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INVESTMENT IN BRITISH COLUMBIA: CURRENT REALITIES AND THE WAY FORWARD

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Investment in British Columbia: Current Realities and the Way Forward

Abstract

Investment is one of the main drivers of productivity growth, which is the key determinant of living standards in the long run. Investment in British Columbia is lagging when compared to that of Canada, particularly in machinery and equipment and ICT investment. Going forward, a poor investment performance in BC would likely lead to below average growth in labour productivity, as was the case in the last 25 years. Weak labour productivity growth in BC would in turn translate into weak economic growth and falling relative standards of living over time. A number of measures may be taken to ensure sustained investment in physical capital in BC. This report puts forward a number of recommendations to increase investment in British Columbia.

Investment in British Columbia: Current Realities and the Way Forward

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Investment in British Columbia: Current Realities and the Way Forward

Executive Summary

Over the past year, the Progress Board has worked closely with the Centre for the Study of Living Standards (CSLS) to get a better understanding of productivity performance in British Columbia. To date, two reports have been produced by the Centre – an overview report on productivity and, more recently, “Investment in British Columbia: Current Realities and the Way Forward.” The Progress Board endorses the analysis and recommendations in the CSLS report. As with previous advisory work, the Board’s goal is to deepen understanding of problematic indicators and provide advice to government on how to improve British Columbia’s performance.

Much is being written about the current and future state of the global economy, often profoundly conflicting. While the Progress Board does not wish to add to this debate, it is obviously relevant to note that this report on productivity, initiated a year ago in a very different economic climate, comes at a time when global business investment has slowed and even stopped. While projections are being regularly adjusted and are lower now than even six months ago, economic growth is expected to be above the national average in British Columbia, fuelled in part by development of natural gas, and construction in the run-up to the 2010 Olympics. The Board believes the province is uniquely positioned to take advantage of current economic realities and position itself well for an inevitable economic upturn.

The government of British Columbia has recorded healthy surpluses in the last four fiscal years. These surpluses, in addition to ensuring a continued decrease in the weight of the debt/GDP ratio (about 14 percent in 2007-2008, the lowest of any jurisdiction in Canada except Alberta), have allowed for substantial increases in spending for health, education and infrastructure, including the \$14 billion investment for public transit that has been hailed as the largest public-transit announcement in BC history. This focus on infrastructure spending is increasingly important, as our recommendations below suggest.

The government in British Columbia has also consistently focused on a lower-tax agenda, again a practice that will position the province well during this time of economic change. Budget 2008 provided more than \$400 million in tax cuts and \$428 million in new investments, and the Premier recently outlined ten key measures in an economic plan whose focus is to support families and improve productivity during this time of global economic slowdown. In many cases, the Board’s recommendations for improved productivity support and build on commitments already made in this province.

Recommendations

The report sets out eight recommendations for attracting the investment that is required to unlock British Columbia's potential. The recommendations are grouped into three categories: regulation, infrastructure, and tax policy.

Regulation

The Government of British Columbia has made a great deal of progress reforming regulations that discouraged investment, but there remains work to do. Analysis of the BC mining industry shows that, even facing the same federal regulatory regime, other provinces are ahead of British Columbia in creating a regulatory environment that encourages investment. Product market regulation, in particular, can have an especially harmful impact on investment in information and communications technologies, an area where BC has a serious investment problem. We recommend that the Government of British Columbia continue to build on recent success in improving the clarity, efficiency, and predictability of BC's regulatory environment. Specifically the Government of BC should:

- Continue harmonizing regulation between provinces and US states, with the federal government, and even internationally.
- Build on the success of the Straightforward BC initiative and its quarterly progress reports by targeting not just the number of regulations, but also by improving quantification and reporting of the costs of regulation in BC. While acknowledging the cost of gathering such information, we feel that over the long-term better information will lead to better decisions and a more attractive investment climate.

Infrastructure

Abundant high-quality infrastructure reduces the costs and risks of doing business, and thus increases the returns to investment. While BC has historically done very well compared to other Canadian provinces in terms of public infrastructure investment, investment in public infrastructure as a share of GDP in British Columbia was only 92.4 per cent of the Canadian average over the period 2001-2007. Moreover, Canada as a whole has been under-investing in infrastructure by international standards. In this area, the Government of British Columbia should:

- Apply rigorous cost-benefit analysis to each proposed project to determine the desirability of additional investment. Whether a given level of infrastructure is adequate is a highly project-specific judgment.
- Continue to experiment with innovative procurement and financing of public infrastructure projects to improve the efficiency of public infrastructure investment. Increased use of user charges (*e.g.* road pricing) could be both a

source of financing for increased infrastructure investment and a mechanism for efficiently allocating scarce infrastructure resources.

Tax Policy

Tax policy offers a very fruitful field for reforms that would encourage investment. In this area, the Government of British Columbia should:

- As soon as possible replace the Provincial Sales Tax with a value-added tax, preferably harmonized with the Goods and Service Tax administered by the federal government. Such a change would significantly lower the marginal effective tax rate on investment and reduce distortions across sectors.
- Reduce the preferential tax treatment of small businesses. The small business corporate income tax (CIT) rate should be kept at its current level and further CIT cuts should target the general corporate income tax only.
- Further reduce provincial-level property taxes on business and constrain municipalities to reduce the relative property tax rates faced by business. Overall, the provincial and municipal governments should strive for a more neutral property tax regime.
- Frequently reassess the continuing desirability of industry specific tax incentives, like tax credits directed at the film industry.

Not all of these recommendations are of equal importance. The Provincial Sales Tax stands out as a particular disincentive to invest in British Columbia. Evidence from the Atlantic provinces, which harmonized their sales taxes with the federal Goods and Services Tax, suggests that British Columbia could experience a 12.1 per cent increase in trend M&E investment as a result of adopting a value-added tax. These results imply that adopting a value-added tax would result in M&E investment as a share of GDP in BC of 6.8 per cent in 2007 (as opposed to 6.1 per cent), thus closing 70 per cent of the M&E investment intensity gap between BC and the national average (7.1 per cent).

This is a world where businesses can adapt their value chains to take advantage of the incentives offered by different jurisdictions around the world. Implementing the recommendations presented in this report would help address the negative trend in BC productivity and better position BC to realize its full economic potential.

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Investment in British Columbia: Current Realities and the Way Forward*

I. Introduction

Over the long term, labour productivity growth is the most important determinant of economic growth and the main driver of living standards, defined as real gross domestic product (GDP) per capita. Higher living standards mean increased leisure, social spending and/or consumption. Living standards are also strongly linked to improvements in well-being.¹

GDP per capita is determined by labour productivity (defined as real output per hour worked), the average number of hours each employed person works, and the proportion of the total population that is employed. Between 1981 and 2006, labour productivity accounted for 56 per cent of the increase in living standards in British Columbia. In the future, productivity growth will be more important than ever. Between 2006 and 2026, the rapid growth of the population aged 65 and over will cause the employment-population ratio to fall, putting downward pressure on growth in material living standards in British Columbia. It is unlikely that declines in the unemployment rate, higher labour force participation rates, and increases in average annual hours worked will offset the decline in the size of the population aged 15 to 64. With no expected increase in average weekly hours, productivity must increase or British Columbia's standard of living will fall.

Investment in is a key driver of productivity growth. Investment determines the size of the capital stock and hence the amount of machinery and equipment and structures available to each worker and firm. More capital per worker, or capital intensity, boosts labour productivity. Over the past 25 years, British Columbia's capital intensity has actually declined, while Canada as a whole has seen an improvement. In the future, with slower growth in the number of workers, having more and better tools to produce output will be essential to improve the productivity and living standards of British Columbians.

The objectives of this report are twofold: first, to diagnose any investment problems in British Columbia, and, second, to recommend policies to foster investment in the province.

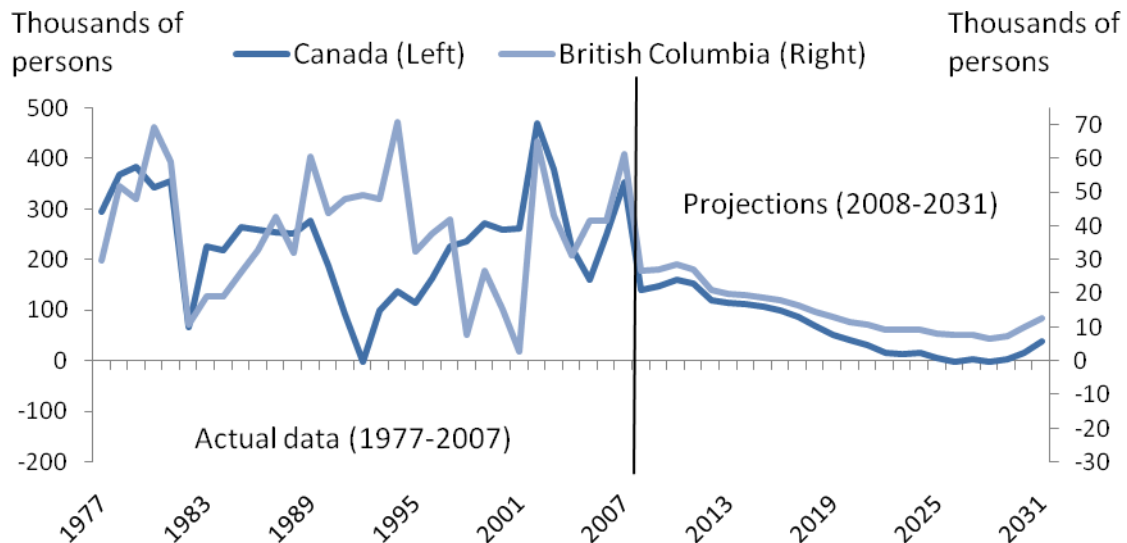
The remainder of the report is divided into four parts. Part II reviews British Columbia's productivity performance. Part III diagnoses the source and reviews key aspects of BC's investment problem. Part IV analyses factors that could explain the investment problem. Part V offers recommendations for increasing investment in British Columbia.

*This report was also published on the website of the BC Progress Board (<http://www.bcprogressboard.com>) with small formatting differences.

II. British Columbia's Productivity Performance

Economists widely recognize that Canada faces an important productivity challenge.² Yet the general public often fails to recognize the issue and few governments or political parties are ready to address it (Sharpe, 2007). As noted by Watson (2008), explaining the importance of productivity for economic growth has become more challenging in the last four years as Canada has enjoyed strong income growth (14.3 per cent compared to 8.1 per cent in the United States between 2002 and 2006) in spite of its lackluster productivity growth. The situation in British Columbia is similar and, in some respects, even worse. The province significantly benefited from an increase in commodity prices and the ensuing resurgence of mining (Stueck, 2008), but has generally been performing below the Canadian average in terms of labour productivity.

Chart 1: Labour Force (aged 15+) Growth in Canada and British Columbia, 1977-2031



Source: Labour force estimates for 1976-2007 from Statistics Canada, Labour Force Survey; for 2008-2031 from Statistics Canada, Population Estimates and Projections.

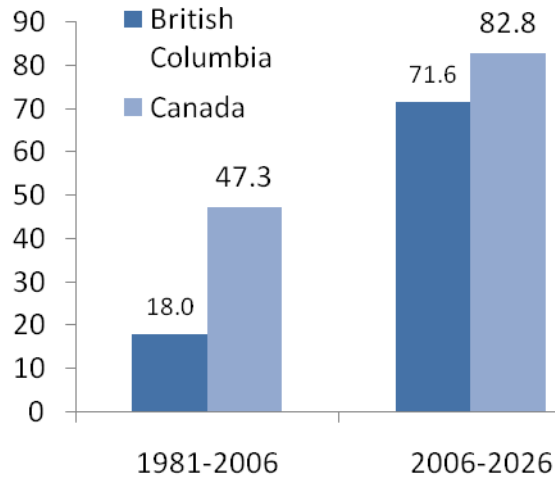
Note: Projected labour force estimates are calculated by multiplying projected population with the 2007 labour force participation rates for the 15-44 age group, the 45-64 age group and the 65 and over age group.

Economic growth, defined as real GDP growth, can be decomposed into labour input growth measured by hours worked and labour productivity growth, defined as output per worker. The size of the working age population (aged 15 and up) is the primary driver of trends in hours of potential labour supply, which is in turn determined by employment trends. In theory, declines in the unemployment rate, higher labour force participation rates, and increases in average annual hours worked could offset the decline in the size of the working age population. But the magnitude of any changes from these sources is too small to offset demographic developments.

Consequently, with the ageing of the baby boom cohorts and their eventual retirement from the workforce, labour force growth in Canada will fall. Labour force growth in Canada will turn negative around 2026 and immigrants will have to account for a much larger proportion of labour force growth. While British Columbia's labour force growth is also projected to decrease significantly, strong immigration is expected to prevent negative net labour force growth over the 2006-2031 period (Chart 1).

Declining labour force growth means that in both Canada and British Columbia the importance of hours worked as a source of economic growth will fall in the future. Productivity growth will hence assume a greater relative importance as a source of economic growth. From 2006 to 2026 productivity growth will account for about 72 per cent of economic growth in British Columbia, up from 18.0 per cent between 1981 and 2006 (Chart 2). In the future, if British Columbia wants to increase GDP, it will have to increase labour productivity, something the province has manifestly failed to do in a significant way since 1981.

Chart 2: Contribution of Labour Productivity to Economic (GDP) Growth in Canada and British Columbia, 1981-2026



Source: CSLS calculations based on Statistics Canada data.

Table 1: Real GDP, Labour Productivity, and Capital Intensity in British Columbia and Canada in 1981 and 2007

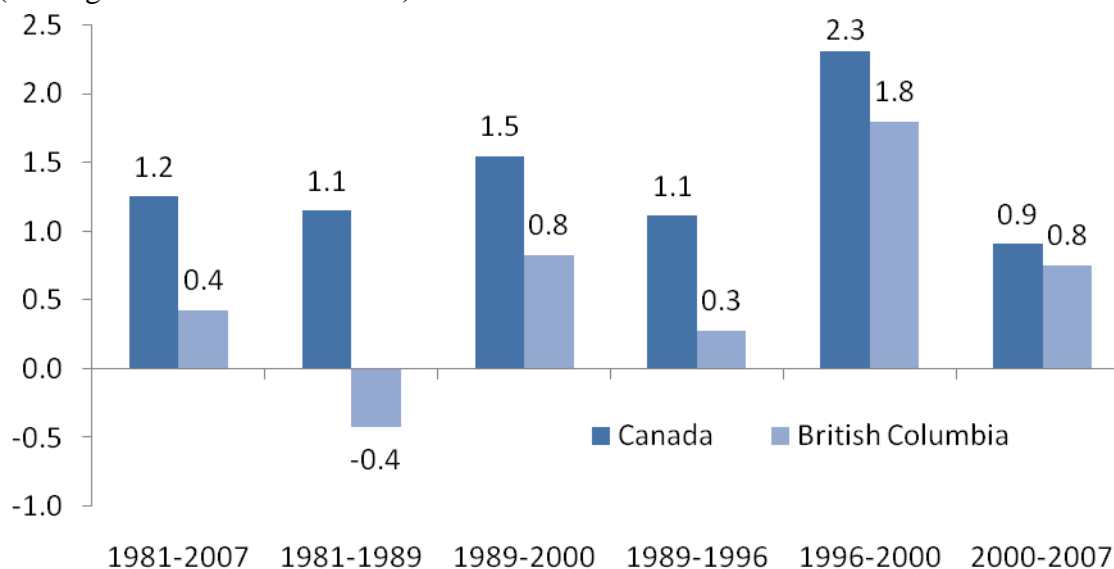
	BC			Canada			BC as a Percentage of Canada	
	Levels		Growth *	Levels		Growth *		
	1981	2007	1981-2007	1981	2007	1981-2007	1981	2007
Real GDP (billions of chained \$2002)	84.5	163.2	2.56	647.3	1,316	2.77	13.1	12.4
Labour Productivity (Real GDP per hour worked, chained \$2002)	37.7	42.0	0.4	31.9	44.1	1.2	118.1	95.4
Capital Intensity (Capital per hour worked in constant \$2002)	44.7	37.8	-0.6	39.4	42.5	0.3	113.5	88.9

Source: CSLS Productivity Database and Statistics Canada * Average Annual Growth Rates.

Labour productivity is not only an engine of economic growth; it is also the main driver of living standards, defined as real gross domestic product per capita. GDP per capita can be decomposed into the product of labour productivity, the average number of hours each employed person works, and the proportion of the entire population that is employed. Over the 1981-2006 period, labour productivity accounted for 56 per cent of the increase in living standards in British Columbia. Over the 2006-2026 period, the rapid growth of the population aged 65 and over will cause the employment-population ratio to fall, putting downward pressure on growth in material living standards in British Columbia. With no expected increase in average weekly hours, productivity will be responsible for 156 per cent of future living standards growth. Without productivity improvements our living standards will stagnate or decline.

Economic growth in British Columbia picked up considerably since 1996, with real GDP growing slightly faster than 3 per cent per year between 1996 and 2007 compared to an average of only 2.13 per cent per year in the 1981-1989 period. More rapid economic growth in the province was mostly the result of faster productivity growth over the last decade (Chart 3). The trend toward more rapid productivity growth in British Columbia is encouraging, but its poor overall performance in the last 25 years suggest that efforts must continue if the province wishes to secure its future standards of living.

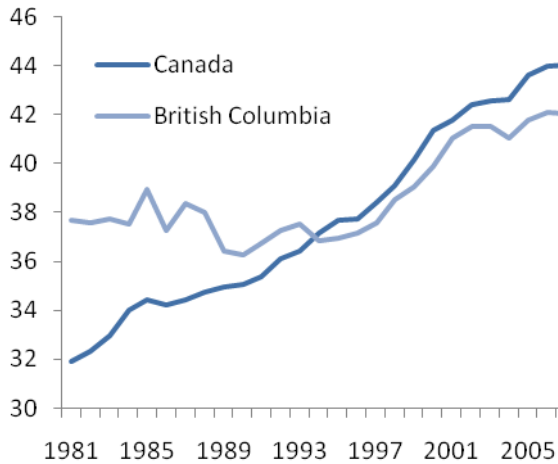
Chart 3: Output per Hour Growth in British Columbia and Canada, 1981-2007
(Average Annual Growth Rates)



Source: CSLS calculations based on Statistics Canada National Accounts and Labour Force Survey.

Labour productivity in British Columbia in 2007, defined as GDP per hour worked in 2002 chained dollars, was below the level observed in Canada. The gap, however, was only \$2.10 per hour worked, or 4.6 per cent of the Canadian level. Even though British Columbia only displays a small productivity gap with the rest of Canada, recent trends suggest that this gap has widened. Indeed, in 1981, British Columbia was

Chart 4: Labour Productivity (GDP per Hour Worked) in British Columbia and Canada, 1981-2007



Source: CSLS calculations based on Statistics Canada National Accounts and Labour Force Survey.

well ahead with a productivity level 18.1 per cent higher than the Canadian average. In the last 20 years, British Columbia consistently lost ground in terms of labour productivity.

As a whole, labour productivity in British Columbia grew on average 0.4 per cent a year during the 1981-2007 period while Canada as a whole experienced average annual growth of 1.2 per cent (Chart 4). In fact, labour productivity growth in British Columbia was below that of every other province over that period. The performance of British Columbia compared to the rest of Canada can be attributed to many factors which are still poorly understood, but a slower rate of capital intensity growth appear to be a significant factor.

Between 1981 and 2007 capital intensity in British Columbia declined by an average of 0.6 per cent per year. Over the same period, capital intensity in Canada as a whole grew by 0.3 per cent per year. Since capital intensity is a key driver of labour productivity, falling capital intensity in BC compared to Canada explains part of the gap in labour productivity between Canada and BC. The remainder of this report seeks to shed light on why capital intensity has been falling in BC relative to Canada through an examination of the key driver of capital intensity, investment.

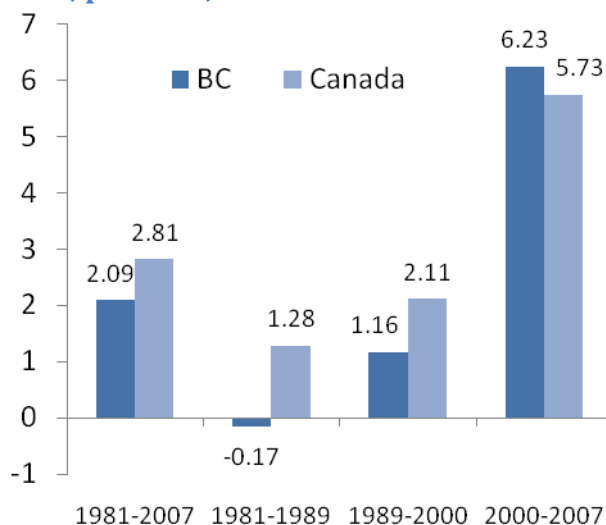
III. Does British Columbia Have an Investment Problem?

This part of the report analyses whether British Columbia has an investment problem.³ This report excludes residential investment, because it is less directly linked to productivity growth. In 2007 non-residential investment in British Columbia in current dollars was \$25.6 billion. This total includes investment in machinery and equipment of \$11.5 billion (e.g. industrial machinery and vehicles) and investment in structures of \$14.1 billion (e.g. buildings and engineering works like roads and pipelines). Investment can either be undertaken by government (\$5.0 billion in 2007), as is normally the case for roads and schools, or the business sector (\$20.6 billion), most machinery and equipment (\$10.3 billion). For a discussion of the definition of investment and conceptual issues associated with investment see Appendix A.

A. British Columbia's Investment Performance since 1981

In Canada real non-residential total economy (business and non-business sectors) gross investment grew rapidly between 1981 and 2007, significantly outpacing growth in British Columbia. After slow growth in the 1980s and 1990s, investment in BC picked up significantly in the 2000s, advancing at an average annual rate of 6.2 per cent, faster than Canada (5.73 per cent per year) (Chart 5). But the growth rate of real investment does not tell the whole story.

Chart 5: Real Total Non-Residential Investment in Canada and British Columbia, compound annual growth rates, per cent, 1981-2007

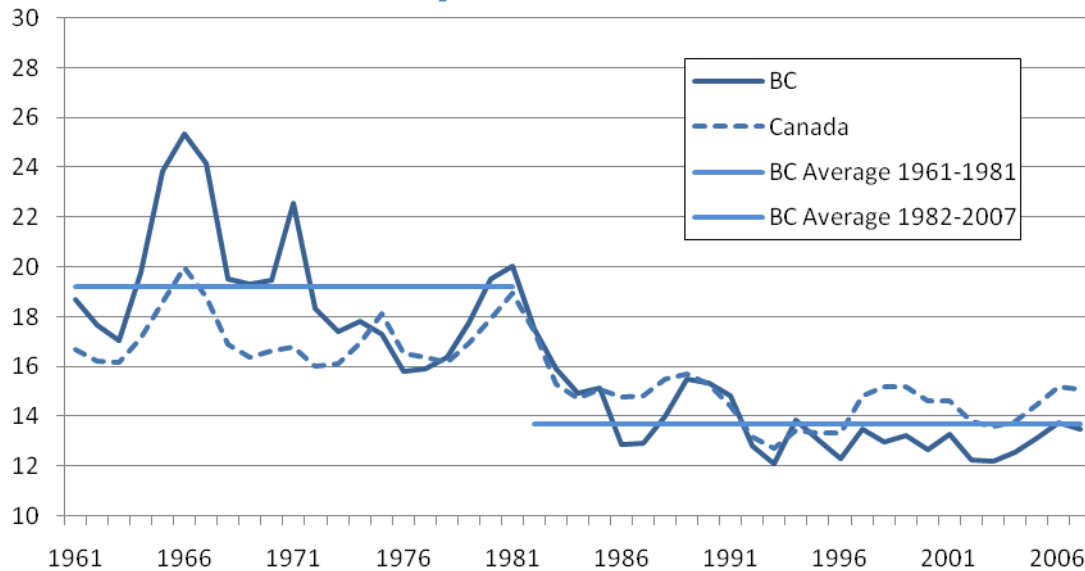


Source: Unpublished Statistics Canada data.

Investment is a key component of GDP and is particularly sensitive to business cycles. It is important, therefore, to separate the portion of investment growth due mostly to favourable economic conditions from the portion due to strong business investment incentives. Using investment intensity allows us to focus on the latter. Investment intensity is the share of gross nominal investment in GDP, measured on a total economy (all industries) basis.⁴

Since the 1960s there has been a strong downward trend in non-residential investment intensity across Canada (Chart 6). After averaging 19.2 per cent between 1961 and 1981, investment intensity in British Columbia averaged only 13.7 per cent between 1982 and 2007, a decline of 5.5 percentage points. While the broad trend was similar for Canada (from 17.2 per cent to 14.6 per cent), the decline was much smaller

Chart 6: Total Current Dollar Non-Residential Investment as a Share of GDP in Canada and British Columbia, per cent, 1961-2007



Source: Unpublished Statistics Canada data.

(2.6 percentage points). In British Columbia, investment intensity in structures averaged 6.7 per cent between 2001 and 2007, down from 10.4 per cent between 1961 and 1989. Similarly, investment intensity in machinery and equipment averaged 6.2 per cent, down from 7.6 per cent. These figures are the strongest evidence that BC has a long-term investment problem.

Between 1961 and 1975, British Columbia's investment intensity was significantly higher than the national average. The long-term decline in BC's investment intensity, relative to Canada, occurred in two major steps. After peaking in both 1966 and 1971, investment intensity in BC declined rapidly and reached the Canadian average around 1975. Over the subsequent 20 years, investment intensity in British Columbia followed the national average closely. Beginning in 1996, however, British Columbia's investment intensity grew much more slowly than the Canadian average. By 1998 Canadian average investment intensity was 2.28 percentage points above the BC level, and Canada's investment intensity still exceeded that of British Columbia by 1.46 percentage points in 2007.⁵

From 2001 to 2007 investment intensity in British Columbia averaged 12.9 per cent (of GDP), 1.5 percentage points below the national average (14.4 per cent). British Columbia trailed Canada in the 2000s in the investment intensity in both major asset types: structures (6.7 per cent versus 6.9 per cent in Canada) and, more importantly, machinery and equipment (6.2 per cent versus 7.5 per cent). British Columbia also had low investment intensity in information and communications technologies (ICT), a component of M&E and key driver of productivity growth. Over the 2001-2007 period, in British Columbia investment intensity in this asset type averaged 2.1 per cent, 0.4 percentage points below the national average of 2.5 per cent.

In sum, British Columbia has a long-term investment problem, because investment intensity has been below the national average, particularly in machinery and equipment.

B. Identifying British Columbia's Investment Problem

The previous section established that investment intensity in BC has been below the national average for the last three decades, and particularly since 1996. This section compares BC's investment intensity in 2007⁶ with that of other provinces in an attempt to identify the areas where BC's underperformance is more acute.

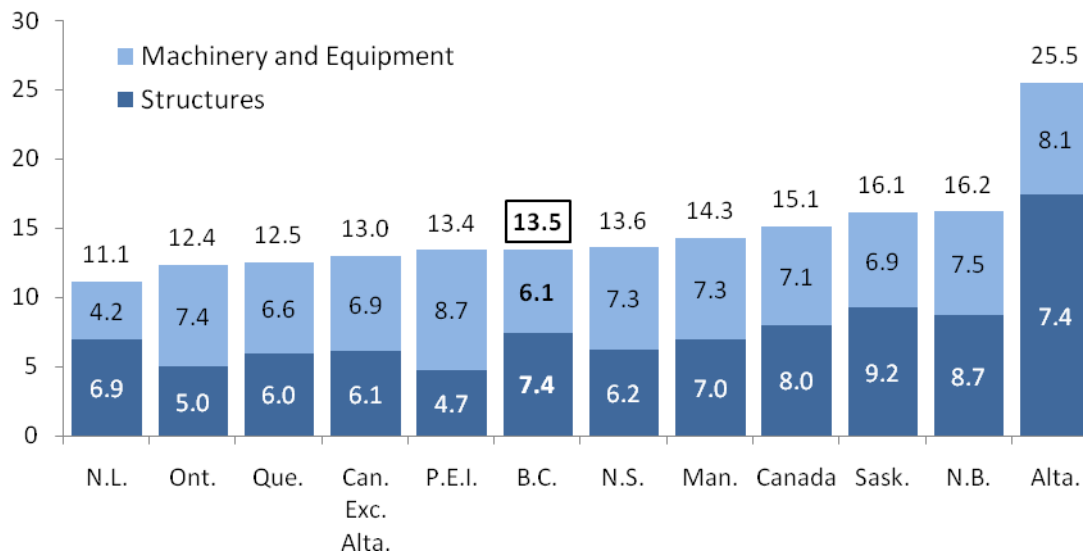
i. British Columbia's Investment Intensity in the Canadian Context

Average investment intensity in Canada is significantly affected by the stellar performance of Alberta, with investment intensity of 25.5 per cent in 2007 (Chart 7). National investment intensity in 2007 was 15.1 per cent; if Alberta is excluded it falls to 13.0 per cent. British Columbia, with investment intensity of 13.5 per cent in 2007, was below the national average, but above the average of all provinces excluding Alberta.⁷

While British Columbia's overall investment intensity in 2007 was average, it did outperform the two largest provinces, Ontario (12.4 per cent) and Quebec (12.5 per cent). This performance was mostly driven by investment in structures, which represented 7.4 per cent of GDP in 2007 and placed BC fourth out of ten. Only Alberta (17.4 per cent), Saskatchewan (9.2 per cent) and New Brunswick (8.7 per cent) had higher investment intensity in structures.

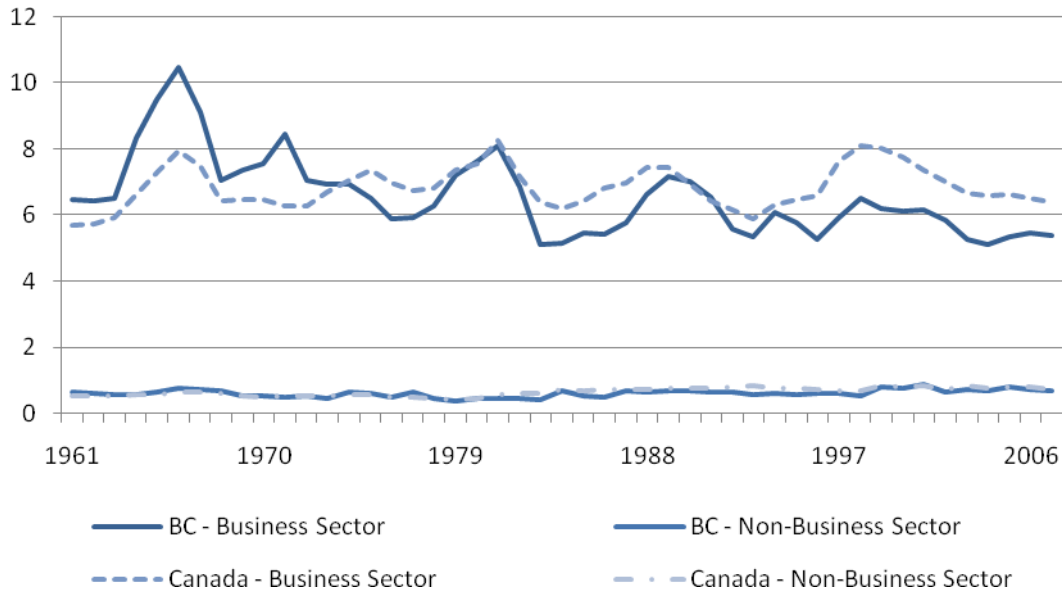
In terms of machinery and equipment investment intensity, which is more closely linked to productivity growth than structures investment intensity, BC ranked second to last in 2007, at only 6.1 per cent. Among Canadian provinces, only Newfoundland and

Chart 7: Investment Intensity in Canada and the Provinces (Investment as a Share of GDP), Total Economy, by Asset Type, 2007



Labrador had lower M&E investment intensity. In 2007, BC's M&E investment intensity was one percentage point below the national average of 7.1 per cent (Chart 7). In contrast with structures, M&E investment intensity at the national level was not overly distorted by any province; excluding Alberta lowers the national average by only 0.2 percentage points.

Chart 8: M&E Investment Intensity (Investment as a Share of GDP) in British Columbia and Canada by Sector, 1961-2007



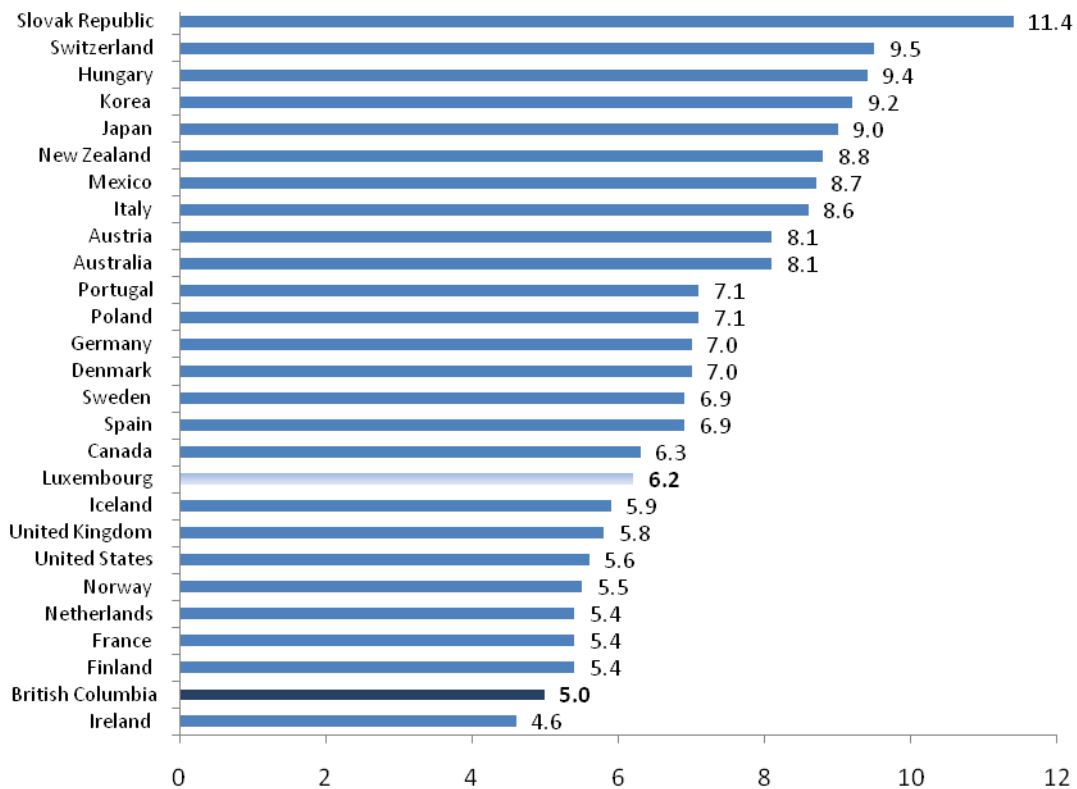
British Columbia is clearly under-investing in M&E in comparison to the rest of Canada, and has been doing so for at least the last ten years. This finding is especially important, because cross-country studies have found M&E investment intensity to have a strong positive relationship with economic growth and productivity. The classic work from this literature is that of De Long and Summers (1991), who use cross-country regression analysis to relate M&E and structures investment to per-worker GDP growth in countries with relatively high productivity levels, including Canada. They find that a one percentage-point increase in M&E investment intensity is associated with an increase of 0.3 percentage points in the annual rate of per-worker GDP growth. This is a significant effect; it amounts to GDP per worker 7.5 per cent higher after 25 years. In contrast, De Long and Summers find no statistically significant relationship between per-worker GDP growth and investment in structures. Most subsequent studies corroborate the De Long and Summers (1991) result for M&E investment intensity.⁸

Given the importance of M&E investment for productivity growth, BC's performance on this metric in part explains the province's poor past productivity performance.

ii. Machinery and Equipment Investment in Canada in the International Context

The previous section established that BC appears to suffer from chronic underinvestment in M&E in comparison with the other provinces. But what about in relation to other countries? Canada's investment intensity is below average among OECD countries (Chart 9). In 2004, Canada ranked only 17th out of 26 OECD countries with M&E intensity of 6.2 per cent,⁹ Nonetheless, this level was higher than some countries such as the United States (5.6 per cent), Norway (5.5 per cent), and France (5.4 per cent).¹⁰ Overall, Canada is not a strong performer. Given that BC has weak investment intensity when compared to the rest of Canada, if BC is compared with the OECD countries, it would rank next to last, just ahead of Ireland. This international comparison reinforces the gravity of BC's M&E investment problem.

Chart 9: M&E Investment Intensity (Investment to GDP Ratio) 26 OECD Countries, 2004



Source: OFCD Factbook 2008

C. The Key Dimensions of the Machinery and Equipment Investment Problem in British Columbia

i. Business and Non-Business Sector Origins of the Machinery and Equipment Investment Problem

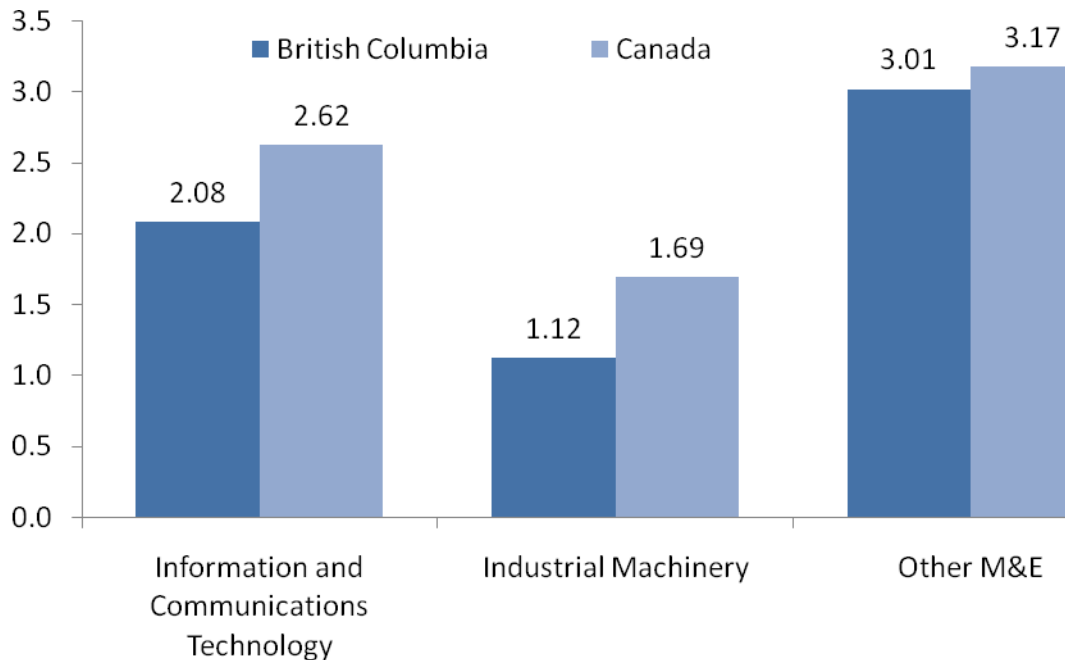
Up to this point we have examined M&E investment intensity at the level of the total economy. This section examines whether BC's M&E investment problem originates in the business or non-business (public) sector. With the business sector accounting for about 90 per cent of all M&E investment in both Canada and British Columbia, the problem cannot lie in the non-business sector. In fact, non-business sector M&E investment intensity in BC has been almost the same as in Canada (Chart 8).

In the business sector, the story was different. Between 1974 and 2007, M&E investment intensity in BC exceeded the national average in only three of 34 years. After reaching Canada's level of M&E investment intensity in the wake of the early 1990s recession, a significant gap opened between the province and the rest of Canada. The gap reached a peak of 1.8 percentage points in 1999, closing only slightly in ensuing years and reaching one percentage point in 2007. While Canada's M&E investment intensity in 2007 (6.4 per cent) stood 0.5 percentage points above its trough of 1993 (5.9 per cent), M&E investment intensity in BC was practically identical in both years (5.4 per cent in 2007 versus 5.3 per cent in 1993).¹¹

ii. Asset Types

In general, BC appears to have adequate investment intensity in the machinery and equipment assets that do not usually embody breakthrough technologies (Chart 10). But BC has significantly lower investment intensity in the types assets of assets that generally embody significant new technology than Canada as a whole. For example, over the 2001-2007 period, investment intensity in industrial machinery was only 1.12 per cent in BC compared to 1.69 per cent in Canada, 51 per cent higher. Investment intensity in information and communications technology (ICT) was 26 per cent higher in Canada than in BC. The difference in investment intensity in ICT and industrial machinery alone accounted for a 1.11-percentage-point difference in M&E investment intensity between BC and Canada, or about 88 per cent of the average gap between the two jurisdictions over the 2001-2007 period (average gap of 1.27 percentage points). Given the prime importance of industrial machinery and ICT equipment for productivity, the fact that BC's underperformance was concentrated in assets that embody large amounts of new technology is not welcome news.

Chart 10: M&E Investment Intensity (M&E Investment as a Share of GDP) by Asset Type in Canada and British Columbia, Total Economy, average, 2001-2007



Source: Unpublished Statistics Canada data.

iii. Industrial Structure

Differences in investment in machinery and equipment can be suggestive of differences in industrial structure. Such differences could help to explain British Columbia's shortfall in investment intensity relative to the Canadian average. If industrial structure explains BC's M&E investment problem, our policy recommendation should focus on specific industries. If, however, BC's industrial structure is not the main culprit for BC's M&E investment intensity problem, our analysis should emphasize factors driving M&E investment as a whole. In this section, we assess the extent to which M&E investment in BC is affected by its industrial structure.¹²

That M&E investment per worker in 2007 was lower in British Columbia for 13 of the 15 sectors (Table 2) is strong evidence that BC's M&E underperformance is pervasive, reinforcing the thesis that poor overall business investment incentives are to blame. The only two sectors with higher investment per worker in BC than Canada in 2007 were retail trade (7.4 per cent higher) and transportation and warehousing (25.5 per cent higher). The worst performing sector was agriculture, forestry and fishing at only 49.3 per cent the national average.

Table 2: Machinery and Equipment Investment per Worker by Industry in BC and Canada, 2007

	M&E per Worker in BC	M&E per Worker in Canada	BC as a Proportion of Canada	Employment Share in BC	Employment Share in Canada	Difference in Employment Shares
	Dollars	Dollars	Dollars	Per Cent	Per Cent	Per Cent
	A	B	C = A/B*100	D	E	F = D - E
Agriculture, Forestry, Fishing and Hunting	3,551	7,206	49.3	2.80	2.50	0.30
Mining and Oil and Gas Extraction	18,140	33,417	54.3	0.88	1.51	-0.63
Construction	2,192	3,692	59.4	8.69	6.72	1.97
Manufacturing	7,459	8,599	86.8	9.05	12.12	-3.07
Wholesale Trade	5,200	6,094	85.3	3.62	3.72	-0.10
Retail Trade	1,905	1,774	107.4	12.49	12.19	0.30
Transportation and Warehousing	14,490	11,546	125.5	5.54	4.88	0.66
Finance and Insurance	15,283	20,364	75.0	4.32	4.48	-0.17
Real Estate and Rental and Leasing	29,809	39,715	75.1	2.08	1.80	0.28
Professional, Scientific and Technical Services	1,663	2,367	70.3	7.34	6.74	0.60
Educational Services	1,590	1,777	89.5	6.89	7.02	-0.13
Health Care and Social Assistance	1,333	1,517	87.9	10.58	10.95	-0.37
Other Services (Except Public Administration)	1,215	1,437	84.5	3.88	4.29	-0.41
Public Administration	7,299	7,340	99.4	4.23	5.13	-0.89
Other Industries	4,085	5,980	68.3	17.61	15.96	1.66
All industries	5,083	6,453	78.8	100.00	100.00	-

Source: CSLS calculations based on Statistics Canada. Investment from unpublished ICSD data and number of workers from Labour Force Survey.

While in BC almost all sectors have lower M&E investment per worker than in Canada, it is possible that BC's M&E investment problem is primarily caused by a concentration of employment in industries with below-average M&E investment per worker. To assess the impact of industrial structure on M&E investment in BC, we simulate what M&E investment would have been in British Columbia had the province had the same industrial structure as Canada. As is shown on Table 2, BC does indeed tend to have smaller shares of employment in above-average industries, like mining and oil and gas, and higher shares in below-average industries like construction and professional, scientific and technical services. The effect of these industries, however, is partly offset by other industries where it is not the case, particularly transportation and warehousing.

In short, if BC had Canada's employment structure, M&E investment would have been only \$305 million or 2.6 per cent higher in 2007, increasing the M&E investment intensity from 6.1 to 6.2 per cent, still well below Canadian average investment intensity

of 7.1 per cent. This analysis suggests that there is no strong evidence that BC's industrial structure substantially affects its M&E investment intensity. Therefore, we conclude that inadequate investment incentives in BC are likely to provide an explanation for British Columbia's M&E investment problem. The next section analyses the factors that impact investment incentives in BC.

D. Key Findings

Motivated by the question of whether or not BC has an investment problem, this section found that

- Despite strong investment growth in the 2000s, BC has not closed the investment intensity gap (investment as a share of GDP) with the Canadian average that has persisted since 1996. Investment intensity in BC was 1.6 percentage points below the national average in 2007.
- While BC ranked fourth in structures investment intensity in 2007 among Canadian provinces, it ranked second to last in M&E investment intensity. Canada ranks in the bottom half of the OECD for M&E investment intensity.
- M&E investment intensity is important because it is the main driver of labour productivity growth as most technological progress is embodied in new M&E capital goods. Indeed, the economics literature suggests that a one percentage point increase in the M&E share of GDP translates into a 0.2- to 0.3-percentage point increase in annual economic growth, while the effect of a similar increase in structures investment has little to no statistically significant effect on economic growth.
- Weak M&E investment intensity in BC relative to other provinces was concentrated in assets which generally embody large amounts of new technologies, most notably industrial machinery, computer and related equipment and software.
- An industry analysis shows that BC's weak M&E performance relative to Canada does not appear to be related to industrial structure, but rather is caused by an inadequate investment incentive structure.

IV. Factors Affecting Business Machinery and Equipment Investment in British Columbia

The previous section established that British Columbia does indeed have an investment problem. The problem is that firms operating in British Columbia invest less, per dollar of GDP, in machinery and equipment, especially in information and communications technologies (ICT), than firms in most other Canadian provinces and in many other high income countries. In this section, we identify key factors that affect business investment in British Columbia.

Firms invest in a project when they expect the net return to be positive, taking into account risk. As a result, the decision to invest is affected by two sets of factors. First, by increasing/decreasing expected returns or increasing/decreasing expected costs. Second, by the level of uncertainty about future conditions, including public policies. If estimates of benefits or costs suffer from significant uncertainty, the net return must be higher to offset the additional risk. Providing a stable economic environment is therefore an important factor in stimulating investment.

The following discussion will focus on specific factors that have a significant influence on business sector investment in British Columbia and that can be affected by provincial government policy: regulation, public infrastructure, and tax policy. Other factors considered but found insignificant or beyond influence by the provincial government include: natural resources, commodity prices, exchange rates, human and organizational capital, savings, and venture capital.

Apart from the pure effect of industrial structure discussed above, natural resources, commodity prices and exchange rates largely affect investment through price changes. Higher prices can be a powerful incentive to invest. At the same time, lower costs of imported machinery caused by the appreciation of the Canadian dollar can lead to higher investment. As well, variability of commodity prices and the relatively high proportion of commodity industries in the BC economy mean that the province's investment climate is more variable.

Human capital could certainly impact investment. Having less skilled labour, or outright labour shortages can certainly be a disincentive to invest. British Columbia currently faces important skills shortages, and the level of educational attainment of its population could be improved.

Overall, it seems unlikely that the current state of savings in British Columbia would deter investment. While it is true that personal savings are negative in BC, capital gains are not being captured in the national accounts, governments in BC are saving, and, nationally corporations have savings to spare. One potential area of concern is the apparent need for BC businesses to obtain savings from other provinces and countries in order to finance investment. Internationally, it is quite likely that there are barriers to capital flows that could affect investment in BC, however, within Canada, in which funds

available for investment (savings) exceed actual levels of investment, these barriers are unlikely to be significant. This fairly positive assessment of savings in BC does not minimize the very real issues that may affect the financing of specific projects or firms in the British Columbia economy, including the role of venture capital.

A. Public Infrastructure

Public infrastructure¹³ is important for productivity growth. It reduces the costs and risks of doing business and thus fosters investment.¹⁴ For example, gridlocked highways increase the length and variability of time required to move people and goods from place to place. A recent study by Transport Canada estimated the cost of congestion in Vancouver alone at a minimum of \$629 million (\$2002) per year (Transport Canada, 2006). When just-in-time production methods are the global standard, businesses will prefer to invest where the transportation infrastructure is most reliable (see for example, Harchaoui and Tarkhani, 2003). Abundant high-quality infrastructure is an important driver of productivity growth.

Table 3: Infrastructure Investment Intensity in Selected Canadian Provinces (Gross Infrastructure Investment as a share of Nominal GDP), Average, 1961-2007

	1961-2007	1961-1980	1981-2007	1981-2000	2001-2007
Canada = 100.0					
Public (non-business) Sector					
Quebec	100.0	98.3	101.2	95.1	118.5
Ontario	81.4	78.7	83.4	81.7	88.2
Alberta	110.0	108.3	111.2	116.2	96.9
British Columbia	105.3	100.5	108.9	114.7	92.4
Business Sector					
Quebec	68.1	80.2	59.1	63.1	47.7
Ontario	45.6	52.0	40.9	44.6	30.4
Alberta	282.3	251.6	305.0	295.2	332.9
British Columbia	111.6	134.1	94.9	93.5	98.8
Canada excluding Alberta = 100.0					
Business Sector					
Quebec	88.8	95.2	84.0	85.0	81.0
Ontario	59.4	61.2	58.0	60.2	51.7
British Columbia	146.6	158.3	138.0	127.7	167.3

Source: Unpublished Statistics Canada data.

On the surface, BC's infrastructure investment intensity (infrastructure investment as a share of GDP) does not appear to be cause for great concern. Public and business¹⁵ sector infrastructure investment intensity in British Columbia has been around the Canadian average over the period 1961-2007 (Table 3).¹⁶ Public (non-business) and business investments in infrastructure were respectively on average 5.3 per cent and 11.6 per cent

higher in British Columbia than in Canada as whole. Yet this generally strong performance over the entire period 1961-2007 conceals a recent slide.

In the period 2001-2007, both public (92.4, Canada = 100) and business (98.8, Canada = 100) investment in infrastructure in British Columbia has slipped below the Canadian average. But this fall off in business investment is a reflection of the strength of activity in Alberta.¹⁷ Because businesses in Alberta carried out 54 per cent of all gross business investment in infrastructure in Canada in 2007, while Alberta generated just 17 per cent of Canada's GDP, Alberta's performance significantly increases the Canadian average. When Alberta is excluded, business investment in infrastructure in BC was 46.6 per cent higher than the Canadian average over the 1961 to 2007 period. Still with Alberta excluded, BC's performance actually improved in recent years; business investment in infrastructure increased to an average of 67.3 per cent above the national average between 2001 and 2007. From this perspective there seems little to be concerned about in terms of British Columbia's levels of business investment in infrastructure.

Box 2: Infrastructure Investment in British Columbia - The 2010 Olympics and Major Infrastructure Projects

The approaching 2010 Olympic Winter Games to be held in Vancouver and Whistler are a significant driver of infrastructure investment in British Columbia. Apart from a construction budget of \$580 million (funded equally by the governments of British Columbia and Canada) for venues, the Games are also the catalyst for the extension of the SkyTrain metro system from downtown Vancouver to Richmond and the Vancouver International Airport (capital cost of \$1.9 billion), as well as the expansion of the Sea-to-Sky highway from Vancouver to Whistler (capital cost of \$600 million).

A key element of the business plan for the 2010 Games is the creation of legacies, several of which are related to investment in British Columbia:

- Promote Canada as a place to visit and invest
- Stimulate economic activity and job creation before, during and after the Games
- Create legacies through investment in sports facilities, cultural and sports endowment programs and major infrastructure improvements

In contrast to our sanguine view of infrastructure investment in the business sector, our view of the recent performance of the public sector is mixed. The recent decline below the Canadian average reflects the negative net investment in public infrastructure in British Columbia from 1998 to 2004 (Chart 11). Negative net investment means that the quality of infrastructure is on average declining as old structures are not replaced as quickly as they wear out. Although this decline is troubling, there are signs that more investment in public infrastructure is coming.

While net investment in BC's public infrastructure turned positive in 2005, indications are that much more infrastructure spending is planned in the years to come (Box 2). Both the governments of British Columbia and Canada have recently re-asserted the importance of infrastructure investment as a driver of economic growth. For example,

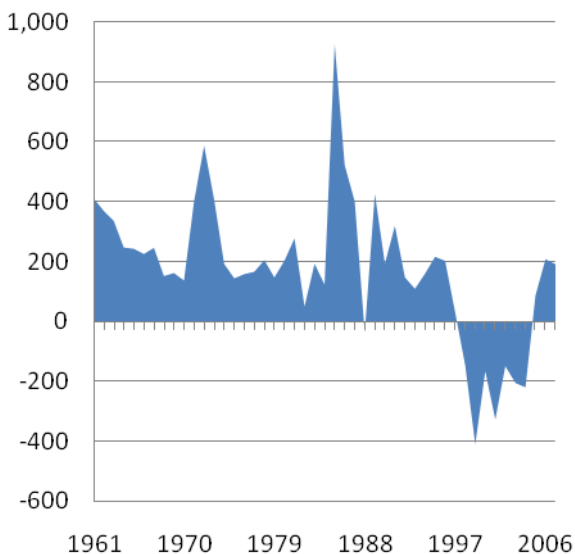
Advantage Canada, the Federal Government's economic plan released in 2006, stated that "high-quality modern public infrastructure that allows goods and people to move freely and efficiently is essential to our long-term prosperity" (Finance Canada, 2006: 66). Similarly the Government of British Columbia has also acknowledged the critical role of infrastructure in its budgets and other government publications.

Apart from allocating budgetary funding, government policy can influence how infrastructure projects are procured. For instance, innovative procurement tools like public-private partnerships (PPPs) can reduce the costs of public infrastructure investment through efficiencies relative to traditional procurement.¹⁸ Lower average costs per project can free up resources to do more infrastructure projects. Among Canadian provinces British Columbia is a recognized leader in the use of PPPs.

Overall, regardless of how projects are procured, government must insist on rigorous cost-benefit analysis for all new infrastructure projects. Requiring a high standard of due diligence will ensure that only the most valuable projects receive funding. Given the number of high-profile projects around the world that have cost more and delivered less than predicted, this point cannot be overemphasized.

The impact of public investment in infrastructure on productivity is highly dependent on the specific characteristics of individual projects. While British Columbia has not significantly underinvested in public infrastructure relative to the Canadian average, it could well be that there are specific deficiencies that should be addressed. In his comprehensive review of transportation in British Columbia for the BC Progress Board, Michael Goldberg made a number of specific suggestions (Goldberg, 2004). Some

Chart 11: Net Investment in Public Infrastructure in British Columbia, millions of constant 2002 dollars, 1961-2007



Source: Unpublished Statistics Canada data.

suggestions likely to have a positive impact on investment include reducing regulatory barriers to investment in railroads; reforming taxes so that railroads and trucking compete on a level playing field; developing a system of dynamic road pricing to more efficiently allocate existing road capacity (see for example Lewis, 2008); and upgrading specific segments of the road network. The key to infrastructure projects that positively affect productivity is rigorous cost-benefit analysis.

Since 2001, public investment in infrastructure has been somewhat below the Canadian average as a share of GDP. While BC does not appear to have significantly underinvested in infrastructure from an historical perspective, there is much room for

improvement. Two points reinforce this position. First, it could be that Canada as a whole has underinvested in infrastructure. If this is the case, then British Columbia's slightly below average performance in the Canadian context may be cause for greater concern and action, since firms often have a number of countries to choose between when deciding where to invest.¹⁹ Second, infrastructure is not a monolithic or abstract concept. It could be that BC's distinctive geography (mountains, seismic activity, islands, etc.) requires a different level and mix of infrastructure investment than the rest of Canada. Higher costs of construction result from both demand factors (economic boom and pressure to complete Olympic infrastructure or compete with Alberta), and challenging mountainous geography (*e.g.* Sea-to-Sky Highway), but lower operating and reconstruction costs can result from the relatively mild climate. It could also be that there are specific deficiencies in BC's infrastructure that should be addressed. These bottlenecks could be a disproportionate drain on productivity growth.

Overall, British Columbia should continue to pursue high-return public infrastructure projects, based on rigorous cost-benefit analysis. BC should also continue to find innovative ways of delivering infrastructure projects like public-private partnerships and road pricing. More and better infrastructure is a powerful incentive for business to invest because it lowers the cost of doing business.

B. Regulation

In this section we examine the impact of regulation on investment decisions in British Columbia. Regulation, along with taxation, is a key tool that governments have to mould the behaviour of business. While a certain amount of regulation is desirable for economic efficiency, environmental protection, and public safety, regulation can increase the costs of doing business, thereby lowering the net return to investment. Moreover, if regulations change frequently or are expected to change, but in unknown ways, the risk of investing can increase. The BC Progress Board has previously noted that "competitive taxation and regulatory policies are essential to encourage the investment spending that leads to technological innovation and upgrading, higher productivity and lower unit production costs" (BC Progress Board, 2005). Research by the Organisation for Economic Cooperation and Development has shown that product market regulation is a significant determinant of the investment in information and communications technology, a particularly important component of machinery and equipment (Conway et al, 2006). The previous part of this report demonstrated that underinvestment in ICT is a key aspect of BC's investment problem.

In 2005, the BC Progress Board published a discussion paper focusing on the importance of regulatory reform in BC (BCPB, 2005). It identified three types of costs related to regulatory programs: administrative costs, compliance costs and economic costs. The report concluded that "effective regulatory reform requires commitment and concerted focus on continuous improvement and to clear goals and principles against which improvement in regulatory environment can be measured." We share this view, and recommend that British Columbia now go even further.

British Columbia is a leader in reducing the burden of regulation on business. As of 31 March 2008, the British Columbia government's Straightforward BC regulatory reform initiative had reduced the number of regulations by 42.6 per cent since 2001. The government's goal is to maintain the number of regulations that existed in 2004, a target the government has comfortably met to date (8.02 per cent below the 2004 level on 31 March 2008) (BC Ministry of Small Business and Revenue, 2008a). As a testament to the success of this initiative, Newfoundland and Labrador and the City of Winnipeg have adopted the BC model (BC Ministry of Finance, 2007). On the other hand, while maintaining an inventory of regulations and cutting their absolute number is far more than most jurisdictions have done, this approach does not tell us whether the most costly regulations have been reformed.

In the future, a key to maintaining momentum will be to improve the measurement of regulatory costs and benefits so that the government, business, and the public can make informed decisions about the relative priority of further regulatory reform. Gathering, analyzing and reporting on the administrative, compliance, and economic costs of regulation should therefore be a priority.

A number of factors suggest that British Columbia has room to build on its early successes in regulatory reform. Breaking down barriers with other provinces will surely improve British Columbia's investment climate. British Columbia has already concluded the Trade, Investment and Labour Mobility Agreement with Alberta. Putting in place agreements with other provinces should be a priority. There is even the potential to work with other countries, especially US states, to reduce regulatory barriers and encourage investment, as Quebec is doing with France. British Columbia is already making progress in this direction. For example, BC and Washington State have, in recent years, held joint cabinet meetings, and BC has signed agreements with a number of other US States.

Another area for potential inter-provincial and federal-provincial cooperation is the creation of a common securities regulator for Canada. In 2008, an Expert Panel on Securities Regulation has begun to study this issue.²⁰ Regardless of the outcome, BC should push for a reduction in the regulatory overlap which results from each province having its own securities regulator.

The necessity of continuing to reform BC's provincial and local regulations is amplified by the fact that federal regulation is outside of BC's control. The federal regulatory approval process can be costly. In response the federal government is attempting to make approval less time-consuming and more predictable, in part through the creation of the Major Project Management Office announced in Budget 2007. Yet, inefficiencies in the federal regulatory process strengthen the case for BC to streamline its own regulatory processes.

The three elements often mentioned by business in relation to regulation are clarity, efficiency and predictability. In the industry advisory committee reports to the BC Competition Council, all three primary sector reports (wood products (BC Competition Council, 2006), mining (BC Competition Council, 2006a) and oil and gas (BC Competition Council, 2006b)) mention environmental regulations and First Nations land

claims as issues that significantly increase investment risk. In some industries, actions have already been taken to streamline the environmental approval of new projects. For example, the new *Oil and Gas Activities Act*, which received first reading on April 8, 2008, will streamline the permitting process and consolidate three existing pieces of legislation. British Columbia has also made important progress in terms of regulatory burden for new mining projects but is still lagging most other Canadian provinces in this respect.

This section has provided an overview of why regulation is problematic for British Columbia, offered examples, and urged further progress on regulatory reform. Significant progress has already been made, and British Columbia is a recognized leader in Canada. The challenge is now to maintain commitment to regulatory reform. Key areas for further action are the quantification and reporting of regulatory costs and further regulatory harmonization, between provincial and municipal governments, among provinces in Canada, between provinces and the federal government, and internationally.

C. Tax Policy

One of the key determinants of business investment decisions is tax policy. Taxes can increase the cost of investment. Relative taxation levels are among the few measurable and most certain factors affecting businesses investment decisions. As such, taxes are often given significant weight in decisions about where to invest. This section begins by explaining why taxation design matters and how tax reform does not necessarily mean a smaller role for governments. The second sub-section focuses on the state of taxation in BC relative to other provinces. The third sub-section discusses the PST, the fourth corporate income tax, the fifth property taxes, the sixth industry-specific tax incentives and other preferential programs, and the seventh part discusses personal income taxes. The final section summarizes key findings.

i. High Taxes Are Not Incompatible with Strong Economic Performance

Conventional wisdom among the general public and business community is that higher taxes stifle economic growth. Yet, there is no consensus either among the public or among economists about the optimal size of government. Indeed, Sweden and Denmark are often cited as examples of countries with high public spending (and high taxes) and strong economic performance (Brooks and Hwong, (2006) and Kesselman (2004)). In the economic literature, the focus of research has shifted from an analysis of aggregate taxation and economic performance to evaluating specific tax and spending policies.

Taxes impose an economic cost above and beyond the amount collected by the government, because taxes introduce economic distortions. For example, income taxes reduce incentives to work at the margin. High income taxes will lead to lower than optimal time at market work and more than optimal time at informal work and leisure. A recent survey of the literature on the magnitude of tax distortions in Canada shows clear differences in the efficiency of different taxes (Baylor, 2005). The least economically efficient²¹ taxes are those on capital income, followed by corporate income taxes,

personal income taxes, wage taxes, and consumption taxes. Not only are consumption taxes less distorting than capital and corporate income taxes, but the difference is substantial. For example, one study suggests that a one-per-cent-of-GDP shift from corporate income tax to consumption tax would lead to a 1.7 per cent increase in steady state GDP.²²

As noted in Sharpe (2007), the cost of capital is a key determinant of investment decisions. Ab Iorwerth and Danforth (2004) find increasing evidence that lowering the cost of capital would have a significant impact on firm investment and that policy initiatives should be focused on permanent changes in the cost of capital.

ii. The Overall Business Tax Regime in British Columbia

In the official macroeconomic model used by the BC Ministry of Finance, the cost of capital is the key variable in forecasts of demand for non-residential investment. In the model, the (user) cost of capital depends on the investment price deflator, expected real interest rates, capital depreciation rates and expected corporate tax rates over the life of the asset, as well as on the rate of investment credits (if any) and the present value of both tax depreciation and interest deductions (see Appendix 6 in the unabridged version of this report (Sharpe et al, 2008) for algebraic details). The provincial government has the policy tools to affect many variables mentioned in their own forecasting model, with the exception of real interest rates, the investment price deflator and real (as opposed to tax) capital depreciation rates.

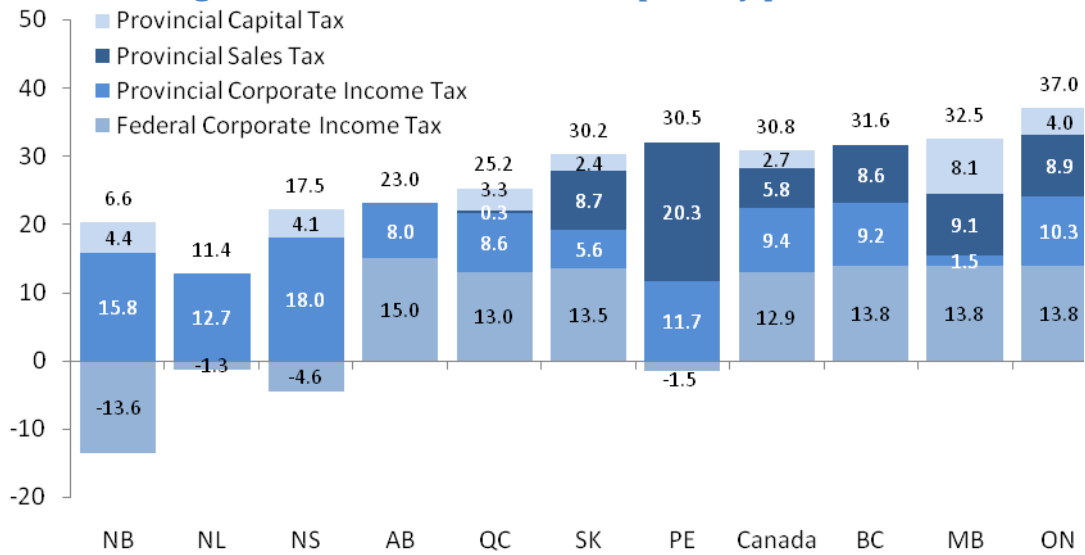
In 2007, tax revenues relative to GDP in British Columbia were below the national average (Table 4). In Canada, provincial and local governments collected tax revenues equivalent to 14.5 per cent of GDP in 2007.²³ In comparison, British Columbia's tax revenues in the same year represented 12.9 per cent of GDP. Tax revenues in Alberta were only 8.1 per cent of GDP.

Table 4: Tax Revenue of Local and Provincial Governments, as a share of GDP, per cent, 2007

	Canada	Quebec	Ontario	Alberta	British Columbia
Total tax revenues	14.5	19.5	15.6	8.1	12.9
Personal income taxes	4.6	7.2	4.6	2.9	3.6
Corporation income taxes	1.3	1.4	1.5	1.4	0.9
Consumption taxes	4.0	5.0	4.2	1.4	4.6
Property and related taxes	3.4	3.6	4.2	1.8	3.2
Other Taxes	1.2	2.4	1.2	0.5	0.7

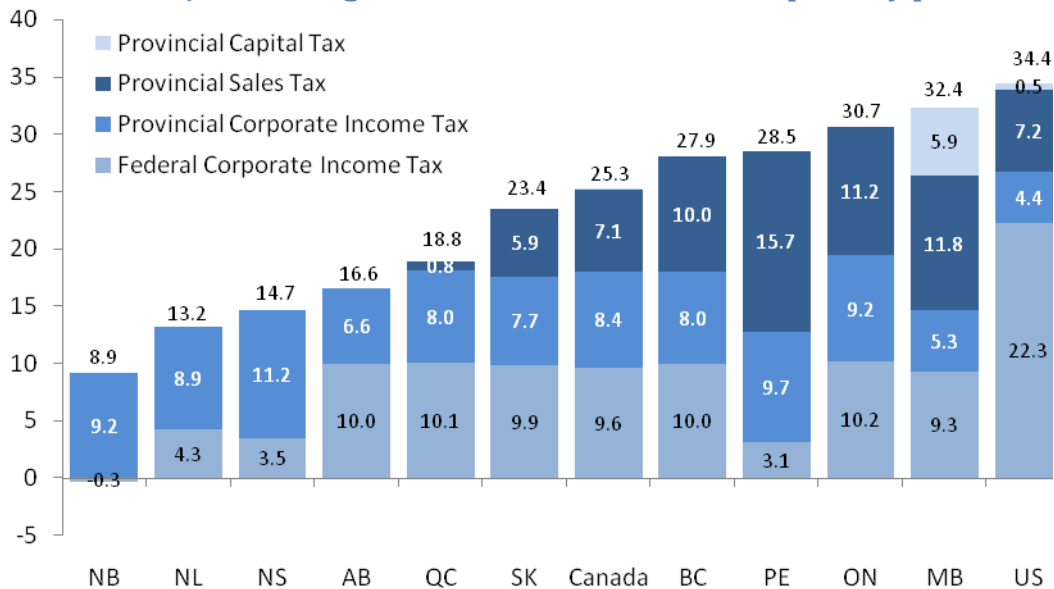
Source: Statistics Canada, CANSIM Tables 385-0001 and 384-0002.

Chart 12: Marginal Effective Tax Rates on Capital, by province, 2007



Source: Chen, et al. (2007). Although the CD Howe Institute has published METR's for 2008, they have not published a breakdown by type of tax. As a result, this chart cannot yet be updated to 2008.
 Note: Federal corporate income tax rates in the Atlantic provinces are negative due to investment tax credits.

Chart 13: Projected Marginal Effective Tax Rates on Capital, by province, 2012



Source: Finance Canada (2008) (Chart 3.10).

When tax revenues as a share of GDP are examined, BC's tax system also looks well balanced. In 2007 personal income tax revenue in British Columbia as a share of GDP was one percentage point below the national average, corporate income tax revenue was 0.4 percentage points below the national average, and revenue from property and related taxes was 0.2 percentage points below the national average. Only consumption

taxes, at 4.6 per cent of GDP, bring a larger than average share of GDP into government revenues. Because consumption taxes are generally less distortionary, a tax mix skewed in their favour should be beneficial. When the tax structure of British Columbia is examined more carefully, however, we find that the province imposes an important tax burden on the acquisition of new capital through, most notably, its provincial sales tax.

When analyzing the effects of taxes on investment, it is important to consider the impact of taxes on marginal, or incremental, investment decisions (*i.e.* the decision to employ one more unit of capital). A key measure of the tax on investment is the marginal effective tax rate (METR) on capital, which is defined as the tax on an incremental dollar of income from additional investment.²⁴ A positive METR indicates that the tax system discourages investment. In British Columbia, the METR for 2007, as calculated by the CD Howe Institute, was 31.6 per cent, 0.8 percentage points above the national average, and the third highest in Canada (Chart 12). BC's METR is projected to decrease to 27.9 per cent in 2012, still 2.6 percentage points above the national average (Chart 13). British Columbia is projected to rank sixth among the ten provinces in terms of METR in 2012. Since business investment decisions are forward-looking, where the METR will be in 2012 is more meaningful than where it was in 2007. However, this projection assumes that governments will follow through on their commitments to reduce taxes, another source of uncertainty for business.

A recent study by KPMG (2008c) found that Vancouver had the fourth lowest business taxes out of 102 cities in 10 countries examined. This finding may appear at odds with the findings of this report that BC businesses face relatively high taxes on investment. The reason for this divergent finding is that KPMG include statutory labour costs in their measure of business taxes. Statutory labour costs (*e.g.* Employment Insurance premiums) add to the costs of doing business, but they are not a tax on investment. Low statutory labour costs make capital expensive relative to labour. The KPMG finding supports our conclusions, because it means that, all else being equal, businesses in BC will prefer to hire more workers rather than invest in new machinery and equipment. While this report does not advocate higher statutory labour costs, it is certainly worth acknowledging that they have the potential to skew business incentives toward higher investment.

iii. Provincial Sales Tax

One of the key reasons behind British Columbia's high METR on capital is that, like the other high-METR provinces (Ontario, Prince Edward Island, Saskatchewan, and Manitoba), BC applies its provincial sales tax (PST) to the purchase by businesses of capital goods such as machinery and equipment, including ICT goods. Taxing capital inputs increases the cost of investment, and therefore results in lower investment and a lower capital stock. By 2012, Finance Canada (2008) estimates that the PST will add 10.0 percentage points to the province's METR on capital, more than one-third of the total METR and equal to the burden on investment imposed by the federal corporate income tax (Chart 13). Harmonizing the PST with the federal GST would do more to stimulate investment in the province than complete abolition of the province's general CIT, which adds 8.0 percentage points to the METR on capital.

Like many other jurisdictions BC has attempted to improve the PST without wholesale reform. Production machinery and equipment is exempt from BC's PST in a few selected cases, such as when M&E is used in manufacturing, software development, mining and mineral exploration, petroleum and natural gas production. A very large portion of businesses remain subject to the PST, in particular in the service sector and in other industries such as agriculture. Citing BC as an example, Dungan et al (2008: 5) argue that such attempts to improve retail sales taxes have generally failed to improve fairness or efficiency. They state that it is "virtually impossible" to eliminate most retail sales taxes on business inputs without significant complexity and monitoring costs.²⁵ In any case, since at least one-third of BC's PST revenues are generated from business inputs, it is clear that the PST affects an important portion of capital investment in the province.

The adoption of a harmonized sales tax (HST) in 1997 by New Brunswick, Nova Scotia, and Newfoundland allows for an analysis of the impact of shifting from a retail sales tax (which taxes business inputs) to a value-added tax (VAT). Smart (2007) analyzed real business gross investment in the Atlantic provinces following the 1997 HST reform and finds that investment in M&E was 12.1 per cent above trend following the reform (up to 2005), after controlling for country and provincial fixed effects.²⁶ He suggests that similar increases in investment could be achieved in British Columbia shortly after adopting a VAT, either by harmonizing the PST with the GST or via the adoption of a made-in-BC VAT. Smart also argues that the broader base of a VAT would allow British Columbia to keep its sales tax at its current statutory level of 7.0 per cent without losing revenues. In fact, if the GST structure were replicated, tax revenue would have been \$224 million higher in British Columbia in 2002, with lower revenues from construction inputs (down \$519 million), other intermediate inputs (down \$516 million), capital (down \$351 million), and government (down \$15 million). These lower revenues would have been more than offset by additional revenues from a wider taxation base including additional goods (up \$353 million) and services (up \$722 million) as well as new taxes on housing (up \$549 million). Of course, the legal and visible burden of taxation would fall increasingly on households rather than businesses. Yet, the distributional shifts following from such a reform, while mildly regressive, would not be large (Smart, 2007: 2).

The benefits to BC of moving from the current PST to a VAT would be found not only in higher investment, but also in reduced tax distortions across sectors. The current PST artificially favours some sectors of the economy, because different firms and sectors rely on purchases of inputs to different degrees. This means that the PST results in changes in relative output prices that are economically unjustified. Moreover, the PST tax base is not as comprehensive as that of a typical VAT, introducing additional distortions. The removal of the PST on business inputs would thus improve the neutrality of the tax system across sectors, leading to a more efficient allocation of capital.

The current PST is built around an assortment of exemptions with a mix of economic, environmental or political objectives. The current system distorts incentives and lowers investment. While the adoption of a value-added tax with a wider base would

not only be more efficient and fair, it would also alter relative consumer prices, but it may not significantly increase them on the whole (Smart, 2007). As such, the BC Competition Council (2006c: 20) recommendation not to replace the PST with a value added sales tax due to the potential effect on retail prices is debatable. The evidence favours shifting towards a value-added tax. Moving toward a VAT would also be timely given the strong fiscal position of the provincial government, which expects a surplus before forecast allowance of \$2.12 billion for the 2007-2008 fiscal year, more than five per cent of government revenue. In addition, at 12.9 per cent in the 2006-07 fiscal year, British Columbia was the province with the second lowest net-debt-to-GDP ratio in Canada, just after Alberta's net surplus of 12.7 per cent of GDP and well below the provincial average net debt which stood at 19.2 per cent.

Assuming harmonization of British Columbia's PST with the federal GST could be achieved without significantly increasing or decreasing provincial revenues, implementation would face a number of challenges. Moving from a tax on business inputs to a tax on consumer goods and services entails a substantial and highly visible shift of the tax burden from businesses to consumers, even if reduced input costs are eventually passed on to consumers in the form of lower prices. The revenue that would be lost from rebating taxes on business inputs would be replaced by broadening the tax base. Consumers would face higher taxes on a wide range of services and new housing currently exempt from the PST. Assuming that a rate of 7 per cent for the provincial portion of a harmonized sales tax, the total federal-plus-provincial sales tax rate would rise from 5 per cent (the current GST rate) to 12 per cent on items such as restaurant meals, home heating, basic cable and telephone, and new condo units. In the short and medium term, lower-income British Columbians could see declines in real income as consumer prices rise. Public opposition to such a shift would be a substantial concern to policymakers. Similar concerns have thwarted sales tax harmonization by all provinces west of Quebec (except Alberta) since the GST was introduced in 1991.

There are many ways of overcoming this hurdle. Kesselman (2007) has proposed several policy devices by which this shift in tax burden and the associated opposition might be eased, including: 1) providing less than full input tax credits for businesses, particularly on non-capital inputs, similar to Quebec's value-added-tax version of harmonization (a similar proposal was also made by Dungan et al (2008) in a recent report from the C.D. Howe Institute); 2) reformed tax treatment of new housing, such as eliminating the land component from the taxable base, a particularly critical issue with high urban land values in BC; and 3) allowing the province to have a limited number of items excluded from the provincial portion of a harmonized sales tax, such as restaurant meals and books. Dungan et al (2008: 12) suggest that the negative impact on the real incomes of low income earners could be offset with more generous sales tax credits. Finally, Dungan et al (2008) among others argue that the federal government could facilitate sales tax harmonization by providing transitional funding, so that short and medium-term negative effects could be dealt with until long-run positive effects appear. These proposals and others that would ease sales tax harmonization are worth further study by both the federal and British Columbia governments.

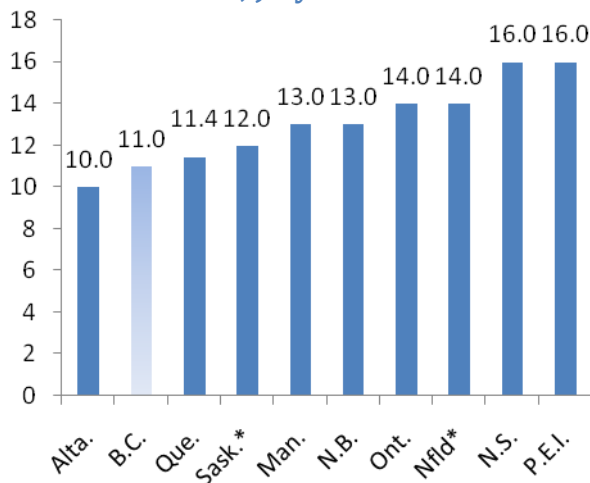
PST harmonization, or replacement of the PST with a value-added tax possibly similar to the GST, will provide long-term benefits to British Columbia in the form of higher investment that, over time, will lead to a larger capital stock and higher labour productivity. In the short- and medium-run there will be transitional costs, but these could be minimized through careful implementation. Replacing the PST with a provincial value-added tax is by far the best way to increase investment in BC.

iv. Corporate Income Taxes

Another important component of the cost of capital associated with the tax system is the corporate income tax (CIT). CIT can be thought of as a tax on the return to capital. If capital investment increases profits, higher tax rates on profits will reduce the after-tax returns to investment. In British Columbia, the statutory corporate income tax rate in the second half of 2008 was 11.0 per cent (Chart 14). Currently planned reductions will further decrease the CIT in British Columbia to 10.0 per cent by 2011 (KPMG, 2008a). These planned CIT cuts will bring British Columbia on par with Alberta, the province with the lowest CIT rate in Canada. Nonetheless, the CIT in British Columbia is still projected to contribute 8.0 percentage points to METR on capital in 2012, leaving some scope for further reductions. Yet, in our view priority should be accorded to PST harmonization over CIT reductions, because doing so would do more to reduce BC's METR on investment (10.0 percentage points versus 8.0 percentage points for complete elimination of the CIT) and an elimination of the CIT would entail larger revenue reductions for the government.

From the standpoint of encouraging investment, a prominent feature of the CIT in British Columbia is the preferential treatment of small businesses. As of 1 July 2008, the CIT rate on small business income up to \$400,000 in British Columbia is 3.5 per cent

Chart 14: Statutory Provincial Corporate Income Tax (CIT) Rates for General Business Income, July 1 2008



Source: KPMG (2008a)

*Saskatchewan (10%) and Newfoundland (5%) have lower CIT rates for manufacturing and processing income.

(Chart 15), with a scheduled decrease to 2.5 per cent on 1 December 2008 (Office of the Premier, 2008). Among the provinces, British Columbia's CIT rate for small businesses ranks fourth, just behind Manitoba (2.0 per cent), Alberta (3.0 per cent) and Prince Edward Island (3.2 per cent). The federal government also has a lower CIT rate for small businesses, 11.0 per cent in 2008 compared to 19.0 per cent for larger businesses. Preferential tax treatment for small businesses is a consistent feature across provincial tax structures.

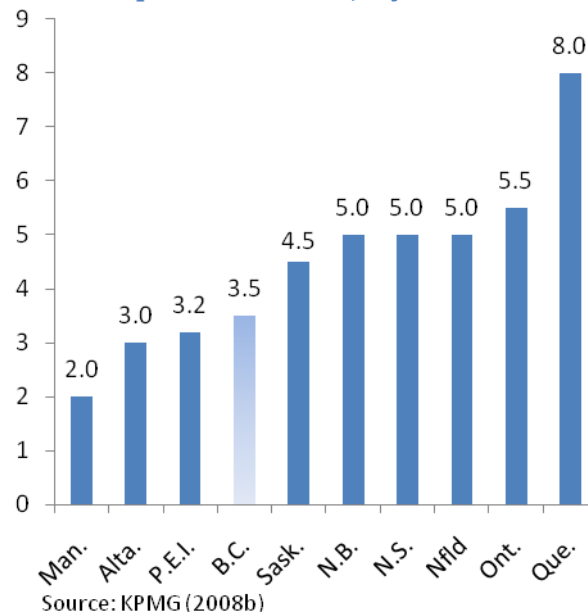
While lower general CIT rates are a relatively efficient way of encouraging investment, the preferential treatment of small businesses is not. Indeed, there are no clear externalities justifying lower CIT for small businesses (Hendricks, Amit and Whistler (1997)) and an unequal tax treatment may create unwanted distortions. Arguments for favourable tax treatment of small businesses generally point to the increased need for cash in order to grow, as well as to relatively large compliance costs. Paradoxically, compliance costs are increased by programs targeting small business, including much greater R&D tax credits for small businesses. A key distortion is that small businesses face a disincentive to invest for growth because they must pay a higher corporate income tax rate. Jack Mintz (2008) underlines a number of other potential distortions generated by the preferential tax treatment of small businesses, including the possibility that high income investors could reduce personal taxes by leaving their income in small Canadian-controlled corporations, the creation of private management companies to benefit from the \$500,000 capital tax exemptions, and the tendency for some high-tech employees to form their own start-ups to benefit from the much greater R&D tax credits for small business.

A realignment of the general CIT rate with the small business CIT rate would create a more neutral tax system. It would be preferable if such realignment were to result from lower general CIT rather than higher small business CIT if welfare gains are to be maximized.²⁷ A good first step would be to refrain from further reducing the small business CIT rate when the general CIT rate is lowered, opening fiscal room for even lower general CIT rates. While raising small business CIT rates at the same time as lowering the general CIT rate would also be appropriate from an economic point of view, in our view the political cost related to such a policy would outweigh the potential economic benefits.

v. Property Taxes

High property taxes discourage investment. All else equal, firms will invest in jurisdictions with lower taxes. Given the limited range of fiscal instruments available to municipalities, low residential property tax rates often mean that firms pay higher taxes. For this reason, looking at the business-to-residential ratio of property taxes is a good indicator of the property tax burden being borne by firms.

Chart 15: Statutory Provincial Corporate Income Tax (CIT) Rates for Small Business Income up to \$400,000, July 1, 2008



In British Columbia, both the province and municipalities collect property taxes. Property tax rates differ for residential and non-residential properties. Moreover, within the non-residential category, tax rates differ between four classes of properties: general business, utilities, light industry and major industry. The provincial property tax is officially called the “school” tax, but flows into general revenues. Starting in 1984, municipalities were allowed to set their own rates for each class of property. The main result has been to shift the tax burden from residential property owners to business property owners. As is shown in Table 5, tax ratios between residential and non-residential properties are well above one and vary considerably across municipalities.

Table 5: Real Property Tax Rates in Selected Municipalities of the Greater Vancouver Area, \$ per \$100 of Assessed Property, as of September 2006

Municipality	Tax Rate by Property Class				Tax Ratios		
	Business	Light Industry	Major Industry	Residential	Business / Residential	Light Industry / Residential	Major Industry / Residential
Vancouver	2.83	2.70	4.47	0.61	4.7	4.5	7.4
Surrey	2.09	2.18	3.11	0.58	3.6	3.7	5.4
Burnaby	2.41	2.50	6.50	0.59	4.1	4.3	11.1
Richmond	2.26	2.66	2.72	0.61	3.7	4.3	4.4
Coquitlam	2.95	3.24	7.31	0.63	4.7	5.1	11.6
Delta	2.58	2.79	4.63	0.72	3.6	3.9	6.5
Langley Township	2.35	2.66	2.91	0.67	3.5	4.0	4.4
North Vancouver City	2.22	3.25	4.37	0.54	4.1	6.0	8.0
Maple Ridge	2.64	2.75	7.51	0.74	3.6	3.7	10.2
New Westminster	2.93	4.54	4.74	0.76	3.9	6.0	6.3
Port Coquitlam	2.66	3.17	1.59	0.69	3.9	4.6	2.3
North Vancouver Dis.	2.24	4.05	6.49	0.54	4.1	7.4	11.9
West Vancouver	1.77	2.47	2.82	0.49	3.6	5.0	5.7
Port Moody	2.47	3.65	6.99	0.65	3.8	5.6	10.7

Note: Includes both provincial and municipal property taxes. Provincial property tax rates are identical across the province for non-residential properties (0.79 per cent for business and light industry and 1.25 per cent for major industry in 2008). For residential properties, the provincial rate is set separately for each school district.

Source: Invest BC Community and Regional Profiles of Taxation. <http://investbc.gov.bc.ca/CommunityProfiles/Display/default.aspx>

It is not only in British Columbia that a larger burden of property taxation tends to fall on business rather than residential owners. Table 6 shows that most large cities in Canada levy higher property tax rates on businesses than residential owners. Yet, the problem does not appear to be as acute as in British Columbia; the next most skewed tax system is in Toronto where properties under the industrial class are taxed at five times the rate of residential properties. Yet, this ratio is much smaller than that for major industry in Metro Vancouver, which is taxed up to 11.9 times the residential rate. In Saint John, businesses pay only 2.7 times the residential rate. Many smaller cities have identical rates for both businesses and residential owners. For example, Armstrong (2007) finds that nine out of 15 local governments in the Greater Calgary area had identical business and

residential property tax rates in 2006. Moreover, all 15 local governments, with the exception of Calgary, had business-to-residential tax ratios below 1.75. But, Calgary still has a business tax rate of 7.09 per cent of assessed value in 2008. The assessed value reflects the typical net annual rental value that has been established for the premises. Armstrong (2007) estimated that in 2006 the ratio of non-residential to residential property taxes in Calgary, including the business tax, was 5.57.

Table 6: Property Tax Rates by Asset Class in Selected Canadian Cities

Saint John - 2006	Residential	Residential non-owner occupied	Non-residential			
Total Property Tax Rate	1.815	3.315	4.963			
Tax Multiple from Residential Rate	1.0	1.8	2.7			
Ottawa - 2008	Residential	Multi-Residential	New Multi-Residential	Commercial Office	Industrial	Large Industrial
Total Property Tax Rate	1.246	1.982	1.246	4.621	4.992	4.287
Tax Multiple from Residential Rate	1.0	1.6	1.0	3.7	4.0	3.4
Montréal - 2008	Residential	Multi-Residential	Non-residential			
Total Property Tax Rate	1.180	1.263	4.240			
Tax Multiple from Residential Rate	1.0	1.1	3.6			
Toronto - 2008	Residential	Multi-Residential	New Multi-Residential	Commercial	Industrial	
Total Property Tax Rate	0.875	2.383	0.875	4.120	4.336	
Tax Multiple from Residential Rate	1.0	2.7	1.0	4.7	5.0	
Calgary - 2008	Residential	Non-Residential				
Total Property Tax Rate	0.460	1.131				
Tax Multiple from Residential Rate	1.0	2.5				

Note: Not all classes and their corresponding rates are presented here. For example, the city of Ottawa has about 22 different rates depending on the class of property and whether it is occupied or not. Toronto has ten different property classes. Saint John and Calgary both have only three different property classes.

Sources: For Saint John: http://www.saintjohn.ca/services_tax.cfm.

For Ottawa: http://www.ottawa.ca/residents/proptaxes/general_info/rates/urban_2008_en.pdf.

For Montreal: http://ville.montreal.qc.ca/pls/portal/docs/page/service_fin_fr/media/documents/taux-taxes-2008.pdf.

For Toronto: http://www.toronto.ca/taxes/property_tax/tax_rates.htm.

For Calgary: <http://www.calgary.ca/portal/server.pt?open=512&objID=202&PageID=0&cached=true&mode=2&userID=2>

Kesselman (2008) identifies three potential objectives involved in the allocation of property taxes: equity, economic efficiency and economic development. In general, high ratios of business to residential property taxes have been justified with the “ability to pay” principle, that is, the owners of business properties should shoulder a larger proportion of the tax burden because they are wealthy. In the case of property taxes, this argument has little traction because of the potential, and actual, disconnect between property ownership and profitability and wealth (Kesselman, 2008: 13-15).

Another way to distribute the burden of taxation that meets some fairness criteria is to tax properties according to the value of the services provided to them. By this measure, businesses are grossly overtaxed. Indeed, various studies have found that in Vancouver business properties pay three to four times more tax than the value of municipal services consumed (KPMG, 1995, and MMK Consulting, 2004). In addition to fairness, aligning property taxes with service provision also has the benefit of supporting “economically efficient decisions by both households and businesses” and augmenting “efficient investment decisions and a more productive economy” (Kesselman, 2008: 18). On the other hand, while taxing the beneficiaries of municipal services may be theoretically sound, it faces many implementation challenges.²⁸

In any case, current estimates certainly suggest that business properties are taxed too highly compared to residential properties. The actual property tax rates on the heavy industry class reach as high as 6 or 7 per cent of assessed value in some municipalities. While lowering these tax rates should rank high among policies to spur economic growth and investment in the province, when compared to other recommendations, and in particular to PST harmonization, the importance of reforming property taxes must not be overstated.

If changes to BC’s property tax regime are to be politically palatable, new revenue sources for cities must be found. Increasing user charges, allowing municipalities to piggyback on a provincial value-added tax or reducing provincial property tax rates would be economically efficient options to consider. The last two options would increase the fiscal room for municipalities and may simultaneously need a tightening of provincial constraints on the municipalities’ tax ratios by property class.²⁹

British Columbia has already begun to lower its provincial-level tax rates on major industrial properties. The 2008 budget announced a reduction of the rate over two years to the current level of business class rate (BC Ministry of Small Businesses and Revenue, 2008). In the fall of 2008, the BC Government’s 10-point economic plan went even further, providing a credit of 50 per cent on school property taxes payable on major industrial property effective in 2009 (Office of the Premier, 2008). These changes are definitely a step in the right direction, but if they are not accompanied by constraints on municipal property tax ratios, they may simply open fiscal room to be used in an economically inefficient manner by municipalities. Therefore, priority should be given to measures that constrain the tax rates and/or tax rate ratios that municipalities can apply to the business and industry property categories. In the case of communities heavily reliant on one or two major firms, typically in the resource sector, the province might wish to provide some form of fiscal compensation, at least for a transitional period. Many other reforms of the property tax in BC also warrant investigation.³⁰

Overall, it seems unlikely that property taxes are the key impediment to business investment in BC. Property taxes can certainly be administratively burdensome for business, but it seems unlikely that the impact on investment, even though sizeable, is anywhere near that of the PST. Businesses’ location decisions have been found to be relatively inelastic to property taxes. A review of empirical research suggests that a 10 per cent increase in taxes is associated with a 1.5 to 8.5 per cent decrease in business

activity. This relative inelasticity is due to the importance of market or resource proximity for certain businesses such as retailers and oil producers for example (Bartik, 1992). Even with relatively low responsiveness of business location decisions, very high rates of property tax on businesses can discourage expansion of existing businesses in the province and deter new businesses from locating there. While a reform of the BC property tax regime is certainly needed and would result in additional investment, it is clear that addressing property tax inefficiencies should not take precedence over reform of the PST.

vi. Sector-Specific Tax Policy

The case for special tax treatment of any type of expenditure must rest on the existence of externalities. Positive externalities occur when public benefits – often called social benefits – exceed private benefits resulting in sub-optimal investment from the perspective of the public. Examples of externalities are public education and research and development (R&D). There is some evidence that positive externalities are also associated with ICT and machinery and equipment investment through network effects.³¹

In British Columbia, the problem is even more acute as machinery and equipment, and investment in general, is taxed more than in provinces with value-added consumption taxes. In this context, the fact that investment in machinery and equipment is below the social optimum is more or less beyond doubt. Thus, the introduction of an investment tax credit (ITC) is appealing. Yet, the details associated with the ITC are crucial. Most importantly, if the key objective is to partly offset the distortion created by the PST, the ITC should be broad-based, and should not target particular industries or assets. Moreover, to maximize the long-term efficiency of the tax credit, it should be implemented on a long-term basis, or at least until the negative effects of the PST on investment are removed (i.e. through harmonization with the GST).

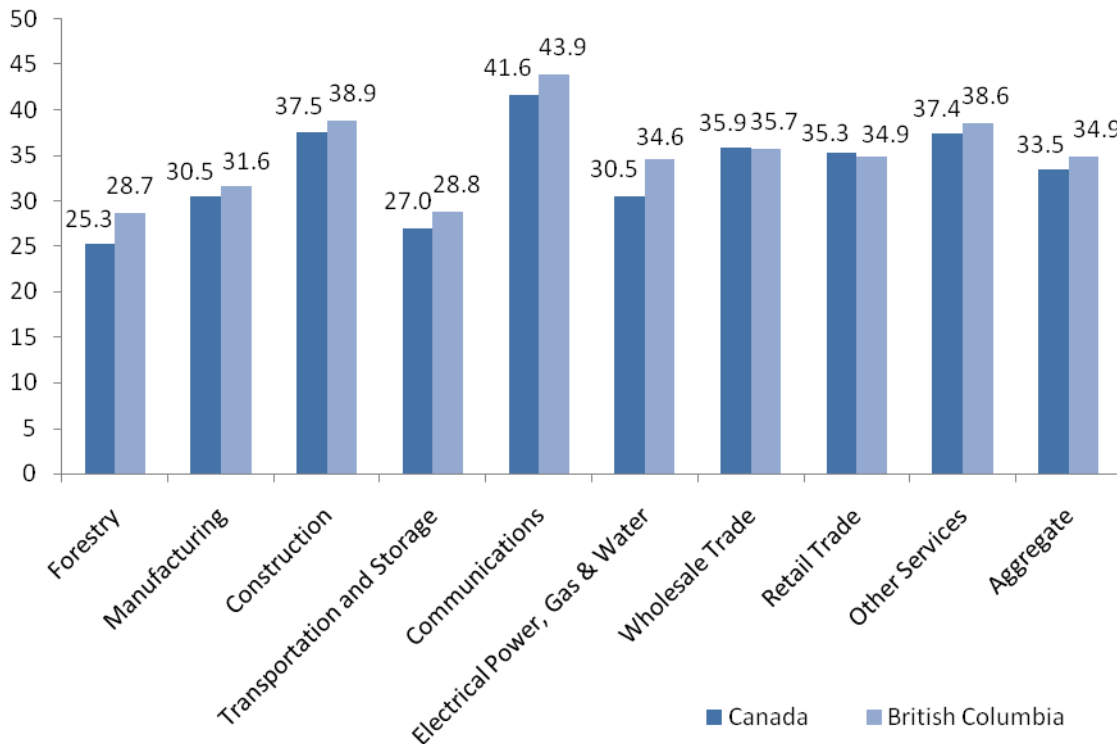
Another oft-quoted justification for investment tax credits is as a stimulus for aggregate demand and a support to targeted industries. For example, in Canada, the Investment Tax Credit for Exploration (ITCE)³² was introduced in October 2000 as a temporary measure to help moderate the effect of a global downturn in mineral exploration in the 1990s. To maximize the impact of such tax credits on aggregate demand, a number of prerequisites must be met: the tax credit must be targeted towards inputs which can be rapidly purchased (not new buildings, for example), it must be limited in time to incent increased investment as early as possible, and it should generally target industries facing tough market conditions to have favourable employment effects.

A short-term, targeted ITC comes with a number of caveats. Temporary ITC tend to move investment forward rather than increase the long-term level of investment. Moreover, by targeting the ITC to certain sectors and/or assets, governments distort incentives across industries and assets which can lead to a more uneven playing field and a misallocation of investment. Finally, temporary ITCs have a tendency to remain in place much longer than first intended.

Given the structural nature of M&E underinvestment in BC, the need is for a sustainable shift in investment incentives. In this context, the introduction of a long-term, broad-based ITC could be used to lower the cost of investing in British Columbia, but is not the optimal response to BC's investment problem. Indeed, such an ITC is a recommended solution only in the absence of PST harmonization.³³ On the other hand, we do not recommend the introduction of a short-term or targeted ITC as a way to sustainably increase investment in BC. This is not to say that such ITCs are not useful, but they should be seen as a fiscal tool to stimulate aggregate demand and support targeted industries rather than as a policy to support efficient economy-wide investment levels.

British Columbia has few tax incentives that target specific asset types and/or sectors. For example, investment in machinery and equipment receives preferential treatment in some industries. Other prominent sector-specific business incentives are a 20 per cent tax credit for some forms of mineral exploration and a variety of credits related to the film production industry. The relatively sparse use of tax incentives directed at specific industries is a positive element of the provincial tax system. Nonetheless, the tax credits aimed at the film industry, increased by \$112 million in the 2008 budget, should be reassessed and incentives should be given for the sector to transition towards business plans not requiring state support. Moreover, the PST exemption for M&E investment should be extended to all industries and all business inputs, a move toward a value-added tax, as discussed above.

Chart 16: METRs by Industry in 2010, Canada and British Columbia



Source: Chen and Mintz (2006)

The BC capital tax on financial institutions currently stands at 2.0 per cent for large financial institutions and two-thirds of a per cent for small financial institutions. The Government of British Columbia announced in its 2008 budget the phasing out of the capital tax by April 2010. It will be replaced by a one per cent minimum tax on paid up capital in BC (BC Ministry of Finance, 2008).³⁴

It should be noted, however, that while BC has few policies favouring specific sectors, there remain large discrepancies across sectors. For example, computations made in 2006 suggested that while the BC forestry sector would face a 28.7 per cent METR in 2010, the communications industry would face a 43.9 per cent METR (Chart 16). These differences stem in part from the application of the PST, which exempts certain assets

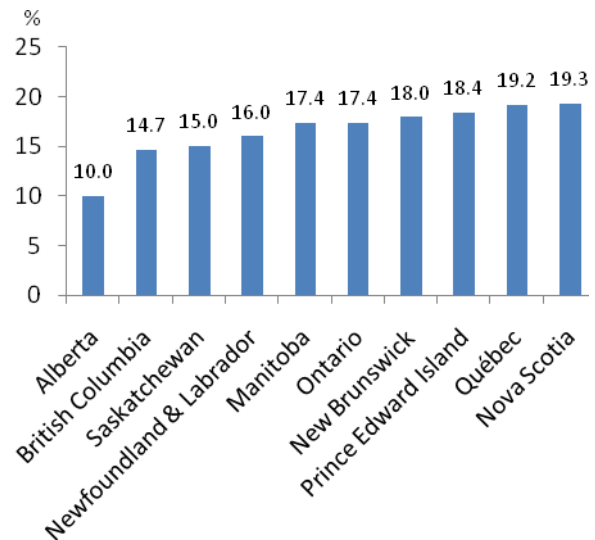
and favours industries with less input content. Similarly, the differential CIT rate between small and large companies favours some sectors. Some differences in METRs across sectors result also from provisions of the federal corporate income tax, which are mirrored in BC's CIT because it piggybacks on the federal CIT. The lack of neutrality in tax rates across sectors, even if it is not caused by differences in statutory tax rates, is unwarranted and leads to a misallocation of investment and capital.

vii. Personal Income Tax

The attractiveness of British Columbia as a destination for investment is contingent at least in part on the quality and skills of its workers. Thus, one way to increase the province's attractiveness for investment is to attract and retain highly skilled workers. Personal income tax (PIT) rates may in certain cases be a material factor in the decision of highly skilled individuals to stay in or move to a province. It should be noted that PIT rates, through their capacity to attract highly skilled labour, also have a direct effect on the aggregate level of human capital and thus on productivity.

However, PIT is only one of many factors that affect location decisions. Moreover, while the cost of living is important, so are the benefits of a particular location, its quality of life. Year after year international surveys find that Vancouver is among the cities with the highest quality of life in the world (Mercer, 2008). While Vancouver has expensive real estate by Canadian standards, it remains a relatively inexpensive place to live by global standards. Mercer's 2008 Cost of Living Survey found Vancouver to be the 64th most expensive city in the world, up from 89th in 2007. The Cost of Living survey covers the cost of 200 goods and services in 250 cities worldwide. On this basis, Vancouver was cheaper than Toronto, in 54th spot, and considerably cheaper than New York or Los Angeles, but more expensive than Miami or Washington. Among leading global cities in Europe and Asia, and even Brazil, Vancouver is relatively inexpensive (Mercer 2008a).

Chart 17: Highest Provincial Marginal Personal Income Tax Rate in 2008



Source: www.taxtips.ca/marginaltaxrates.htm

A good first approximation of the burden imposed by personal income taxes in each province is the average tax rate for individuals. Table 7 presents average PIT rates in 2008 in all ten provinces at different levels of income. The further reductions in personal income tax rates announced in the Government of British Columbia's 10-point plan will result in lower average tax rates than appear in Table 8 at all income levels in 2008. British Columbia stands out with the lowest average PIT rate at all income levels, with the exception of the lowest (\$10,000) and the two highest (\$120,000 and \$200,000). At

the bottom of the scale, the only province with a lower average PIT rate is Quebec, which has a negative rate of 5.1 per cent for individuals earning \$10,000. At the other end of the scale, British Columbia is undercut by Alberta, which has a flat PIT rate of 10 per cent. In other words, considering that only around 2.4 per cent of Canadians made more than \$113,000 in 2004 (Murphy, Roberts and Wolfson, 2007: Table 1), British Columbia's PIT is a definite advantage for attracting skilled workers. The personal income tax cuts announced by the Government on 22 October 2008 will reinforce this advantage.

Table 7: Statutory Average Personal Income Tax Rate by Province in 2008

Taxable Income (dollars)	Federal	AB	BC	MB	NB	NL	NS	ON	PE	QC	SK
10,000	-4.6	0.0	-0.8	-0.6	0.0	0.0	0.0	0.0	0.0	-5.1	0.6
20,000	6.2	1.3	1.1	5.8	4.3	4.6	4.6	3.1	5.5	4.0	5.4
30,000	8.8	4.0	3.3	7.3	6.7	5.6	6.1	4.9	6.7	7.2	7.1
40,000	10.5	5.3	4.1	8.5	8.1	7.4	8.2	5.8	8.1	8.9	7.9
50,000	12.7	6.2	4.8	9.3	9.5	8.5	9.5	6.7	9.2	10.4	8.9
60,000	14.2	6.9	5.3	9.9	10.5	9.3	10.4	7.1	10.0	11.4	9.6
70,000	15.3	7.3	5.7	10.5	11.2	10.3	11.3	7.6	10.8	12.1	10.0
80,000	16.4	7.6	6.3	11.4	11.9	11.0	12.0	8.6	11.5	12.8	10.4
90,000	17.5	7.9	7.0	12.1	12.5	11.5	12.6	9.6	12.1	13.6	10.7
100,000	18.3	8.1	7.6	12.6	12.9	12.0	13.3	10.4	12.5	14.2	10.9
110,000	19.0	8.3	8.2	13.0	13.2	12.4	13.8	11.0	13.1	14.7	11.1
120,000	19.6	8.4	8.8	13.4	13.6	12.7	14.3	11.5	13.5	15.1	11.4
200,000	23.3	9.1	11.1	15.0	15.3	14.0	16.3	13.9	15.5	16.8	12.9

Source: <http://www.taxtips.ca/taxrates/taxcomparison.htm>, reflects rates as of June 11, 2008 and therefore do not reflect the rate reductions announced by the Government of British Columbia on October 22, 2008, which will reduce average personal income tax rates in BC at all levels of income in 2008.

Note: Each taxpayer pays the federal tax in addition to the provincial tax for their province. Assumes employment income for a single person. Net of federal tax abatement for Quebec. Ontario includes the Ontario Health Premium.

Note: Since the Canadian PITs apply to individuals, the income levels above relate to the individual and not the family.

When discussing the attractiveness of British Columbia for highly skilled workers, it is also informative to look at the highest marginal PIT rate, that is, the rate that applies to an additional dollar earned by high income earners. Again, British Columbia performs very well, with the second lowest rate in Canada after Alberta (Chart 17). The difference with Alberta is, however, substantial, with high earners facing a marginal PIT rate almost one-and-a-half times that of Alberta. Yet, as noted earlier, the fact that BC has a higher marginal rate than Alberta at the top income bracket has the potential to affect the location decision of only 3 per cent of workers for whom it translates into a higher average rate in BC than in Alberta. Whether or not this situation affects investment in British Columbia is debatable, but we cannot conclude that it is a major deterrent to investment.³⁵ Overall, the personal income tax burden in British Columbia is low in comparison with other provinces except Alberta, and should therefore, if anything, be an advantage for British Columbia in attracting workers.

viii. Key Findings – Tax Policy

This section examined the impact of five key areas of tax policy on investment in British Columbia: Provincial Sales Tax (PST), corporate income tax, property tax, sector-specific tax policy, and personal income tax. In our view, the most important tax policy impediment to higher levels of investment in British Columbia is the current design of the PST. While reforming the PST should take top priority, changes in other areas of tax policy also warrant action. All of these proposed tax policy reforms will face more political than technical challenges:

- The current design of the PST in British Columbia discourages investment, because it is applied to intermediate business inputs and therefore increases the cost of investment. The PST also distorts investment incentives across industries because different industries use different levels of intermediate inputs. Moving to a value-added tax structure like that used for the federal Goods and Service Tax – or harmonizing the BC tax with the federal GST like the Atlantic provinces – would increase investment and reduce inter-industry distortions.
- Corporate income taxes (CIT) deter investment by lowering after-tax returns. While BC’s current and planned CIT rates are competitive by Canadian standards, more can be done. Lower rates for small business are a disincentive to invest because they encourage business to stay small. A good first step would be to refrain from lowering the small business CIT rate when the general CIT rate is lowered.
- The burden of property taxes in BC needs to be more equitably distributed by reducing taxes on business and increasing taxes on residences. To achieve this objective, the BC government may have to impose constraints on municipal property tax rates and/or tax rate ratios.
- British Columbia has few tax incentives aimed at specific industries or asset types. Since tax incentives that favour one industry or asset type over another can result in inefficient resource allocation, they should be avoided in the future. The desirability of existing incentives should be frequently reviewed.
- British Columbia’s personal income tax rates are very competitive in the Canadian context, and therefore are not a serious impediment to investment.

V. Conclusion and Recommendations

Conclusion

Over the last quarter century, labour productivity growth in British Columbia has been weak. From 1981 to 2007, labour productivity in British Columbia grew on average 0.4 per cent per year, while Canada as a whole experienced average annual growth of labour productivity of 1.2 per cent. The implications for British Columbia's standards of living, and in turn for the well-being of its citizens, are significant and far reaching.

Despite strong investment growth in the 2000s, BC has failed to close the investment intensity gap (investment as a share of GDP) with the Canadian average that has persisted since 1996. While BC ranked fourth in structures investment intensity in 2007 among Canadian provinces, it ranked second to last in machinery and equipment (M&E) investment intensity. Since Canada ranks in the bottom half of the OECD for M&E investment intensity, the weak M&E investment intensity in BC appears even more alarming.

M&E investment intensity is important because it is the main driver of labour productivity growth as most technological progress is embodied in new M&E capital goods. Indeed, the economics literature suggests that a one percentage point increase in the M&E share of GDP translates into a 0.2- to 0.3-percentage point increase in annual economic growth, while the effect of a similar increase in structures investment has little to no statistically significant effect on economic growth. Weak M&E investment intensity in BC relative to other provinces was concentrated in assets which generally embody large amounts of new technologies, most notably industrial machinery, computer and related equipment and software. An industry analysis shows that BC's weak M&E performance relative to Canada does not appear to be related to industrial structure, but rather is caused by an inadequate investment incentive structure.

Many British Columbians may not immediately realize that their province is gradually slipping in global measures of productivity. While strong income growth and exceptional natural beauty have made BC a desirable place to live, if BC does not improve its investment performance, the full potential of the province will go unrealized.

BC has many natural advantages that should make it a desirable place for businesses to invest. As Canada's Pacific gateway, rich in both human and natural resources, with strong institutions and the rule of law, British Columbia has the opportunity to be a leader in North America and the world. In spite of these advantages BC investment continues to lag. Business must bear some of the responsibility for the weak investment performance, and it is certainly true that businesses can always do more to adopt new technology and process innovations, but the key lies in investment incentives created by government policy.

Recommendations

Poor incentives for business to invest appear to account for BC's low machinery and equipment investment. Many of these poor incentives can be fixed through government policy. Below we set out eight recommendations for attracting the investment that is required to unlock British Columbia's potential. The recommendations are grouped into three categories: regulation, infrastructure, and tax policy.

Regulation

The Government of British Columbia has made a good deal of progress reforming regulations that discouraged investment, but there remains work to do. As the example of the BC mining industry showed, even facing the same federal regulatory regime, other provinces are ahead of British Columbia in creating a regulatory environment that encourages investment. Product market regulation in particular can have an especially harmful impact on investment in information and communications technologies, an area where BC has a serious investment problem. We recommend that the Government of British Columbia continue to build on recent success in improving the clarity, efficiency, and predictability of BC's regulatory environment. Specifically the Government of BC should:

- Continue harmonizing regulation between provinces, with the federal government, and even internationally.
- Build on the success of the Straightforward BC initiative and its quarterly progress reports by targeting not just the number of regulations, but also by improving quantification and reporting of the costs of regulation in BC. While acknowledging the cost of gathering such information, we feel that over the long-term better information will lead to better decisions and a more attractive investment climate.

Infrastructure

Abundant high-quality infrastructure reduces the costs and risks of doing business, and thus increases the returns to investment. While BC has historically done very well compared to other Canadian provinces in terms of infrastructure investment, public infrastructure investment in British Columbia was only 92.4 per cent of the Canadian average over the period 2001-2007. Moreover, if Canada as a whole has been under-investing in infrastructure by international standards, investment could be discouraged. In this area, the Government of British Columbia should:

- Apply rigorous cost-benefit analysis to each proposed project to determine the desirability of additional investment. Whether a given level of infrastructure is adequate is a highly project-specific judgment.
- Continue to experiment with innovative procurement and financing of public infrastructure projects to improve the efficiency of public infrastructure

investment. Increased use of user charges (*e.g.* road pricing) could be both a source of financing for increased infrastructure investment and a mechanism for efficiently allocating scarce infrastructure resources.

Tax Policy

Tax policy offers a very fruitful field for reforms that would encourage investment. In this area, the Government of British Columbia should:

- As soon as possible replace the Provincial Sales Tax with a value-added tax, preferably harmonized with the Goods and Service Tax administered by the federal government. Such a change would significantly lower the marginal effective tax rate on investment and reduce distortions across sectors.
- Reduce the preferential tax treatment of small businesses. The small business corporate income tax (CIT) rate should be kept at its current level and further CIT cuts should target the general corporate income tax only.
- Further reduce provincial-level property taxes on business and constrain municipalities to reduce the relative property tax rates faced by business. Overall, the provincial and municipal governments should strive for a more neutral property tax regime.
- Frequently reassess the continuing desirability of industry specific tax incentives, like tax credits directed at the film industry.

Not all of these recommendations are of equal importance. The Provincial Sales Tax stands out as a particular disincentive to invest in British Columbia. Evidence from the Atlantic provinces, which harmonized their sales taxes with the federal Goods and Services Tax, suggests that British Columbia could experience a 12.1 per cent increase in trend M&E investment as a result of adopting a value-added tax (Smart, 2007). These results imply that adopting a value-added tax would result in M&E investment as a share of GDP in BC of 6.8 per cent in 2007 (as opposed to 6.1 per cent), thus closing 70 per cent of the M&E investment intensity gap between BC and the national average (7.1 per cent).

This is a world where businesses can adapt their value chains to take advantage of the incentives offered by different jurisdictions around the world. Implementing the recommendations presented in this report would help address the negative trend in BC productivity and better position BC to realize its full economic potential.

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Appendix A: Why Investment is Important for British Columbia

Analysis of the policies affecting investment in British Columbia must be rooted in a clear definition of investment and a clear understanding of how it contributes to economic growth. This appendix first defines investment as used in this report. It then examines why investment is important for the future improvement in living standards in British Columbia.

A. What is Investment?

In its broadest sense investment is spending that will provide a benefit beyond the current year. This benefit is usually realized in terms of higher incomes and consumption.

Box 2: What Investment is Not

Investment can be a confusing term, because it has many different definitions. Most commonly, people think of investment as the purchase of financial products like stocks, bonds, or mutual funds with the objective of earning returns on their savings. This concept of investment is not the subject of this report.

Another common use of the term investment relates to the acquisition of knowledge and skills. Parents “invest” in a good education for their children. Governments make “investments” in child care and learning. While another important driver of productivity and living standards, this investment in human capital is not the subject of this report. Human capital is planned to be the subject of another report in the context of the collaboration between the BCPB and the CSLS.

Expenditures on research and development are also often considered to be investment. Yet, in the Canadian System of National Accounts (CSNA), R&D expenditures are not currently treated as investment and are thus not the subject of this report.

In this report, we use a slightly narrower definition of investment, which refers to the definition of investment in fixed non-residential capital as defined by Statistics Canada in the Canadian System of National Accounts. In the national accounts, investment is categorized as either investment in structures, which is broken down between buildings and engineering construction, or investment in machinery and equipment, such as locomotives, restaurant equipment, or computers.³⁶ In line with the national accounts definition of investment, this report focuses on investment by governments and businesses.³⁷ As such, it does not include household expenditures on items such as computers or automobiles. Moreover, while spending on residential structures like houses and apartment buildings is also investment (under buildings), this report focuses on non-residential investment as it is more closely related to improvements

in productivity. Finally, the definition of investment used in this report includes only investment in *fixed* capital, and thus excludes investment in inventories.

Two concepts that are closely related to investment and that are important to understand are capital stock and depreciation or capital consumption allowances. The structures and machinery that are created through investment spending are referred to as capital stock. Over time, through wear and tear, the capital stock deteriorates, a process called depreciation. Think of a road. When it is first built the surface is smooth and free of potholes; traffic can move efficiently. Over the years, the road is worn down by traffic and weather; eventually traffic flow is hampered. In this deteriorated state the road offers less service to users. Whereas investment spending results in more and better structures and machinery, depreciation reflects the worsening condition, or technological obsolescence, of the capital stock and its eventual retirement.

B. The Four Functions of Investment

Investment has four functions: three functions in an accounting sense³⁸ and one non-accounting function, the implementation of technological change. In an accounting sense, business investment replaces old capital, equips new workers, and improves the equipment of existing workers. The first function of investment is to address depreciation by replacing worn-out or obsolete capital. This is by far the most important function of investment in terms of expenditure. For example, depreciation accounted for 90 per cent of investment in machinery and equipment over the 1997-2007 period in British Columbia (Table 8). The difference between total (gross) investment and depreciation is referred to as net investment, which represents the increase in the economy's stock of capital.

The second function of investment relates to employment growth, due both to demographic factors or strong labour markets. If the number of workers is growing, new buildings must be constructed and new equipment must be bought to accommodate them. This portion of investment increases production levels, but it does not improve the production process or productivity. Between 1997 and 2007, providing the necessary capital to equip new workers accounted for 7.1 per cent of machinery and equipment (M&E) investment in British Columbia.³⁹

The portion of investment above what is needed to counter depreciation and facilitate employment growth translates into higher levels of capital per worker, *i.e.* higher capital intensity. Each worker now has more and/or better capital to work with, which in turn leads to higher productivity. Increases in capital per worker are referred to as capital deepening. Table 8 shows that capital deepening was the function of only 2.8 per cent of M&E investment between 1997 and 2007 in British Columbia. In comparison, over the same period 7.2 per cent of M&E investment in Canada had the primary function of increasing capital intensity, a proportion two and a half time larger than that of British Columbia.

Table 8: Cumulative Business Sector Investment in Machinery and Equipment (\$2002) in British Columbia and Canada by Function, 1997-2007

	British Columbia		Canada	
	Amount (\$2002 billion)	Share of Cumulative Investment (per cent)	Amount (\$2002 billion)	Share of Cumulative Investment (per cent)
Cumulative Investment	91.4	100.0	934.6	100.0
Depreciation	82.3	90.0	812.9	87.0
Increased Employment	6.5	7.1	54.7	5.9
Increased Capital Intensity	2.6	2.8	66.9	7.2

Source: Sharpe et al (2008)

From an accounting perspective, capital deepening is by far the most important function of investment as it allows workers and businesses to produce additional output with a given amount of labour. In contrast, investment to replace depreciating capital and to support a larger workforce is required simply to stand still with respect to productivity. Given that depreciation and employment growth are largely exogenous, it is easy to see how even a relatively small increase in the gross investment can leverage large increases in capital intensity, and thus have a significant impact on productivity.

The fourth and final function of investment is as an agent of technological change, a function that is performed concurrently with the other three functions. Indeed, new capital goods, and particularly new M&E, generally embody the latest technologies and the effect of adopting these technologies may go well beyond what is captured by quality adjustments. For example, as the internet was developed, the value of going from a computer without a modem to one with a modem may have represented only a slight quality improvement and thus a small increase in measured capital intensity, but the effect on productivity may have been significant. The particular importance of machinery and equipment investment as a driver of productivity was highlighted in the body of the report.

C. Why is More Investment Desirable?

More investment is desirable because it leads to higher productivity, both through increased capital intensity and through greater adoption of new technology. Higher productivity is desirable because it raises income. Higher productivity means producing more with the same amount of effort. Investment is one way to boost productivity.⁴⁰

Not every type of investment has the same impact on productivity. In the economic literature, it has been found time and again that a one-dollar increase in machinery and equipment investment has a stronger impact on productivity than a one-dollar increase in investment in structures (Government of Quebec, 2008: 59; De Long and Summers, 1991). The public sector does very little M&E investment, yet public infrastructure can also play an important role in attracting new investments and making existing capital more productive. In this report, we focus mostly on private sector

investment in machinery and equipment, and to a lesser extent on investment in public infrastructure.

Table 9: A Growth Accounting Perspective of the Contribution of Investment to Labour Productivity in Canada and British Columbia, 1997-2007

Average Annual rate of growth

	Canada	British Columbia
Labour Productivity	1.44	1.12
Capital Intensity	0.20	-0.07
Multifactor Productivity	1.24	1.19

Source: Sharpe et al (2008)

Note: The capital shares are estimated to be 0.4.

The direct impact of investment on productivity can partly be captured through the growth accounting methodology. Table 9 shows that growth in capital intensity contributed negatively to productivity growth in British Columbia over the 1997-2007 period. Indeed, the total capital stock did not even grow as fast as labour input, and falling capital intensity led to a -0.07-percentage-point contribution to annual labour productivity growth.⁴¹ In relation to the previous section, it can be said that total investment in British Columbia between 1997 and 2007 did not even grow enough to provide the same level of capital stock to new workers that was available to existing workers. Capital intensity contributed 0.20 percentage points to annual labour productivity in Canada over the same period.

The key difference between British Columbia and Canada, at least from a growth accounting perspective, appears to be the difference in capital intensity growth. As was noted in Sharpe and Arsénault (2008), this finding is true not only for the recent 1997-2007 period, but also for earlier periods going back to 1981.

A concrete example for British Columbia of the impact of new investment is the wood products industry. In British Columbia this industry can be divided into two regions based on the level of investment: the coast and the interior. The interior has seen significant investment in both medium scale specialty mills and super and mega mills to serve the global market. These investments have made it one of the most productive sawmill industries worldwide. On the coast, companies have invested little in recent years, and much of the technology employed is no longer state of the art. Sawmills tend to be smaller and less efficient and the industry is in a state of disarray (BC Competition Council, 2006). While this demonstrates the importance of investment for BC's future, it does not establish whether investment levels in BC are adequate.

Appendix B : Endnotes

¹ On the linkages between productivity and well-being, see Sharpe (2002). For example, productivity measures do not capture changes in inequalities or in economic security. Moreover, for a variety of reasons, only part of productivity increases may trickle down to median wage growth as was the case in Canada between 1981 and 2005 (Sharpe, Harrison and Arsenault., 2008). As such, policies aimed at improving productivity must be weighed against other social priorities. Nonetheless, there are not necessarily trade-offs between increased productivity and other social priorities, and many policies can lead to both better social and productivity outcomes. Sharpe (2007) explains some of the common misconceptions about productivity and establishes its position as the key determinant of living standards in the long term. Sharpe and Arsenault (2008) show that productivity will play an increasingly important role in economic growth in British Columbia in the next twenty years as labour force growth falls significantly due to changing demographics.

² Indeed, productivity has been targeted as a key issue by the BC Progress Board and has already been the topic of one BCPB report (BC Progress Board, 2006). Issues of high relevance for productivity growth have been discussed in depth in other BCPB reports (BC Progress Board 2002, 2005 and 2007a).

³ The data used in this section are from Statistics Canada's Investment and Capital Stock Division (ICSD), which covers the 1961-2007 period. The government sector as defined by ICSD includes all investment by the health and education industries as well as by public administration. The unabridged version of this report, (Sharpe et al., 2008) contains a discussion of data sources.

⁴ Investment per worker is also an important metric for productivity growth as it relates capital flows and labour flows directly. Investment per worker can be obtained by multiplying the investment/GDP ratio by productivity (GDP/worker ratio). In BC, GDP per worker levels have been below the national average since 1994, and it has grown slower than in Canada in 19 of the 25 years between 1981 and 2006 (Sharpe and Arsenault, 2008). As such, using investment per worker as an indicator of investment adequacy in BC leads to an even bleaker picture than that obtained using the investment to GDP ratio.

⁵ It should be noted that strong investment in Alberta in the energy sector in recent years has led to a significantly higher national average for investment per capita. Investment in Alberta, however, has not significantly affected the national average for M&E investment. A more detailed analysis of how Alberta affects the use of Canada for benchmarking BC's performance can be found in the unabridged version of this report (Sharpe et al, 2008).

⁶ While this section focuses on BC's investment performance in 2007, the broad trends observed also hold for the 2001-2007 period.

⁷ For a more detailed analysis of the impact of Alberta on Canadian average investment intensity, see the unabridged version of this report (Sharpe, Arsenault and Harrison, 2008).

⁸ De Long and Summers (1992) use updated data and statistical techniques to test their previous results and find them to be robust. Sala-i-Martin (1997) finds a positive relationship between M&E investment and economic growth, similar in magnitude to the relationship identified by De Long and Summers; a one percentage-point increase in the M&E investment share of GDP is associated with a 0.2 percentage-point increase in per-worker GDP growth. This M&E investment effect is about four times the size of the effect of structures investment. Lee (1995) finds a positive cross-country relationship between productivity and the ratio of imported capital goods to total investment; this measure reflects the share of M&E in total investment since M&E is more easily tradable than structures. Jalilian and Odedokun (2000) further subdivide capital investment into five categories (business, machinery, transport, residential, and 'other') and find that investment in machinery remains statistically significant in most of their cross-country regression specifications. Abdi (2008) also finds empirical support for spillover effects within the Canadian manufacturing sector. He notes that the elasticity of output with respect to M&E capital is generally found to be greater than M&E's factor share of output, which implies that the level of M&E investment is below the socially efficient level (in line with the predictions of the New Growth Theory of Romer (1986), Lucas (1988) and others).

⁹ OECD data are available up to 2006 on investment intensity in Canada, when it was 6.2 per cent of GDP. For many OECD countries, however, data were only available to 2004. In 2006, Canada ranked 13th of 19 countries for which data were available.

¹⁰ It is of great importance to adjust for differences in economic development in international comparisons. High investment intensity in the Slovak Republic (11.4 per cent), Hungary (9.4 per cent) and Korea (9.2 per cent), to name just a few, partly reflects the underdevelopment of these economies relative to higher income countries. One way of adjusting for different levels of economic development is to multiply M&E investment intensity by the productivity level of each country to obtain an indicator of M&E investment per hour worked. This adjustment will lead to higher income countries climbing up the ladder and lower income countries falling. For example, while Hungary falls from 3rd to 21st position, Norway climbs from 22nd to 2nd place. Canada, however, still ranks in the bottom half in 16th position. Only a few countries with comparable levels of development rank lower than Canada, most notably the United Kingdom (18th), Ireland (19th) and Finland (20th). According to OECD estimates, Canada's M&E investment per hour worked is about 7.8 per cent lower than the United States which ranks 12th.

¹¹ While not central to the discussion here, it is worth noting that historically British Columbia did not perform any better when net investment in machinery and equipment is used as a measure in place of gross investment. However, in recent years BC's net investment in machinery and equipment has improved to the point where investment intensity has exceeded the Canadian average. While encouraging, this improvement will have to be sustained for some time to make up the ground lost in the late 1990s and early 2000s.

¹² An analysis of investment trends at the industry level is included in the unabridged version of this report (Sharpe, Arsenault, and Harrison, 2008). Also we note that structures investment in BC is affected much more than M&E investment by industrial structure. This result is mostly driven by the much higher level of investment in structures in Canada due to the presence of a larger oil and gas industry. As there are no clear policy implications beyond the observation that BC has a smaller oil and gas industry than Alberta.

¹³ Government infrastructure investment is defined as investment in engineering construction in the health care and social assistance, educational services, and government industries, as defined in the North American Industry Classification System (NAICS). It excludes buildings such as hospitals and schools. In fact, almost all government core infrastructure investment is to be found in public administration.

¹⁴ See the brief review of the literature in Appendix 2 of the unabridged version of this report (Sharpe, Arsenault, and Harrison, 2008).

¹⁵ Business infrastructure investment is defined as investment in engineering construction in all industries in the economy with the exception health care and social assistance, educational services, and government, as defined in the North American Industry Classification System (NAICS). Examples of business sector infrastructure investment include investments in electricity generation and transmission structures, pipelines, exploration and drilling, natural gas processing plants, mine shafts, and telecommunications structures (towers, transmission lines, etc.).

¹⁶ In 2007 in current dollars, public core infrastructure investment in British Columbia was \$1.8 billion (0.9 per cent of GDP), while business core infrastructure investment was \$6.9 billion (3.6 per cent of GDP).

¹⁷ See the unabridged version of this report (Sharpe, Arsenault, and Harrison, 2008) for a more detailed analysis of the impact of Alberta on investment in Canada.

¹⁸ See for example OECD (2008) for a discussion of factors that can influence the success or failure of a PPP project.

¹⁹ We acknowledge that a lower level of infrastructure investment will also mean lower taxes. Moreover, to some extent, businesses will be able to substitute away from public infrastructure in their production processes. While these propositions may well hold, they do not conflict with our recommendation that all public infrastructure projects be subject to rigorous cost-benefit analysis.

²⁰ www.expertpanel.ca

²¹ One way to assess the efficiency of a tax is to measure the amount of economic activity, measured in dollars, that does not occur as the result of a tax; in economics this loss in efficiency is called deadweight

loss. For example, a tax on personal income could result in individuals working less than they otherwise would if taxes were lower or non-existent. The output that is not produced as a result of reduced working hours is the deadweight loss. Deadweight loss is inefficient, because while people are willing to work, they do not. They do not because they cannot capture enough of the benefit from the additional time spent working to outweigh the value of the leisure time they would have to forego.

²² Baylor (2005) also notes that in the only model for which it was evaluated, increases in tax depreciation rates or capital cost allowances (CCA) rank highest in terms of welfare gains.

²³ Not all government revenues are from taxation. For example, a substantial amount of provincial revenues also come from transfers from other levels of government, crown corporations dividends, health and drug insurance premiums, contributions to social security plans, sales of goods and services, investment income (including royalties) and other revenue from own sources.

²⁴ More technically, the METR is the tax wedge between pre-tax and post-tax rates of return on a marginal unit of capital invested, expressed in percentage terms relative to the pre-tax rate of return (Chen, 2000).

²⁵ In its 2008 Budget, the Government of British Columbia introduced a number of changes to the PST and clarified its application to some transactions. For example, exemptions for a number of environmentally friendly goods were introduced, and PST coverage was extended to coal and coke for non-residential usage (Ministry of Small Businesses and Revenue, 2008). Yet, the clarifications have not considerably reduced the compliance burden for firms. Exemptions are numerous and administrative discretion is often applied (Canadian Manufacturers and Exporters, 2006). The taxation of business inputs introduces distortions that often harm BC competitiveness in complex ways. For example, while the cost of inputs to produce production M&E in manufacturing are taxed, the purchase of M&E is exempt in that sector which may lead some manufacturers to buy off-the-shelf technology from other jurisdictions rather than develop it themselves. A concrete example of the effect of these distorted incentives on some manufacturers in the province is presented by the Canadian Manufacturers and Exporters (2006:5-6).

²⁶ Country fixed effects capture changes in investment in Canada after 1997 unrelated to HST reform and provincial fixed effects capture changes in investment in the HST provinces unrelated to HST reform. This estimate also excludes the mining, oil and gas sector in case the results are confounded by unrelated changes in oil and gas capital investments. If the sector is included, M&E investment grows 16.7 per cent above trend following the reform.

²⁷ A recent review of New Brunswick's tax system also proposes to realign general and small business CIT rates in an attempt to provide a more neutral tax system more conducive to economic growth (New Brunswick Department of Finance, 2008). The review also proposes, among other suggestions, to flatten incomes taxes, to introduce a carbon tax, to realign residential and non-residential property taxes and to consider a two percentage points increase in the HST (from eight to ten per cent) to make up for lost revenues.

²⁸ Kesselman (2008) notes, among other issues, that businesses also benefit from having densely populated and high income neighbourhood to draw clients and workers from.

²⁹ Note that while municipal governments currently have the right to set differential tax rates for different property class, the province ultimately determines municipalities' right to set property tax rates.

³⁰ Kesselman (2008) discusses other potential reforms to BC's property tax regime which could further economic development objectives. For example, he proposes taxing elastic (usually structures) and inelastic (usually the land) components of property at different rates. Such proposals are certainly relevant to any comprehensive review of property tax in the province, but their relevance to investment in the province is not as clear.

³¹ There is evidence of the existence of externalities for ICT investment (and machinery and equipment investment more broadly) in the literature. Tarek Harchaoui and Faouzi Tarkhani (2004) from Statistics Canada, using econometric techniques, concluded that there were important externalities associated with information technologies in the United States flowing from that country's leadership in the IT area. A recent literature survey by Aled ab Iorwerth (2005), a Finance Canada economist, concluded that because

of the need to cover the fixed costs of innovating, the price of machinery and equipment is higher than the marginal cost, resulting in underinvestment in machinery and equipment in competitive markets. Aled ab Iorwerth (2005), argues that:

“A policy compatible with new growth theory is to have low prices for machinery and equipment, particularly those that embody or lead to new technologies. A policy environment that is not conducive to investment in innovative equipment would exacerbate the negative implication of pre-existing distortion in the prices of innovative equipment: prices already exceed marginal cost. A policy to mitigate this distortion tackles directly the market failure.”

and concludes (2005:21) that:

“Given that machinery and equipment may embody innovative ideas, the public economics literature suggests that governments must ensure that public policy does not unduly penalize the purchase of capital goods”

and that (2005:29):

“Because innovative firms charge a price higher than marginal cost, the rates of innovating and diffusion will be low compared to a social optimum. A public policy that favours the adoption of machinery, which are more likely to embody innovations, can therefore be supported.”

³² A tax incentive for grassroots mineral exploration.

³³ There exists a number of policy devices that can help overcome public opposition to harmonization outlined earlier in the report. Using these devices to make harmonization politically feasible should be preferred to the introduction of an ITC.

³⁴ Financial institutions that have net paid up capital equal to or greater than \$1 billion will be subject to the minimum tax of one per cent of BC paid up capital. The minimum tax will be reduced by the total of British Columbia corporate income tax payable for that year, for the 7 preceding years and for the 3 subsequent years.

³⁵ This position is controversial. Some argue that many of the types of workers in short supply and that are critical for business expansion are highly mobile, not only across the provinces but also across the US border and overseas. Examples include seasoned executives and managers with special expertise as well as highly skilled technical and creative workers. A key part of their economic calculation for migration is net-of-tax real incomes in various locations. The availability of such workers is highly complementary with business expansion and investment. Therefore, the tax rates and cost of living outside of Canada, especially in parts of the US with lower taxes *and* lower living costs than BC, are both relevant. In summary, it can be argued that, first, highly skilled workers are especially important in encouraging investment and that, second, the location decisions of such workers are materially affected by the top PIT rates. Both of these arguments have merit in theory, but in practice we do not find them compelling for three reasons. First, the importance of very highly skilled (or more precisely, highly paid) workers for fostering investment has not yet been proven. Second, as discussed earlier, the PIT is only one of many factors affecting location decisions. There is no evidence to suggest that PIT is a significant deterrent to highly skilled workers migrating to BC. Third, even if PIT had a significant effect on the migration of highly skilled workers to BC, a general reduction in the top rate of tax would be a very blunt instrument to incent such workers to move to BC. Many workers who pay the top rate and who have no intention of leaving BC would also benefit, thereby increasing the costs of such a policy substantially. Together, the lack of evidence on either the impact of highly skilled workers on investment or the link between BC's top PIT rates and migration decisions means that it is difficult to assess the benefits of reducing the top PIT rates.

³⁶ Statistics Canada defines machinery and equipment as “Capital expenditures on durable, tangible goods with an expected service life of one year or more, such as furniture, motor vehicles, office machines and

equipment not permanently installed (permanently built-in equipment belongs to non-residential construction). Includes installation and delivery costs.” (Statistics Canada, 2008: 284)

³⁷ Even though personal expenditures on items such as cars and refrigerators do fit the definition of investment in as much as they provide service beyond the current year, they are categorized as consumption in the national accounts as they do not significantly alter production processes. Conversely, when similar expenses are made by businesses, they are counted as investment.

³⁸ National accounts are the framework used by economists to track and measure economic activity. In this context, the accounting function of investment are those formally captured by the measure of investment in national accounts, while non-accounting functions are those which are known to economists, but are not formally measured in the national accounts framework.

³⁹ This estimate assumes a constant capital to labour ratio at the 1997 level. In other words, in this example, a more formal statement would be “the necessary M&E investment to equip new workers with a value of equipment equivalent to that of the average worker in 1997 accounted for 7.1 per cent of gross M&E investment over the 1997-2007 period.”

⁴⁰ Investment is also desirable because it promotes economic activity and creates employment. This is not the key role of investment, however, as consumption also promotes economic activity and employment growth.

⁴¹ Here, hours worked is used as a measure of labour input. Hours worked grew slightly slower than employment in the 1997-2007 period in both Canada and British Columbia.