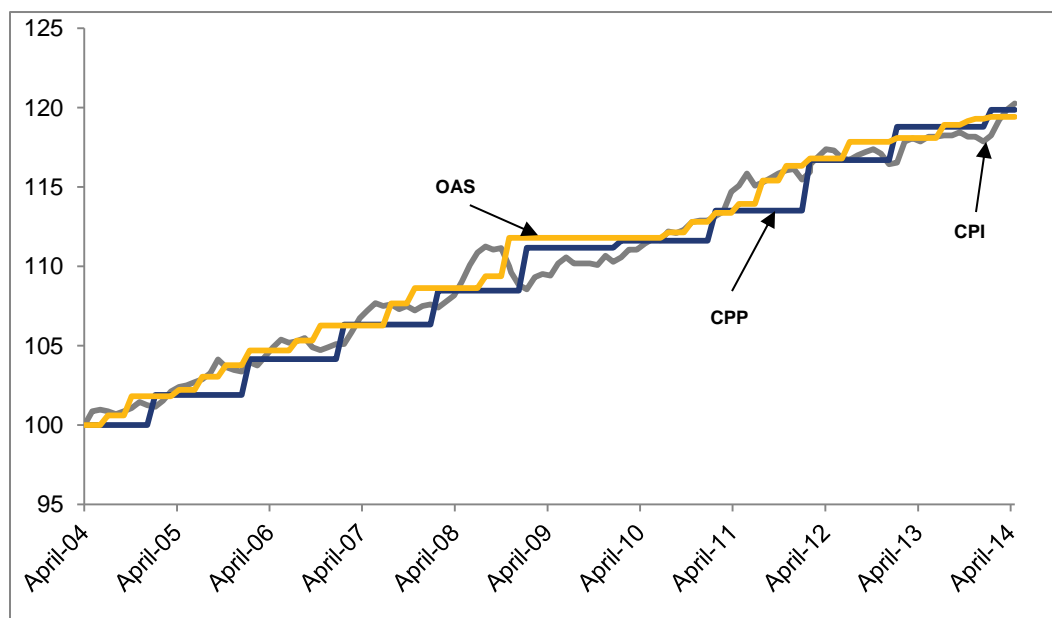
In addition to being increased through indexing, the GIS amount may also be increased exceptionally by the government. In 2005, the decision was made to increase the maximum monthly amount in 2006 and 2007 by \$18 for single individuals and by \$29 for couples. In July 2011, the maximum monthly amount was increased by \$50 for single individuals and by \$70 for couples. However, this increase applied only to people with very low incomes (different thresholds were set for eligibility for this increase).

The Allowance and Allowance for the Survivor are benefits provided to people between the ages of 60 and 64 whose spouse is an OAS recipient or is deceased. Like the GIS, these benefits are income tested. The monthly benefit decreases by \$3 against the maximum benefit for each \$48 in annual income. The maximum amount is also indexed, meaning that all recipients receive the same dollars increase, but not the same percentage increase.

2.3 COMPARISON OF CHANGES IN PUBLIC PENSION PROGRAM BENEFITS AND THE CONSUMER PRICE INDEX

Figure 1 shows changes in the CPI and indexing of the CPP and OAS, using values set at 100 in April 2004 as the starting point. In 10 years, CPI benefits rose 20.3%, CPP benefits rose 19.9%, and OAS benefits rose 19.4%. Over the long term, benefits and the CPI rose at approximately the same rate, despite localized variations.

Figure 1 – Consumer Price Index and Indexed Canada Pension Plan and Old Age Security Benefits (April 2004 = 100)



Note: OAS = Old Age Security, CPP = Canada Pension Plan, CPI = Consumer Price Index.

Source: Figure prepared by the author using data from Statistics Canada, "Table 326-0020," *Consumer Price Index (CPI), 2011 Basket*, CANSIM (database), accessed on 20 June 2014.

2.4 POSSIBLE INTERACTION IN THE INDEXING OF BOTH PLANS

The annual income used to calculate GIS benefits changes on 1 July. From January to June, the income used is from the year before the preceding year. From July to December, the amount is calculated based on the preceding year's income tax return. Consequently, if the CPP is indexed on 1 January, GIS benefits will not be affected for another 18 months. Indexing the CPP and the GIS during this period generally offsets this decrease.

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However, since both plans are not indexed at the same time or at the same rate, occasionally the GIS benefit amount may temporarily be lower because of CPP indexing. The Allowance and Allowance for the Survivor may be similarly affected.

Table 2 illustrates this using the fictitious example of a single recipient whose only sources of income in 2007 were the OAS, the GIS and a monthly \$400 CPP benefit. In January 2008, CPP benefits rose 2%. The OAS pension and GIS benefits did not increase in 2009 because of a drop in prices in late 2008. In July 2009, the recipient received \$4 less in GIS benefits because of the \$8 increase in the CPP benefits in January 2008.

Table 2 – Example of a Decrease in GIS in July 2009 Due to CPP Indexing (\$)

		Old Age Security Pension	Guaranteed Income Supplement	Canada Pension Plan
2007	July	497.83	Based on 2006 income	400.00
	August	497.83	Based on 2006 income	400.00
	September	497.83	Based on 2006 income	400.00
	October	502.31	Based on 2006 income	400.00
	November	502.31	Based on 2006 income	400.00
	December	502.31	Based on 2006 income	400.00
2008	January	502.31	Based on 2006 income	408.00
	February	502.31	Based on 2006 income	408.00
	March	502.31	Based on 2006 income	408.00
	April	502.31	Based on 2006 income	408.00
	May	502.31	Based on 2006 income	408.00
	June	502.31	Based on 2006 income	408.00
	July	505.83	438.46	408.00
	August	505.83	438.46	408.00
	September	505.83	438.46	408.00
	October	516.96	452.51	408.00
	November	516.96	452.51	408.00
	December	516.96	452.51	408.00
2009	January	516.96	452.51	418.20
	February	516.96	452.51	418.20
	March	516.96	452.51	418.20
	April	516.96	452.51	418.20
	May	516.96	452.51	418.20
	June	516.96	452.51	418.20
	July	516.96	448.51	418.20
	August	516.96	448.51	418.20
	September	516.96	448.51	418.20
	October	516.96	448.51	418.20
	November	516.96	448.51	418.20
	December	516.96	448.51	418.20

Source: Amounts calculated by the author based on the increases that occurred between 2007 and 2009.

As can be seen, the combined CPP and GIS amount decreased from June to July 2009, which may appear unfair since benefits are not supposed to decrease when the CPI drops. It should be noted that the CPP increase on 1 January 2008 reflected rises in the CPI that had been occurring since late 2006, which had already led to OAS and GIS increases in 2007 and 2008. The recipient had therefore already benefited from these increases. In fact, not until July 2009 did it become apparent that the GIS amount was too high, since it was based on the \$400 monthly CPP benefit. The decrease was therefore due to the 18-month delay and the different methods used to index both plans.

3 DOES THE CONSUMER PRICE INDEX REFLECT ACTUAL SPENDING BY SENIORS?

3.1 DIFFERENCE IN CONSUMPTION PATTERNS BETWEEN SENIORS AND THE REST OF THE POPULATION

The consumption patterns of seniors are probably not the same as those for the rest of the population. Statistics Canada studied spending by seniors based on the Survey of Household Spending, which is used to weight the CPI's various components (goods and services).⁹

Table 3 shows the spending breakdown for seniors' households and other households in 2001, as well as the price changes for the various types of goods and services between January 1992 and February 2004.

Table 3 – Spending Breakdown by Component According to Type of Household, 2001, and Price Changes from January 1992 to February 2004 (%)

Component	Spending Breakdown		Price Change January 1992 to February 2004
	Seniors' Households	Other Households	
Food and non-alcoholic beverages bought in stores	16.5	14.2	22.3
Food and non-alcoholic beverages bought in restaurants	3.2	3.7	27.8
Rent/tenants' expenses	14.7	9.7	19.3
Mortgage, taxes and other homeowners' expenses	14.7	12.7	24.2
Utilities (water, electricity)	7.1	4.7	43.6
Household goods and operation	10.4	11.3	13.8
Clothing and footwear	4.2	6.0	4.0
Private transportation (car, gas)	11.2	15.5	35.7
Public transportation	1.6	1.8	70.5
Health and personal care	7.1	4.7	18.9
Recreational/sports equipment and services	5.8	9.0	19.0
Tuition fees, reading and educational materials	1.0	2.8	78.7
Alcohol and tobacco	2.4	3.9	36.2
All items	100.0	100.0	24.4

Source: Radu Chiru, *Is Inflation Higher for Seniors?*, Analytical Paper, Cat. no. 11-621-MIE2005027, Statistics Canada, Prices Division, May 2005, p. 2.

Seniors devote a smaller proportion of their spending to recreational/sports equipment and services and to clothing and footwear than the overall population. As a result, they were less able to benefit from lower inflation in these areas between 1992 and 2004. Utilities make up a greater portion of their spending, and inflation in this area was higher than average.

On the other hand, seniors commit a higher share of their spending to health and personal care, as well as to mortgages and property taxes. These areas were less affected by inflation, which helped ease the burden on seniors. In addition, sharp increases in tuition during this period, which pushed up the inflation rate, had little impact on seniors.

From 1992 to 2004, the average annual inflation rate was 1.95% for seniors-only households compared to 1.84% for all other households. The inflation rate was therefore slightly higher for seniors. However, the difference is minimal and could be offset by changes in consumption patterns.

Another Statistics Canada study shows identical inflation for the population as a whole and for low-income seniors between 1992 and 1997,¹⁰ whereas the CPI appears to have slightly underestimated inflation experienced by all seniors for the same period.

3.2 PRICE VARIATIONS BY PROVINCE

If the inflation rate in one province were higher than in the others, the indexing of benefits using a Canadian index would underestimate the price increases felt by seniors in that province, a situation that could appear inequitable. Table 4 shows the inflation rate by province.¹¹

Table 4 – Annual Average Inflation Rate by Province, 1984–2013 (%)

Province	1984–1993	1994–2003	2004–2013	1984–2013
Newfoundland and Labrador	3.3	1.7	2.0	2.4
Prince Edward Island	3.6	1.8	2.1	2.5
Nova Scotia	3.6	2.0	2.0	2.6
New Brunswick	3.7	1.9	1.8	2.5
Quebec	4.0	1.6	1.7	2.4
Ontario	4.1	1.9	1.8	2.6
Manitoba	3.9	2.0	1.9	2.6
Saskatchewan	3.8	2.1	2.1	2.6
Alberta	3.4	2.5	2.1	2.7
British Columbia	3.8	1.5	1.4	2.2
Canada	4.0	1.8	1.8	2.5

Source: Calculations by the author based on data from Statistics Canada, "Table 326-0020," *Consumer Price Index (CPI), 2011 Basket*, CANSIM (database), accessed on 20 June 2014.

Over the last 30 years, the average annual inflation rate was 2.5% in Canada, ranging from 2.2% in British Columbia to 2.7% in Alberta. Overall, these differences are minimal in the long term. Some provinces experience higher-than-average rates in one decade and then lower-than-average rates in the next. The fact remains that if benefits had been indexed using a provincial CPI, a \$100 benefit paid in 1983 in British Columbia would have grown to roughly \$194.87 by 2013; the same benefit would have grown to \$221.10 in Alberta.

That said, provinces with higher inflation rates often enjoy stronger growth, lower unemployment and higher average incomes, which allows residents to better prepare for retirement. These factors could justify the gap between the pension indexing rates and the actual inflation rates in these provinces.

4 CONCLUSION

This paper has presented some observations about CPP and OAS benefits and the effects of basing their indexing on the CPI.

CPP benefits are indexed annually, while OAS benefits are indexed quarterly. Some interaction between the two programs leads, in very rare instances, to temporary decreases in GIS or Allowance benefits due to CPP indexing. However, this decrease is offset by prior increases in the GIS and the OAS pension.

Use of the CPI appears to have resulted in a very slight underestimation of the inflation experienced by seniors between 1992 and 2004, because seniors' consumption patterns differ from those of other age groups.

Those consumption patterns are likely to change, which could help reduce the small gap between the inflation experienced by seniors and that felt by the rest of the population. For instance, seniors could become as great consumers of computers and electronics, whose prices are dropping, as younger people.

The gap in inflation experienced by seniors and others is smaller than the differences in inflation among the provinces. Despite this, interprovincial differences remain relatively minor in the long term. It would be important to monitor these trends to determine whether both types of gaps narrow or widen.

NOTES

1. In December, benefits are paid on the three banking days before Christmas.
2. Most of the information in this paper comes from Service Canada, [Canada Pension Plan Amounts and the Consumer Price Index](#) and [Old Age Security Amounts and the Consumer Price Index](#), as well as from the [Old Age Security Act](#), R.S.C., 1985, c. O-9, and [Canada Pension Plan](#), R.S.C., 1985, c. C-8.
3. Other factors are used to calculate benefits, such as age at first benefit payment, which ranges between 60 and 70 years old.

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4. Other CPI indexes exclude certain more volatile components, such as food and energy. The CPI used for indexing does not exclude any components and represents the average basket of goods consumed in Canada.
5. Seasonally adjusted data eliminates the seasonal effect of the CPI. Raw data and seasonally adjusted data yield essentially the same result for a 12-month average, which is also the case for CPP benefits.
6. In 1973, only the GIS and the OAS pensions were in place. The Allowance was created in 1975, and the Allowance for the Survivor was created in 1985.
7. See House of Commons, *Debates*, 1st Session, 29th Parliament, 4 September 1973, pp. 6201–6204.
8. Raw (non-seasonally adjusted) data is used to index benefits based on actual price increases experienced by recipients, whether these increases are seasonal or not. As well, the raw data is practically never revised, as opposed to seasonally adjusted data; raw data is preferred so as not to have to make too many retroactive adjustments caused by revised data.
9. Radu Chiru, [*Is Inflation Higher for Seniors?*](#), Analytical Paper, Cat. no. 11-621-MIE2005027, Statistics Canada, Prices Division, May 2005.
10. Nathalie Taktek, [*Comparative Study of Analytical Consumer Price Indexes \(CPI\) for Different Subgroups of the Reference Population*](#), Analytical Series No. 13, Cat. no. 62F0014MPB, Statistics Canada, Prices Division, June 1998.
11. There is no CPI for each entire territory, although there are indexes for Whitehorse, Yellowknife and Iqaluit.