

# A Perspective on Future Productivity Growth in Canada

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This article considers the issue of Canada's future productivity growth in the context of a long-term projection (or base case projection) of the Canadian economy prepared by my colleagues Peter Dungan and Steve Murphy<sup>1</sup> of the Policy and Economic Analysis Program

(PEAP) at the University of Toronto. This projection was developed with the FOCUS macro-econometric model of the Canadian economy.<sup>2</sup> An overview of this projection is provided in Table 1.

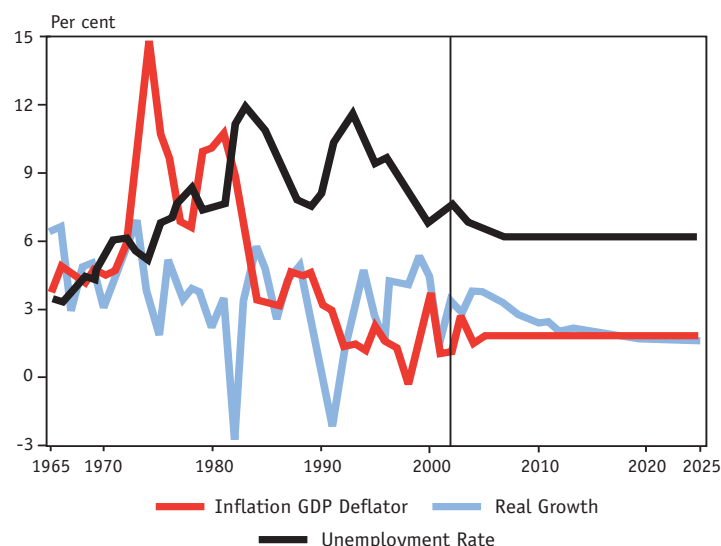
The essential feature of this projection is a convergence towards equilibrium growth. With the economy not fully recovered from the recent growth recession, above potential growth is required to move the economy back to its potential. In this projection, convergence to potential output is attained by 2008, and growth at potential occurs thereafter. The unemployment rate settles down to 6.2 per cent, with inflation in the 1.8-1.9 per cent range (Table 1 and Chart 1).

The fiscal picture is of modest federal and provincial surpluses on a National Accounts basis, but with a larger consolidated government sector surplus because of the cash surpluses of the Canada and Quebec Pension Plan (CPP/QPP) accounts. Debt ratios of both the federal and provincial government sectors continue to decline (Chart 2).<sup>3</sup>

Projected actual output growth and two alternative potential output growth projections (based on different total factor productivity (TFP) assumptions) are shown in Chart 3. As is clear, the base case output projection is consistent with the higher potential growth with TFP growth averaging 1 per cent per year.

However, potential growth is projected to decline in the future. This is primarily due to the decline in the growth of the labour supply based

**Chart 1**  
**Canada: Main Indicators**



**Table 1**  
**Overview of PEAP Projection\***  
(Average annual rate of growth unless otherwise specified)

	2002-2008	2008-2015	2015-2025
Real GDP	3.4	2.3	1.7
Inflation (CPI)	1.9	1.9	1.9
Unemployment Rate period average (%)	6.6	6.2	6.2
Labour Productivity	1.9	1.7	1.7

\* Projection released on April 24, 2003 prepared by Peter Dungan and Steve Murphy.

on demographic developments, and secondarily to a more modest decline in the rate of capital formation, as shown in Chart 4.

Measured labour productivity will deviate from its trend rate of growth over the business cycle. Historically, labour productivity growth has tended to decline during recessions (or growth recessions) and accelerate during recovery periods.

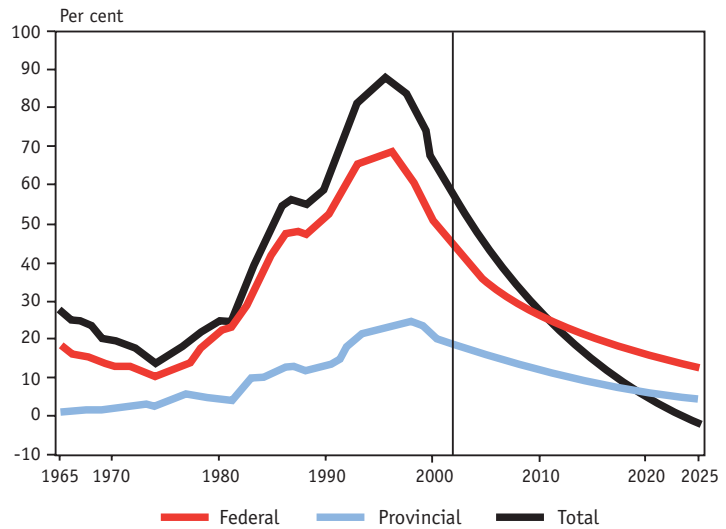
In the PEAP projection, labour productivity is above trend over the 2003–2008 period as the economy recovers from the growth recession of 2001–2. Labour productivity growth averages 1.9 per cent per year over that period. When the economy arrives at its equilibrium growth path in 2008, labour productivity is projected to grow by 1.7 per cent per year thereafter (See Chart 5).<sup>4</sup>

Although future productivity growth in the PEAP projection is higher than the average over the past twenty years, I view this projection as being on the conservative side for several reasons. First, the slowing growth of the labour force is accompanied by increased capital deepening. Over the projection period, the rate of capital formation will be 2 per cent higher than the growth of employment (Chart 4). This capital deepening should boost labour productivity (as occurred over the 1998–2000 period when substantial capital deepening was accompanied by labour productivity growth of 2 per cent per year).<sup>5</sup>

Second, the recent (1995–2000) acceleration of TFP growth in the business sector may continue over the medium term, as the fruits of past investments in information and communication technology (ICT) are realized. However, for the reasons explained in Dungan and Wilson (2002) and in the companion papers in this symposium by Tiff Macklem (2003) and Benoit Robidoux (2003), the gains from ICT investments will likely be lower in Canada than in the United States.

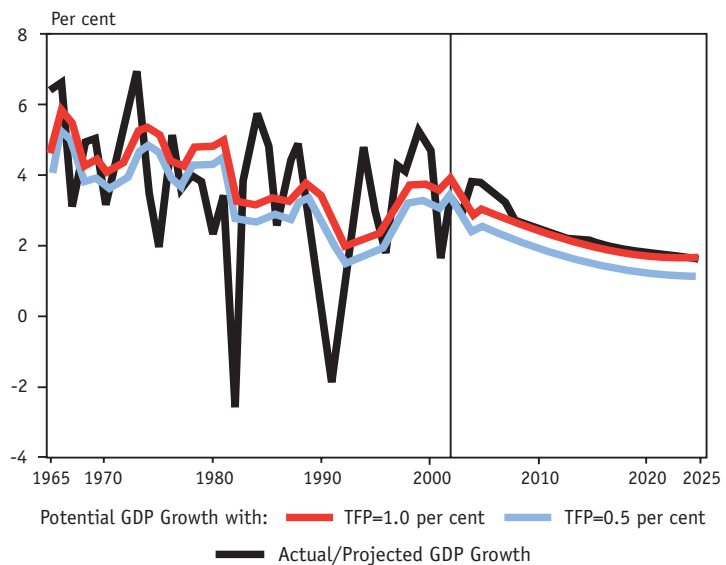
Third, the PEAP projection envisions continuation of the stable policy environment established through inflation targeting and prudent fiscal policies in recent years. With monetary as

**Chart 2**  
**Government Debt as a per cent of GDP\***



\* In the FOCUS model government debt is on a National Accounts basis which differs somewhat from debt on a Public Accounts basis. Total government sector net debt includes the debt of municipalities and is reduced by the net assets held by the CPP and QPP systems.

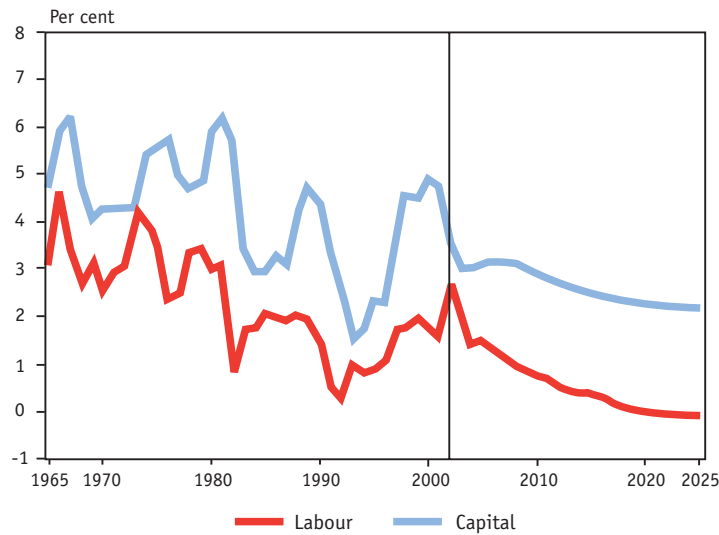
**Chart 3**  
**Potential and Projected Growth**



well as fiscal policies acting as “automatic stabilizers,” future business cycles should be mitigated (barring adverse supply price shocks).<sup>6</sup>

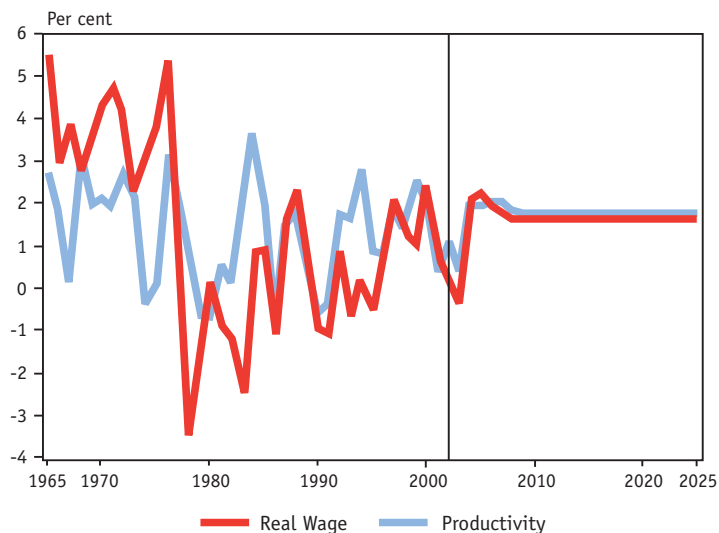
Fourth, the benefits of trade liberalization should continue to be realized, provided that recent security concerns do not generate new barriers to trade. There is some evidence at the industry and plant level that indicates that trade liberalization has had significant effects in produc-

**Chart 4**  
**Growth Rates of Capital and Labour\***



\* In the FOCUS model, labour is defined as employment.

**Chart 5**  
**Real Wage Gains and Labour Productivity Growth\***



\* In the FOCUS model, labour productivity is measured by real GDP per worker.

tivity growth.<sup>7</sup> However, it is doubtful that the significant aggregate TFP gains from Canada-U.S. free trade, originally estimated by Cox and Harris (1985), have yet been fully realized.<sup>8</sup>

Finally, I want to point out that the productivity picture is improved somewhat if we use Gross *National* Product (GNP) rather than Gross *Domestic* Product (GDP) as the measure of growth. Clearly, GNP growth is the better measure of potential improvement in living standards.

In recent years, Canada's net foreign indebtedness has declined, and this continues in the PEAP projection (Chart 6). Indeed, after about 2010, Canada is projected to become a net lender, gradually building up a net asset position relative to the rest of the world.

The cumulative effects of these developments over the period of the projection are that GNP will increase by 3 per cent more than GDP. The average annual growth rate for GNP will be 0.15 per cent above that of GDP over the projection period.

Note that the opposite picture holds for the United States. In recent years, the U.S. economy has moved from a net asset to net debtor position, and with larger current account deficits, the net foreign debt in the United States will continue to increase relative to U.S. GDP. Canada/U.S. differences in projected productivity growth would therefore be 0.2 to 0.3 per cent lower if GNP rather than GDP were used as the measure of output.

It is difficult to derive quantitative estimates for the first four factors listed above. It is also even more difficult to determine the timing of effects: How long will the productivity gains from past ICT investments last? When will the gains from trade liberalization be fully realized?

On balance, it is my judgment that aggregate labour productivity growth (on a GDP basis) will likely average about 2 per cent per year over the next ten to fifteen years, provided that there are no adverse supply shocks, no reversal of trade liberalization, and no rude policy shocks. I may therefore perhaps be viewed as a cautious optimist on this issue.

## Notes

\* The author is Professor Emeritus of Economics and Senior Advisor, Institute for Policy Analysis at the University of Toronto. This article is based on a presentation given at the CSLS session on *Perspectives on Future Productivity Growth in Canada* at the 2003 Canadian Economics Association meetings at Carleton University, Ottawa, Ontario, May 31-June 2. Email: twilson@chass.utoronto.ca.

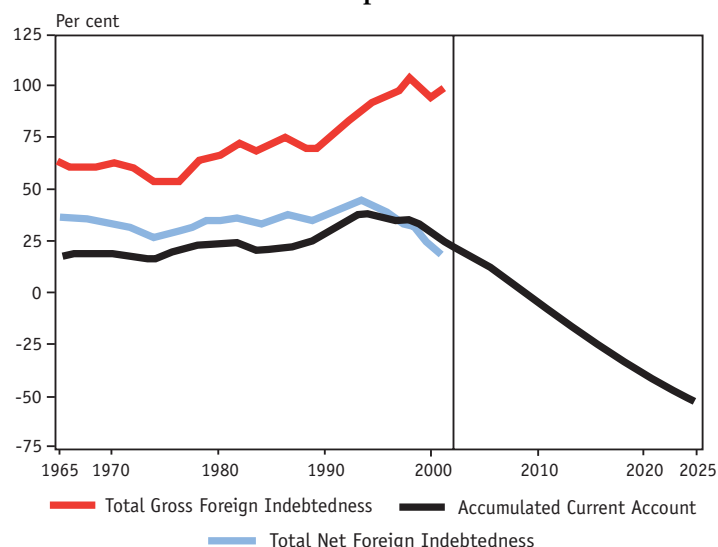
- 1 This projection was released on April 24, 2003. An updated projection as of July 17, 2003 is published in Dungan and Murphy (2003).
- 2 For a description of the FOCUS model, see Dungan, Jump, and Murphy (2002).
- 3 For an examination of the impact of productivity growth on the fiscal position of governments, see Dungan (2002).
- 4 This projection is slightly above the long-term productivity growth of 1.6 per cent per year presented by Denton and Spencer (2003).
- 5 The PEAP projection incorporates normal capital-labour substitution, but does not include technology embodiment effects.
- 6 Although monetary policy actions remain discretionary, under inflation targeting the central bank will tend to offset the effects of real demand shocks.
- 7 See Baldwin and Gu (2003), Sawchuk and Trefler (2002), and Trefler (1999).
- 8 See also the papers by Harris (1991) and Dungan and Wilson (1991) in the "Symposium on Canada-US FTA" in the *Journal of Policy Modeling*.

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**Chart 6**

### Canadian External Debt as a per cent of GDP



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