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February 26, 2008

BY EMAIL AND ORDINARY MAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: EB-2007-0606

Enclosed are the remaining three interrogatory responses from Union Gas.

Yours very truly,

Michael A. Penny

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MAP/jeb
Enclosures

UNION GAS LIMITED

Answer to Interrogatory from
City of Kitchener ("Kitchener")
Consumers Council of Canada ("CCC")

Question:

With regard to the statement "As a result of competitive forces, business would reduce prices charged on products and services as a result of cost reductions. Thus, broad corporate tax reductions would be reflected in a lower aggregate price index used to adjust rates under the price-cap index," (Testimony page 2), please provide any reports, studies, articles, publications or other documents that you have written or that you are aware of that support the claim that impact of the corporate tax reductions in Canada is to reduce the level of inflation.

Response:

The Impact of Corporate Taxes on Prices

The impact of corporate tax changes on prices is indirect. A corporate tax reduction stimulates investment. Investment increases the capital stock, which raises productivity and lowers unit costs. Unit cost reductions are passed through into lower prices. There are many published papers that focus on the first step in this process – the link from taxes to investment. There are many other studies of the effect of capital formation on productivity growth. And many other studies have shown the impact of unit costs on prices.

For Canada, the effects of recent corporate tax reductions on investment is analyzed in a recent Finance Canada paper: "Corporate Income Taxes and Investment: Evidence from the 2001-2004 Rate Reductions" in Tax Expenditures and Evaluations 2007, pp 41-56 (Dept. of Finance, Canada, 2008).

The role of capital formation in productivity growth in Canada is reviewed in Michael Denny and Thomas A. Wilson, "Productivity and Growth: Canada's Competitive Roots", Thomas J. Courchene and Douglas S. Purvis (Eds.) Bell Papers on Economic and Public Policy, Queen's University, John Deutsch Institute for the Study of Economic Policy, 1993, pp. 7-57.

Witness: Jack Mintz / Tom Wilson
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The effects of unit costs on prices in Canada and the United States is analyzed in L. D. Tayler, S. J. Turnovsky and T. A. Wilson, The inflationary Process in North American Manufacturing, Ottawa, Information Canada, 1973.

For other countries, Dale Jorgenson and his associates have analyzed the impact of corporate taxes on investment. [see for example Dale Jorgenson and R. E. Hall, "Tax Policy and Investment Behavior", American Economic Review, Vol. 35, No. 2 (1967) PP. 391-414.

Empirical analyses of the relationship of capital formation to labour productivity growth began with Robert Solow's classic 1957 article, "Technical Change and the Aggregate Production Function", Review of Economics and Statistics, 39(3) pp. 312-320.

In *Most Favored Nation* (Toronto: C. D. Howe Institute, 2001, Chapter 5) written by Dr. Mintz an estimate was made of the impact of tax changes, including corporate tax changes, on the exchange rate. As the corporate tax is an "origin-base" tax in the sense of affecting the cost of production, the domestic price level and exchange rate between two countries will be affected by tax and cost factors in producing tradeable goods and services. An estimate is also provided of these effects.

Studies have been carried out on the impact of switching from the manufacturers' sales tax or the retail sales tax to the Goods and Services Tax. Since both the manufacturers' sales tax and retail sales tax impose taxes on business intermediate and capital input purchases, the adoption of the GST relieves businesses from these taxes on their input costs. The studies have found that most of the sales taxes on business inputs have been shifted forward to consumers due to cost increases. For a recent study, see Michael Smart, "Lessons in Harmony: What Experience in the Atlantic Provinces Shows About the Benefits of a Harmonized Sales Tax," C.D. Howe Commentary, No. 253, July 2007. A copy is available on the C.D. Howe website in 2007 publications: http://www.cdhowe.org/index.cfm.

Witness: Jack Mintz / Tom Wilson
Question: February 15, 2008
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UNION GAS LIMITED

Answer to Interrogatory from
City of Kitchener ("Kitchener")
Consumers Council of Canada ("CCC")

Question:

With regard to the statement "As a result of competitive forces, business would reduce prices charged on products and services as a result of cost reductions. Thus, broad corporate tax reductions would be reflected in a lower aggregate price index used to adjust rates under the price-cap index," (Testimony page 2), please provide any reports, studies, articles, publications or other documents that you have written or that are in your possession that support the claim that impact of the corporate tax reductions in any other economy is to reduce the level of inflation.

Response:

See Exhibit E3.2.1.

Witness: Jack Mintz / Tom Wilson
Question: February 15, 2008
Answer: February 26, 2008
Docket: EB-2007-0606 / EB-2007-0615

UNION GAS LIMITED

Answer to Interrogatory from
School Energy Coalition "SEC"

Question:

Please provide copies of all empirical studies authored by you (or in which you were involved) in which the connection between changes in tax rates or amounts, and changes in the inflation rates, has been analysed.

Response:

Wilson: Relevant Publications

Dr. Wilson and colleagues have carried out quantitative analyses of federal budgets since the mid-1970s [see the many references on his CV]. His most recent budget paper (co-authored with Peter Dungan and Steve Murphy) is "The 2006 Federal Budget: A Quantitative Appraisal", in Charles M Beach, Michael Smart and Thomas A Wilson (Eds.), The 2006 Federal Budget: Rethinking Fiscal Priorities, Queen's University, 2007. A copy of the article is provided.

Dr. Wilson (with Peter Dungan) also published a book, Fiscal Policy in Canada: An Appraisal Toronto, Canadian Tax Foundation, 1993 [Canadian Tax Paper No. 94].

This book includes chapters dealing with income tax reforms, sales tax reforms, and the anticipatory effects of fiscal policies.

See also Exhibit E3.2.1.

Witness: Jack Mintz / Tom Wilson
Question: February 15, 2008
Answer: February 26, 2008
Docket: EB-2007-0606

Session Two
TAX ALTERNATIVES AND EVALUATION OF THE BUDGET

THE 2006 FEDERAL BUDGET: A Quantitative Appraisal

Peter Dungan, Steve Murphy, and Thomas A. Wilson, University of Toronto

As laid out in Budget Plan 2006, the 2006 budget provides a large fiscal stimulus of $15.2 billion in 2006–07 and $16.1 billion in 2007–08. Tax reductions of $9.9 billion and $11.0 billion, and expenditure increases of $5.2 and $5.1 billion, respectively, are included in the budget plan.

However, Budget Plan 2006 includes most of the fiscal measures proposed by the previous government in November 2005 and, indeed, other measures subsequent to the 2005 budget. As a result, the estimates in this document overstate the fiscal impact of the new measures introduced in the 2006 federal budget.

In appraising the economic and fiscal effects of the 2006 budget, it is important to separate the fiscal impacts of these new fiscal initiatives from the fiscal inputs of the earlier fiscal measures. Table 1 presents our estimates of the fiscal impacts of the new measures introduced in the 2006 budget. As is apparent, the overall fiscal stimulus is $6.6 billion in 2006–07 and $7.4 billion in 2007–08. Tax reductions account for most of the fiscal stimulus — $4.5 billion in 2006–07 and $6.0 billion in 2007–08.

Of the revenue reduction, the lion's share is accounted for by the one-percentage point cut in the Goods and Services Tax (GST), which amounts to $3.6 billion in 2006–07 and $5.2 billion in 2007–08. Small net

Table 1: Budget Plan 2006 and Net Impacts of New Measures ($ Millions) — Public Accounts Basis

	Budget Plan 2006			*New Measures*		
	2005–06	*2006–07*	*2007–08*	*2005–06*	*2006–07*	*2007–08*
Revenues						
Total PIT	4,965	5,150	5,110	-140	280	330
Total Sales and Excise	0	3,580	5,225	0	3,580	5,225
Total Business Measures	0	1,080	620	-230	500	375
Total Other Revenues	0	134	90	0	134	90
Total Revenue Changes	**4,965**	**9,944**	**11,045**	**-370**	**4,494**	**6,020**
Expenditures						
Total Transfers to Persons	0	1,857	2,832	0	1,482	2,318
Total Transfers to Non-Residents	320	0	0	320	0	0
Total Transfers to Provinces, Territories, and Municipalities	3,300	880	21	3,300	880	21
Total Subsidies	755	1,703	703	755	1,700	700
Total Goods and Services	1,400	805	1,547	-2,092	-1,954	-1,683
Total Expenditure Changes	**5,775**	**5,245**	**5,103**	**2,283**	**2,108**	**1,356**
Total Budget Balance Impact	**10,740**	**15,189**	**16,148**	**1,913**	**6,602**	**7,376**

Source: *The Budget Plan 2006* and authors' calculations.

reductions in personal income tax (PIT) and corporate income tax (CIT) revenues account for the remainder of the tax reductions.

On the spending side, in contrast to the estimates of Budget Plan 2006, our estimates of the new initiatives indicate that there is a net *reduction* in federal spending on goods and services of $2.0 billion in 2006–07 and

$1.7 billion in 2007–08. However, there are significant increases in transfer payments to households and transfers to the provinces. As a result, overall program spending is increased by $2.1 billion in 2006–07 and $1.4 billion in 2007–08.

All of the estimates discussed above are on a Public Accounts (PA) basis. To appraise the budget with the FOCUS macro-econometric model, we require fiscal inputs on a National Accounts (NA) basis. Our estimates on an NA basis are presented in Table 2 and Figure 1. There is only a small change on the revenue side from the PA estimates in 2006–07, reflecting the timing of certain tax reductions.

The changes on the spending side are more significant. We estimate that in 2006–07, spending will increase by $4.4 billion on an NA basis. This reflects the impact of spending initiatives announced in fiscal 2005–06 (and confirmed in the budget). As in previous federal budgets, such "pre-booked" spending will actually occur in future fiscal years on an NA basis. We assume that for Budget 2006, all of the pre-announced spending will occur in 2006–07.

Modelling the Economic and Fiscal Effects of the 2006 Federal Budget

With the exception of the GST rate cut, all of the new initiatives in the budget are implemented in the FOCUS model by changes to exogenous variables or by add-factors to revenue equations. The GST rate cut is implemented directly by changing the relevant parameters in the model.

As the budget includes significant increases in transfers to the provinces, we need to specify the provincial spending responses. We assume that provincial spending increases by half of the increase in federal transfers in 2006–07, with the full adjustment completed in 2007–08.

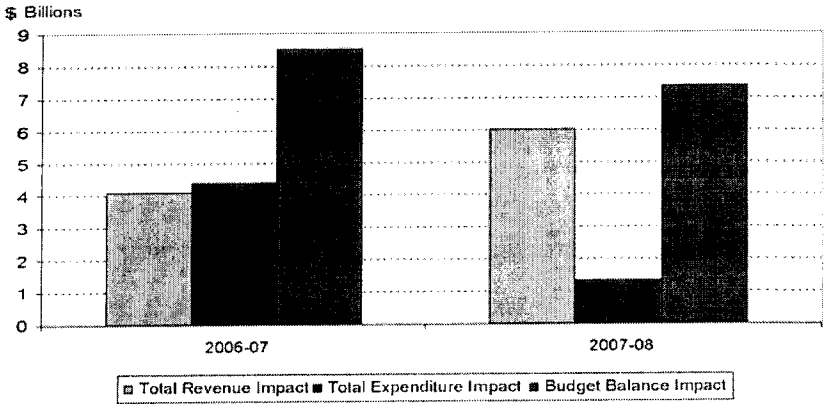
Initially we solved the model with no monetary policy response — i.e., we targeted the base case money supply. An alternative simulation with a monetary policy reaction is considered below.

Table 2: Net Impacts of New Measures ($ Millions) — National Accounts Basis

	Net Impact	
	2006–07	*2007–08*
Revenues		
Total PIT	140	330
Total Sales and Excise	3,580	5,225
Total Business Measures	270	375
Total Other Revenues	134	90
Total Revenue Changes	**4,124**	**6,020**
Expenditures		
Total Transfers to Persons	1,482	2,318
Total Transfers to Non-Residents	320	0
Total Transfers to Provinces, Territories and Municipalities	4,180	21
Total Subsidies	2,455	700
Total Goods and Services	-5,446	-1,683
Total Expenditure Changes	**4,391**	**1,356**
Total Budget Balance Impact	**8,515**	**7,376**

Source: Department of Finance, unpublished estimates and authors' calculations.

Figure 1: 2006 Budget — Net Impacts of New Measures



Source: Table 2.

An important key to understanding the model simulation results is that the GST rate cut represents a favourable supply-price shock in the model. This type of shock provides a real demand stimulus coupled with an initial reduction of the price level.

Model Simulation Results

The economic and fiscal effects of the 2006 federal budget are presented in Table 3, while Figures 2 and 3 highlight key economic indicators and Figure 4 summarizes the overall fiscal effects.

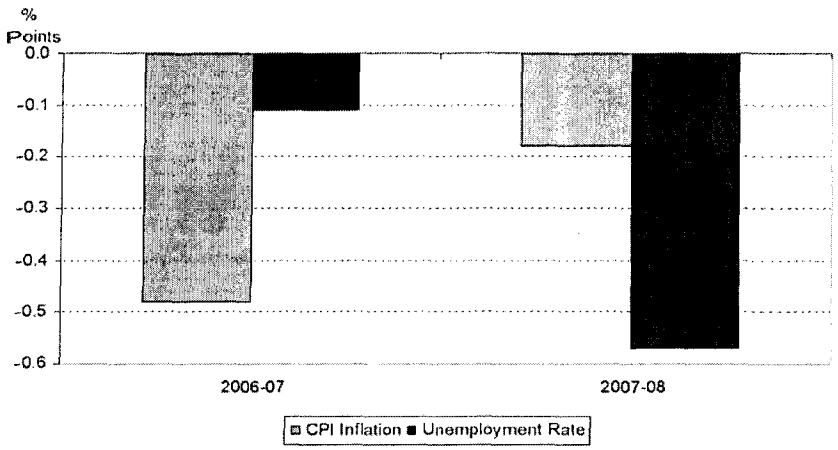
The simulation results indicate that the budget stimulates aggregate demand while initially reducing prices. Real gross domestic product (GDP) is increased by 0.3% in 2006–07 and by 1.1% in 2007–08. Over the same period, consumer price inflation is reduced by 0.5 percentage points in fiscal 2006–07 and by a further 0.2 percentage points in 2007–08. The unemployment rate is reduced by 0.1 percentage points in 2006–07 and by 0.6 percentage points by 2007–08.

Table 3: Economic and Fiscal Effects of the 2006 Federal Budget*

	2006–07	*2007–08*
Real Output and Components		
Real Gross Domestic Product	0.26	1.11
Consumption	0.53	1.52
Government	-0.48	-0.02
Residential Construction	0.27	1.99
Non-Residential Construction	0.07	0.57
Machinery and Equipment	0.02	0.68
Exports	0.06	0.22
Imports	0.00	0.35
Prices, Wages and Unemployment		
Implicit Deflator for GDP	-0.38	-0.53
Consumer Price Index	-0.48	-0.65
CPI – Inflation Rate (% Points)	-0.48	-0.18
Average Wage	-0.15	-0.02
Unemployment Rate (% Points)	-0.11	-0.57
Interest Rates and Exchange Rate		
90-Day Paper Rate (% Points)	0.01	0.08
Exchange Rate (US$/C$)	-0.15	-0.37
Government Fiscal		
Federal Balance ($ Billion)	-8.42	-4.52
Ratio of Federal Debt to GDP (% Points)	0.38	0.59
OLG Balance ($ Billion)	2.68	2.26

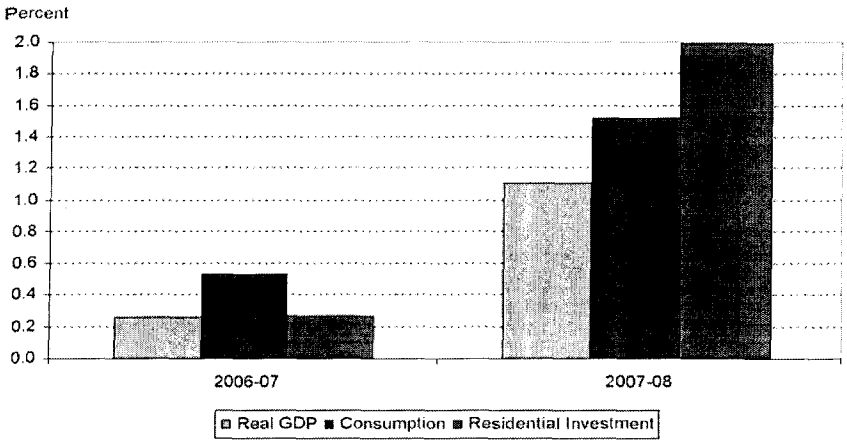
*Impacts are percentage changes unless otherwise indicated.
Source: Simulations with the FOCUS model.

Figure 2: 2006 Budget — Effects on Inflation and the Unemployment Rate



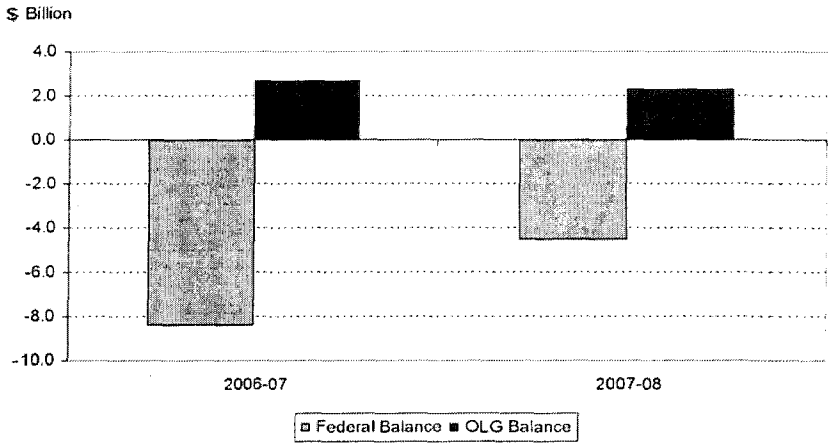
Source: Simulations with the FOCUS model.

Figure 3: 2006 Budget — Effects on Real Aggregate Demand



Source: Simulations with the FOCUS model.

Figure 4: 2006 Budget — Fiscal Effects on New Measures



Source: Simulations with the FOCUS model.

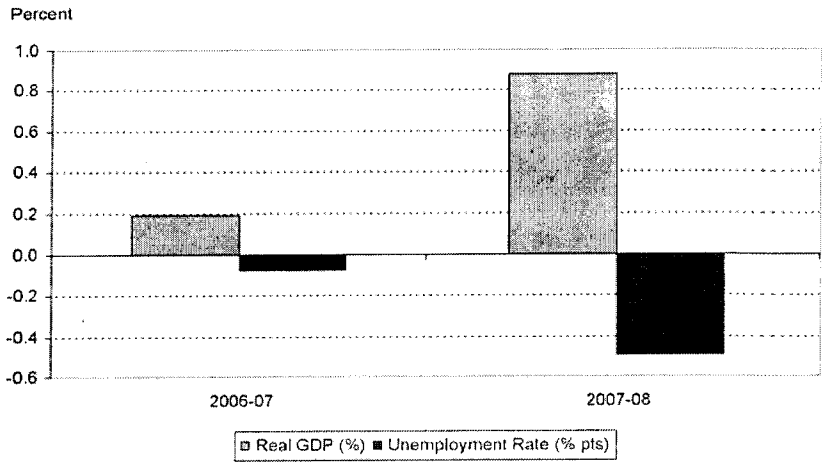
Among the components of aggregate demand, consumption and residential construction have the greatest increase, but all components of domestic demand increase, except for government spending on goods and services, which declines by 0.5% in 2006–07 and is virtually unchanged in 2007–08.

As expected, the GST rate cut reduces the Consumer Price Index (CPI) and the GDP deflator. When fully implemented in 2007–08, consumer prices are 0.65% lower, and the GDP deflator is 0.53% lower.

With no monetary policy response, the expansion of aggregate demand leads to a modest increase (8 basis points in 2007–08) in short-term interest rates and a modest depreciation of the Canadian dollar (down 0.2% in 2006–07 and 0.4% in 2007–08).

The fiscal effects of the budget are shown in Figure 5. With the increase in real output, significant tax-recapture effects moderate the effects of the 2006 budget measures on the federal budget balance in 2007–08. The federal budget balance declines by only $4.5 billion in that year (whereas the net fiscal impact shown in Table 2 was $7.4 billion).

Figure 5: 2006 Budget — Alternative Monetary Policy — Effects on Real Growth and the Unemployment Rate



Source: Simulations with the FOCUS model.

The budget's effect on provincial finances is generally positive. The increases in federal transfers to the provinces (and other levels of government) are reinforced by the revenue effects of increased aggregate demand. The budget balance for the provinces and other levels of government is increased by $2.7 billion in 2006–07 and by $2.3 billion in 2007–08.

These simulation results are consistent with the Bank of Canada's policy of targeting the "core" inflation rate. Note that the first-round effect of the 1% point reduction in the GST is a reduction of 0.6% for the CPI.

As this induced tax effect is explicitly excluded from the Bank's measure of the core inflation rate, the model simulation results shown in Table 3 indicate that the core inflation rate is stable. Nevertheless, the Bank of Canada could well be concerned that the real demand stimulus in 2007–08 could generate inflationary pressures in future years. The bank could therefore act to offset part of the real demand stimulus presented in the budget.

Our second model simulation is designed to incorporate such a monetary policy response. In this simulation, the central bank acts to offset the effects of the fiscal stimulus on the exchange rate. With the exchange rate maintained at base case levels, this would signal the bank's intentions not to allow future inflationary pressures to develop, thereby muting any buildup of inflationary expectations.

With this monetary policy reaction, the model simulation results indicate that real GDP would increase by 0.9 % in 2007–08 and the unemployment rate would decrease by 0.5%.

Summary

- The 2006 federal budget provides a net real demand stimulation, accompanied by lower prices.
- The GST rate cut is the most significant fiscal initiative, generating a favourable supply-side shock.
- However, the favourable supply-price shock is transitory, so the Bank of Canada has a tricky job to manage inflationary demand pressures.
- Over the longer term, reductions in taxes on consumption may represent a "missed opportunity" to use the fiscal room to reduce taxes on savings and investment.