



---

*C.D. Howe Institute*  
*Institut C.D. Howe*

---

## ***Communiqué***

---

**Embargo: For release *Tuesday, November 3, 1998***

### ***CPP payroll tax hikes will hurt economy, says C.D. Howe Institute study***

Scheduled increases in the premiums Canadians pay into the Canada Pension Plan (CPP) will inflict severe damage on the economy and on job-creation prospects for several years, concludes a C.D. Howe Institute Commentary released today. Although the long-run impact on payroll taxes is on wages, the study argues, the fact that half of CPP premiums are formally charged to employers means that the economy will see a prolonged period of lower output and employment as employers pass the tax through, unless the CPP is reformed or there are offsetting cuts in employment insurance (EI) premiums.

The study, *The CPP Payroll Tax Hike: Macroeconomic Transition Costs and Alternatives*, was written by Peter Dungan, an economist at the University of Toronto. Dungan used a complex model of the Canadian economy developed at the university's Institute for Policy Analysis to run a series of simulations examining the impacts of the proposed CPP rate hikes and investigating alternatives.

Under the CPP reforms implemented last year, the premiums to be paid by employers and employees will increase significantly. Dungan's research suggests that, although the long-run object of CPP reform — to put the plan on a sound fiscal footing and to increase capital accumulation — will be achieved, the large increase in the portion of the CPP premium paid by employers could result in losses peaking at more than \$13 billion in gross domestic product (GDP) and almost 200,000 jobs in 2003.

Dungan suggests that an alternative to the rate hike is to "privatize" the CPP, either by setting up compulsory plans that resembled registered retirement savings plans, or by making the connection between present contributions and future benefits so clear that workers would accept a near-immediate passthrough of the employers' contribution. Such an approach could mitigate the damage caused by the premium hikes, leaving Canada clearly better off from the reforms.

Another alternative, Dungan says, is to hold contributions at their scheduled 1999 level and finance the unfunded CPP liability through the income tax, probably through smaller tax reductions than would otherwise occur as Ottawa's surplus grows. This approach would be fairer since current policy asks only low- and middle-income workers to pay (up to an earnings cap) the full cost of what is effectively an income-transfer program resulting from past policy

decisions. It would also sharply improve the outlook for economic output and jobs relative to what is likely under the premium-hike scenario.

Another approach is to allow EI premiums to fall. That would more than offset the harmful effects of the CPP rate hike until 2002 and mitigate them thereafter. But if the one-time opportunity to lower EI rates was used this way, Dungan says, it would not be available to help sustain the economy's approach to full employment at low inflation in the years ahead.

\* \* \* \* \*

The C.D. Howe Institute is Canada's leading independent, nonpartisan, nonprofit economic policy research institution. Its individual and corporate members are drawn from business, labor, agriculture, universities, and the professions.

- 30 -

For further information, contact:

Peter Dungan (416) 978-4182  
Maxine King (media relations), C.D. Howe Institute  
phone: (416) 865-1904; fax: (416) 865-1866;  
e-mail: [cdhowe@cdhowe.org](mailto:cdhowe@cdhowe.org); Internet: [www.cdhowe.org](http://www.cdhowe.org)

*The CPP Payroll Tax Hike: Macroeconomic Transition Costs and Alternatives*, C.D. Howe Institute Commentary 116, by Peter Dungan (C.D. Howe Institute, Toronto, November 1998). 28 pp.; \$9.00 (prepaid, plus postage & handling and GST — please contact the Institute for details). ISBN 0-88806-442-X.

Copies are available from: Renouf Publishing Company Limited, 5369 Canotek Road, Ottawa, Ontario K1J 9J3 (stores: 71½ Sparks Street, Ottawa, Ontario; 12 Adelaide Street West, Toronto, Ontario); or directly from the C.D. Howe Institute, 125 Adelaide Street East, Toronto, Ontario M5C 1L7. The full text of this publication will also be available on the Internet.



---

*C.D. Howe Institute*  
*Institut C.D. Howe*

***Communiqué***

---

Embargo : à diffuser le *mardi* 3 novembre 1998

***Les hausses des charges  
sociales vont nuire à l'économie,  
indique une étude de l'Institut C.D. Howe***

Les hausses prévues des cotisations que les Canadiens doivent verser au Régime de pensions du Canada (RPC) nuiront sérieusement à l'économie et aux perspectives de création d'emplois au cours des années à venir : telle est la conclusion d'un Commentaire de l'Institut C.D. Howe publié aujourd'hui. Bien qu'à long terme toute hausse des charges sociales se traduira par une rémunération réduite, soutient l'étude, le fait que la moitié des cotisations du RPC sont imputées à l'employeur veut dire que l'économie subira une période prolongée de production et d'emplois réduits, jusqu'à ce que les employeurs transfèrent cette taxe, à moins d'une réforme du RPC ou de réductions compensatoires des cotisations d'assurance-emploi.

L'étude, intitulée *The CPP Payroll Tax Hike: Macroeconomic Transition Costs and Alternatives (La hausse des charges sociales du RPC : coûts de transition macroéconomique et solutions de rechange)*, est rédigée par Peter Dungan, un économiste à l'Université de Toronto. Ce dernier a eu recours à un modèle complexe de l'économie canadienne élaboré par l'Institute for Policy Analysis de l'Université pour effectuer une série de simulations qui examinent les répercussions des hausses proposées du taux du RPC et se penchent sur des solutions de rechange.

Dans le cadre des réformes mises en œuvre l'an dernier, les prestations de RPC que doivent verser les employeurs et les employés vont augmenter considérablement. La recherche menée par M. Dungan semble suggérer que même si l'objectif de la réforme du RPC sera atteint à long terme — soit de mettre le RPC sur des assises financières solides et d'accroître l'accumulation du capital — la hausse importante de la part des cotisations versées par les employeurs pourrait coûter plus de 13 milliards de dollars en produit intérieur brut (PIB) et près de 200 000 emplois en 2003.

M. Dungan avance une solution de rechange, qui serait de « privatiser » le RPC, soit en établissant des plans obligatoires qui se rapprocheraient des régimes enregistrés d'épargne-retraite, ou encore d'établir une connexion tellement claire entre les cotisations présentes et les prestations futures que les travailleurs accepteraient un transfert presque immédiat des cotisations des employeurs. Une telle solution atténuerait les dommages causés par les hausses des cotisations, et serait donc avantageuse pour le Canada.

Selon l'auteur, un autre choix consisterait à garder les cotisations au niveau fixé pour 1999 et de financer le passif non capitalisé du RPC par le biais des impôts sur le revenu, c'est-à-dire

en accordant des réductions d'impôt moins importantes qu'elles ne le seraient autrement à mesure que l'excédent d'Ottawa s'accroît. Cette méthode serait plus équitable, compte tenu que les politiques actuelles n'exigent que des travailleurs à faible et moyen revenu (déterminé par un plafond de rémunération) d'assumer le coût total de ce qui est effectivement un programme de transferts des revenus découlant des décisions politiques du passé. Elle améliorerait aussi considérablement les perspectives de production économique et d'emploi par rapport à ce qui se produirait probablement dans le cadre du scénario des hausses des cotisations.

Une autre méthode encore consisterait à permettre une baisse des cotisations d'assurance-emploi. On annulerait ainsi les répercussions négatives de la hausse du taux du RPC jusqu'en 2002, et on les limiterait par la suite. Mais si cette possibilité unique de réduire les taux d'assurance-emploi était utilisée à cette fin, ajoute M. Dungan, on ne pourrait alors s'en servir dans les années à venir pour soutenir l'approche économique envers le plein emploi dans un contexte de faible inflation.

\* \* \* \* \*

L'Institut C.D. Howe est un organisme indépendant, non-partisan et à but non lucratif, qui joue un rôle prépondérant au Canada en matière de recherche sur la politique économique. Ses membres, individuels et sociétaires, proviennent du milieu des affaires, syndical, agricole, universitaire et professionnel.

- 30 -

Renseignements :

Peter Dungan 416 978-4182  
Maxine King (relations avec les médias), Institut C.D. Howe  
téléphone : 416 865-1904, télécopieur : 416 865-1866  
courrier électronique : cdhowe@cdhowe.org, Internet : www.cdhowe.org

*The CPP Payroll Tax Hike: Macroeconomic Transition Costs and Alternatives*, Commentaire n° 116 de l'Institut C.D. Howe, par Peter Dungan, Toronto, Institut C.D. Howe, novembre 1998, 28 p., 9,00 \$ (les commandes sont payables d'avance, et doivent comprendre les frais d'envoi, ainsi que la TPS — prière de communiquer avec l'Institut à cet effet). ISBN 0-88806-442-X.

On peut se procurer des exemplaires de cet ouvrage auprès des : Éditions Renouf ltée, 5369, chemin Canotek, Ottawa ON K1J 9J3 (librairies : 71½, rue Sparks, Ottawa ON, et 12, rue Adelaide Ouest, Toronto ON) ou encore en s'adressant directement à l'Institut C. D. Howe, 125, rue Adelaide est, Toronto ON M5C 1L7. On peut également se procurer le texte intégral de ce document au site Web de l'Institut.

# The CPP Payroll Tax Hike: Macroeconomic Transition Costs and Alternatives

by

*Peter Dungan*

In 1997, Ottawa introduced major changes to the Canada Pension Plan (CPP). An important feature is a significant increase over the next ten years in the premiums to be paid by employers and employees. This study uses the FOCUS model of the Canadian economy to examine the macro-economic impacts of these increases and to investigate some alternatives.

Most commentators hold that increased payroll taxes imposed on employers do at least temporary damage to macroeconomic performance, damage that goes beyond the pure fiscal effect of reducing demand. The simulations reported here support this proposition. The basic model shows that, although the long-run object of CPP reform — to put the plan on a sound fiscal footing and to increase capital accumulation — will be achieved, the scheduled rate hikes will have relatively severe impacts on gross domestic product (GDP) and jobs for several years. A further simulation indicates

that, if employers cannot fully pass through the tax to workers, both short-term and permanent economic damage will occur.

The macroeconomic damage of the CPP rate hikes could be mitigated if the CPP were “privatized” so that employers no longer paid the tax or could more easily pass their portion through to employees.

Alternatively, the rate could be capped at the 1999 level of 7 percent and the money required to finance the unfunded CPP liabilities collected through the income tax. Basic fairness would also be served (since the rate hikes after 1999 will simply finance the program’s current unfunded liability).

If the current plan for CPP rate hikes is not amended, through privatization or some other mechanism for shifting the tax burden, significant macroeconomic damage to GDP and jobs over the next several years will be avoided only by substantial, phased reductions in employment insurance premiums.

## *Main Findings of the Commentary*

- For fiscal soundness, Canada requires a considerable increase in the funds set aside for pensions, a shift in saving that must impose adjustment costs. These costs will be greatly magnified, however, under the 1997 changes to the Canada Pension Plan (CPP), which will increase the contribution rate for employers and employees through 2003 and then freeze it at 4.95 percent each. (Similar changes to the Quebec Pension Plan will have the same effects. I measured and discuss both plans combined, but for convenience I refer to them as *the CPP*.)
- Much of the reason for the additional harm forecast is the large increase in the portion of the CPP premium paid by employers. That portion is a payroll tax, and economists generally agree that increasing such taxes damages a country's macroeconomic performance — at least until the burden of the tax is fully passed through to workers. If the labor force participation rate falls in response, some damage will be long term or permanent.
- My simulations show that the 2000–04 effects of the CPP rate increase would be quite severe, peaking in 2003 with losses of more than \$13 billion in gross domestic product (GDP) and of almost 200,000 jobs.
- An alternative to the rate hike is to “privatize” the CPP, either by setting up compulsory plans that resembled registered retirement savings plans (RRSPs) and were the responsibility of individuals and governments alone, or by making the connection between present contributions and future benefits so clear that workers would accept a near-immediate passthrough of the employers' contribution. The simulation of this situation shows an economic *stimulus* relative to the 1997 reforms. It would peak in 2003 at an additional \$13 billion of GDP and a gain of 181,000 jobs. Thereafter, the effects would be more modest but positive in most years.
- Another alternative is to hold contributions at their scheduled 1999 level and finance the unfunded CPP liability through the income tax, probably through smaller tax reductions as the federal government surplus grows. This approach would improve equity since current policy asks only the working population to pay (up to an earnings cap) the full cost of what is effectively an income-transfer program resulting from past policy decisions. It would also have good macroeconomic results: an increase in GDP that peaked at more than 1 percent in 2003; an additional 140,000 jobs in 2004; and lesser but positive results in the long term.
- Another approach is to allow employment insurance (EI) premiums to fall. That would more than offset the harmful effects of the CPP rate hike until 2002 and mitigate them thereafter. But if the one-time opportunity to lower EI rates was used this way, it would not be available to help sustain the economy's approach to full employment at low inflation in the years ahead.

---

In 1997, the federal government, after securing agreement from a sufficient number of provinces, introduced major changes to the Canada Pension Plan (CPP) necessary to preserve its fiscal soundness through the next several decades. The main feature of these changes is a significant increase in the contributions (premiums) paid by employers and employees. The new rates, well over those formerly scheduled, are to be phased in over the next five years.

What macroeconomic damage will the rate hikes do? And what alternative methods of restructuring and refunding the CPP would mitigate these ill effects? This *Commentary* tries to provide specific answers to these questions, using the FOCUS computer simulation model of the Canadian economy.

To anticipate, I found that the CPP premium increase — while it will put the plan on a sound fiscal footing and increase capital accumulation — will have severe negative consequences over the next several years. To identify the major source of these consequences (and to test the sensitivity of the results), I conducted additional simulations. The most important cause of the negative consequences turned out to be the increase in the *employer* part of the premium increase.

A considerable increase in the funds set aside for pensions is necessary for the fiscal soundness of the national pension system, no matter what form it may take, and this shift in saving inevitably will impose some adjustment costs on the macroeconomy. However, the simulations showed that these costs will be greatly magnified under the new policy, which imposes a large increase in the pension premiums paid by *employers*.

The employer portion of the CPP premium is clearly a payroll tax, and a large body of academic literature, to be examined briefly in the next section, indicates that employers pass all or most of a payroll tax on to employees in the form of wages lower than they would other-

wise be. That employers pay the employer portion of a payroll tax is largely a myth, but one not in the immediate interests of employers, unions, or governments to question. Unfortunately, the result is expensive for the entire economy because the primary method for passing through the tax is via the creation of a period of higher unemployment and reduced output.

I also investigated two alternatives that would mitigate the negative impacts of the current policy. The first is some form of “privatization” of the CPP — perhaps through compulsory plans that resembled registered retirement savings plans (RRSPs) — that would either remove the contribution burden from employers entirely or make it much easier to shift that burden to the employees who will eventually benefit from it. The second alternative involves substituting income taxes for premium increases to manage the unfunded liability that has accumulated thus far in the plan.

A final simulation examined the extent to which existing and forecasted reductions in employment insurance (EI) premiums could offset the negative impacts of the CPP premium increases.

This *Commentary* is organized as follows. The first section gives a brief and selective overview of the literature on payroll taxes, especially as it applies to the simulations I conducted. The next section examines the impact on the Canadian economy of changing from the old CPP contribution rate schedule to the present one; the switch will cause considerable macroeconomic damage for several years and, under some assumptions, a smaller amount of permanent damage will also occur. The third section presents the two alternatives to the 1997 CPP rate hikes that would obtain the necessary extra funding for pensions by methods less damaging to the macroeconomy. The final section describes how much the macroeconomic impacts of the CPP rate hike may be

---

offset by present and future reductions in EI premiums.

Before beginning my examination, I must note that premiums for the Quebec Pension Plan (QPP) are to be increased in line with those agreed on for the CPP. The impacts I measured and discuss are for both plans combined, but for convenience I refer to the joint plans as the CPP only.

Another caveat: I did not attempt to model the impacts of the reductions in benefits to be paid under the plan or of the methods by which its funds are to be managed to achieve greater returns. These changes will also contribute to the fiscal soundness of the plan, but their impact will be slow and gradual, while the changes in premiums will have much larger and more immediate macroeconomic impacts.

## **Payroll Taxes: The Issues and the Literature**

The portion of the CPP premium paid by employers is a payroll tax, a subject on which an ample literature exists. Many commentators in the Canadian business community and in academia have put forth a variety of arguments and studies to show the negative effects of payroll taxes on the economy, and their sentiments are echoed, in word if not deed, by numerous politicians.

One of the most careful and most cited of such business sector studies is by Finlayson and McEwan (1996) for the Business Council of British Columbia. They argue that payroll taxes have serious adverse effects on the macroeconomy in both the short and long term and that a significant part of the blame for the poor performance of the Canadian economy since 1990 can be attributed to high and rising payroll taxes.

Kesselman (1996), Baran (1996), Marchildon, Sargent and Ruggeri (1996), and Di Matteo and Shannon (1995) provide excellent reviews of

the more balanced academic literature. In what follows, I summarize key items of agreement and controversy in the literature on the impact of payroll taxes as responses to two questions. First, what is the incidence of the payroll tax in both the short and long run, and how does the transition from short run to long run take place? Second, what is the longer-run efficiency and general economic impact of the payroll tax, especially relative to alternative taxes? As I examine each question, I identify features that either do or do not appear in the macroeconomic model I used for the empirical analysis.

### *Incidence in the Short Run and Long Run*

The literature generally agrees that the short-run incidence of a true payroll tax — one paid by the employer — falls largely on the employer. The long-run or final incidence depends on the relative wage “elasticity” (responsiveness or sensitivity) of labor supply and labor demand, with most studies concluding that the final incidence is shifted almost fully to employees.<sup>1</sup>

As Kesselman (1996, 171–172) notes, this conclusion is consistent with the general finding in empirical studies of the labor market that the labor supply has little or no elasticity with respect to the real take-home wage. That is, reductions in the demand for labor, engendered by a payroll tax increase, ultimately lead to wage reductions because the supply of labor is not reduced in response to the tax. This phenomenon is part of the more general economic proposition that tax increases are ultimately shifted to the relatively more immobile factor of production, which cannot escape the tax increase.

Payroll taxes for programs such as the CPP or workers’ compensation provide labor associated direct benefits — pensions or insurance — so the reduction in real wages also reflects



---

“payment” for those benefits. (Recently, however, some contrary evidence on long-run impacts and incidence has been forthcoming. It is reviewed below.)

### Mechanisms for Shifting Incidence

Given that the immediate short-run incidence of a change in a true payroll tax falls on employers but that all or most of the eventual long-run incidence falls on employees, how does this long-term shift take place? The literature is not very specific, but one can conjecture three interrelated mechanisms and consider each in the context of an unanticipated increase in payroll taxes.

First, the incidence may shift in the next round of wage bargaining, formal or informal, if it occurs not too long after the date of the payroll tax change and if both sides understand the pressures at work — for example, if the employer can make credible forecasts of layoffs or plant closures if the wages it must pay, inclusive of payroll tax, are not reduced (or at least not increased by the expected amount).

Second, employers in general may shift an increase in payroll taxes into prices, if they have sufficient market power, and then resist any changes in *nominal* wages that might result. A general rise in the price level resulting from a payroll tax increase’s being passed through to prices will lower *real* wages and shift the tax incidence.

Of course, for this mechanism not to “cost jobs,” the monetary authorities must permit a temporary increase in the inflation rate that reduces real wages, and labor must accept that reduction in subsequent bargaining rounds. Such acceptance is likely only if workers are widely convinced that the payroll tax increase confers on them some direct benefit. An example of something that might thus ease the pass-through problem is a “privatized” pension plan — as described in Pesando (1997) and

discussed in more detail later in this paper — because it would make clear the direct connection between contributions and benefits.

If, however, workers do not generally fore-see direct benefits from the payroll tax increase, they may resist its being passed through via an explicit wage reduction or a real wage reduction through additional inflation.

In this case, the third mechanism comes into effect: workers are laid off because labor is too expensive at the current real wage inclusive of payroll taxes. “Involuntary” (excess) unemployment then results. In time, this increase in unemployment above the “full-employment” unemployment rate puts downward pressure on real wages in successive wage bargaining rounds; as the real take-home pay of workers decreases, employers’ real after-payroll-tax wage bill eventually falls to earlier levels. The incidence of the tax has then been fully passed on to workers, and earlier levels of employment reappear.

### Labor Supply Elasticity

If the supply of labor is completely insensitive to the real wage, as was assumed above, a change in payroll taxes will not result in a long-run change in the level of employment (although a short-term change is likely). Once excess unemployment has pushed down real wages, the full-employment unemployment rate re-emerges and, with a given labor force, yields the original employment level.

If, however, labor force participation is sensitive to the real wage, then a rise in payroll taxes that reduces real wages also reduces the labor supply.<sup>2</sup> The original full-employment unemployment *rate* eventually re-emerges, but when it is applied to a smaller labor force, the result is lower long-run employment and output.

In such a situation, the incidence of the tax is shared: employees earn a real wage that is lower than before but higher than if they had had to absorb the tax fully; employers pay, af-

---

ter payroll taxes, a real wage that is higher than previously, but that goes to a smaller number of workers. (Strictly speaking, then, even this case does not mean a permanent change in involuntary unemployment. The reduction in employment comes from some individuals' voluntary withdrawal from the labor market at the offered real wage.)

If the labor supply is not completely insensitive to the real wage, it is the combination of labor supply and labor demand elasticities that determines any long-term employment impacts of payroll taxes and the shifting of incidence. Di Matteo and Shannon (1995) give a table of impacts for alternative elasticity measures. For example, if labor supply and labor demand elasticities each have absolute values of 0.15 (in my opinion, a low elasticity for demand), then the long-run incidence is evenly split and a one percentage point rise in the marginal payroll tax rate — roughly a 10 percent increase in payroll taxes collected — decreases employment in the long run by 0.08 percent, or about 10,500 (based on 1997 employment of about 14 million). Still following Di Matteo and Shannon's table, if the supply elasticity is 0.15 and demand elasticity is  $-0.3$ , then labor takes two-thirds of the incidence of the tax but the employment reduction is 0.1 percent, or about 14,000 workers.

In the basic macroeconomic model I used in this study, labor force participation does not depend on the real wage at all; in other words, the labor supply measure is perfectly inelastic.<sup>3</sup> We therefore know in advance that the basic model results will show that a payroll tax change has a zero long-run impact on employment, and that the incidence of the tax is fully shifted to labor over time in the form of real wage reductions, through price increases, wage decreases, or both. In the short run, however, unemployment increases until real wages fall sufficiently to restore the former level of employment.

But because there is at least some evidence that the labor supply does depend on the real wage (and on after-tax income), I also conducted several simulations in which the labor supply does respond to after-tax real wages. The full set of simulations, therefore, gives some idea of how important labor supply response is to both the short- and longer-term impacts of the CPP rate hikes.

### The Adjustment Mechanisms in Practice

In practice, the three mechanisms for adjusting to a payroll tax change are difficult to disentangle. As just noted, the first mechanism is not present in the macroeconomic model I used for this study. The builders of the model found no evidence that wage bargaining in any way automatically passes through payroll tax changes to changes in money wages and hence real wages (although it is still possible to conjecture particular policy changes that might make this passthrough occur, at least partially).

The second and third mechanisms are both at work in the model and in the real world. Firms attempt to pass at least some of a payroll tax increase onto prices, thereby reducing real wages. But employees resist a real wage reduction. Consequently, some temporary increase in unemployment occurs, ultimately putting downward pressure on real wages until the original level of employment is restored. The size of this increase in unemployment and the length of *temporary* are among the things the current study attempts to show, as the literature for Canada offers little direct measurement of the short- or medium-term impacts of payroll taxes on jobs and wages.

### Short-Term Employment Changes

Given that most analyses make clear that workers will eventually bear the bulk of payroll tax incidence, one might ask why workers

---

are generally willing to risk a serious spell of involuntary unemployment during the transition period. But sluggish labor market adjustment is a common phenomenon.

Labor's response to an unanticipated payroll tax increase may be slow for at least four reasons. The first is the institutional arrangements of periodic wage bargaining, formal or informal, and the resulting overlapping contracts. Second, resisting the passthrough of a payroll tax increase often makes economic sense for *individual* workers. Those who are experienced, have seniority, and are in relatively profitable industries face only a small probability of losing their jobs if real wages are generally too high. For most workers, accepting a lower real wage immediately in the face of a general payroll tax increase is to forgo the real income that they would otherwise earn if they stay employed over the subsequent few years.

Third, in Canada as in other industrialized countries, short-term periods of unemployment are supported by unemployment insurance; wage reductions draw no such support.

Fourth, employees may feel that employers are bluffing about their inability to absorb payroll tax increases. In that case, workers may compel employers to absorb the costs through employment reductions, which are costly to employers as well as to employees, rather than wage reductions, where the costs fall solely on employees.

For all these reasons, the response to a payroll tax increase is slow. Only gradually, under the pressure of higher unemployment in the general economy and lower profitability within each industry, comes the striking of wage bargains that shift the incidence of the tax.<sup>4</sup>

In the institutional framework outlined here, the short-term effects of a tax levied on the paycheques of *workers* differ from those of a tax on the payrolls of employers. (Technically, a tax levied directly on workers is not a true payroll tax, but since it is a feature of both

CPP and EI premiums, I refer to it as a "payroll tax on workers.")

In this case, the tax is applied exactly where most or all of the eventual incidence will occur. Like any tax increase, it will probably affect the economy through a reduction of purchasing power and aggregate demand ("fiscal drag"), but there will be no extra short-term transition costs of unemployment associated with having to transfer the tax incidence from firms to employees.

Indeed, because wage recontracting is slow and periodic, a payroll tax increase levied on workers will have no impact on wage costs of most firms for quite some time. When individual bargaining sessions begin after the increase, most firms (including direct and indirect competitors), will *not* be paying workers any offset; therefore, for employees to try to force the tax back onto their own employer would risk making that firm uncompetitive and significantly raise the probability of unemployment, especially relative to the situation in which the payroll tax increase is levied on firms, and they *all* start off at a competitive disadvantage. In other words, with the long-run incidence established in the short run, there is likely to be much less short-term labor market disruption and far less need of increased unemployment to force the long-run incidence onto labor.

In essence, directly imposing the tax where it will ultimately reside can avoid the real resource costs — in this case, unemployment — associated with its being shifted to its ultimate payer. Interestingly, this analysis suggests that directly levying the tax on workers, who will ultimately pay it in any case, will leave labor better off, at least to the extent that the costs of unemployment falling on a few are greater than the cost of a small real wage reduction spread over the larger workforce. (For a parallel situation, see Vaillancourt 1995.) Of course, this conclusion flies in the face of the widely held myth, happily encouraged by politicians

---

and employers alike, that employers pay their share of payroll taxes.

### Long-Run Employment Impacts

All this said, the academic literature also contains some evidence that payroll taxes have *long-term* impacts on employment and output. It is important to review briefly the alternative evidence.

A series of recent studies give some indication of a permanent effect of payroll taxes on employment. In putting forward an argument against payroll taxes, Finlayson and McEwan (1996) cite studies by Coe (1990) for the International Monetary Fund and Poloz (1994) for the Bank of Canada that attribute part of the increase in the Canadian unemployment rate since the 1960s to an increase in payroll taxation (see also Parker 1995).

The correlation in time is undeniable, but it does not necessarily indicate causality. Coe simply regresses the unemployment rate against a series of possible explanatory terms, including the level of payroll taxation, and finds the latter significant. Poloz reviews other Bank of Canada studies and finds that they show a contemporaneous correlation; he is, however, cautious in his conclusions, especially for the long term. First, he notes that the unemployment insurance system, because it has been required to balance its accounts with only a brief lag, has historically had to raise premiums in times of high unemployment, thereby contributing to a correlation of payroll taxes and unemployment.<sup>5</sup> Second, he recognizes that the work he is reviewing does not establish a permanent link between higher payroll taxes and higher unemployment, and that the long-term effect depends on the degree of passthrough of the tax and the speed of adjustment.

Di Matteo and Shannon (1995), whose work is cited by Finlayson and McEwan (1996), take

a different approach. Following an earlier specification by Bean, Layard and Nickell (1986), they estimate real-wage and employment equations. Solving these equations for the long run, they find that an increase in the payroll tax rate of one percentage point — roughly a 10 percent increase in the level of payroll taxation — would lead to a decline in employment of about 0.32 of a percentage point, or roughly 44,000 workers (using the 1996 employment level as a base). To put the point another way, if Di Matteo and Shannon's estimate of long-run employment loss from payroll taxes is accurate, then all payroll taxes in 1996, at a total tax rate of about 10 percent, cost the economy almost 440,000 jobs. Thus, without the payroll taxes (and with the labor force participation rate unchanged), the unemployment rate in 1996 would have been 6.8 percent instead of the 9.7 percent actually observed.

Using Di Matteo and Shannon's results implies, however, an implicit long-run labor supply elasticity of 0.71, an extreme value in my opinion. Many estimates (see, for example, Gunderson and Riddell 1993) place the upper value of a reasonable range at about 0.25 and, as noted, the value in the FOCUS macroeconomic model I used is zero.

Wilton and Prescott, using income and sales taxes as well as payroll taxes, and analyzing data on private sector collective bargaining agreements, find that "employers have *not* been able to shift increases in payroll taxes for [unemployment insurance], CPP/QPP and Workers' Compensation onto workers in the form of lower wages" (1993, 35). If payroll taxes have not been passed through to wages, there will definitely have been a long-run impact on employment, unless labor demand is completely wage inelastic.

Abbott and Beach (1996), using a new data set on annual employment and payroll taxes by province described in Lin, Picot, and Beach (1996), find that payroll taxes have large long-run effects on employment and wages. Abbott

---

and Beach themselves, however, are tentative in their conclusion:

We emphasize...that our estimates of the employment and wage effects of employer payroll taxes are surprisingly large, and are sufficiently at odds with some of the existing literature that we regard them as very provisional and tentative. (1996, 54.)

A final observation helps to put the long-run impact of payroll taxation on employment into perspective. Whatever variations analysts make in measurement, the level of payroll taxation is significantly lower in Canada than in the United States or in the rest of the Group-of-Seven countries. Yet the Canadian unemployment rate in 1997 is more than four percentage points above the US unemployment rate and has generally exceeded it since at least the late 1970s (see Card and Riddell 1993). If the *level* of payroll taxation had significant permanent effects on unemployment, there would have to be huge offsetting causes for the large unemployment difference between Canada and the United States.

### *Arguments in Favor of a Payroll Tax*

The virtual certainty of short-term employment and output loss from an increase in payroll taxes and at least the possibility of permanent loss constitute a strong argument against further increases in taxes of this type. Such taxes do, however, have a number of other features that cause at least some analysts to view potential increases in them favorably, at least in preference to increases in other taxes.

Kesselman (1996) argues this point rather strongly and, noting that payroll taxation in Canada is a smaller share of gross domestic product (GDP) than it is for most other member countries of the Organisation for Economic

Co-operation and Development, suggests that Canada may have special opportunities to increase this form of taxation while reducing other taxes on which the country relies perhaps too heavily.

What are the arguments in favor of payroll taxation? First, because payroll taxation rises proportionally with earnings, it is one of the few forms of taxation from which social insurance, whose benefits also rise with income, can justifiably be financed. As Kesselman (1996) points out, using general taxation to fund any social insurance program in which payments rise with past earnings or income is politically unthinkable.

This first argument for payroll taxes does not, however, require that they be levied even partially on the *employer*. Taxes that rise with some measure of earned income can easily be handled through the income tax system (as CPP contributions by the self-employed are at present). Certainly, a “privatized” alternative to the CPP could be handled through the income tax in this way.

A second argument for payroll taxation is that, as a tax on labor but not capital income, it is closer to a true consumption tax than is an income tax and so results in less distortion — that is, it has greater “dynamic efficiency” — in the allocation of income between savings and consumption. In other words, by effectively taxing only consumption, it does not unduly discourage saving or encourage current consumption. Indeed, Kesselman (1996, 165) goes so far as to suggest that the very long-run incidence of a major shift from income to payroll taxes would be on capital, not labor, since the tax shift would increase savings and capital formation and eventually lower the rate of return on capital. He does, however, note that this principle is less likely to apply (or likely to apply slowly) to a small, open economy such as Canada.

One can, of course, find counterarguments to the assertion that payroll taxes should be

---

increased relative to income taxes for the purpose of encouraging savings. The current Canadian income tax is, in part, a consumption tax; income from capital is partially sheltered through a number of features, such as RRSPs, dividend tax credits, and some capital gains exemptions. Moreover, capital sheltering could clearly be enhanced within the current system (for example, by reinstating a limited interest-income deduction).

The third argument put forward in favor of payroll taxes over income taxes is that the former have greater “static efficiency,” generating less economic loss and distortion through misallocation of economic resources and discouragement of labor supply. Measurement is difficult here, as Kesselman (1996, 164) notes, but evidence for the United States with general equilibrium models indicates that payroll taxes offer efficiency superior to that of income taxes. This is most definitely the finding for Canada in a recent study by Dahlby (1993), who notes that, because the EI and CPP programs each have a contribution ceiling, they act as nondistorting lump-sum taxes for anyone over the ceiling.

Compounded with efficiency issues is the question of the costs of tax administration and compliance. Again the simple payroll tax, administered by and through employers, is generally considered to be less costly to administer and to generate greater compliance than the income tax. Of course, although the last factor may be very important for the overall structure of taxation, it is likely less so for *marginal* changes in the taxes collected by the two systems when *both* are in operation.

Briefly, the literature indicates that payroll taxes are most useful and effective when individuals’ benefits and their taxes (or contributions) are closely linked. For Canada’s pension system, one can argue that this linkage would be clearest under some form of privatized plan. The literature also suggests that payroll taxes may be superior to some other forms of

taxation on grounds of efficiency, both dynamic and static, and administration, aside from any impacts on employment, output, and wages that result from incidence. Unfortunately, the model used for this study does not incorporate most of these efficiency and administrative issues. On the other hand, to the extent they exist, they are likely to be much more important for major shifts in taxation — that is, the deletion or introduction of whole new tax systems — than for the changes in tax rates that are examined in this *Commentary*.

My final observation is that, if payroll taxes offer efficiency and administrative benefits but suffer from high adjustment costs when rates are changed, then the best policy might be to use these taxes but to change the rates as little and as gradually as possible. The US social security payroll tax features this approach, but notably the Canadian EI and (now) CPP payroll taxes do not.

## Simulations of the CPP Rate Hikes

The literature just reviewed suggests that the CPP payroll tax hike introduced in 1997 will likely cause some short-term macroeconomic damage and possibly longer-term or permanent damage as well. The literature also suggests some ways in which this damage might be mitigated: for example, by shifting initial incidence or by using alternative tax increases.

What remain are the questions of *how great* the damage of the CPP tax hike might be and *how long* the short-term impacts might last. To answer these questions, I used the FOCUS macroeconometric model (see Box 1) to create a series of simulations designed to measure, over the next two decades, the impact of the CPP rate hikes and of various alternatives.

### *Assumptions*

Two basic policy assumptions apply to all the simulations described in this *Commentary*.

---

**Box 1: *The FOCUS Macroeconometric Model***

The numerical analyses conducted in this paper were developed with FOCUS, a macroeconomic computer simulation model of the Canadian economy developed and maintained at the Institute for Policy Analysis of the University of Toronto. As the term suggests, this tool permits simulations of the numerical impacts of different policies into the future and comparisons among them.

A macroeconomic model consists of a set of numerical economic variables. Some of the variables are exogenous — determined outside the model — or represent policy tools such as tax rates, and others are simple arithmetic identities. At the heart of the model are the variables that represent economic behavior, which are estimated by “econometrics” (economic statistical techniques). Together, the equations of the model can be solved to give an interactive or simultaneous picture of how each variable interacts with the others. Moreover, the model can be solved over time to give a dynamic picture of how the economy responds to changes. Finally, although a large number of macroeconomic relationships are embedded in the model, the user is free to alter key responses or assumptions to test the sensitivity of the results.

First developed in the late 1950s by Nobel laureate Lawrence Klein, macroeconomic models have since grown in size, complexity and diversity and are now frequently used by government and business economists to produce detailed macroeconomic forecasts and to measure detailed responses to changes in policies or other factors external to the economy.

FOCUS has been applied to a wide variety of fiscal and monetary policy issues, including analyses of the causes of the 1990–92 recession (Wilson, Dungan, and Murphy 1994), the impacts of the Canada-US Free-Trade Agreement (Dungan, Harris, and Wilson 1991), the goods and services tax (GST) and its alternatives (Dungan, Mintz, and Wilson 1990), and the potential harmonization of the Ontario sales tax with the GST (Dungan 1994).

FOCUS is a medium-scale quarterly macroeconomic model of the Canadian economy consisting of more than 300 behavioral equations and identities and somewhat more than 600 variables in total. The model has been developed in the tradition of the Keynesian-classical synthesis: that is, markets (especially the labor market) can fail to clear for extended periods of time, and most expectations are not “rational” in the sense of being formed with full knowledge of the model and of the present (and future) values of all exogenous variables.

FOCUS does, however, have some mechanisms for explicitly recognizing expectations and for permitting them to change relatively quickly in light of changes in, for example, the money supply or the exchange rate. (For a discussion of the properties of FOCUS with and without rational expectations, see Dungan and Wilson 1988.) At the same time, care has been taken in developing the model’s structural equations to ensure that they embody desirable long-run equilibrium properties, as well as plausible short-run dynamics.

For a full description of the model, see Dungan and Jump (1995).

First, in response to any change in CPP rates (or other tax changes), the Bank of Canada adjusts interest rates so that the balance of payments clears at the exchange rate that existed before the change. This assumption permits some temporary response of inflation to the new policy, but in the long run the original price level is largely maintained, and the inflation rate never strays outside the Bank of Canada’s target band of 1 to 3 percent. (A more

rapid adherence to inflation targets would worsen the short-term impacts of the CPP rate hikes on output and jobs.)

The second policy assumption is that, whatever happens when CPP policy is changed, both federal and provincial fiscal policies are passive. That is, federal and provincial deficits or surpluses improve or worsen with the economic impacts of the policy changes, and there is no resulting shift either in real spending on

goods and services or in tax rates. Of course, some transfer payments to persons (EI payments, for example) respond automatically, as do interest payments on debt.

Another assumption concerns the sensitivity of the labor supply to changes in wages, which affects the passthrough to labor of any payroll tax. As noted in the review of the literature above, analysts do not agree on the degree of sensitivity involved. Therefore, I examined the impact of the CPP rate hike under two different assumptions about the response of the labor force to wage changes.

The labor supply equations of the basic FOCUS model show no sensitivity to the real wage; this became one alternative. In other simulations, I assumed a labor supply or elasticity of 0.25 with respect to post-tax wages. That is, if post-tax real wages fall by 1 percent, then the labor supply will fall by 0.25 percent. The figure of 0.25 is arbitrary but appears to be in the upper range of general estimates (see Gunderson and Riddell 1993).<sup>6</sup>

Under both elasticity assumptions, the model responds to the increased premium rates largely as would be expected under the mainstream analysis of payroll taxes examined above. The additional tax on employees acts as a standard fiscal drag through the reduction of disposable income. In addition, employers try to pass through some of their share of the tax increase in the form of higher prices; they also reduce their demand for labor at the existing pre-tax wage.

Under the zero-response assumption, the payroll tax hike is fully passed through to labor eventually, but only after a period of higher unemployment and lower output. With the 0.25-response assumption, not all of the increase is passed through to wages, but there is still a period of higher unemployment and lower output plus a permanent reduction in output and employment.

Table 1: *Scheduled Changes in CPP Contributions. 1997–2020*  
(employee or employer)

	Old Rate	New Rate	Change
	(percent)		
1997	2.925	3.000	0.075
1998	3.050	3.200	0.150
1999	3.175	3.500	0.325
2000	3.300	3.900	0.600
2001	3.425	4.300	0.875
2002	3.550	4.700	1.150
2003	3.675	4.950	1.275
2004	3.800	4.950	1.150
2005	3.925	4.950	1.025
2006	4.050	4.950	0.900
2007	4.150	4.950	0.800
2008	4.250	4.950	0.700
2009	4.350	4.950	0.600
2010	4.450	4.950	0.500
2011	4.550	4.950	0.400
2012	4.650	4.950	0.300
2013	4.750	4.950	0.200
2014	4.850	4.950	0.100
2015	4.950	4.950	0.000
2016	5.050	4.950	-0.100
2017	5.200	4.950	-0.250
2018	5.350	4.950	-0.400
2019	5.500	4.950	-0.550
2020	5.650	4.950	-0.700

### Rates

My first task was to examine the impact of the CPP rate hike imposed in 1997. Table 1 details the old and the new rate schedules. (Note that the rates presented are for *either* employees or employers; the total tax rate is twice the premium rate shown in the table.)

Clearly, the new rates are significantly higher than the old ones, especially in the 1999–2003 period, but notice that some increase would have occurred under the older legislation. In fact, the *additional* increases in rates in 1997 and 1998 are relatively small. Also impor-



**Table 2: Impacts of Scheduled CPP Rate Increases**  
(assuming a zero response in the labor supply)

	Impact on GDP		Impact on Jobs	
	Change from Base <sup>a</sup>	Dollars <sup>b</sup>	Change from Base <sup>a</sup>	Number
	(%)	(\$ billions)	(%)	(thousands)
1997	-0.1	-0.4	0.0	-3.3
1998	-0.2	-1.4	-0.1	-13.7
1999	-0.4	-3.3	-0.2	-35.2
2000	-0.7	-6.7	-0.5	-74.1
2001	-1.1	-10.5	-0.8	-125.2
2002	-1.4	-13.5	-1.1	-172.6
2003	-1.3	-13.6	-1.2	-192.9
2004	-0.8	-8.6	-1.0	-156.9
2005	0.0	-0.4	-0.4	-67.3
2006	0.6	7.0	0.2	37.3
2007	1.0	11.4	0.7	117.3
2008	1.1	12.0	0.9	150.6
2009	0.8	9.6	0.8	138.2
2010	0.5	5.9	0.6	97.7
Average 2011–15	0.2	1.9	0.1	20.6
Average 2016–20	0.5	6.6	0.3	53.7

<sup>a</sup> The base is what would have happened if the CPP rates had been left unchanged (that is, if the “old rates” in Table 1 had remained in place).  
<sup>b</sup> Calculated in 1996 dollars.

tant to note is that the schedules of new and old rates converge gradually after 2003. The new rates are capped at 4.95 percent for employers and for employees, which the reform plan estimates will be sufficient to fund the plan indefinitely, given other adjustments to be made to benefits in the longer term. The old legislation had contribution rates rising continually, and by 2016 they would have exceeded the cap of the 1997 reforms.

The rate changes I entered in the model contained an adjustment to reflect the fact that the 1997 CPP reform freezes at \$3,500 the year basic exemption (YBE) — the annual earnings level that is exempt from CPP contributions. Under the prior legislation, this minimum was to rise with the inflation rate as indicated by the consumer

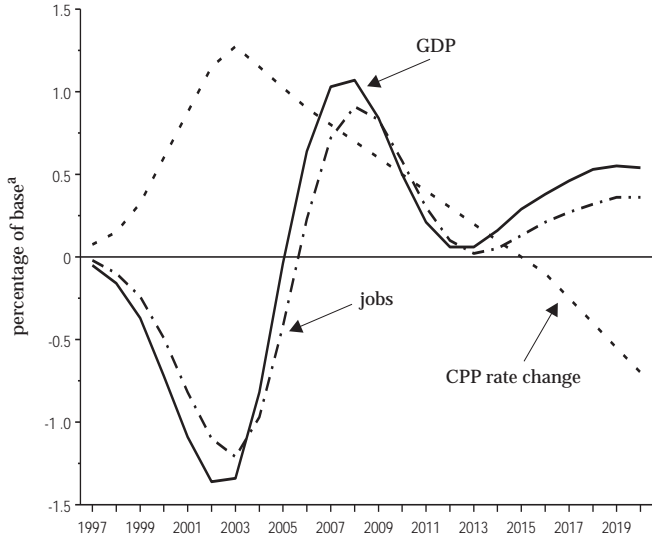
price index (CPI). As time goes by, a YBE that is frozen rather than indexed means higher CPP contributions from all earners, but proportionally more so for lower-income earners.

*The Basic Results*

Tables 2 and 3 summarize the results of the first set of simulations.<sup>7</sup> Figure 1 plots the impacts on GDP and employment against the change in the premium rate for the zero-response case, while Figure 2 compares the GDP impacts for the zero-response and the 0.25-response cases.

The effects of the rate increase in each case are quite severe between 2000 and 2004. At maximum, in 2002 and 2003, it results in a loss of more than \$13 billion of GDP in the zero-response case and an even larger loss when the labor supply is affected. The employment loss in the zero-response case reaches almost 200,000 jobs in 2003 and is again worse when the labor supply contracts. (Notice that the changes

**Figure 1: Impacts of Scheduled CPP Rate Increases**  
(assuming zero response in the labor supply)



<sup>a</sup> The base is what would have happened if the CPP rates had been left unchanged (that is, if the “old rates” in Table 1 had remained in place).

**Table 3: Impacts of Scheduled CPP Rate Increases**  
(assuming a 0.25 response in the labor supply)

	Impact on GDP		Impact on Jobs	
	Change from Base <sup>a</sup>	Dollars <sup>b</sup>	Change from Base <sup>a</sup>	Number
	(%)	(\$ billions)	(%)	(thousands)
1997	-0.1	-0.4	0.0	-3.2
1998	-0.2	-1.4	-0.1	-14.0
1999	-0.4	-3.4	-0.3	-36.6
2000	-0.8	-7.1	-0.5	-79.1
2001	-1.2	-11.8	-0.9	-138.9
2002	-1.6	-16.3	-1.3	-203.1
2003	-1.8	-18.8	-1.6	-249.9
2004	-1.6	-16.4	-1.5	-247.5
2005	-1.0	-10.3	-1.2	-188.7
2006	-0.4	-3.8	-0.6	-102.9
2007	0.1	0.9	-0.2	-25.3
2008	0.3	2.8	0.1	20.5
2009	0.2	2.3	0.2	31.2
2010	0.0	0.4	0.1	17.6
Average 2011–15	-0.2	-2.1	-0.1	-21.7
Average 2016–20	0.3	3.7	0.2	34.0

<sup>a</sup> The base is what would have happened if the CPP rates had been left unchanged (that is, if the “old rates” in Table 1 had remained in place).  
<sup>b</sup> Calculated in 1996 dollars.

described are with respect to base levels — what would have happened otherwise — not the previous year. Thus, for example, since employment generally grows at more than 2 percent per year in the base, a decline of 1 percent in the figures I report means that employment would still be growing even after the tax is imposed.)

After 2004, GDP recovers rapidly; so does employment, though with a one-year lag. This period of positive impact is neither as large nor as prolonged as the period of negative impact, but it is not small.

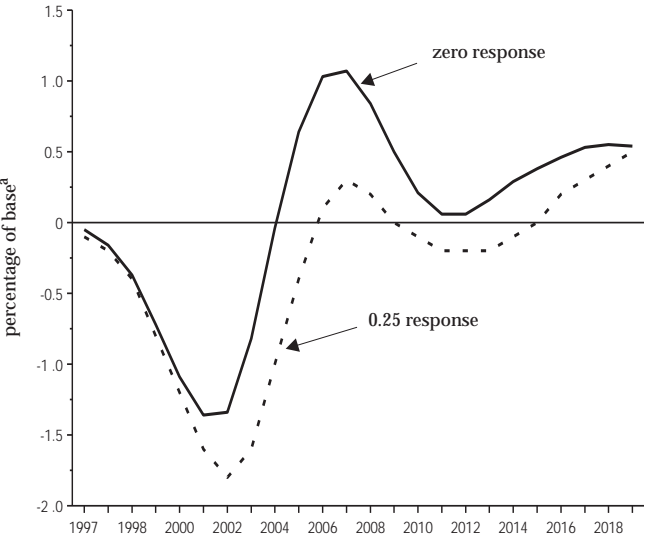
Two effects produce this major counterresponse. The first is the economy’s natural tendency to overrespond to a policy shock, usually in the form of dampened cycles. The second is that the negative stimulus from the rate change gets progressively smaller as the new and old rates

converge after 2003, so much so that by 2015 the simulations show a small but sustained *positive* impact on GDP and employment because the 1997 rates fall steadily below those of the old legislation.

An interesting contrast appears in the results of the two assumptions about labor supply response (see Figure 2 and Tables 2 and 3). Assuming a more responsive labor supply leads to *no* improvement in the impacts on GDP or jobs for the initial five- or six-year adjustment period; thereafter, those impacts are uniformly *worse* when there is a labor supply response.

What is reflected here is the combined result of several forces in the two cases. The assumption of a more responsive labor supply does indeed somewhat ease the passthrough adjustment process itself. Since employers do not pass through some of the tax increase in this case, the process of forcing labor to absorb the rest induced less unemployment than in the other case. Detailed simulation results (not shown

**Figure 2: Impact on GDP of Scheduled CPP Rate Increases**  
(assuming alternative responses in the labor supply)



<sup>a</sup> The base is what would have happened if the CPP rates had been left unchanged (that is, if the “old rates” in Table 1 had been left in place).

---

here but available in Dungan 1998) indicate that the unemployment rate rises less in the 1997–2003 period when labor supply is responsive. However, the reduced labor supply caused by a lower real wage and the portion of the rate increase that falls on employees *also* takes a toll on employment and output, even if the withdrawal from the labor force is “voluntary.” Thus, the total impact on GDP and employment is much the same in the shorter term as when no labor supply response is assumed.

Moreover, since the CPP tax rates are above the base levels for almost the whole simulation span, there is a sustained withdrawal from the labor force in the 0.25-response case that means a long-term loss of potential GDP. If it is true that the labor supply responds significantly to post-tax real wages, this finding bears out those who argue against payroll taxes as causing a *permanent* loss in GDP. At least in the zero-response case, there is no permanent output loss from the labor side. (Note, however, that, even in the 0.25-response case, GDP does show a net increase in the long run — for the reasons discussed above — but these gains are not as large as in the zero-response case.)

### *Other Results*

A number of other results from the basic simulations are noteworthy. (Appendix Table A-1 shows details on all the points reported in this subsection.)

First, the bulk of the reduction of GDP is inflicted on consumption, as might be expected. The initial years of the simulation also show an important hit on investment, resulting from reduced corporate profitability before the increase in the employer part of the payroll tax can be fully passed through.

Second, a positive impact on investment and on net trade appears after 2004 and it persists thereafter. This effect, too, could be ex-

pected. With higher net government sector saving under the premium increase and with the economy eventually returning to something near full employment, a decrease either in private sector net lending or in borrowing from abroad must appear; in fact, both are present. Although one might argue that the former could occur because of reduced personal saving (now that expected benefits from the CPP are more assured), the FOCUS model includes no mechanism to reflect such a process. In my simulations, net private sector lending falls because of greater business investment. As a result of greater net investment, the capital stock grows above the base and labor productivity increases.

That outcome is, in effect, the real objective of greater CPP pre-funding. Eventually, the working-age population will have more output to share with the retired baby boomers if productivity rises (because of increased capital accumulation beforehand) or if the economy can draw down larger net foreign assets (because of higher previous net exports). The simulation shows these desirable impacts of the CPP reform occurring.

Finally, the simulation reveals that the phase-in of the CPP rate hikes has relatively severe effects on federal and provincial balances. However, the bulk of the damage occurs in the 2000–04 period, well after most commentators expect that Canadian governments will have their fiscal houses in order. A worsening of balances that should be temporary should not unduly worry financial markets or lead to large run-ups in risk premiums. Moreover, markets should be much mollified by the obvious increase in CPP balances that occurs simultaneously. In fact, despite the short-term economic damage of the rate increase, the balance of the combined government sector — including the pension plans — improves in all years of the simulations.

---

## *Possible Offsets*

In drawing lessons from the first set of simulations, one must keep in mind that it may represent something of a worst-case scenario since it assumes that no factors would mitigate the difficulty of passing through the employers' share of the tax to workers. That difficulty may, however, be reduced in size and abbreviated in time. Two facts may contribute here. First, the schedule of rate hikes through 2003 is known in advance. That each year's increase would not be a surprise and could be anticipated in earlier wage agreements might tend to shorten adjustment times. Second, the premium hikes are linked to the health of the CPP in a relatively clear way. The likelihood of indeed receiving benefits in future might make some workers willing to accept a more rapid pass-through of the employer's share of the tax.

Frankly, my own judgment is that these offsets are not likely to be large, but I have no way of measuring them in advance. The best I can conclude is that the short-term impacts might be somewhat smaller than the severe results described above. The permanent impacts under the 0.25-response case would not be affected.

## **Alternatives to the Rate Hike**

My initial model simulations show that the 1997 CPP premium hikes will produce severe short- to medium-term macroeconomic costs. If the labor supply does not respond to employers' passthrough of the tax to wages, neither GDP nor employment will suffer permanent damage, but if a labor supply response occurs, there will be some longer-lasting economic damage (although not as severe as in the short term). Nonetheless, the rate hike, combined with the other CPP reforms, will achieve its ultimate objective of increasing overall national saving.

It is natural to ask if this objective could be achieved at less short-run and long-run economic cost. To reduce the macroeconomic damage of the 1997 CPP reforms, government would have to eliminate all or part of the increase in payroll taxes imposed on employers and thus obviate the need to pass through these taxes to employees via additional unemployment.

This section investigates two possibilities: "privatizing" the CPP, and financing the plan's unfunded liabilities through income taxes.

## *Privatizing the CPP*

One way in which the macroeconomic damage of the 1997 CPP rate hikes could be reduced is some form of privatization of the CPP. Pessando (1997) explores the various benefits of this possibility; what matters here is that privatization could be used either to take employers out of the loop by setting up compulsory RRSP-like plans that would be the responsibility only of individuals, employed or not, and governments<sup>8</sup> or to make clear the direct connection between present contributions and future benefits, thereby making labor much less resistant to passthrough of the employers' share of the premium increase. In either case, the higher contribution rates would still have a fiscal-drag effect, but the additional short-term and possibly longer-term damage of forcing a passthrough by higher unemployment would be eliminated.

The next set of simulations demonstrates the considerable benefits of such an alternative to the 1997 reforms. The base case here is the existing economic situation, including the higher contribution rates started in 1997. I then used FOCUS to calculate the impact of an alternative policy whereby all increases in CPP revenues in 1998 and after would come *solely* from employees (either because employers were specifically excluded from the privatized plan or because the passthrough to workers

**Table 4: Impacts of CPP Privatization**  
(assuming a zero response in the labor supply)

	Impact on GDP		Impact on Jobs	
	Change from Base <sup>a</sup>	Dollars <sup>b</sup>	Change from Base <sup>a</sup>	Number
	(%)	(\$ billions)	(%)	(thousands)
1998	0.1	0.5	0.0	5.4
1999	0.2	2.2	0.2	23.9
2000	0.5	5.0	0.4	58.2
2001	0.9	8.5	0.7	105.1
2002	1.2	11.6	1.0	151.8
2003	1.3	13.1	1.2	180.7
2004	1.1	11.6	1.1	173.3
2005	0.7	7.5	0.8	129.0
2006	0.3	2.9	0.4	66.3
2007	-0.1	-0.6	0.0	6.8
2008	-0.2	-2.1	-0.2	-31.2
2009	-0.2	-1.7	-0.3	-42.5
2010	0.0	0.0	-0.2	-32.5
Average 2011–15	0.3	4.1	0.1	13.7
Average 2016–20	0.3	4.4	0.1	10.1

Note: Privatization of the CPP means that the system is such that employers are relieved of the tax entirely or can immediately pass it through to employees. In my scenario, the new approach is imposed in 1998.

<sup>a</sup> The base case is the situation as it would exist under the new rates imposed in 1997 (that is, the simulation summarized in Table 2).

<sup>b</sup> Calculated in 1996 dollars.

would be almost immediate as they came to view the personal benefits of the CPP system in a different light.)

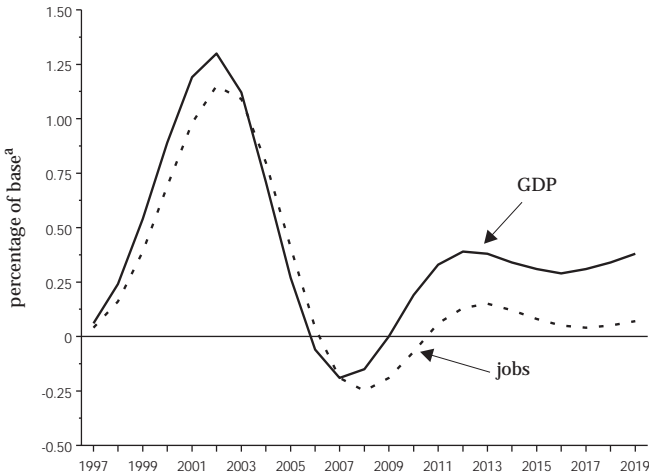
Privatization of the CPP would yield a major short-term stimulus for the macroeconomy, compared with the results of the 1997 reforms, by eliminating the need for employers to force a passthrough of the rate hike through higher unemployment (see Table 4 and Figure 3). The effects on GDP and employment would rise gradually from 1998, peaking in 2003 at 1.3 percent of GDP (\$13 billion) and a gain of 181,000 jobs. Thereafter, the stimulative effect would diminish as the 1997 rate hikes came to an end. The simulation shows a modest negative overshoot from the policy in 2008 and 2009, but thereafter the effect on GDP would remain modestly positive

as the relief of pressure on the macroeconomy and on the corporate sector had permitted greater capital accumulation and increased productivity.

I also ran the privatization simulation under the alternative assumption of a 0.25 elasticity in the response of the labor supply. The results are summarized in Table 5 and compared with the GDP impacts of the zero-response privatization case in Figure 4.

Notice the similarity of the impacts. Under the 1997 reforms, the labor supply will be diminished by the increase in the *employee* contribution rate and also by the relative fall in real wages that will occur as employers pass through their share of the higher contributions. Under privatization, however, the employee portion of the tax rise would be unchanged and the employer portion moved directly to labor. Because privatization would put the extra contribution burden immediately on labor, instead of with a lag via wage passthrough,

**Figure 3: Impacts of CPP Privatization**  
(assuming a zero response in the labor supply)



Note: Privatization of the CPP means that the system is such that employers are relieved of the tax entirely or can immediately pass it through to employees. In my scenario, the new approach is imposed in 1998.

<sup>a</sup> The base case is the situation as it would exist under the new rates imposed in 1997 (that is, the simulation summarized in Table 2 and Figure 1).

**Table 5: Impacts of CPP Privatization**  
(assuming a 0.25 response in the labor supply)

	Impact on GDP		Impact on Jobs	
	Change from Base <sup>a</sup>	Dollars <sup>b</sup>	Change from Base <sup>a</sup>	Number
	(%)	(\$ billions)	(%)	(thousands)
1998	0.1	0.5	0.0	5.5
1999	0.2	2.1	0.2	23.4
2000	0.5	4.7	0.4	56.1
2001	0.8	8.0	0.7	99.9
2002	1.1	10.8	0.9	142.5
2003	1.2	12.1	1.1	167.7
2004	1.0	10.6	1.0	159.9
2005	0.7	7.0	0.7	119.8
2006	0.3	3.0	0.4	64.3
2007	0.0	-0.1	0.1	11.6
2008	-0.1	-1.4	-0.1	-22.4
2009	-0.1	-1.2	-0.2	-33.7
2010	0.0	0.2	-0.2	-27.2
Average 2011–15	0.3	4.2	0.1	15.0
Average 2016–20	0.4	5.6	0.1	66.5

Note: Privatization of the CPP means that the system is such that employers are relieved of the tax entirely or can immediately pass it through to employees. In my scenario, the new approach is imposed in 1998.

<sup>a</sup> The base case is the situation as it would exist under the new rates imposed in 1997 (that is, the simulation summarized in Table 3).

<sup>b</sup> Calculated in 1996 dollars.

the simulation shows that the labor supply would contract a bit more quickly, and the positive impact on GDP and employment in the earlier years would be smaller than when one assumes a zero response of the labor supply.

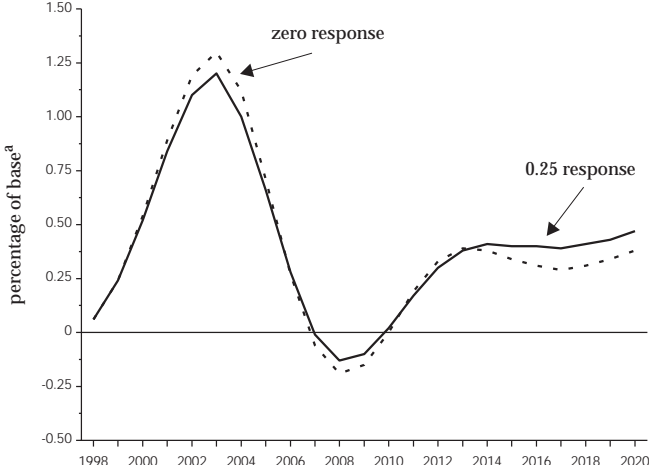
All the same, the elimination of the extra unemployment and lost output required for passthrough under the 1997 reforms dominates this labor supply effect. In the longer, term, the removal of the adjustment burden and of the initial contribution burden from firms would permit more capital accumulation, which would raise labor productivity and eventually real wages, calling forth a greater labor supply.

Consider too that, to the extent privatization would make clearer the connection

between CPP contributions and eventual benefits, the less rate hikes would be seen as a tax and the less likely a negative impact on the supply of labor.

One might argue that the economy would not need output and employment stimulation by the 2000–03 period, since it would likely be near full employment by that time anyway. The point is partly valid, in that it recognizes that future short-term impacts and stimulation must be taken in the context of the state of the overall economy at the time. Nevertheless, my earlier results show that the introduction of the accelerated CPP rate increase is likely to reduce GDP and employment growth significantly at the turn of the century. The positive impacts of the privatization alternative would simply be undoing most of this damage, not overheating a full-employment economy. Comparing Figures 1 and 3 or Tables 2 and 4, we can see that the 1997 rate hikes, relative to the earlier regime, would cost 193,000 jobs in

**Figure 4: Impact on GDP of CPP Privatization**  
(assuming alternative responses in the labor supply)



Note: Privatization of the CPP means that the system is such that employers are relieved of the tax entirely or can immediately pass it through to employees. In my scenario, the new approach is imposed in 1998.

<sup>a</sup> The base case is the situation as it would exist under the new 1997 rates (the simulation summarized in Tables 2 and 3, Figures 1 and 2).

---

2003, while replacing the 1997 plan with privatization would increase employment by 181,000 in the same year. In other words, the net loss would be only 12,000 jobs.

In brief, despite the variety of arguments both for and against privatization of the CPP, one reason in favor is that, by eliminating the need for the employer-pays myth, privatization could achieve the very desirable goals of stabilizing the CPP's finances and increasing national savings in the long term while averting the short-term macroeconomic damage that would otherwise result.

This last effect comes from an important feature of the FOCUS model that one must keep in mind. The equation determining wages in the model specifies that *pre-tax* wages depend on the unemployment rate and other variables such as the CPI. To put the point otherwise, the equation says that workers and employers bargain over the pre-tax wage the former are to receive, with the result depending on inflation, unemployment, and so on. Thus, a tax on workers that rises may affect their decision to work, but they do not bargain with their employer to replace the missing income (unless the tax increase is an indirect one that affects the CPI). Thus, if a payroll tax is placed on employers, they hire fewer workers, raise unemployment, and eventually reduce wages, all of which causes short-term macroeconomic losses. But if the tax falls directly on workers, there is no direct effect on employment or wages, only a fiscal drag through reduced purchasing power, which leads to much less short-term macroeconomic damage.

If, on the other hand, the model had workers bargaining for an *after-tax* wage, then shifting the tax burden from employers to employees would simply result in greater wage demands, which, in turn, would cause employers to lay off workers until pre-tax wages fell back to previous levels. That is, the same short-term macroeconomic losses would still be present.

The builders of FOCUS tried introducing payroll and income tax terms into the model, but none was found to have significant results. Nonetheless, the model's estimates cannot be considered the last word on the subject, and the caution must be kept in mind that there is an alternative view of wage bargaining that includes taxes and would yield short-term macroeconomic damage no matter what tax mechanism was used to fund the CPP.<sup>9</sup>

### *Financing Unfunded Liabilities from Income Taxes*

Pesando (1997) estimates that 2.9 percentage points of the eventual total 9.9 percent CPP premium (combining employer and employee contributions) is necessary to cover the plan's unfunded liability — the difference between the present value of all promises made to CPP participants to date and the (very small) fund actually in the plan. Under the 1997 CPP reforms, the unfunded liability is to be covered not by taxpayers in general but by only those currently working and only up to the CPP contribution maximum. Such financing, Pesando notes, is both a selective and a regressive tax (1997, 9–11).

Fairness argues for covering the unfunded liability out of a more general tax, such as the personal income tax (PIT), an approach that would also have the effect of mitigating the rate increase's short-term damage to the economy.<sup>10</sup> As it happens, the rate increases after 1999 total to the 2.9 percent needed to cover the unfunded liability. Thus, an alternative arrangement could see the CPP rate increases capped at their 1999 levels in 2000 and after, while the additional funds to cover the unfunded liability were collected through the PIT — or, more likely, through smaller income-tax reductions as incipient federal government surpluses became greater.

I conducted simulations to test the effects of this proposal. As in the privatization case, I

**Table 6: Impacts of Partial CPP Funding by Income Tax**  
(assuming a zero response in the labor supply)

	Impact on GDP		Impact on Jobs	
	Change from Base <sup>a</sup>	Dollars <sup>b</sup>	Change from Base <sup>a</sup>	Number
	(%)	(\$ billions)	(%)	(thousands)
2000	0.1	1.2	0.1	11.6
2001	0.5	4.2	0.3	44.9
2002	0.8	7.8	0.6	91.5
2003	1.1	10.7	0.9	135.1
2004	1.0	10.6	0.9	148.4
2005	0.7	7.5	0.8	120.7
2006	0.3	3.6	0.4	68.6
2007	0.0	0.2	0.1	13.8
2008	-0.1	-1.4	-0.2	-24.5
2009	-0.1	-1.3	-0.2	-39.1
2010	0.0	0.0	-0.2	-33.8
Average 2011-15	0.3	4.3	0.0	7.7
Average 2016-20	0.3	5.6	0.0	8.3

Note: In this scenario, which begins in 2000, the CPP rate is held at its 1999 level and the PIT is raised enough to collect the funds that would have been garnered through the subsequent scheduled raises in the CPP.

<sup>a</sup> The base case is the situation as it would exist under the new rates imposed in 1997 (that is, the simulation summarized in Table 3).

<sup>b</sup> Calculated in 1996 dollars.

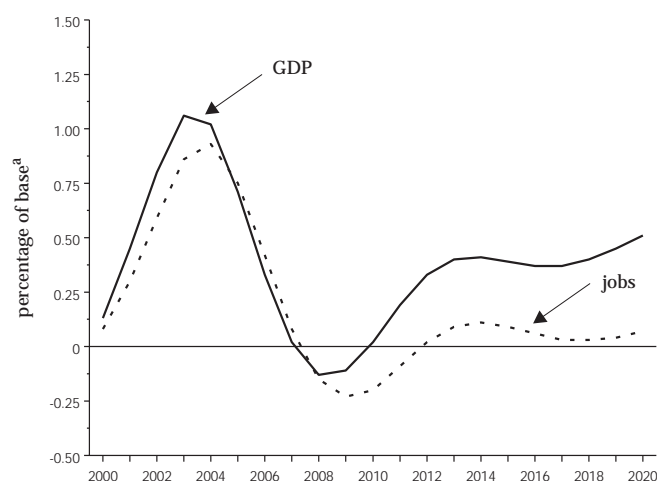
assumed the base case to include the CPP rate hikes legislated in 1997. The alternative, which begins in 2000, holds the CPP rate unchanged for employers and employees at 1999 levels and raises the PIT sufficiently to provide the additional funds that would otherwise have been collected through the CPP as the total contribution rate rose from 7.0 percent in 1999 to 9.9 percent in 2003. I tried this alternative both with a zero response of the labor supply to any change in after-tax wages and with a 0.25 response.

The impacts of this policy shift would be considerable. (See Tables 6 and 7 and Figures 5 and 6 for details.) Under the zero-response assumption, switching the burden of the unfunded liability to the PIT would increase GDP by more than 1 percent in 2003 and create 148,000 more jobs in

2004. Virtually identical gains appear under the 0.25-response assumption.

In later years, the impacts would diminish as the economy would have adjusted to the CPP rate increase in any case. The zero-response assumption produces a small net long-term gain in GDP because the reduced stress on the economy and the corporate sector during the adjustment period would encourage extra capital accumulation. Under the 0.25-response assumption, the long-term gains would be somewhat greater since the lower payroll tax under this alternative would generate a permanent increase in labor force participation relative to the full implementation of the 1997 rate hikes. The reason is that, under the 1997 reforms, virtually the entire burden of additional contributions is borne by workers, whether directly through their own contributions or indirectly through lower wages after pass-through of the employer portion. If the unfunded liability were covered by in-

**Figure 5: Impacts of Partial CPP Funding by Income Tax**  
(assuming a zero response in the labor supply)



Note: In this scenario, which begins in 2000, the CPP rate is held at its 1999 level and the PIT is raised enough to collect the funds that would have been garnered through the subsequent scheduled raises in the CPP.

<sup>a</sup> The base case is the situation as it would exist under the new rates imposed in 1997 (the simulation summarized in Table 2 and Figure 1).



**Table 7: Impacts of Partial CPP Funding by Income Tax**  
(assuming a 0.25 response in the labor supply)

	Impact on GDP		Impact on Jobs	
	Change from Base <sup>a</sup>	Dollars <sup>b</sup>	Change from Base <sup>a</sup>	Number
	(%)	(\$ billions)	(%)	(thousands)
2000	0.1	1.2	0.1	11.7
2001	0.4	4.1	0.3	44.1
2002	0.8	7.5	0.6	89.0
2003	1.0	10.4	0.8	131.0
2004	1.0	10.3	0.9	144.5
2005	0.7	7.7	0.8	120.5
2006	0.4	4.3	0.5	74.7
2007	0.1	1.3	0.2	26.0
2008	0.0	-0.2	-0.1	-8.7
2009	0.0	-0.2	-0.1	-23.4
2010	0.1	1.0	-0.1	-21.2
Average 2011–15	0.4	5.1	0.1	16.6
Average 2016–20	0.6	7.8	0.2	31.8

Note: In this scenario, which begins in 2000, the CPP rate is held at its 1999 level and the PIT is raised enough to collect the funds that would have been garnered through the subsequent scheduled raises in the CPP.

<sup>a</sup> The base case is the situation as it would exist under the new rates imposed in 1997 (that is, the simulation summarized in Table 3).

<sup>b</sup> Calculated in 1996 dollars.

come taxes, however, some of the funding burden would be lifted from workers since income taxes are also paid by those who are not potential labor force participants (retirees, rentiers).

Again, one might make the case that extra GDP and jobs would be unnecessary in 2003–04 if the economy is near full employment. However, as noted for the privatization simulation, the impact of the CPP rate increases early in the next decade will be large and could well push the economy away from full employment for a significant span of time. Shifting the burden of the unfunded liability from CPP premiums to the PIT could undo this negative impact on short-term economic performance. It would also be much more fair, and the long-term permanent gains in GDP —

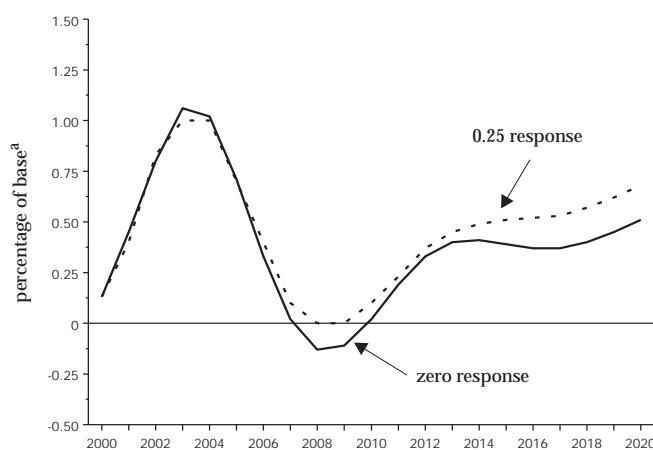
especially if the labor supply is indeed sensitive to the after-tax wage — would be relevant, no matter what the state of the economic cycle.

## An Offset to CPP Premium Increases

As CPP premiums increase over the next few years, EI premiums will probably be decreasing. How much and how fast cannot be accurately predicted because the federal government has recently been setting the premium rate only late in the year preceding a change. Nonetheless, given the large surpluses now being run in the EI account and the increasing accumulated surplus, a series of future rate reductions appears likely.

To what extent would a reduction in EI premiums offset the increases scheduled for the CPP? I examined this question with a final simulation. For analytical purposes,

**Figure 6: Impacts on GDP of Partial CPP Funding by Income Tax**  
(assuming a zero response in the labor supply)



Note: In this scenario, which begins in 2000, the CPP rate is held at its 1999 level and the PIT is raised enough to collect the funds that would have been garnered through the subsequent scheduled raises in the CPP.

<sup>a</sup> The base case is the situation as it would exist under the new rates imposed in 1997 (the simulation summarized in Table 2 and 3 and Figure 1 and 2).

---

I assumed the following schedule of EI rates for employees (those for employers are 1.4 times these amounts):

Year	Rate (%)
1997	2.9
1998	2.7
1999	2.4
2000	2.1
2001	2.0
2002	1.9
2003–on	1.8 <sup>11</sup>

The base for this simulation was the same as the one used for the first simulation — namely, the economy as it would have looked if the 1997 rate hikes had not come into effect — but with the further assumption that EI contribution rates stayed at their 1996 levels in all years thereafter.

In the alternative, the CPP rates rise as under the 1997 reforms, just as in the first simulation, but the EI rate also falls following the tabulation above. Table 8 summarizes the impacts for GDP and employment, while Figure 7 plots percentage impacts on GDP and employment and, for contrast, repeats the impact on GDP from the first simulation (Figure 1).

Notice that changing the two rates *together* would more than offset the negative impact of the CPP rate hikes on GDP and employment until about 2002. From that year through 2005, the negative effects on GDP and jobs would be minor, largely because the last of the CPP hikes would still be taking effect while the EI reductions were largely concluded. A small positive rebound would occur in 2008–09, and the impact thereafter would effectively be zero.

The EI rate reductions, although not as large in absolute terms as the CPP rate increases, would have a more-than-offsetting effect — at least from 1997 through 2001 — because the employer portion of EI is 1.4 times the basic employee rate, and it is the employer portion that does the macroeconomic damage.

Moreover, at least through 2000, the effect would be greater because EI covers salaries to a higher ceiling than the CPP. In brief, a somewhat smaller decrease in EI rates would be sufficient to just eliminate any short-term negative effect of the 1997 CPP rate hikes above the increases previously scheduled.

A glance at Figure 7 reveals that the combined CPP rate hike and EI rate cut would have a smaller long-term positive impact than the CPP increase alone. The two rate changes would largely cancel each other fiscally, leaving the aggregate government sector much as before, although the CPP itself would end up with a much higher annual and accumulated surplus. With no net saving in the government sector, there would be less of the capital formation and reduction in foreign borrowing that raises GDP in the longer term with the CPP rate hikes only (and under the zero-response assumption of labor supply elasticity). This result must, however, be set in the context of a longer-term outlook for the economy in which a considerable increase in net government saving and debt reduction seems likely.

The point of this last simulation is to demonstrate that a cut in EI premiums would be the most effective antidote to the short-term damage of the 1997 CPP rate hikes (if the other alternatives examined are not implemented). The lost revenue could be made up by lower tax cuts or smaller spending increases elsewhere, leaving increases in net government sector saving intact.

This last simulation may suggest that the CPP rate increases are nothing to worry about. Yet two points should be kept in mind. The first is that, by using the likely EI rate decreases of the next few years simply to offset the impacts of CPP increases, Canada would be throwing away a powerful fiscal instrument that could otherwise be used to push the economy back to its full potential more quickly and in a decidedly noninflationary fashion.

**Table 8: Impacts of CPP and EI Rate Changes Combined**

	Impact on GDP		Impact on Jobs	
	Change from Base <sup>a</sup>	Dollars <sup>b</sup>	Change from Base <sup>a</sup>	Number
	(%)	(\$ billions)	(%)	(thousands)
1997	0.0	0.0	0.0	0.0
1998	0.1	1.2	0.1	10.1
1999	0.5	4.2	0.3	42.3
2000	0.8	7.3	0.6	87.2
2001	0.8	7.7	0.8	112.7
2002	0.5	4.4	0.6	92.8
2003	0.1	0.6	0.3	43.4
2004	-0.1	-1.3	0.0	2.0
2005	-0.1	-0.9	-0.1	-8.7
2006	0.1	1.2	0.1	9.7
2007	0.3	3.4	0.2	39.3
2008	0.4	4.7	0.4	63.3
2009	0.4	4.8	0.4	73.5
2010	0.3	3.9	0.4	69.5
Average 2011–15	0.1	1.2	0.2	41.3
Average 2016–20	0.0	0.6	0.3	50.5

Note: In this scenario, the CPP changes are imposed in 1997 and following years as scheduled (see Table 1), but the EI rate falls from 1997 through 2003 (as described in the text) and then holds steady at the new rate of 1.8 percent.

<sup>a</sup> The base is the same as in Table 2 but with EI rates frozen as the 1996 levels.

<sup>b</sup> Calculated in 1996 dollars.

The second is that, because EI rates are changed at the discretion of the government of the day, decreases are no sure thing; a government that was overly cautious or that chose to keep EI rates high in order to have greater freedom to reduce taxes or increase spending elsewhere could leave the CPP rate hikes to do their damage to the macroeconomy in the shorter term.

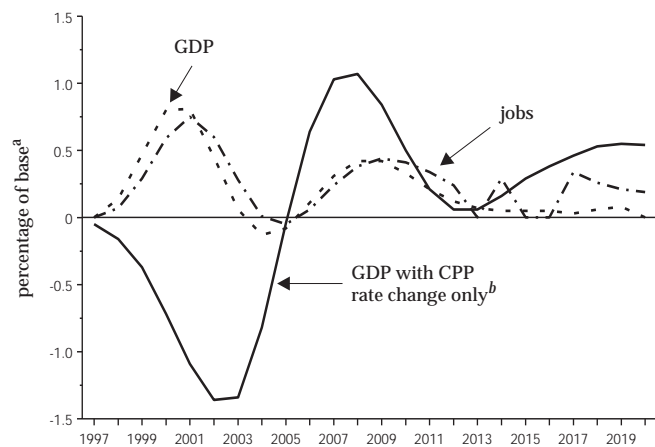
## Conclusion

A wide stream of macroeconomic literature, both theoretical and empirical, supports the proposition that increased pay-roll taxes imposed on employers do at least temporary damage to macroeconomic performance — damage that is above and beyond the pure fiscal effect of

reducing demand. There are exceptions, of course, but many of them apply only where industries are taxed at different rates (as in workers' compensation) or where the new taxes are clearly connected with new benefits. Neither situation, however, is likely to prevail with the accelerated increase in CPP premiums now put into effect.

Simulations with the FOCUS macroeconomic model flesh out the mainstream theoretical and empirical results with specific numerical measures. The model shows that the scheduled CPP rate hikes will have relatively severe impacts on GDP and employment for several years. Depending on the elasticity of the labor supply response, permanent damage may or may not appear in the longer run, but in any case the impact then will be smaller than in the next several years. The 1997 reform will, however, achieve the long-run objects of the CPP reform: to increase net capital accumulation and to put the plan on a sound fiscal footing.

**Figure 7: Impacts of CPP and EI Rate Changes Combined**



Note: In this scenario, the CPP changes are imposed in 1997 and following years as scheduled (see Table 1), but the EI rate falls from 1997 through 2003 (as described in the text) and then holds steady at the new rate of 1.8 percent.

<sup>a</sup> The base is the same as in Table 2 and Figure 1, but with EI rates frozen at their 1996 levels

<sup>b</sup> The base is what would have happened if the CPP rates had been left unchanged (that is, if the “old rates” in Table 1 had been left in place).

---

Two experiments with the model explored ways in which the macroeconomic damage of the rate hikes could be avoided or mitigated. If the CPP were privatized so that employers were no longer taxed, or such that it was much easier to pass the employer portion of the tax through to employees, then significant losses in GDP and employment well into the next decade could be avoided.

Alternatively, if the CPP rate were capped at the 1999 rate of 7 percent in 2000 and beyond and the funds required to finance the unfunded CPP liabilities were instead collected through the PIT, macroeconomic damage in subsequent years would be much reduced. The latter case would also serve basic fairness since the rate hikes after 1999 will simply finance the current unfunded liability of the program, and it is inequitable to ask a particular segment of taxpayers — and generally not the most well off — to pay the full cost of what is effectively an income transfer program resulting from past policy decisions. The value of replacing part of the CPP increase with a PIT increase would be enhanced if it turns out that the labor supply is responsive to after-tax wage rates.

Finally, a last simulation of the model indicates that expected reductions in EI rates could more than offset the shorter-term macroeconomic damage of the CPP rate increases. If the one-time opportunity for EI rate reduction is used in this way, however, it will not be available to help sustain the economy's approach to full employment at low inflation.

*C.D. Howe Institute Commentary*<sup>®</sup> is a periodic analysis of, and commentary on, current public policy issues.

Peter Dungan, the author of this issue, is Associate Director, Policy and Economic Analysis Program, Institute for Policy Analysis, University of Toronto. The text was copy edited by Lenore d'Anjou and prepared for publication by Barry A. Norris.

As with all Institute publications, the views expressed here are those of the author, and do not necessarily reflect the opinions of the Institute's members or Board of Directors.

To order this publication, contact: Renouf Publishing Co. Ltd, 5369 Canotek Rd., Unit 1, Ottawa K1J 9J3 (tel.: 613-745-2665; fax: 613-745-7660), Renouf's stores at 71½ Sparks St., Ottawa (tel.: 613-238-8985) and 12 Adelaide St. W., Toronto (tel.: 416-363-3171), or the C.D. Howe Institute, 125 Adelaide St. E., Toronto M5C 1L7 (tel.: 416-865-1904; fax: 416-865-1866; e-mail: cdhowe@cdhowe.org). We also invite you to visit the Institute's Internet web site at: [www.cdhowe.org](http://www.cdhowe.org).

Quotation with proper credit is permissible.

\$9.00; ISBN 0-88806-442-X

Moreover, if the current plan for CPP rate hikes is not amended — through privatization or some other mechanism for shifting the tax burden — it will be imperative that EI rates be significantly reduced over the next few years, whatever other fiscal temptations may cross the federal government's path.

---

## Appendix: Other Results from the Basic Simulation

The table on the next two pages provides more results from the basic simulation (the one summarized in Table 2 and Figure 1), which are described briefly in the main text. I provide this tabulation to give readers unfamiliar with

macroeconomic models some idea of the details at work in their structure and output. Similar tables for the other simulations reported on in the text can be found in Dungan (1998).

### Notes

I am indebted to the Donner Canadian Foundation for financial support and to Steve Murphy, James Pesando, William Robson, and Thomas Wilson for guidance, suggestions, and comments at all stages of the research. I am also grateful to William Scarth and Michael Shannon for excellent comments on earlier drafts.

- 1 Gruber provides an example. Examining wage and employment behavior in Chile before and after the privatization of the that country's social security system, which resulted in a very large drop in payroll taxes on Chilean firms, he finds "strong evidence that the incidence of payroll taxation was fully on wages, with no effect on employment" (1995, abstract).
- 2 Some labor activity may also be diverted to the underground economy as well.
- 3 Labor demand elasticity with respect to wage costs is about 0.35 for the first year and about 0.45 in the long run. These values are comparable to those in a survey by Hamermesh (1986); using US data, he finds a range of 0.09 to 0.62, with a median of 0.32, all for the first year.
- 4 The case of a payroll tax *decrease* is not so clear and may indicate a possible asymmetry of impacts that, unfortunately, the macroeconomic model does not capture. Since the long-run incidence of the cut will be on workers, one might ask why existing employees do not immediately press for a rise in their real wages. Self-interest argues for more rapid passthrough in this case, but periodic and uncoordinated wage bargaining will still slow the process.
- 5 Dungan and Murphy (1995) use the FOCUS model to demonstrate how this necessity under the law has, in the past, made the unemployment insurance system almost useless as an automatic stabilizer in the economy in all but the very short run.
- 6 Ideally, the elasticity should have some lag pattern, but any lag I imposed would have been arbitrary. Moreover, it would have complicated the calculations without altering the conclusions.
- 7 More detailed results from these and subsequent simulations can be found in Dungan (1998).
- 8 The current employer contribution could be swapped for an equivalent increase in wages or salaries for all workers affected.
- 9 As an example of the alternative approach, see the labor market equations estimated by Keil and Symons (1994).
- 10 I selected the PIT as the alternative tax to increase because changing it generally causes the least damage in FOCUS simulations. Moreover, it is the Canadian tax most likely to be decreased over the next decade, and these reductions in it would need only to be delayed or pared back to fund the unfunded liability.  
One could argue that the goods and services tax (GST) might be the fairest tax to increase, since it is a direct consumption tax and is more likely to be paid by the generation that is benefiting from the unfunded liability. Nonetheless, it too is somewhat regressive in nature, and it is partly regressivity that argues for removing payment for the unfunded liability from a capped payroll tax like the CPP. Also, GST increases are more macroeconomically disruptive than PIT increases in the FOCUS model because they raise inflation while reducing purchasing power, leaving monetary policy less able to offset the effect of the tax increase.
- 11 Analysis conducted in the Policy and Economic Analysis Program at the University of Toronto indicates that a rate lower than 1.8 percent could sustain a balanced EI fund and that the rate reductions could occur somewhat more rapidly than in my schedule, which I used as a prudent path for EI rate reduction.

**Table A-1: Detailed Impacts of Scheduled CPP Rate Increases**  
(assuming a zero response in the labor supply)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Real GDP	-0.05	-0.16	-0.37	-0.72	-1.09	-1.36	-1.34	-0.82	0.04	0.64	1.03	1.07
Real GDP (1996 \$ millions)	-404	-1,371	-3,262	-6,651	-10,465	-13,492	-13,631	-8,584	-440	6,951	11,360	11,999
Consumption	-0.05	-0.18	-0.47	-0.99	-1.68	-2.40	-2.89	-2.76	-1.97	-0.86	0.11	0.62
Investment	-0.04	-0.13	-0.28	-0.54	-0.77	-0.84	-0.62	0.04	0.81	1.28	1.42	1.25
Exports	-0.01	-0.04	-0.10	-0.19	-0.30	-0.36	-0.33	-0.13	0.18	0.48	0.68	0.76
Imports	0.02	0.00	-0.06	-0.20	-0.52	-0.94	-1.43	-1.75	-1.61	-1.08	-0.46	0.02
CPI	0.04	0.11	0.25	0.47	0.67	0.75	0.57	0.06	-0.58	-1.12	-1.43	-1.48
CPI inflation rate (% points)	0.04	0.08	0.14	0.22	0.20	0.08	-0.18	-0.52	-0.66	-0.55	-0.32	-0.06
Unemployment rate (% points)	0.02	0.07	0.16	0.34	0.55	0.74	0.79	0.60	0.18	-0.27	-0.59	-0.69
Employment	-0.02	-0.10	-0.24	-0.49	-0.82	-1.10	-1.21	-0.97	-0.42	0.23	0.72	0.91
Employment (thousands)	-3.3	-13.7	-35.2	-74.1	-125.2	-172.6	-192.9	-156.9	-67.3	37.3	117.3	150.6
Participation rate (% points)	0.00	-0.02	-0.04	-0.08	-0.15	-0.21	-0.24	-0.22	-0.15	-0.04	0.05	0.10
Interest rate, 90-day (% points)	0.02	0.03	0.06	0.07	-0.01	-0.15	-0.39	-0.64	-0.68	-0.53	-0.31	-0.12
Wages per employee	0.02	0.05	0.10	0.14	0.08	-0.14	-0.58	-1.18	-1.71	-2.03	-2.09	-1.93
Productivity change (GDP/employee)	-0.02	-0.06	-0.12	-0.22	-0.26	-0.24	-0.11	0.16	0.38	0.41	0.30	0.14
Capital stock	0.00	0.00	-0.01	-0.02	-0.04	-0.08	-0.12	-0.15	-0.15	-0.12	-0.06	0.01
Fed. surplus (+) or deficit (-) (\$ millions)	-91	-358	-847	-1,780	-2,970	-4,042	-4,441	-3,441	-1,321	941	2,642	3,244
Prov. surplus (+) or deficit (-) (\$ millions)	-25	-113	-328	-780	-1,540	-2,498	-3,371	-3,620	-2,920	-1,563	-108	849
CPP/QPP surplus (+) or deficit (-) (\$ millions)	420	926	2,271	4,436	6,895	9,866	11,778	12,043	12,298	12,613	13,090	13,453

(change<sup>a</sup>, in percentages unless otherwise noted)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	(change <sup>a</sup> , in percentages unless otherwise noted)											
Real GDP	0.84	0.50	0.21	0.06	0.06	0.16	0.29	0.38	0.46	0.53	0.55	0.54
Real GDP (1996 \$ millions)	9,604	5,869	2,530	749	764	2,027	3,652	4,929	6,079	7,068	7,453	7,330
Consumption	0.64	0.33	-0.08	-0.39	-0.48	-0.36	-0.10	0.18	0.44	0.71	0.95	1.17
Investment	0.94	0.66	0.53	0.59	0.78	1.00	1.16	1.23	1.24	1.22	1.10	0.89
Exports	0.72	0.61	0.47	0.36	0.29	0.26	0.26	0.26	0.27	0.28	0.28	0.27
Imports	0.26	0.27	0.14	0.00	-0.07	-0.03	0.10	0.27	0.42	0.59	0.77	0.94
CPI	-1.33	-1.08	-0.82	-0.63	-0.53	-0.50	-0.50	-0.51	-0.52	-0.53	-0.53	-0.52
CPI inflation rate (% points)	0.15	0.26	0.26	0.20	0.10	0.03	0.00	0.00	-0.01	-0.01	0.00	0.01
Unemployment rate (% points)	-0.60	-0.40	-0.19	-0.05	0.01	-0.02	-0.08	-0.14	-0.18	-0.22	-0.24	-0.24
Employment	0.83	0.58	0.30	0.10	0.02	0.05	0.13	0.21	0.27	0.32	0.36	0.36
Employment (thousands)	138.2	97.7	51.5	17.4	3.6	8.2	22.2	36.3	47.7	57.4	63.3	64.0
Participation rate (% points)	0.11	0.09	0.06	0.03	0.02	0.02	0.03	0.04	0.05	0.06	0.06	0.06
Interest rate, 90-day (% points)	0.00	0.03	-0.01	-0.08	-0.15	-0.19	-0.19	-0.17	-0.17	-0.14	-0.10	-0.05
Wages per employee	-1.65	-1.38	-1.16	-1.01	-0.90	-0.82	-0.73	-0.62	-0.51	-0.40	-0.29	-0.18
Productivity change (GDP/employee)	0.00	-0.08	-0.09	-0.04	0.04	0.11	0.16	0.17	0.19	0.20	0.19	0.17
Capital stock	0.09	0.16	0.23	0.31	0.39	0.48	0.56	0.64	0.71	0.77	0.81	0.83
Fed. surplus (+) or deficit (-) (\$ millions)	2,677	1,381	23	-884	-1,095	-701	3	702	1,309	1,836	2,169	2,298
Prov. surplus (+) or deficit (-) (\$ millions)	1,102	779	175	-407	-757	-813	-655	-430	-212	-11	162	323
CPP/QPP surplus (+) or deficit (-) (\$ millions)	13,670	13,745	13,728	13,659	13,580	13,510	13,431	13,308	12,394	11,329	10,078	8,618

<sup>a</sup> From base case, which is what would have happened if the CPP rates had been left unchanged (that is, if the "old rates" in Table 1 had been left in place).

---

## References

- Abbott, Michael, and Charles Beach. 1996. "The Impact of Employer Payroll Taxes on Employment and Wages: Evidence for Canada, 1970–1993." Queen's University, Kingston, Ont. Mimeographed.
- Baran, Joni. 1996. "Payroll Taxation and Employment: A Literature Survey." Occasional Paper 15. Ottawa: Department of Industry.
- Bean, C., R. Layard, and S. Nickell. 1986. "The Rise in Unemployment: A Multi-Country Study." *Economica* 53: S1–S22.
- Card, David, and Craig Riddell. 1993. "Comparative Analysis of Unemployment in Canada and the United States." In D. Card and R. Freeman, eds., *Small Differences That Matter: Labor Markets and Income Maintenance in Canada and the United States*. Chicago: University of Chicago Press.
- Coe, David. "Structural Determinants of the Natural Rate of Unemployment in Canada." *IMF Staff Papers* 37: 94–115.
- Dahlby, Bev. 1993. "Payroll Taxes." In A. Maslove, ed., *Business Taxation in Ontario*. Toronto: University of Toronto Press.
- Di Matteo, Livio, and Michael Shannon. 1995. "Payroll Taxation in Canada: An Overview." *Canadian Business Economics*, Summer: 5–22.
- Dungan, Peter. 1994. "The Macroeconomic Impacts of Harmonizing the Ontario Retail Sales Tax with the Federal GST: Simulations with the FOCUS-Ontario Model." In A. Maslove, ed., *Issues in the Taxation of Individuals*. Toronto: University of Toronto Press.
- . 1998. *The CPP Payroll Tax Hike: Macroeconomic Transition Costs and Alternatives*, PEAP Policy Study 98-2. Toronto: University of Toronto, Institute for Policy Analysis.
- , Richard Harris, and Thomas Wilson. 1991. "The Canada-U.S. Free Trade Agreement — A Symposium." *Journal of Policy Modeling* 13 (Fall): 417–458.
- , and Greg Jump. 1995. *FOCUS: Quarterly Forecasting and User Simulation Model of the Canadian Economy: Version 94A*. Toronto: University of Toronto, Institute for Policy Analysis.
- , Jack M. Mintz, and Thomas Wilson. 1990. "Alternatives to the Goods and Services Tax." *Canadian Tax Journal* 38 (3): 644–665.
- , and Steve Murphy. 1995. *The UI System as an Automatic Stabilizer in Canada*. Unemployment Insurance Program Evaluation Report. Ottawa: Department of Human Resources Development.
- , and Thomas A. Wilson. 1988. "Modelling Anticipated and Temporary Fiscal Policy Shocks in a Macroeconomic Model of Canada." *Canadian Journal of Economics* 21 (February): 41–60.
- Finlayson, Jock, and Tim McEwan. 1996. *Why Too Few Jobs? Payroll Taxes, Government Regulation and Employment Growth in the 1990s*. Business Council of British Columbia Research Paper. Vancouver: Business Council of British Columbia.
- Gruber, John. 1995. "The Incidence of Payroll Taxation: Evidence from Chile." Working Paper 5053. Cambridge, Mass.: National Bureau of Economic Research.
- Gunderson, Morley, and Craig Riddell. 1993. *Labour Market Economics in Canada*, 3rd ed. Toronto: McGraw-Hill Ryerson.
- Hamermesh, D. 1986. "The Demand for Labor in the Long Run." In O. Ashenfelter and R. Layard, eds. *Handbook of Labor Economics*, vol. 1. New York: Elsevier.
- Keil, M. and J. Symons. 1994. "An Aggregate Model of the Canadian Labor Market." *Journal of Macroeconomics* 16: 589–612.
- Kesselman, Jonathan. 1996. "Payroll Taxes in the Financing of Social Security." *Canadian Public Policy* 22 (2): 162–179.
- Lin, Zhengzi, Garnett Picot, and Charles Beach. 1996. "The Evolution of Payroll Taxes in Canada: 1961–1993." Statistics Canada Working Paper 90. Ottawa, Statistics Canada.
- Marchildon, Lori, Timothy C. Sargent, and Joe Ruggeri. 1996. "An Economic Analysis of Payroll Taxes." Department of Finance, Economic Studies and Policy Analysis Division, Ottawa. Mimeographed.
- Parker, Ron. 1995. "Aspects of Economic Restructuring in Canada." *Bank of Canada Review* (Summer): 23–34.
- Pesando, James. 1997. *From Tax Grab to Retirement Saving: Privatizing the CPP Premium Hike*. C.D. Howe Institute Commentary 93. Toronto: C.D. Howe Institute. June.
- Poloz, Steve. 1994. "The Causes of Unemployment in Canada: A Review of the Evidence." Working Paper 94-11. Ottawa: Bank of Canada.
- Vaillancourt, François. 1995. "The Financing and Pricing of WCBs in Canada: Existing Arrangements, Possible Changes." In Terry Thomason et al., *Chronic Stress: Workers' Compensation in the 1990s*. The Social Policy Challenge 7. Toronto: C.D. Howe Institute.
- Wilson, Thomas, Peter Dungan, and Steve Murphy. 1994. "Sources of the Recession in Canada." *Canadian Business Economics* 2 (Winter): 3–15.
- Wilton, D., and D. Prescott. 1993. "The Effects of Tax Increases on Labor Costs." Government and Competitiveness Project Discussion Paper 93-29. Kingston, Ont.: Queen's University, School of Policy Studies.