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# C.D. Howe Institute COMMENTARY

FISCAL POLICY

## The Costs of Inflexible Indexing:

Avoiding the Adverse Fiscal Impacts of Lower Inflation

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WILLIAM B.P. ROBSON



### **In this issue...**

Why the payouts and thresholds of inflation-indexed federal government taxes and programs, which increase when the Consumer Price Index rises, should also decrease when it falls.

## THE STUDY IN BRIEF

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*Rigorous external review  
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undertaken by academics  
and outside experts, helps  
ensure the quality,  
integrity and objectivity  
of the Institute's research.*

A lively debate is underway about replacing Canada's 2 percent inflation target with a target for lower inflation or a target for the price level itself when Canada's inflation-control arrangement expires at the end of 2011. Either change could reduce uncertainty about changes in the value of money over time, and potentially stabilize the economy as well. But such policies may involve costs; a long-standing concern is that rises versus falls in the price level may have different or asymmetrical impacts on the economy.

The authors examine a set of asymmetries that have up to now received no attention, but may have large impacts on taxpayers, transfer recipients, and government budgets – inflation-indexed government programs in which transfer payments and tax parameters increase when the Consumer Price Index rises but do not decline when it falls.

They find an important implication of these asymmetries is that the real value of seniors' benefits and government pensions would be higher over potentially long intervals under monetary-policy regimes that produce lower inflation or stable prices. The impact on the Personal Income Tax, the Canada Child Tax Benefit and the GST/HST credit is even larger because key thresholds and transfers in these programs ratchet up permanently in real terms during deflations.

The authors argue the rigidities and asymmetries associated with these programs should not be an obstacle to a change in the Bank of Canada's target that seems justified for other reasons. They should rather be seen as problems to be solved. One solution would be for the federal government, when the Bank of Canada adopts a new set of targets, to initiate changes to make all indexed programs respond symmetrically to changes in the CPI.

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Canada's current inflation-control arrangement runs out at the end of 2011, and the debate about what to do afterwards has become lively. We could simply adopt another multi-year target for 2 percent annual inflation by extending the current regime. We could adopt a lower target for annual increases in the consumer price index (CPI) under that regime. Or we could move to price-level targeting and adopt a target path for the price level itself – possibly asking the Bank of Canada to make it rise 2 percent annually, or by a smaller amount, or not at all.

A lower target for inflation or a price-level target that produced a trend for the inflation rate that was less than 2 percent could improve well-being by reducing uncertainty about changes in the value of money over time, potentially stabilizing the economy as well.<sup>1</sup> But such policies may involve costs; a long-standing concern is that rises versus falls in the price level may have different or asymmetrical impacts on the economy.

This *Background* looks at a set of such asymmetries: inflation-indexed government programs in which transfer payments and tax parameters increase when the CPI rises but do not decline when it falls. To the extent that lower inflation or price-level targeting would lead to more frequent, longer, or larger drops in the CPI, a new regime might produce large, arbitrary transfers of wealth unless it were accompanied by

changes to personal income taxes, transfers, and indexed pensions to make these programs respond symmetrically to price-level changes.

## Potential Asymmetrical Economic Responses to Inflation

The drawbacks of low or zero inflation in the presence of asymmetries is a well-explored topic. One concern is that people may dislike cuts in nominal wages, making real-wage declines – needed to shift resources among sectors or avoid unemployment – harder to achieve in a low-inflation environment (Fortin et al. 2002). Another concern is that many interest-bearing instruments cannot have negative yields and that nominal interest rates that cannot fall below zero may impede the operation of monetary policy (Bank of Canada 2006).

To the extent that rigidities in the labour market matter, however, they are a specific example of “money illusion.”<sup>2</sup> If money illusion is a major problem, low inflation or zero inflation confers pervasive offsetting benefits in all markets – for goods, services, and capital, as well as labour. Actual experience with low inflation, moreover, has shown that any such rigidities are not decisively damaging, even in the labour market; until the recent slump, Canada's unemployment rate declined steadily during 13 years of 2 percent inflation targeting. As for the zero floor under nominal interest rates, the Bank of Canada and other central banks hit that limit with their policy rates in early 2009. Notwithstanding the technical and political problems this environment has created for the US Federal Reserve, experience elsewhere shows that it does not preclude rebounds in money, credit, spending, and output.

We thank Colin Busby, David Laidler, Alexandre Laurin and Chris Ragan for comments on an earlier draft. Responsibility for any errors and for the conclusions is ours alone.

- 1 Laidler (2010), in his introductory essay, presents an overview of the issues surrounding the adoption of a monetary-policy regime with a lower inflation target and/or a price-level target. As Laidler notes, under a price-level targeting regime, “...the Bank of Canada would not merely seek to restore inflation to a target value after a shock, but would undo the effects of that shock on the price level itself.” (p.7) In contrast, under inflation-targeting, past deviations from target are treated as bygones. For more information on the merits of such policy regimes, see for example Ambler (2009), Boivin (2009), Parkin (2009), and Robson (2009).
- 2 The illusion in this case is that workers object to pay cuts, not realizing that proportional price declines for the things they buy may keep their purchasing power the same.

Less well explored are policy instruments that respond asymmetrically to rises and falls in the price level. This neglect may be partly because instances of deflation – situations where the overall level of prices is declining, rather than individual prices – have seemed less relevant to discussions of choices among targets for positive overall inflation rates, and are only coming into sharper focus now that targeting inflation at low levels has proved feasible and the possibility of going lower yet has become more interesting. Another likely reason is that taxes, transfers, and contracts vary from jurisdiction to jurisdiction and are thus harder for investigators to model in any universally applicable way.<sup>3</sup> Notwithstanding this neglect in the literature, program parameters that do not treat these movements symmetrically may matter. They do in Canada, as we detail in the next section.

## Inflation-Linked Programs in Canada

Many Canadian programs have asymmetrical indexation. We focus here on three categories of federal-government programs (summarized in Table 1), but note that many programs in provincial or shared jurisdiction, such as the Canada Pension Plan, share some of these characteristics, and that the economy-wide impacts of moving to regimes that produce lower or zero inflation without making them symmetrical will be larger than the ones we document in this paper.

### *Seniors' Benefits*

The federal government provides a number of benefits to seniors. The two most important in dollar terms are Old Age Security (OAS) and the Guaranteed Income Supplement (GIS), with income-tested allowances for spouses and

survivors making up the rest. Payments under these programs amounted to \$34.7 billion in the 2009/10 fiscal year.

The legislation governing these payments indexes benefits quarterly to increases in the CPI. In the event that the quarterly average of the CPI falls from one quarter to the next, however, the legislation specifies that the dollar value of the pension will not decline but will instead stay constant until the quarterly average rises above the previous peak again.

### *The Personal Income Tax*

The federal Personal Income Tax (PIT) adjusts most parameters used in calculating net federal personal taxes annually to reflect inflation.<sup>4</sup> In terms of fiscal impact, the key provisions are the personal and the married or common-law amounts and the thresholds at which tax rates rise. Myriad other provisions, such as the age credit, the employment credit, the adoption credit, the public transit credit, the credit for mental or physical impairment, refundable medical expenses, the Working Income Tax Benefit (WITB), the tax on Old Age Security benefits, the deduction for tradesperson's tools, and the allowance for board and lodging are also indexed to the CPI.

These adjustments are not symmetrical, however. While the relevant amounts increase when the CPI rises, they do not decline when it falls. They differ from the transfers to seniors just discussed, though, in that they make no reference to the price level at all: they respond to inflation but not to deflation. So the downward movements in the indexation factor are not “carried forward” to reduce future increases. The PIT parameters resume rising when the CPI does. So deflations ratchet their real value upward, putting people into lower tax brackets than they would otherwise

3 The inflation-indexed bonds of the US federal government, for example, cannot mature at less than their face value, which creates a potentially important transfer of wealth in the event of deflation; in Canada, by contrast, the principal value of the federal government's real return bonds responds symmetrically to price movements in either direction.

4 Amounts for each taxation year rise in line with the increase in the CPI, averaged over the 12 months to the previous September, compared to the same 12-month period of the prior taxation year.

Table 1: Selected Examples of Asymmetrical Treatment of Inflation in Federal Government Programs

Legislation	Affected Transfers or Tax Parameters	Type of Asymmetry or Rigidity
<b><i>Old Age Security Act</i></b>	Old Age Security Pension; Guaranteed Income Supplement; Allowances for spouses and survivors.	Quarterly CPI adjustments of benefits cannot be negative, and benefit levels are held constant until such time as the quarterly average of the CPI rises above the previous peak.
<b><i>Income Tax Act</i></b>	Most tax-rate thresholds and credits, CCTB, GST/HST credit.	Annual CPI adjustments of amounts cannot be negative from one period to the next. Downward movements in the indexation factor are not “carried forward” to reduce future increases.
<b><i>Public Service Superannuation Act, Supplementary Retirement Benefits Act, Canadian Forces Superannuation Act and Royal Canadian Mounted Police Superannuation Act</i></b>	Pension payments under federal government’s pension plans.	Annual CPI adjustments of pension amounts cannot be negative. The decline in the CPI creates a carry-forward that diminishes the next positive adjustment accordingly.

Sources: Old Age Security Act, Income Tax Act, Public Service Superannuation Act, Supplementary Retirement Benefits Act, Canadian Forces Superannuation Act, and Royal Canadian Mounted Police Superannuation Act.

be in and lowering their tax payments and federal revenues. Total federal PIT collected in 2009/10 was \$103.99 billion.

The Canada Child Tax Benefit (CCTB) and the Goods and Services Tax/Harmonized Sales Tax (GST/HST) Credit are transfer payments also governed by the *Income Tax Act*. The CCTB provides a geared-to-income monthly payment to low- and modest-income families with children under age 18; payments under this program were \$9.8 billion in 2009/10. The GST/HST Credit, despite its name, is not related to sales taxes paid, but is a geared-to-income transfer; payments in 2009/10 came to \$3.7 billion.

The CCTB and the GST/HST Credit are also downwardly rigid: that is, they rise if the year-over-year change in the CPI is positive in the

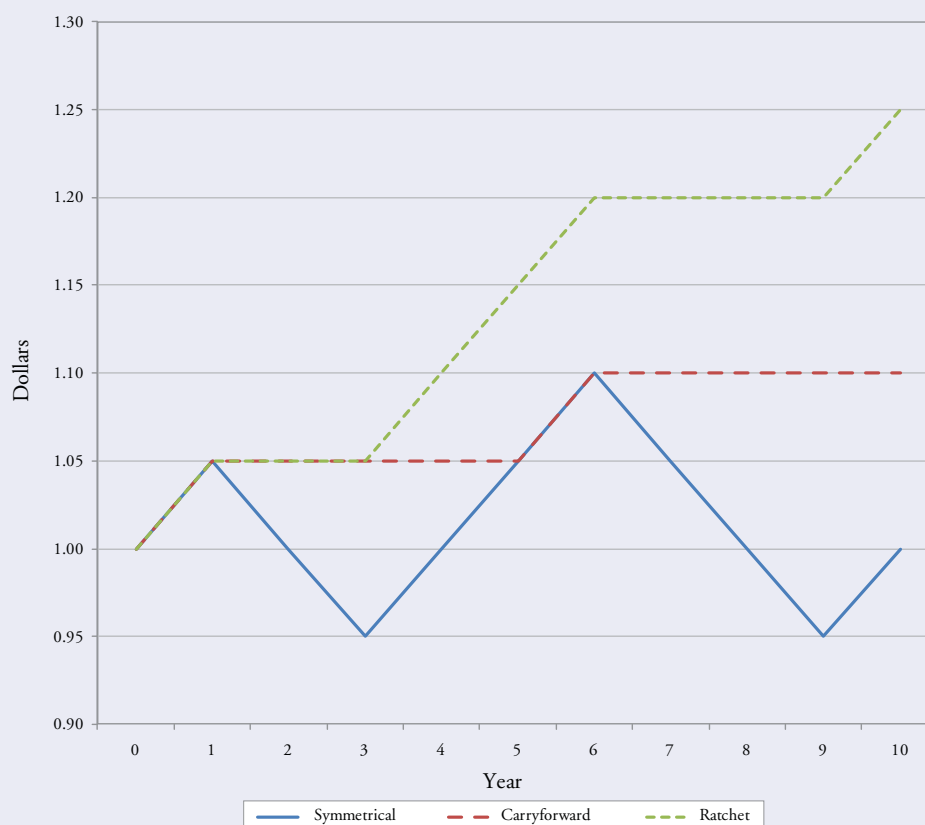
reference period but do not decline if it is negative. Like the other PIT parameters, they ignore declines completely and (unlike the seniors’ benefits) begin rising again when the CPI does. So temporary deflations also ratchet these transfers up in real terms.

#### *Federal Government Pensions*

The federal government sponsors pension plans that pay annuities indexed to inflation. Under these plans, benefits accrue according to an employee’s length of service and final five years’ salary; once the person is retired and the benefits are being paid, they are subject to annual adjustment with reference to the CPI.<sup>5</sup>

<sup>5</sup> The indexation factor for the annuities is the same as that for the PIT: the average CPI over the 12 months ending the previous September, compared to the same period a year earlier.

Figure 1: Programs with Symmetrical and Asymmetrical Indexation: A Stylized Example



Source: Authors' calculations

The indexation of the annuities is also not symmetrical. If the CPI declines during the reference period, benefits do not decrease for that year. A decline in the CPI, however, does create a carry-forward – in similar fashion to the OAS (although over an annual rather than a quarterly time period) – in that the next positive adjustment diminishes accordingly. In the 2009/10 fiscal year, annuities paid by the federal government under these plans amounted to \$8.3 billion.

**A Stylized Example:** To clarify how these asymmetries work, and how the provisions with carry-forwards differ from those that ratchet up, Figure 1 shows a stylized scenario. In it, a central bank has a target to keep the price level stable over time; while it succeeds on average, mistakes and events beyond its control move the CPI above and below the target from year to year. The three lines in the chart show the value of three government programs or tax parameters, all of which are worth

\$1.00 in the base year, but are indexed to the CPI in different ways:

- The solid line represents the value over time of a program that is symmetrically indexed. It tracks the CPI exactly, increasing when the CPI rises and decreasing when the CPI falls, and ending the period at \$1.00, when the CPI is back at its starting value.
- The dashed line represents the value of a government program that, like the OAS, precludes decreases when the CPI falls, but has carry-forward provisions that reduce subsequent increases. It rises with each peak in the CPI and then hangs there until such time as the CPI surpasses that peak, so in this scenario, it ends the period at its highest value during the period: \$1.10.
- The dotted line represents the value of a program that, like the PIT parameters, does not decrease when the CPI falls and always increases when the CPI rises – the ratchet effect. It rises in real terms with every dip and rebound in the CPI: in this



scenario, it ends the period at \$1.25, and it would continue to rise as the CPI fluctuates in the future. Although the actual features of Canadian programs and tax parameters affect the way these features play out in real life, this simple example captures their essential provisions.<sup>6</sup>

## The Significance of Asymmetries in Inflation-Linked Programs

How important these asymmetries might be in an environment of lower inflation or price-level targets depends on the trend inflation rate the target produces, and the size and duration of deviations from it. The transfers and programs with carry-forward provisions will overpay in real terms between the beginning of a deflationary period and the time the CPI returns to its pre-deflation level. This effect could be trivial if deflations are few, small, and short but will be important if they are frequent, large, and long. Likewise, the provisions that ignore deflations will ratchet up in real terms only by trivial amounts if deflations are rare and small, but by significant amounts if they are frequent and large.<sup>7</sup>

### *Potential Periods of Deflation with Lower Price-Level Targets*

Our first step in this investigation is to invent some scenarios in which the Bank of Canada either adopted a lower inflation target – the same regime that it has now but with a number lower than 2 percent – or a price-level target in which

the average increase in the price level was lower than 2 percent. Those scenarios will give some guide about how frequent, large, and long deflations might be under alternative regimes.

The recent period in which the Bank of Canada has targeted 2 percent inflation gives us a head start on these scenarios. Until late 2010, the Bank held inflation so remarkably close to its target that between December 1995, when the 2 percent target first became effective, and December 2010, the average compound annual increase in the CPI was 1.9 percent.

We acknowledge that the CPI might have behaved differently if the Bank's goal had actually been a 2 percent annualized increase in the level of the CPI. For instance, such a target, once it had become credible, might have stabilized the price level around the 2 percent trend, since individuals and businesses might have set prices in anticipation of the index's returning to trend after deviations. The closeness with which the actual CPI tracked a 2 percent trend over that period nevertheless seems to us to make it reasonable to adopt as a working assumption that the post-1995 experience is probably not much different from what Canadians would have seen if the Bank had actually had a 2 percent target for increases in the price level itself.<sup>8</sup>

Our second simplifying assumption is that even if the target for inflation or for the trend increase in the CPI had been different since 1995, variations in the CPI around its trend since 1995 would have been essentially the same. This also might not be true, but various considerations – such as some of the asymmetries in personal or

6 To keep the illustration simple, we omit the multiplicative effect of percent changes on a rising base. The actual effect of asymmetries is larger to the extent that each percent change is calculated from a higher previous level of the CPI – an effect that would be trivial in this illustration, but would matter more when fluctuations are large and the time horizon extends.

7 A related issue that we note but do not pursue here is the potential impact of improvements in the CPI that might reduce an upward bias of some 0.5-0.6 percent annually described by several investigations (Crawford 1998; Rossiter 2005). If methodological improvements reduced this bias, the Bank of Canada's inflation target should come down too in order to avoid increases in actual inflation (Ragan 2011; Melino 2011). Programs indexed to the CPI – which would historically have overcompensated for inflation by the amount of the bias – would also rise by less, and instances where their parameters fail to respond symmetrically to decreases in the CPI would become more important. This problem would be solved by the measures recommended in this study to make these programs respond symmetrically to CPI changes in either direction.

8 The increases in the CPI were so close to a 2 percent annual trend that some observers wondered if the Bank of Canada was actually aiming at that result – that is, was a “closet” price-level targeter. As Melino (2011) points out, when inflation targeting central banks move their policy interest rate only in small increments – a preference of most central banks, including the Bank of Canada – the result will resemble price-level targeting more closely than pure forward-looking inflation targeting would.

institutional behaviour mentioned earlier on the one hand or greater confidence in a lower target on the other – might justify an assumption of either more or less variability. For those reasons, we think it reasonable to use the CPI's actual behaviour from December 1995 to September 2010 as a guide to its behaviour with different targets for inflation or trends in the CPI.

We therefore use the CPI trends shown in Figure 2 to run some alternative scenarios. In two of them, the Bank had targeted either 1 percent inflation or a 1 percent annualized trend increase in the price level – which, given our assumption about the same variability either way, collapse into the line labelled “1 percent scenarios.” In the other two, the Bank had targeted either no inflation or an unchanging price level – which under our assumption about variability collapse into the line labelled “0 percent scenarios.”<sup>9</sup> As Figure 2 illustrates, actual experience over this period – or the alternative implied by our first assumption, namely, that the Bank had targeted a 2 percent annualized trend increase in the CPI – involved a handful of deflations, of which only the episode that started in the summer of 2008 lasted more than a couple of months. Under the 1 percent scenarios, deflations would have been more numerous and protracted; and under the 0 percent scenarios, they would have occurred roughly half the time, with periods when the CPI was below previous peaks lasting for years.<sup>10</sup>

### *Potential Fiscal Impacts of Lower Price-Level Targets*

The number of periods since 1995 when the asymmetries in government programs actually did matter was very small. No deflation lasted long enough to trigger the “no-decline” provisions of

the taxes and transfers under the PIT or of the federal superannuation annuities, and the 10 quarters in which the price level was lower than in a previous quarter produce only minor periods of overpayment of seniors' benefits. We now proceed to calculate how often these provisions would have mattered in our two alternative pairs of scenarios: first, the ones in which the Bank's target had been either 1 percent inflation or a 1 percent increasing trend in the price level, and, second, the ones in which its target had been either zero inflation or an unchanging CPI.

The idea is to replay history and see how these tax parameters, transfers, and payments would have developed under the current asymmetrical system, compared to a system where they responded symmetrically to movements in the CPI in either direction. We depart from historical figures in two respects. First, we benchmark to current figures for the dollar values of various tax provisions, transfers and payments, to produce tallies that are more pertinent to discussion of policy changes looking forward. We also benchmark to current legislation and hence disregard historical changes to indexation, again in an effort to concentrate the discussion on forward looking policy changes. If the legislation governing seniors' benefits and the PIT had been the same but the CPI had trended upward by 1 percent annually or not at all, the federal government's bottom line – and, of course, the bottom lines of taxpayers and recipients of these payments – would have differed from what it would have been under symmetrical indexation in several ways.

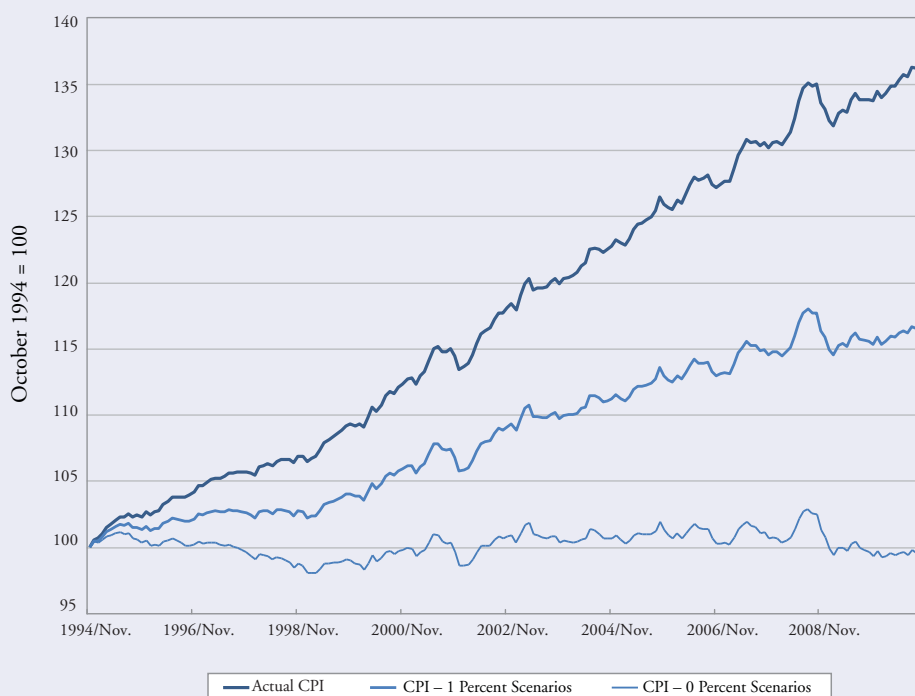
***Overpayment of Seniors' Benefits:*** Under the current asymmetrical system, recipients of seniors' benefits would have enjoyed material overpayments during periods when the CPI, as calculated on a

9 The Bank of Canada's inflation target did not actually become 2 percent year over year until December 1995, but since the Bank knew ahead of time that that figure would be its target and since monetary policy works with a lag, we begin this reconstruction in October 1994. That month was in the midst of a 12-month period when the increase in the CPI averaged 2 percent, so nothing important hangs on this choice.

10 We recognize that this technique of replaying history with different price-level trends gives a more limited view of the significance of asymmetries than, say, generating artificial price levels for longer periods of time to create scenarios that might be considered representative. Modeling dynamic complex processes is an uncertain business, however, and would not necessarily yield more insight. In the particular case of provisions with carryforwards under a zero-increase trend, for example, a great deal depends on the timing of the first large spike upward, which will create overpayments for however long it takes before a larger spike drives them higher.



Figure 2: Actual CPI Growth Path and Potential CPI Growth Paths under 1 Percent Inflation and 0 Percent Inflation Scenarios (Monthly)



Source: Statistics Canada, CANSIM Table 326-0020, and authors' calculations.

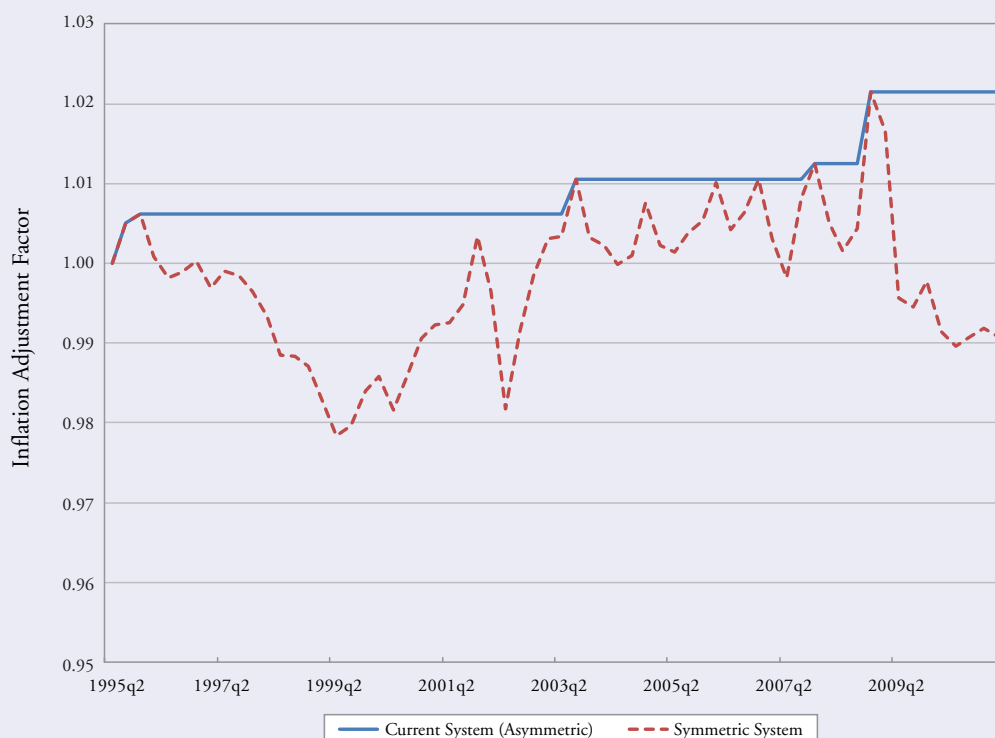
quarterly basis, was below its previous peak. Overpayments of OAS and GIS would have occurred for 33 quarters under the 1 percent scenarios and for 57 quarters – out of a total of 63 quarters – under the 0 percent scenarios. Figure 3 contrasts the payments in the 0 percent scenarios with what would have occurred if seniors' benefits responded symmetrically to movements of the CPI in either direction to keep their purchasing power constant.

The overpayments we calculate would have had important cost implications for the federal government. Using the \$34.7 billion paid under these programs in 2009/10 as a starting point for the financial tally in this alternative history, we calculate the cumulative nominal-dollar overpayment over the 15-year period to be \$8.2 billion (some \$0.5 billion annually) under the 1 percent scenarios and to be \$26.9 billion (\$1.7 billion annually) under the 0 percent scenarios.

**Overinflation of Income Tax Parameters:** Turning to the PIT-linked parameters, we find that tax thresholds under the current asymmetrical system would have moved up in real terms at intervals, ending the period some 0.4 percent above their value with symmetrical indexation under the 1 percent scenarios, and some 5 percent above their value with symmetrical indexation under the 0 percent scenarios. (Figure 4, like Figure 3, illustrates the contrast for the latter scenarios.) These real increases in value would have lessened taxpayers' liabilities compared to the situation with symmetrical indexation and would have had corresponding adverse impacts on the federal treasury.<sup>11</sup> Under the 1 percent and 0 percent scenarios, the CCTB and the GST/HST credit would likewise have ended the period 0.4 percent and 5.0 percent above their values with symmetrical indexation, thereby benefiting recipients at Ottawa's expense.

11 Our calculations hold other factors constant and do not, for example, take into account the feedback – discretionary increases in taxes and decreases in transfers, for example – such changes would likely have necessitated in the government's overall fiscal policy.

Figure 3: Seniors' Benefits with 0 Percent Inflation: Asymmetrical versus Symmetrical Indexation



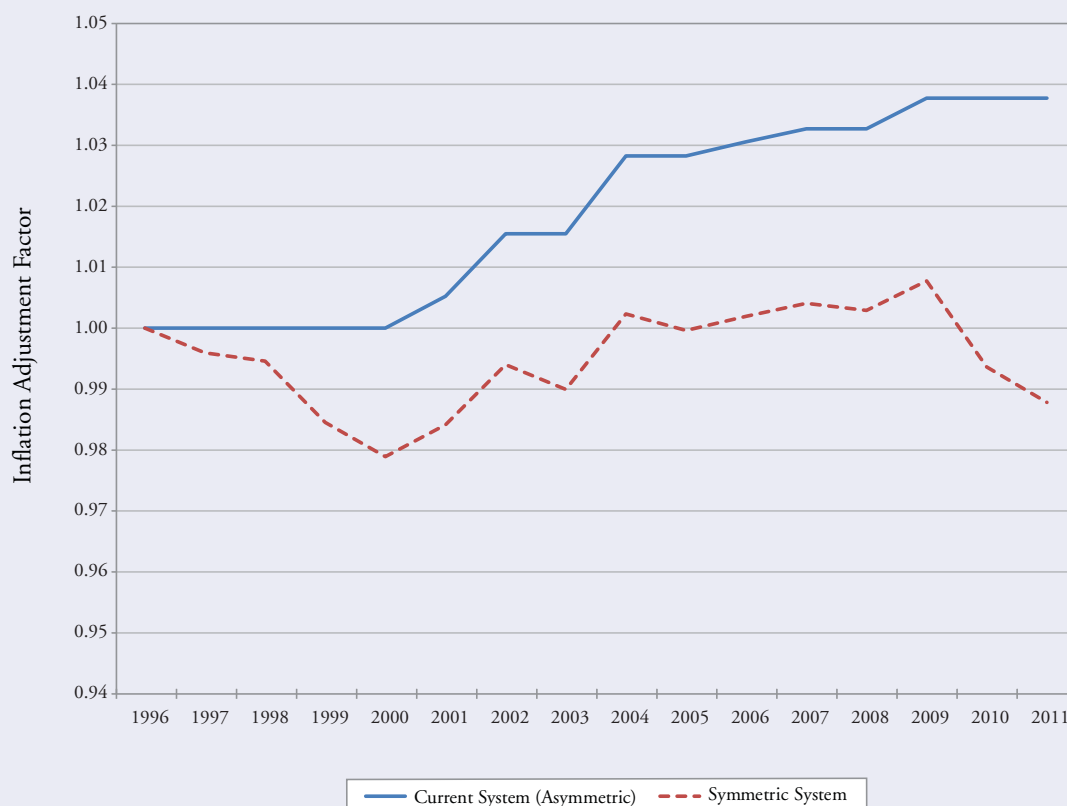
Source: Authors' calculations

Benchmarking to current values of taxes and transfers, we calculate a cumulative net benefit to taxpayers and transfer recipients at the treasury's expense of \$1.3 billion (an average of \$0.1 billion annually) over the period under the 1 percent inflation scenarios. Under the 0 percent scenarios, with their more frequent and larger periods of deflation, the cumulative impact of the upward ratcheting in real values is much greater: \$49.5 billion (an average of \$3.3 billion annually).<sup>12</sup>

**Overpayment of Federal Pensions:** A similar exercise can be applied to federal employees' pensions – which, as noted above, resemble seniors' benefits (but with annual rather than quarterly adjustments) in that declines in the CPI do not shrink the payments, but simply reduce the next increase. The immediate result of this asymmetry, compared to a situation where symmetrical indexation kept the purchasing power of the annuities constant, is higher payments by

12 To perform the simulations we used Statistics Canada's Social Policy Simulation Database and Model (SPSD/M), version 18.0; responsibility for the data and their interpretation lies with the authors. The following parameters are used in the simulations: basic OAS, OAS phase-out threshold, basic GIS – single, basic GIS – married, basic GIS portion of extended spouse's allowance, Federal Sales Tax Credit amount for filer, Federal Sales Tax Credit amount for spouse, Federal Sales Tax Credit amount for dependant, Federal Sales Tax Credit reduction level, GST additional credit amount, GST additional credit exemption, basic child benefit (per child), supplement for third and subsequent children, federal child benefits family income phase-out threshold, WIS/NCBS phase-out threshold, WIS/NCBS for first child, WIS/NCBS for second child, WIS/NCBS for each additional child, federal tax table, basic personal exemption amount, married exemption amount, age amount, age amount net income phase-out threshold, Canada Employment Credit, WITB amount for singles, WITB amount for couples and single parents, WITB family net income phase-out threshold, WITB single net income phase-out threshold, WITB supplement for disabilities amount, WITB supplement for disabilities family net income phase-out threshold, and WITB supplement for disabilities single net income phase-out threshold.

Figure 4: Personal Income Tax Parameters with 0 Percent Inflation: Asymmetrical versus Symmetrical Indexation



Source: Authors' calculations

the pension plans. (Figure 5, like Figures 3 and 4, illustrates the contrast under the 0 percent scenarios.<sup>13</sup>)

Benchmarking to annuity payments for 2009/10, we put the cumulative nominal overpayment at \$0.1 billion (an average of \$6 million annually) under the 1 percent scenarios and at \$1 billion (\$65 million annually) under the 0 percent scenarios.

## Policy Implications

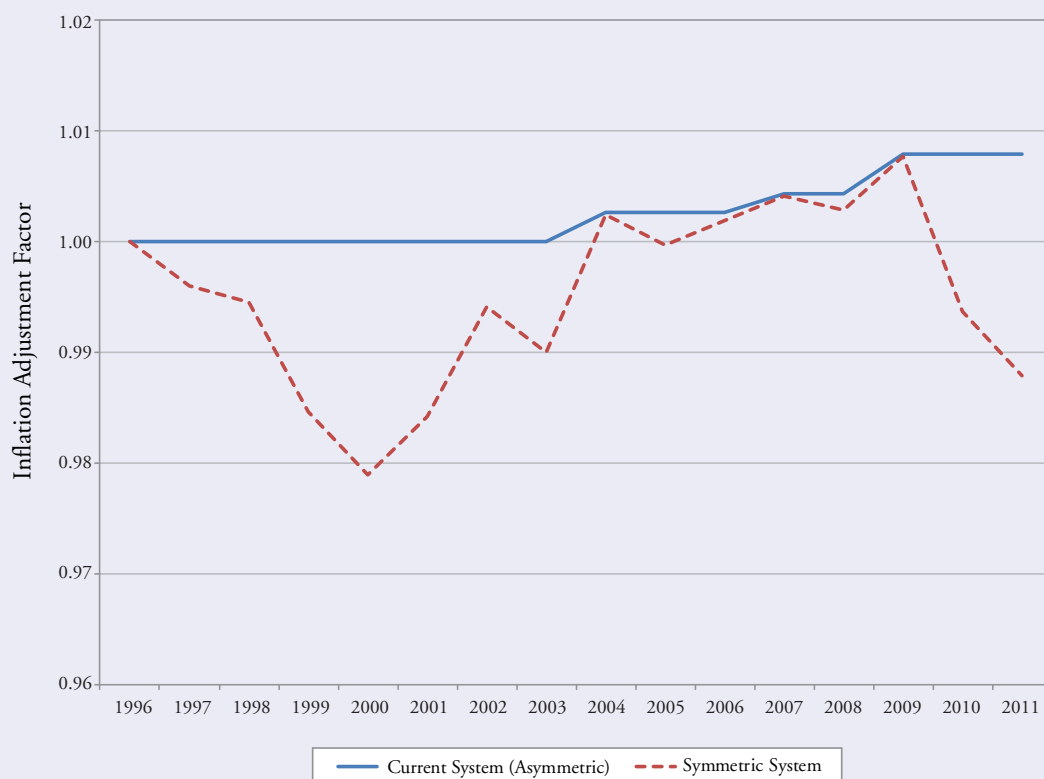
Two responses to these facts and calculations are possible. Some might see these asymmetries as important entries on the cost side of the ledger when evaluating the merits of moving to lower

inflation or price-level targets. Others may also see them as a problem but argue that fixing them would clear the way for a new monetary regime that might be desirable for other reasons.

We would favour fixing the asymmetries. As noted above, to the extent that money illusion, which inspires different responses to increases and decreases in prices, is a pervasive problem, the case for lower or zero inflation may actually be stronger. Building such provisions into taxes and transfers may have seemed unremarkable at a time when chronic inflation appeared to be an inevitable part of the economic landscape and wage and price declines were rare, but times have changed. The intent of indexation is to ensure that key taxes and

<sup>13</sup> Again, we emphasize that this calculation is partial. Increases in liabilities under the pension plans would eventually have other effects – higher contributions from current employees or the government as their employer, tax-funded bailouts, or even lower benefits for future recipients.

Figure 5: CPI-Linked Adjustment of Federal Pension Annuities under 0 Percent Inflation Scenarios



Source: Authors' calculations

transfers stay the same in real terms: in the case of transfers, for example, indexation is intended to ensure constant purchasing power. Responding to declines in the CPI with a delay or not responding at all undermines this intent. In a low or zero inflation environment, what appeared a harmless concession to money illusion in an inflationary environment produces temporary or even permanent changes in the real amount of taxes paid and transfers received – changes that have no conceivable public purpose.

The solutions are straightforward: amend the relevant legislation to make these programs and tax parameters respond symmetrically to changes in the CPI in both directions. If resistance to dollar declines in PIT-related transfers or tax thresholds appears an overwhelming obstacle to complete symmetry when the inflation target is above zero, there could be carry-forwards similar to those that currently apply to seniors' benefits

and federal employee pensions, with upward indexation resuming only after the CPI has regained its prior peak. When the target is zero inflation or price stability, however, that half measure would still result in chronic misalignments in real terms, since the parameters would always “stick” at the CPI's latest peak. These misalignments, to repeat, have no economic or policy justification. Straightforward adaptation to CPI changes in both directions is a preferable course.

## Conclusion

The debate about replacing Canada's 2 percent inflation target with a target for lower inflation or for a trend in the price level has not been settled. Several programs and the PIT have characteristics that, if unchanged, should affect this decision, because they do not respond symmetrically to changes in the price level. An important

implication of these asymmetries is that the real value of seniors' benefits and government pensions would be higher over potentially long intervals under regimes whose target was lower inflation or stable prices. The impact on the PIT and the CCTB and the GST/HST credit is even larger because these programs ratchet up permanently in real terms during deflations. Although our investigation focuses on federal taxes and programs, these effects matter for other levels of government as well.

Over the period of 2 percent inflation targeting from the end of 1995 to the present, these asymmetries have had little effect. Although we rely on this history in illustrating how they might matter more if the Bank of Canada produced lower, or no, inflation, 2008 may have marked the end of the "great moderation" in economic cycles that prevailed over most of that period. If that is so, Canadians may experience more dramatic ups and downs of the CPI even if the Bank of Canada extends its 2 percent inflation target. These effects would therefore be more important, making

changes that would make all indexed programs respond symmetrically to changes in the CPI desirable even without any change to the inflation-targeting regime.

Changes to make indexed programs respond symmetrically would be much more desirable if a lower inflation target or a target for the price level results in lower trend inflation or even stable prices over time. In our opinion, the rigidities and asymmetries associated with these programs should not be an obstacle to a change in the Bank of Canada's target that seems justified for other reasons. They should rather be seen as problems to be solved. One solution would be for the federal government, when the Bank of Canada adopts a new set of targets, to initiate changes to make all indexed programs respond symmetrically to changes in the CPI. That solution would make the release of background documentation before the 2012 federal budget, with a view to introducing the necessary legislation as part of the implementation of that budget, a timely initiative.

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