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**Reforming Old Age Security:
Effects and Alternatives**

*Nicholas-James Clavet, Jean-Yves Duclos,
Bernard Fortin, Steeve Marchand*

Série Scientifique/Scientific Series



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Reforming Old Age Security: Effects and Alternatives

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Résumé/abstract

The federal government announced in its 2012 budget its intention to delay the age of eligibility for Old Age Security and the Guaranteed Income Supplement from 65 to 67 years. By the time the policy is fully implemented (i.e., in 2030), this delay will have increased net revenues of the federal government by 7.1 billion dollars per year (in constant 2014 dollars), but will reduce net provincial revenues by 638 million dollars. With constant labour and savings behaviour, this delay would also increase the percentage of individuals aged 65 and 66 years who are in the low income group from 6% to 17% (for an additional 100,000 low-income seniors in this age group) and would be most harmful to low-income seniors and to women. Alternative reforms to the Old Age Security could make it possible to achieve similar effects on public finances without having such large impacts on the low income rate among seniors.

Mots clés/Key words : : Pensions, population aging, poverty, public finance, Canada

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1 Introduction

The Government of Canada announced a major reform to the Old Age Security (OAS) and the Guaranteed Income Supplement (GIS) in its 2012 budget (see Flaherty, 2012). The OAS regime currently (2014) makes payments to nearly every Canadian over the age of 65, with annual payments of as much as \$6,765² per year, and a clawback on this payment at a rate of 15% beginning once net income exceeds \$71,592. Seniors residing in Canada for less than 10 years do not receive any OAS, and those who have lived in the country for 10 to 40 years receive partial payment. GIS payments are made to Canadians who qualify for OAS payments and whose other sources of income are limited. The full amount of the GIS is \$9,173 for single people and \$12,165 for couples, including the new increase introduced in 2011. It declines with family income, reaching zero when total pre-OAS family income is \$17,064 for singles and \$22,512 for couples.

The Canadian government announced that, starting in 2023, the age to qualify for OAS and GIS payments would be pushed back by 4 months annually to reach 67 years of age by 2029. This note analyses the effects that this delay is likely to have on federal and provincial public finances as well as on poverty among seniors. The effects of the reform on federal public finances have been partially studied by the Office of the Chief Actuary [OCA] (2012). The OCA uses demographic forecasts and extrapolates past tendencies to predict the resulting decreases in OAS and GIS payments in upcoming decades. This paper's goal is to supplement this using a microeconomic approach that can estimate the direct and indirect effects of the reform on public finances as well as on household incomes. Through this, we also consider the effects the announced reform may have on provincial and federal income taxes, OAS clawback payments, provincial social assistance and low income rates. Moreover, we estimate the impact of three alternative reform scenarios that produce similar impacts on public finances; these scenarios are compared to the reform scenario proposed in the 2012 budget both in terms of their effects on public finances and on their impact on poverty among seniors.

The calculations are made using the dynamic microsimulation model of the SIMUL research program (see www.simul.ca and www.cedia.ca). Dynamic

² All amounts in this paragraph are yearly payments based on October 2014 effective amounts.

microsimulation models are used in many countries to predict long run distributions of incomes as functions of characteristics (see for instance Knoef, Alessie and Kalwij, 2013) or to predict economic effects of different redistribution policies (see Abul Naga, Kolodziejczyk and Müller, 2008). They can also be used to assess how different retirement schemes may affect households in the long run (see Rowe and Wolfson, 2000 and Van Sonsbeek, 2010).

The model simulates demographic, economic and fiscal evolution with regard to the population of Quebec up to 2030. Details of the model can be found in Clavet, Duclos, Fortin and Marchand (2011). The model can also predict the long-term effects of fiscal reforms, accounting for anticipated demographic changes and the evolution of income distribution, personal income taxes and social transfers. The estimates of the model, generated using Quebec data, are generalized Canada-wide assuming constant demographic, economic and fiscal ratios between Quebec and the entire country. While imperfect, this extrapolation seems reasonable given the presence of other sources of error inherent to long-term forecasting.

The next section details the effects that a reform would have on public finances in Canada for the federal government and for the provinces as well as on poverty. Section 3 examines three alternative reform scenarios and compares their effects to those of the announced reform. We show that while these scenarios would have a comparable effect on public finances, the impact on poverty would be reduced.

2 Effects of the announced reform

Pushing back the age of eligibility for OAS will obviously decrease direct program costs for the federal government. This gain in terms of public finances will nevertheless be partially counterbalanced by two factors. Firstly, individuals aged 65 and 66 years who will no longer receive OAS and GIS payments will (if their income is too low) be eligible for provincial social assistance, and this will increase the costs of these benefits to the provinces. Secondly, since OAS benefits enter into calculations of taxable income, both federal and provincial taxes paid by those 65 and 66 years of age will decrease.

These factors have impacts on both public finances and personal incomes. As indicated above, the size of these impacts is estimated using a micro-

simulation model which specifies demographic and economic characteristics of Canadians over the next 20 years and accounts for a major share of the elements of the fiscal system and transfers to individuals. Note that the model assumes that individuals do not change their work or savings behaviour as a *result* of the reform. The likelihood and consequences of the effects of such behavioural changes are discussed in section 4.

2.1 Effects on public finances

Table 1 presents the estimated effects of the announced reform. The effects are presented up to 2030, at which point in time the reform will have been completely implemented. The gross effect (without accounting for effects on taxes and social assistance) of pushing back the age of eligibility for OAS benefits would be to reduce federal spending by about 6.4 billion dollars (in constant 2014 dollars). The corresponding amount for the GIS would be about 2.1 billion dollars.³ Overall, as a result, pushing back the age of eligibility for the OAS and GIS would reduce federal expenditures by about 8.5 billion dollars per year.

These positive effects on federal finances will be partially countered by a decrease in federal income tax of 950 million dollars, and a 388-million dollar decline in OAS clawbacks from those with high income. Net of these effects, pushing back the age of eligibility would reduce federal expenditures by 7.1 billion dollars in 2030. Public finances of the provinces would be negatively impacted by the reform as a result of the two effects mentioned above. Since some individuals aged 65 and 66 would have to turn to social assistance rather than OAS and GIS benefits, provincial spending on social assistance would be about 169 million dollars higher in 2030. The provinces would also experience a 469-million dollar decline in income tax levied on OAS payments. The total cost to the provinces would thus be in the range of 638 million dollars annually. The overall effect on federal and provincial public finances is therefore about 6.5 billion dollars annually.

³ Our OAS predictions compare generally well with those of the OCA. The OCA predicts a fall of 9.2 billion dollars in 2030 nominal dollars which, according to their inflation assumptions, corresponds to a 6.4 billion decrease in 2014 dollars, which is very close to our own estimate. Our predicted decrease in GIS payments is, however, 890 million higher than their 2030 forecast in 2014 dollars. The source of the difference comes from the fact that GIS predictions depend significantly on the trends in long-run income growth, and that our trends (unlike those of the OCA, which rest on aggregate extrapolations) are based on microeconomic changes in population composition, human capital and labor force behavior.

Table 1: Effects in 2030 of announced reform on public finances (millions of constant 2014 dollars)

Federal finances	
Gross OAS payments	6 354
OAS clawback	-388
GIS payments	2 109
Federal income tax	-950
<i>Net federal revenues</i>	7 123
Provincial finances	
Social assistance	-169
Provincial income tax	-469
<i>Net provincial revenues</i>	-638
Net prov. + fed. revenues	6 485

2.2 Effects on low income

The announced reform would have a greater impact on certain categories of individuals. To start with, note that income among those 65 and 66 years of age is less than the population average. Among these individuals, those who will be most impacted are those who lose their eligibility to OAS and GIS at the same time. Also note that the loss of GIS payments would only be partially

counterbalanced by greater reliance on social assistance, because these are less generous than the GIS.

Figure 1 presents the concentration curves of the effect of the reform in 2030 by percentile of disposable income. The concentration curves show the cumulative proportion of the total decline in revenues affecting a certain lower-income percentile of individuals. For example, about 60% of the personal income losses will be felt by the poorest 50% of individuals among the population aged 65 and 66. If we consider a broader population, those 16 years of age and over and having completed their studies, we see that 70% of the income loss would be felt by the 50% poorest individuals. The concentration of the effect is larger in this case, because individuals in the 65- and 66-year old age group tend to belong to a lower income population than those aged 16 and over.

We also find that the poorest individuals (the poorest 5%) are relatively unaffected by the reform because these poor don't receive much OAS, but instead receive more social assistance. The concentration of the effect increases strongly in the next percentiles, however. We see that the 20% poorest of those aged 16 and over face nearly 40% of the total cost of the reform, and that the share of the decline in income to be faced by the richest 10% is just over 5%.

Figure 2 presents the predictions for the low income rate of individuals from 2012 to 2030 among those aged 65 and 66 years with and without the announced reform. The low income rate is defined as the proportion of individuals whose family income, adjusted for family size, is below the Market Basket Measure. This measure defines low income in relation to the cost of a pre-established set of goods and services.⁴

With the announced reform, the age of eligibility of OAS pensions and the GIS will increase gradually in each year starting in 2023, which explains the growing difference between these curves starting in this year. We observe that, in the absence of reform, the low income rate among those aged 65 and 66 years predicted by the model goes from 10% in 2012 to about 6% in 2030.⁵ With the

⁴ Since the data used to construct our model does not distinguish between regions within the same province, we use the Montreal Market Consumption Basket across the board.

⁵ These results flow in particular from both the expected effect of technological progress and growth in the level of education among those aged 65 and 66 years between now and 2030. Since more highly educated individuals tend to receive larger private pensions, the model predicts a larger increase in the pension income

announced reform, individuals 65 and 66 years of age will gradually become ineligible for the OAS and GIS starting in 2023, and their low income rate will increase rapidly to stabilize at about 17% in 2029, when the reform will have been fully implemented in its final form. The announced reform will thus have the effect of increasing the low income rate among those aged 65 and 66 years from 6% to 17%. The reform would thus lead to 100,000 or so additional individuals falling into a low income situation.

Figure 3 shows the effects of the reform on the income of individuals aged 65 and 66 years in 2030, by quintile of income (the first quintile groups together the 20% poorest individuals) and by gender (men in red, women in blue). The lower-income quintiles lose more than the higher quintiles. For example, men in the poorest 20% lose 35% of their income, while those in the highest quintile lose less than 5% of their income as a result of the reform. The effect is similar among women, but to a lesser extent.

Figure 3 also shows that women systematically lose more than men in every quintile. The difference is considerable in some cases: men in the middle quintile lose about 11% of their income, while women in the same quintile lose 32% of their income.

Table 2 summarizes the effects of the reform on disposable income and the low income rate, and now differentiates by gender. Women aged 65 and 66 years have lower disposable income than men of the same age group before the reform (a total of \$12.2B versus \$13.6B for men) but experience greater losses from the reform. Similarly, the low income rate is higher among women (7.0% for women versus 6.0% for men), but this rate increases by more among women than among men (to 19.3% for women versus 16.7% for men).

Table 2: Effects of reform on disposable income and low income rate

	2030, no reform.	2030, with reform	Change
Disposable income (millions of constant 2014 dollars)			
Men	13 967	11 040	-2927
Women	12 545	8987	-3558
Low income rate (%)			
Men	6.0	16.7	10.7
Women	7.0	19.3	12.1

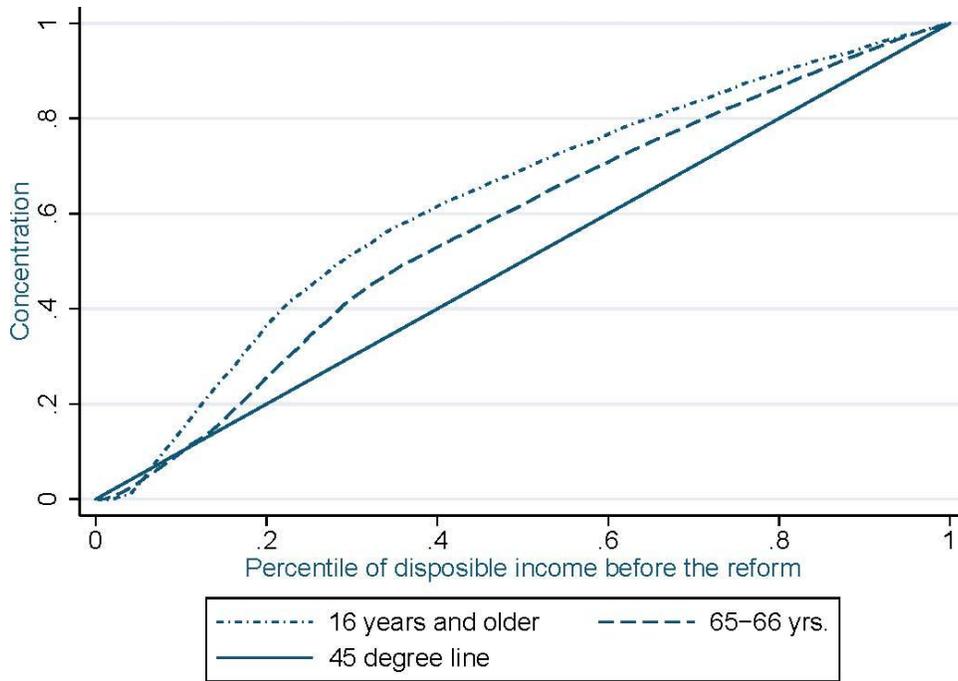


Figure 1: Concentration curve of the effect of the announced reform on disposable income in 2030 (individuals aged 16 years and over and those 65 and 66 years)

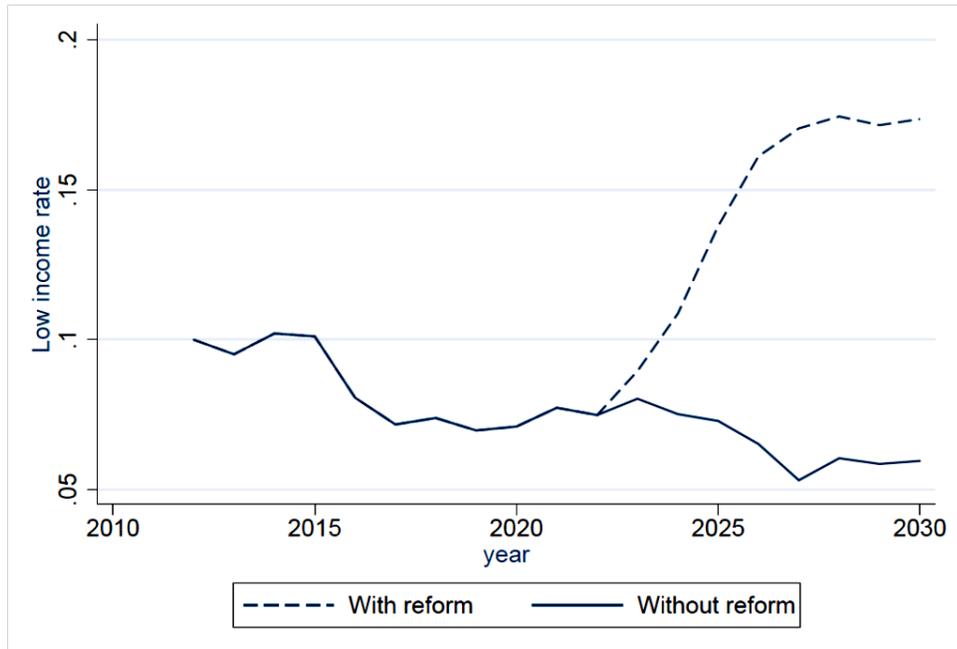


Figure 2: Low income rate in 2030 among individuals aged 65 and 66 years, with and without the announced reform

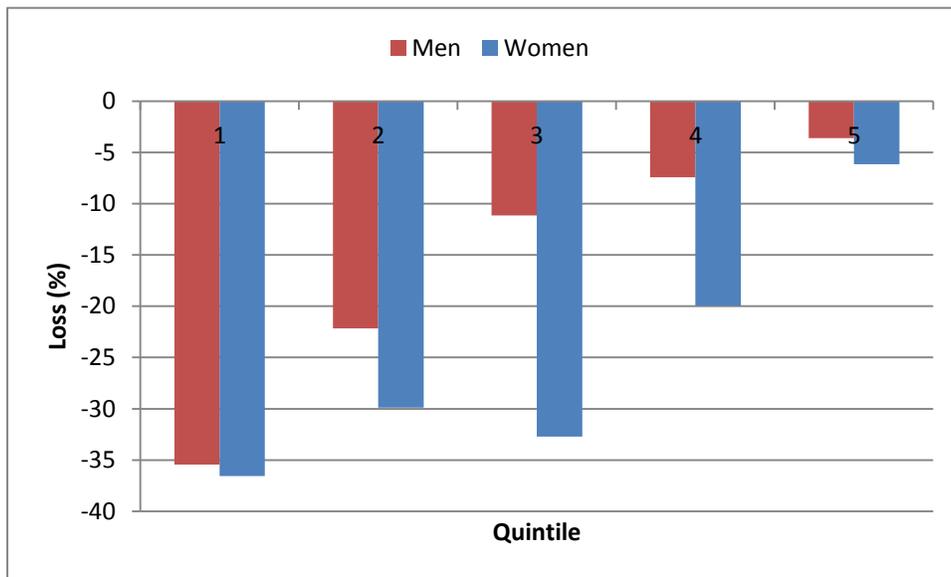


Figure 3: Effects of the reform on disposable income of individuals aged 65-66 years in 2030, by income quintile and by gender

3 Alternative scenarios

Considering that the announced reform risks having significant effects on the low income rate, is it possible to consider alternative reform scenarios which would have similar impacts on public finances, but which would have less negative impacts on low income individuals? The effects on public finances and the low income rate are discussed for three alternative scenarios.

3.1 A decrease in the OAS clawback

According to the fiscal parameters used, only taxpayers with net income before adjustments greater than \$71,592 face clawbacks of some of their OAS payment. The clawback rate is 15%, implying that the entire payment is reimbursed by reaching net income before adjustments of \$114,815. These thresholds may seem high, so it seems natural to analyse the effects of extending the clawback over a larger share of the population without affecting low income individuals.

A \$36,000 decrease in the clawback threshold would be necessary to generate approximately the same overall gains in public finances (federal and provincial) as the announced reform, also for the year 2030. This would bring the threshold at which additional income leads to OAS clawbacks down to \$35,592; the threshold by which it would be fully reimbursed would then sit at \$80,194. The effects of such a scenario are summarized in column 2 of table 3, and can be compared to the effects of the announced reform (column 1).

It may seem surprising that the decline in the threshold required to have the same impact on finances is so large. Note that the effect in table 3 shows that the amount that the federal government can recover by this approach would be substantial (around 9.5 billion dollars). However, the amounts recovered would be deducted from taxable income and, since the marginal tax rates on individuals affected by this reform would be much higher than those affected by the announced reform, taxes on income would fall significantly. Federal taxes would decline by 1.95 billion dollars and provincial taxes by 934 million. We thus find a total impact on public finances comparable to those expected by the announced reform. The difference would be that the low income rate would remain unchanged whereas under the announced reform it would increase by 11.42 percentage points.

Table 3: Effects in 2030 of scenarios to reform OAS and GIS, on low income rate and public finances (millions of constant 2014 dollars).

Change in taxes or social transfers	Announced reform	\$36k ↓ in clawback threshold	Uniform \$926 ↓ in OAS	Progressive ↑ in payments
Federal finances				
Gross OAS payments	6 354	0	9584	6764
OAS clawback	-388	9507	-254	-361
GIS payments	2 109	0	0	2014
Federal income tax	-950	-1951	-1759	-1127
<i>Net federal revenues</i>	7 123	7556	7570	7291
Provincial finances				
Social assistance	-169	0	-7	-69
Provincial income tax	-469	-934	-920	-563
<i>Net provincial revenues</i>	-638	-934	-926	-632
Net fed. + prov. revenues	6305	6623	6644	6659
Effect on low income rate, age 65-66 years*	11.42	0	0.65	9.51
Effect on low income rate, age 67-69 years *	0	0	0.39	3.99

* Increase in percentage points with respect to the no-reform scenario

3.2 A uniform decrease in OAS benefits

An alternative scenario would be to implement a uniform decrease in OAS payments for all eligible individuals. According to our model, we need to reduce benefits by \$926 annually to achieve the same total gain as the announced reform. This amount may seem rather high, but, as with the preceding reform, the direct gain would be countered by a major decrease in taxes on income. In effect, the taxable revenues which would be affected by this reform are subject to marginal tax rates that are on average higher than those of the announced reform, given that they affect individuals in higher income segments.

Thus, the reform would have the direct effect of decreasing total OAS payments by 9.6 billion dollars in 2030. The effect on clawbacks for high income and social assistance payments would be comparatively small (254 million and 7 million dollars), while income taxes would decline substantially (1.76 billion for federal and 920 million for provincial). The total gain would be comparable to those of the announced reform, but the increase in the low income rate would be low (0.65 percentage points for those aged 65 and 66 years and 0.39 percentage points for those aged 67 to 69).

3.3 A progressive increase in benefits

A third scenario consists of a gradual increase in the OAS and GIS benefits each year starting at the age of 65. Our calculations suggest that the effect on public finances would be the same as those of the announced reform when using the following formula for the sum of OAS and GIS payments:

$$R_i^* = \begin{cases} \frac{R^i(Age_i - 64)}{6} & \text{if } 65 \leq Age_i \leq 70, \\ R^i & \text{otherwise,} \end{cases}$$

where R_i^* is the sum of OAS and GIS payments that individual i would receive without the reform and Age_i is the age of the individual. The individual would thus receive one-sixth of the normal payment at the age of 65. In each of the following years, his/her payment would increase by $1/6^{\text{th}}$ of the normal payment to reach the full payment amount by the age of 70 years.

The last column of table 3 presents the effects of this reform. Since the impact of the reform is distributed over a longer period of time, the effect on social assistance would be lower than for the announced reform. However, the

low income rate would increase by 9.51 percentage points for those aged 65-66 years and by 3.99 percentage points for those aged 67-69 years.

4 Can individuals affected by the reform avoid falling below the low income threshold?

The results presented above suppose that economic behaviour is not affected by the reform scenarios. It is not difficult to imagine that individuals would react to the announced modifications to the OAS and GIS payment regime: participation in the labour market could be extended and savings could become higher as a result of delaying the eligibility age. These adjustments in behaviour are at least one of the major motivations put forward by the Canadian government, in particular in a context of an aging population and growing pressures on public finances.

The behavioural effects of different scenarios are difficult to predict quantitatively. However economic theory can be used to provide some conjectures regarding how the reform alters behaviour qualitatively. Let us first focus on the impact of the reform on individual savings. One important role of savings is to smooth the consumption profile over the life cycle, given the variability of income patterns and particularly the reduction in labour earnings after retirement (see Ando and Modigliani, 1963). As the announced reform may reduce expected income at 65 and 66 years of age for individuals eligible to OAS and GIS payment regime, the latter will be induced to increase their savings before and after this age interval to prevent a too large negative shock in their consumption. Also, income effects may encourage higher labour supply (both in terms of participation to the labour market and hours of work) as long as leisure is a normal good. In particular, the reform may stimulate some recipients of the OAS and the GIS who would otherwise have planned to retire at the age of 65 or 66 to delay their retirement.

On the other hand, as regard substitution effects, the reform could have the perverse effect of reducing labour supply and savings of those who become recipients of social assistance, because the implicit tax rate of social assistance payments is much higher than those of the GIS. This last effect is nevertheless ambiguous, because the implicit tax rate of social assistance payments influences individuals less than the one faced by those who receive the GIS, which applies to a larger range of income. All in all, as long as these substitution effects are not

too high, one expects the reform to increase overall labour participation rate and savings.

Compared to the announced reform, the scenario to decrease the clawback threshold could, via substitution effects, discourage labour supply and savings among individuals earning between \$35,592 and \$80,194; it would however have the opposite effect on those earning between \$80,194 and \$114,815. Due to the more redistributive effect of this scenario, its income effect of increasing labour and savings would be weaker among low-income individuals and greater among high income individuals.

Again, with respect to the announced reform, the scenario of uniform reduction in OAS payments would have positive income effects on labour and savings which are smaller among low-income individuals and greater among high-income individuals. As in the case of the reduced clawback threshold scenario, it would displace towards the lower end of the income distribution the disincentive effects on labour supply and savings associated with the 15% OAS clawback rate.

As for the gradual OAS payment increase scenario, it would have similar effects to those of the announced reform, but these effects would be distributed gradually between the ages of 65 and 70. Given its more redistributive character, the income effects of this scenario would nevertheless be smaller among the low-income individuals and greater among the higher income individuals.

This discussion suggests that individuals could in principle adjust their behaviour following the announced reform, and thereby possibly avoid falling into a significantly lower standard of living. It is not certain, however, that this adjustment would be sufficiently strong to avoid so many people finding themselves under the low income threshold. Certain individuals have difficulty maintaining rigorous savings discipline in order to counter anticipated future losses in living standards. Research in behavioural economics suggests, for example, that the most elderly individuals make inconsistent decisions more often (see Agarwal, Driscoll, Gabaix, and Laibson, 2009) and that the poorest individuals are more negligent in their financial management (see Scholnick, Massoud, and Saunders, 2008).

A simple analysis of the current distribution of income also shows that many

individuals are unable to maintain sufficient living standards before the age of 65. Figure 4 shows the low income rates of those between 50 and 70 years of age in 2012. We observe that the rate increases considerably with age to stabilize around 26% just before the age of 65. Full annual payments of OAS and GIS being applicable as of the age of 66, the low income rate is low after this age. (Individuals aged 65 receive a smaller payment in the year, depending on the number of months since their birthday.) The years leading up to the age of 65 thus seem to be the most difficult in terms of low income.

This suggests that, in many of these cases, individuals do not manage to work enough before the current age of eligibility or to save enough in anticipation of these difficult times. The currently elevated low income rate among those aged 64 years suggests that individuals at the age of 65, deprived of their OAS and GIS, will also have an elevated low income rate. The announced reform is thus likely to extend the low income rates presently observed prior to the age of 65.

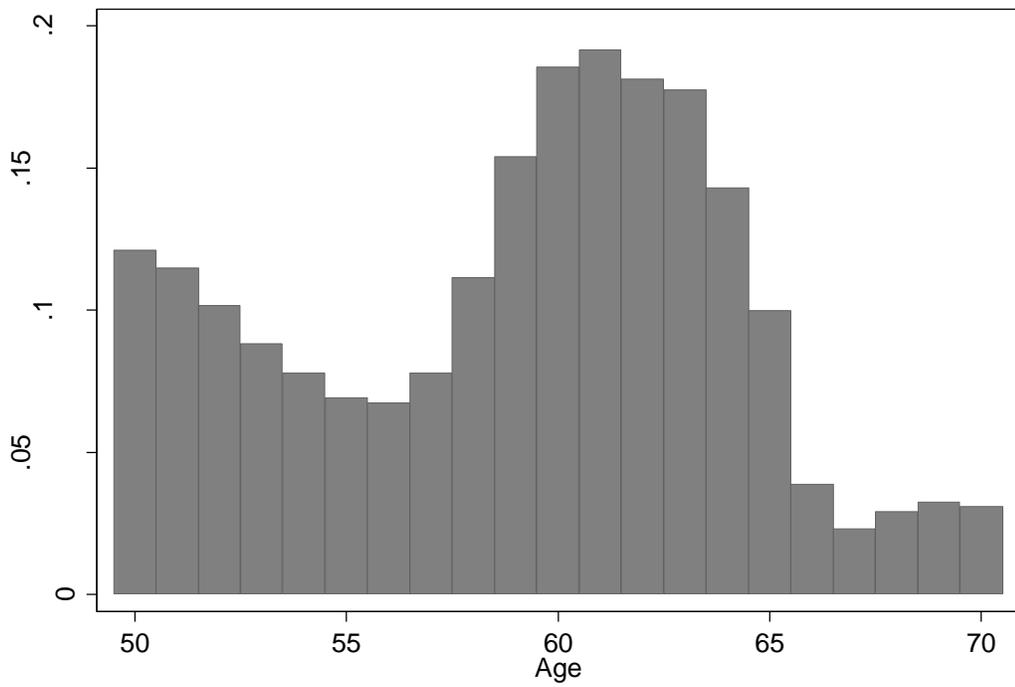
5 Conclusion

The dynamic microsimulation model of the SIMUL research program allows us to predict the effect of the OAS reform announced by the Government of Canada on federal and provincial public finances. It accounts simultaneously for predicted demographic change, the income distribution, taxes on individual incomes, and social transfers. Thus, it allows us to estimate not only the direct effects of the reform (decreases in OAS and GIS payments), but also the effects of the reform on personal incomes and taxes as well as on provincial and federal social transfers.

Considering all of these effects, the announced reform would decrease net federal outlays in 2030 by 7.1 billion dollars (in constant 2014 dollars), but would generate fiscal losses of 638 million dollars for the provinces. The overall gain (federal and provincial) would thus be about 6.5 billion dollars. This reform would have the greatest impact on the least wealthy Canadians. About 60% of the losses in living standards would be experienced by the poorest 50% of the population aged 65-66, or by the poorest 40% of the population aged 16 and over who have completed their studies. The low income rate of individuals aged 65 and 66 years in 2030 would rise from 6% to 17% in 2030 as a result of the reform.

The effects of the three alternative reform scenarios are also studied. These scenarios have similar effects on overall public finances (federal and provincial), but have different impacts on those with low income.

The first scenario consists of reducing the OAS clawback threshold by \$36,000. This would bring the threshold at which OAS begins to be reimbursed to \$35,592 and would reduce the income at which the payment would be completely clawed back to \$80,194. This scenario does not increase the low income rate. The second scenario is a uniform \$926 decrease in the annual payment of all eligible individuals; it would have a negligible impact on the low income rate. The third scenario would gradually increase payments from the age of 65 to the age of 70. This scenario leads to a higher low income rate, by 9.51 percentage points for those aged 65 and 66 and by 3.99 percentage points for those aged 67 to 69. Thus, relative to the announced reform, scenarios 1 and 2 would have the advantage of not increasing the low income rate among seniors while having a comparable fiscal impact.



Source: authors' calculations using SPSS version 21 and Statistics Canada's 2009 Montreal MBM

Figure 4: Low income rate by age in 2012

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