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Backgrounder

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Tools for Workers:

*How Canada is Faring
in the Competition for
Capital Investment*

William B.P. Robson and
Danielle Goldfarb

The Backgrounder in Brief

Business investment raises worker productivity and can boost growth in living standards over time. While Alberta and several Atlantic provinces experienced robust business investment since the mid-1990s relative to the United States and other OECD countries, other provinces and Canada as a whole fared less well. Investment per U.S. worker currently is more than \$2,000 above per-worker investment in Canada, a gap that tax and other policy reforms should aim to close.

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Investment in physical capital — machinery, equipment, buildings and engineering — creates new products for consumers, jobs for workers, profits for investors, and taxes for governments.¹ It also creates the fabled free lunch of positive spillovers to the rest of society, spillovers that, in the long run, make people better off at less cost in work and resources.² Jurisdictions that are more attractive to investment are better able to generate high living standards for their citizens.

The importance of investment to the productivity growth that raises living standards makes the relative attractiveness of Canada to investors a matter of broad interest. In past decades, investors' tendency to focus on opportunities at home and the fact that Canada was one of a handful of wealthy, market-oriented, democratic countries made competition for investment less fierce than it has now become. With increased capital mobility and the spread of development and democracy through parts of Asia, central and eastern Europe and Latin America, the field has widened. How is Canada's relative attractiveness holding up?

Comparisons of gross investment in structures and equipment based on data for member countries of the Organization for Economic Cooperation and Development (OECD) provide some useful observations on Canada's performance over the last two decades. Alberta stands out for its robust investment. Some of the Atlantic provinces have also performed relatively well in recent years. The attractiveness of other provinces and the country as a whole as a location for investment, however, has slipped since the early 1990s.

Measures of investment intensity — new plant and equipment spending per worker — show that, during the late 1980s investment boom, which was centred in Ontario, Canada kept pace with other OECD countries and closed a gap with the United States. Since then, however, Canada's investment intensity has declined relative to the rest of the OECD countries on average, and fallen markedly behind the United States. North America as a whole has raised its share of the developed world's gross investment, but Canada's lagging performance relative to that of the United States has limited the potential benefits of more robust investment for Canadian prosperity. For federal and provincial governments, attention to tax, regulatory and border-related factors that affect investment is a critical challenge.

Measuring Investment Across Countries

International comparisons of investment performance require a common basis for countries that measure their capital stocks differently, use different currencies, and have varying general price levels. An ideal measure would permit comparisons of

1 The authors wish to thank Yvan Guillemette, Jack Mintz, Finn Poschmann, and several anonymous reviewers for helpful comments on a previous draft of this paper. We alone are responsible for any remaining shortcomings.

2 Key references in this regard are DeLong and Summers (1991) and Sala-i-Martin (1997). Abdi (2004) provides a useful summary of this literature, and finds evidence of investment's positive effects on productivity growth in Canada.

the contribution to living standards from the future flows of services that capital already in place and now being installed will yield. We cannot get all the way to such an ideal measure but, using data from the OECD, we can get part-way.

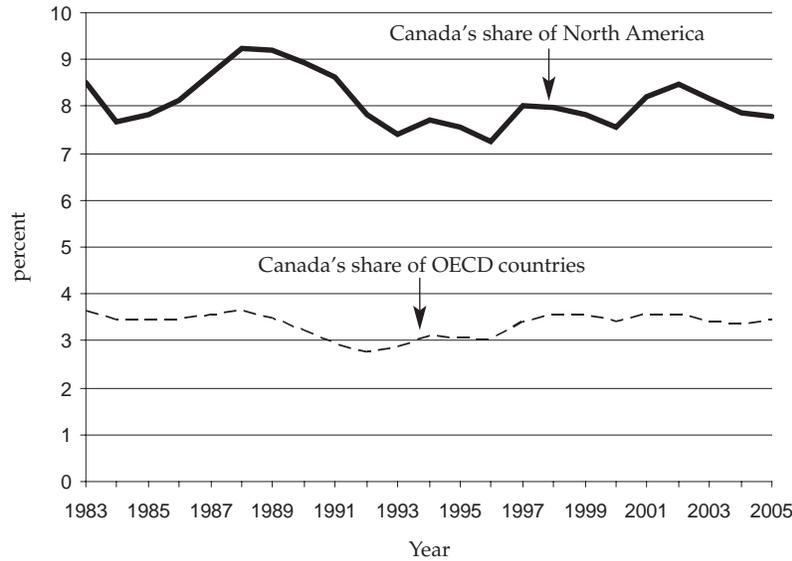
The OECD calculates, for most of its member countries, aggregate figures for gross business investment on a common basis.³ Measures of their accumulated stocks of physical capital would be better — or, failing that, investment net of depreciation and scrapping — because a significant fraction of gross investment replaces old structures and equipment that have run down or become obsolete. However, measures of depreciation and scrapping require numerous difficult judgments and guesses and are not the same, or even available, for many countries. Unless depreciation and scrapping rates differ markedly from one jurisdiction to the next, however, gross investment should produce useful comparisons.⁴

When it comes to adjustments for different currencies and price levels, the OECD also estimates purchasing-power-parity exchange rates — the exchange rate at which a representative basket of goods and services would cost the same amount in different countries.

The purchasing-power-parity adjustment is important for two reasons.⁵ First, the general price level tends to be relatively higher in countries where average productivity levels are higher. This means that market exchange rates exaggerate the difference in purchasing power, whether of households or businesses, between high- and low-productivity countries. For comparisons focused directly or indirectly on living standards, purchasing-power-parity exchange rates provide better comparisons of countries at different stages of development.⁶ Second, market exchange rates fluctuate much more than relative purchasing power does,

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- 3 Business investment in this paper refers to business non-residential gross fixed capital formation: the total value of acquisitions, less disposals, of fixed assets, as well as certain additions to the value of non-produced assets, such as subsoil assets or major improvements in the quantity, quality or productivity of land. OECD data on business investment generally include investment by state-owned enterprises — such as Canada's crown corporations — that operate in a commercial environment.
 - 4 Consideration of investment's possible contribution to productivity growth highlights another reason for preferring gross to net investment. A jurisdiction where a capital stock of a given size turned over completely every year would have the same net investment rate — zero — as a jurisdiction in which the capital stock was completely static, but the opportunity to embody new technology and organizational methods in the former jurisdiction would be infinitely greater than in the latter.
 - 5 The common practice of adjusting for country-specific price indexes to produce measures of investment volumes using currencies in a base year is no help — different countries use different price deflators (Baldwin and Harchaoui 2001), and the base-year comparison would still require a purchasing-power adjustment.
 - 6 The merits of purchasing-power-parity adjustments in comparing investment when future living standards are the focus of interest are readily apparent in thinking about residential investment. Construction costs tend to be lower in less developed countries because construction uses large amounts of non-traded goods and services that tend to be relatively low priced in lower-productivity economies. So two houses of similar size and type, one in a high-productivity economy and the other in a low-productivity economy, would have different values, if measured at market exchange rates, even though the flow of services they would provide to their inhabitants would be the same.
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Figure 1: *Canada's Business Fixed Capital Investment as Share of North America and OECD Countries (1983-2005)*



Source: OECD Economic Outlook No. 75 and authors' calculations.

Note: Shares for 2003-2005 are calculated from OECD projections.

so purchasing-power-parity exchange rates are less prone to movements that have nothing to do with the productivity of newly installed assets.

The OECD's purchasing-power-parity exchange rates are not an ideal basis for comparison because they are based on gross domestic product (GDP), and thus refer to a basket of everything produced in the economy rather than a basket of investment goods and services. Unless trends in prices of investment goods and services relative to prices of overall output have varied among countries over the period examined, however, they should permit reasonable comparisons of changes in investment shares.

Using the purchasing-power-parity exchange rates to compare investment in different countries provides a window on how Canada and individual provinces are performing in attracting investment relative to other areas in North America, or to the 21 other developed countries for which we have comparable data.⁷

Canada's Business Investment

The results for Canada as a whole, compared to both OECD countries and North America, appear in Figure 1.

Against the larger backdrop of OECD countries Canada's performance looks relatively stable. The country's investment share was robust during the late 1980s, when the economy was booming and freer trade was in prospect or in the early

⁷ The 21 countries are: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, New Zealand, Norway, Spain, Sweden, the United Kingdom, and the United States. We refer to these countries plus Canada as OECD countries.

Box 1: *Industrial Structure and the Composition of Investment*

Commentaries on Canada's lagging investment performance often focus on the gap between Canadian investment in machinery and equipment compared with other major developed countries.⁸ Especially in comparison to the United States, Canadian investment tends to be structures-intensive and less oriented toward machinery and equipment (Rao et al. 2003). While an industrial structure that favours spending on such things as engineering and buildings is a concern to some commentators, Abdi (2004) finds that Canadian investment in structures, as with investment in machinery and equipment, yields returns that are higher than those received by investors. If that is so, Canadians should be concerned not so much with changing their national industrial structure as with raising the level of investment in fixed capital of both kinds.

stages of implementation. It then slumped in the early and mid-1990s, when monetary policy was tight and fiscal imbalances drove real interest rates and tax levels up. Since then, Canada's share of investment has recovered to about 3.5 percent, the level that prevailed 15-to-20 years ago.

Against the North American total, however, Canada's performance looks less impressive. Even at its most recent peak in 2002, when the United States was working through the recession in machinery and equipment spending that followed the burst of the dot-com bubble, Canada's share did not approach the level of above 9 percent recorded 15 years earlier (Box 1).

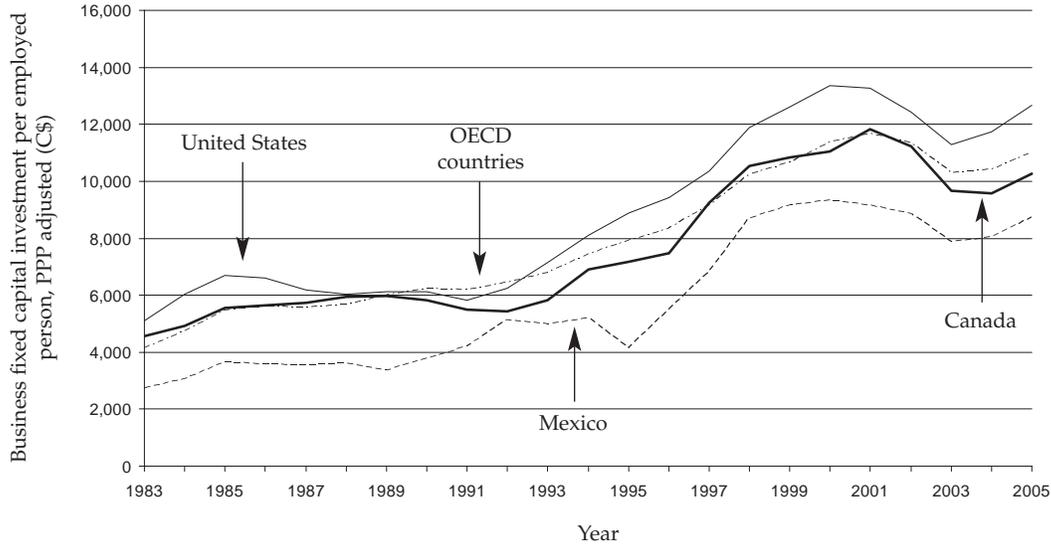
One possible influence on investment shares would be if demographic developments are moving the number of workers that investors can usefully equip with new tools differently in different jurisdictions. Figure 2 shows per-worker values of capital investment in order to compare Canada's performance against the larger sample and against its North American neighbours after adjusting for employment.

Against the broader 22-country benchmark, on a per-worker basis, Canada has invested slightly less than, or the same amount as, the OECD average. A weaker performance in the early 1990s was followed by a rebound in the second part of the decade, and then another decline below the average. The gross investment in new structures and equipment enjoyed by the average Canadian worker was \$650 lower in 2003 than that of the typical OECD worker, and is expected to be \$850 lower in 2004.

The comparison with the United States is more striking. Except in the late 1980s, Canada has consistently invested less per worker than the United States. This gap grew during the 1990s and, after the bubble-burst-induced narrowing of 2001 and 2002, appears to be widening again. Typical Canadian workers had some \$1,600 dollars less in gross investment than their U.S. counterparts in 2003, and they are expected to have a \$2,200 shortfall in 2004.

⁸ Finance (2004), for example, notes that in 2001, Canada's machinery and equipment investment as a share of GDP ranked last in the Group of Seven Industrial countries (G-7).

Figure 2: *Business Fixed Capital Investment Per Worker (1983-2005)*



Source: OECD Economic Outlook No. 75 and authors' calculations.

Note: Shares for 2003-2005 are calculated from OECD projections.

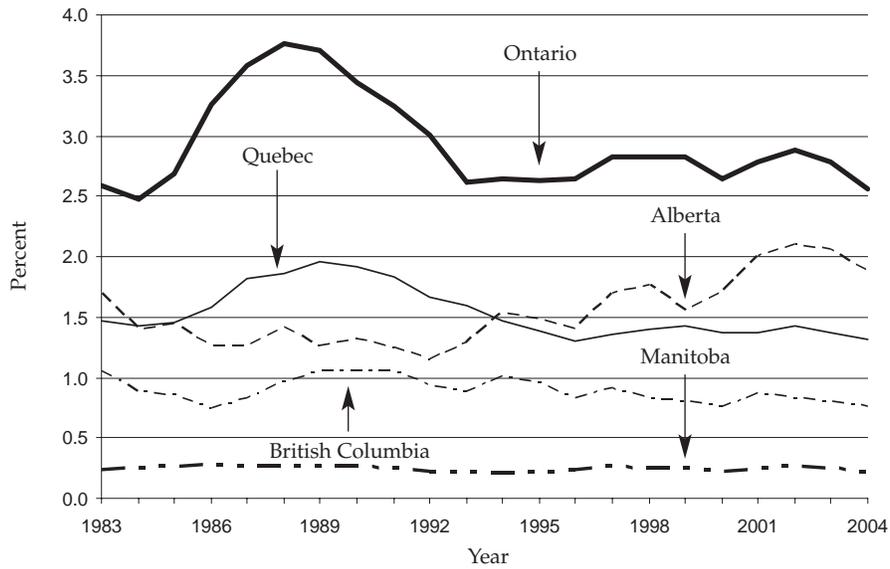
Provincial Business Investment

Changing national circumstances, such as the monetary tightening of the early 1990s and its prolonged aftereffects, likely explain many of the fluctuations in Canada's relative attractiveness to investment on an international level. A look at individual provinces, however, reveals that national cycles do not dictate provincial destiny. The top and bottom panels of Figure 3 illustrate the shares of investment of the five more populous provinces and the five less populous provinces against the North American total — their competitors in the NAFTA area — since the early 1980s.

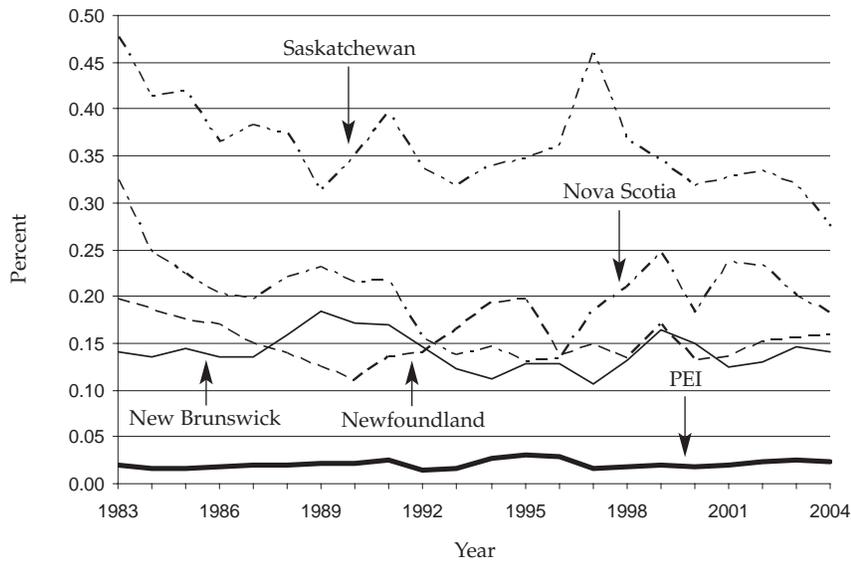
Because of its size and influence on the national aggregate, Ontario's fluctuations are broadly similar to those of Canada as a whole: a sizeable peak in the late 1980s, followed by a decline, gradual recovery in the late 1990s, and then another downturn. Quebec's pattern is similar, with a declining trend apparent amid the cycles. British Columbia's share of North American investment has also fallen since the early 1990s. Manitoba has a reputation as a steady economic performer, a reputation the profile of its investment share supports. Alberta's story is markedly different: a steady rise since the early 1990s that lifted its share by 2002 to almost double what it had been in 1992.

Among the less populous provinces, there are also mixed results. Saskatchewan's share of investment exhibits a pronounced decline. By contrast, Nova Scotia and New Brunswick's shares of North American investment have generally risen since the mid-1990s. The share for Newfoundland and Labrador, a province that declined relatively steeply in the 1980s, has also risen since the mid-1990s. Prince Edward Island, though harder to read on the compressed scale of the figure, has enjoyed an increase in recent years, as well.

Figure 3: *Business Fixed Capital Investment for More Populous Provinces as Shares of North America (1983-2004)*



Business Fixed Capital Investment for Less Populous Provinces as Shares of North America (1983-2004)



Source: Statistics Canada and authors' calculations.

Note: We estimate 2004 figures using private capital expenditure growth for 2004 calculated from Statistics Canada's survey of public and private investment intentions.

Since migration and provincial employment developments may affect these figures, we also calculate per-worker investment figures for the provinces. To facilitate comparison with North America as a whole, while limiting the number of lines on the figures, we express the resulting calculations as index numbers relative to the North American average — a measure of relative investment intensity. The top panel in Figure 4 shows the performance of the five more populous provinces by this measure, while the bottom panel does the same for the five less populous ones.

Ontario, Quebec and British Columbia have experienced a decline in investment intensity relative to North America as a whole since the early 1990s. In these provinces, gross investment per worker for 2004 is expected to be some 30 percent-to-38 percent lower than the figure for North American workers as a whole. Manitoba's performance shows no clear pattern over the period shown in Figure 4, while Alberta stands out for its robust showing, with average Alberta workers expected to have gross investment in 2004 fully 86 percent higher than that of their counterparts across the continent.

The story in the less populous provinces, most of which lost population share over this period, looks brighter on a per-worker basis. Adjusting for employment suggests that the prospects for income growth for their inhabitants is somewhat better than examination of their overall investment shares alone would indicate. Although the direction of the adjustment is upward, the levels of investment experienced by the typical worker in the less populous provinces varies considerably. Workers in Newfoundland can expect to benefit from gross investment roughly one-quarter larger than that for average North American workers in 2004; workers in Prince Edward Island, by contrast, can expect to receive about 40 percent less gross investment per person than that experienced by the average North American worker in 2004.

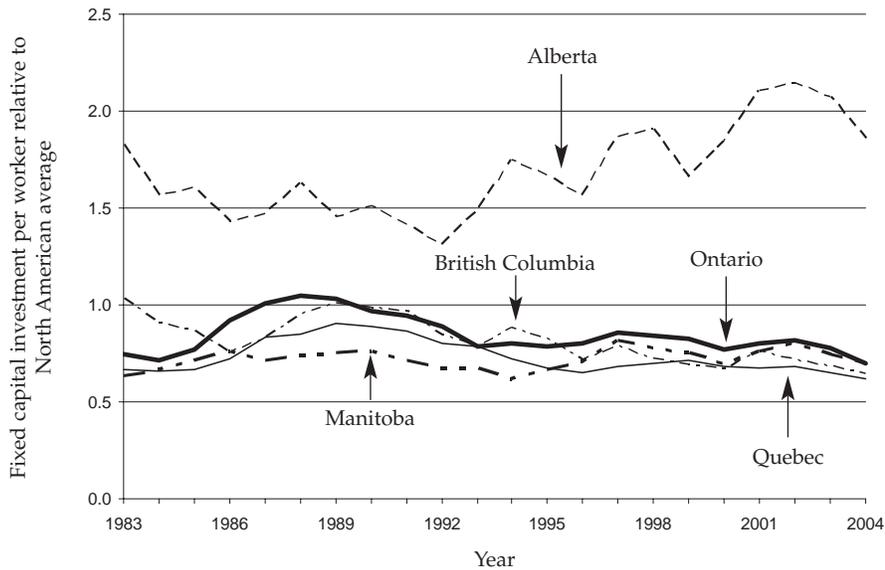
Discussion and Policy Implications

How much do these differences in investment intensity reflect factors that governments can influence?

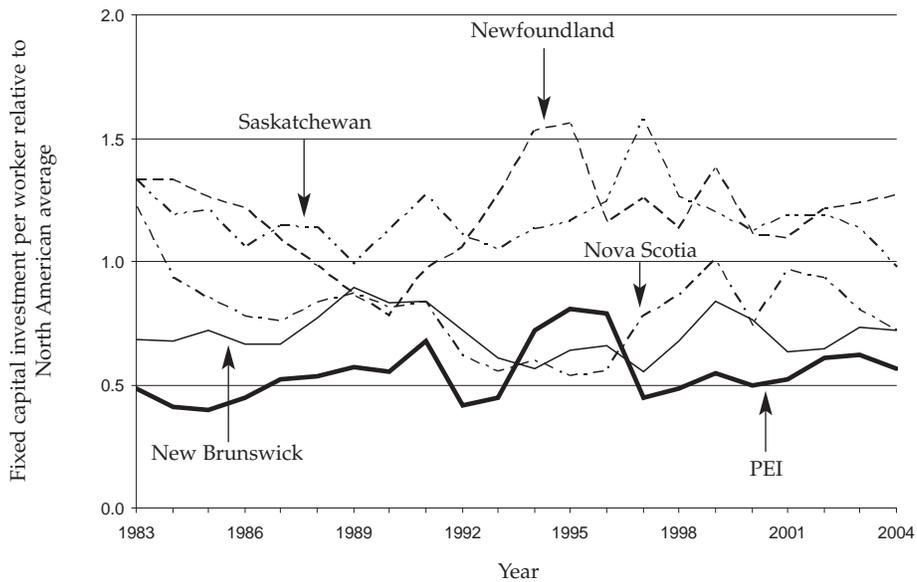
Clearly, some of the differences in levels of investment, as well as specific cycles, reflect differences in industrial structure from province to province. Resource industries are capital intensive, leading to relatively high capital spending per worker in Alberta, for example, when demand for natural resources is strong. Ups and downs in the automotive market will show up disproportionately in Ontario's performance. Specific, large energy investments in Saskatchewan and Newfoundland help explain the fluctuations in those provinces' investment measures in the 1990s.

Contemplation of the widening circle of countries that are attractive to investment around the world, however, shows that industrial structure is not fixed. Over time, the policy environment does matter, as illustrated starkly, for example, by the presence of open, market-oriented South Korea in the OECD comparison, and the absence of closed, communist North Korea. Natural resources attract investment readily where tax rates are low and rights of investors are secure; they remain unexploited where taxes are high and rights are insecure.

Figure 4: "Index of Investment Intensity" for Five More Populous Provinces (1983-2004)



"Index of Investment Intensity" for Five Less Populous Provinces (1983-2004)



Source: Statistics Canada and authors' calculations.

Note: Estimates of 2004 figures assume employment growth equal to the previous year's performance and use private capital expenditure growth for 2004 from Statistics Canada's survey of public and private investment intentions.

Manufacturing and service industries usually locate, other things being equal, close to good infrastructure and a skilled workforce. So while such major events as discoveries of oil deposits may alter investment shares, changes in shares over time, even when they reflect shifts in industrial structure, do not necessarily mean that policy has played no role.

The message for policymakers in these results is that such strength as there is in Canada's national figures owes much to the only one of the larger provinces, Alberta, that is performing relatively well. To some extent, robust investment in some regions of the country will inevitably be offset by weaker investment in others. Because resources flow more readily within countries than across international borders, growing regions in Canada will usually attract resources from those where growth is weaker. At the same time, factors that might improve the performance of many provinces, and of the country as a whole, are relatively easy to identify.

One factor that is readily susceptible to policy change is the taxation of capital investments. A recent study (Ab Iorwerth and Danforth 2004) provides fresh evidence of the importance of the cost of capital on investment. The effective tax rate on new investments, taking account of all relevant taxes, not just corporate income taxes, is an important determinant of the cost of capital. Effective marginal tax rates on new investment for the provinces calculated by Chen and Mintz (2004) show that many of the provinces that have been losing investment share recently — Ontario, Quebec, British Columbia, Manitoba and Saskatchewan among them — have effective marginal tax rates on new capital investment of 30 percent or more. Lowering those rates to levels prevailing in Alberta and the Atlantic provinces might help improve their performance.

Not all causes of relatively low investment shares are as readily changed by policymakers as tax rates. But even less tractable problems, such as differences in product standards and border frictions that may induce companies seeking to serve the entire North American market to locate in the United States rather than Canada, require the attention of Canadian governments. The potential lift that more robust investment can give living standards warrants greater effort on the part of Ottawa and the provinces to improve the climate for business investment.

References

- Ab Iorwerth, Aled and Jeff Danforth. 2004. *Is Investment Not Sensitive to its User Cost? The Macro Evidence Revisited*. Department of Finance Canada Working Paper 2004-05. Ottawa.
- Abdi, Tahir A. 2004. *Machinery & Equipment Investment and Growth: Evidence from the Canadian Manufacturing Sector*. Department of Finance Canada Working Paper 2004-04. Ottawa.
- Baldwin, John R. and Tarek M. Harchaoui. 2001. "The Structure of Investment in Canada and its Impact on Capital Accumulation." *Productivity Growth in Canada*. Statistics Canada Catalogue 15-201. January.
- Chen, Duanjie and Jack Mintz. 2004. *The 2004 Business Tax Outlook: Lowering Business Taxes Would Spur Investment*. C.D. Howe Institute e-brief. Toronto: C.D. Howe Institute. March.
- Delong, Bradford J. and Lawrence Summers. 1991. "Equipment Investment and Economic Growth." *Quarterly Journal of Economics*, 106 (2), 445-502.
- Department of Finance. 2004. *Budget Plan. Annex 7*. Ottawa: Government of Canada.
- Rao, Someshwar, Jianmin Tang and Weimin Wang. 2003. "Canada's Recent Productivity Record and Capital Accumulation". *International Productivity Monitor*. Number 7, Fall. Ottawa: Centre for the Study of Living Standards.
- Sala-i-Martin, Xavier. 1997. "I Just Ran Two Million Regressions." *American Economic Review*, 87 (2), 178-83.
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