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ECONOMIC GROWTH AND INNOVATION

Disarmed and Disadvantaged: Canada's Workers Need More Physical Capital to Confront the Productivity Challenge

By

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- Canadian workers have enjoyed less robust investment in plant and equipment than their counterparts in the United States and other major developed countries over the past 15 years. And notwithstanding Canada's relative economic resilience through the recent slump, the per-worker investment gap vis-à-vis other countries appears to have widened.
- Policy measures to foster more investment in physical capital would give Canadian workers the tools to match foreign rivals and achieve high and growing incomes in the years ahead.
- Policymakers should increase domestic exposure to global competition and improve international tax provisions to attract inbound foreign investment and encourage repatriation of earnings by Canadian companies abroad.

INDEPENDENT • REASONED • RELEVANT

A key lesson from Canada's own experience and from economic development around the world is that business investment in plant and equipment is critical to raising output and living standards. Increased work effort contributes negligibly to rising incomes over time: what matters much more are new machinery, equipment and buildings, and the technological innovations and organizational improvements they entail.[1] For Canadians worried about their country's prospects in a world where large developing countries are increasing their share of markets in manufacturing and other sectors, the prospect of Canadian workers falling behind better equipped counterparts abroad is akin to sending them unarmed into the global contest for higher productivity and economic security.

The image of going into battle empty-handed is admittedly a strong one, but the numbers comparing capital investment by Canadian businesses with that of firms in the United States and elsewhere tell an unhappy story.[2]

We thank Andrew Sharpe and Serge Coulombe for useful comments on an earlier draft. Responsibility for any errors and for conclusions is ours alone.

1 Empirically, growth in capital stock has been correlated to growth in real wages across Canadian jurisdictions. Using growth data from 1991 to 2010, a simple regression of capital stock per worker and real wages, by province, yields a significant positive relationship between the two variables - so regions with more capital spending also experience higher wage growth, over time. In an oft-cited international examination of the issue, Sali-i-Martin (1997) demonstrates the positive spillover effects from investment in equipment and other capital structures on national economic growth.

2 This e-brief updates similar surveys in previous years: see Robson and Goldfarb (2004, 2005, 2006), Banerjee and Robson (2007, 2008) and Busby and Robson (2009).

For every dollar of new plant and equipment enjoyed by workers in the OECD, on average, over the 1993-2008 period, Canadian workers also enjoyed about a dollar of new investment, but now, Canadian workers appear to be getting only 94 cents for every dollar enjoyed by their OECD counterparts. For every dollar enjoyed by G7 workers from 1993-2008, Canadian workers enjoyed about 94 cents; now they are enjoying only 92 cents. And for every dollar enjoyed by US workers from 1993-2008, Canadian workers enjoyed 83 cents; now, they are enjoying less than 79 cents.[3]

The recent deterioration in Canada's relative numbers partly reflects the fact that employment in Canada has been more resilient during the recession and early recovery than in other countries: compared to elsewhere, the new tools that are being put in place are being shared among more hands. If this pattern continues, however, Canadian businesses will be equipping their workers less well than those in other countries, a setback in the quest for rising living standards in the coming expansion.

Measuring and Interpreting Investment per Worker

We use data from several standard sources to make our comparisons of business investment per worker internationally and among Canadian provinces. Data on business capital formation – that is, investment in machinery and non-residential structures[4] – and employment are from the OECD, and we use comparable data for Canadian jurisdictions from Statistics Canada. We convert foreign investment figures into Canadian dollars using purchasing-power parity (PPP) exchange rates from the OECD.[5]

Since 1995, business investment per worker in Canada has generally matched OECD average figures, but lagged the G7, and particularly the United States (Figure 1). Canada's relative performance was particularly poor a decade ago, then improved somewhat – but recently appears to have worsened again, with the slump affecting investment in Canada worse than investment abroad. Statistics Canada's survey of investment intentions suggests that Canadian workers will get 6 cents less per dollar invested in the average OECD worker in 2010, 8 cents less per dollar invested in the average G7 worker, and 22 cents less per dollar invested in the average US worker (Tables 1 and 2).

Provincial Strengths and Weaknesses

Fluctuations in investment per worker in Canada may be greater than those in most developed countries because of the greater domestic importance of natural resource industries, which tend to be capital intensive and sensitive to global prices. The fact that Alberta has recently experienced declines in investment partly explains the sagging Canadian totals. That, however, is not the entire story: in Saskatchewan and Newfoundland and Labrador, the other two provinces with high investment rates, the picture is more robust.[6]

Other contrasts are evident across the country. In some provinces with positive per-worker investment trends over time, such as British Columbia and New Brunswick, the intentions survey suggests that investment per worker is holding up fairly well. Manitoba had been doing better, but seems to have suffered a setback. Quebec, long a low-investment province – from 1993 to 2008, Quebec workers benefited from less than 73 cents of investment for every dollar enjoyed by OECD workers – is now in the mid-60-cent range. Very discouraging, given its economic weight in the country, is the performance of Ontario. From 1993 to 2008, Ontario workers enjoyed almost 84 cents of investment per dollar across the OECD as a whole. That number has declined for more than a decade: it dropped below 70 cents in 2008, and appears to be mired at that level since then.

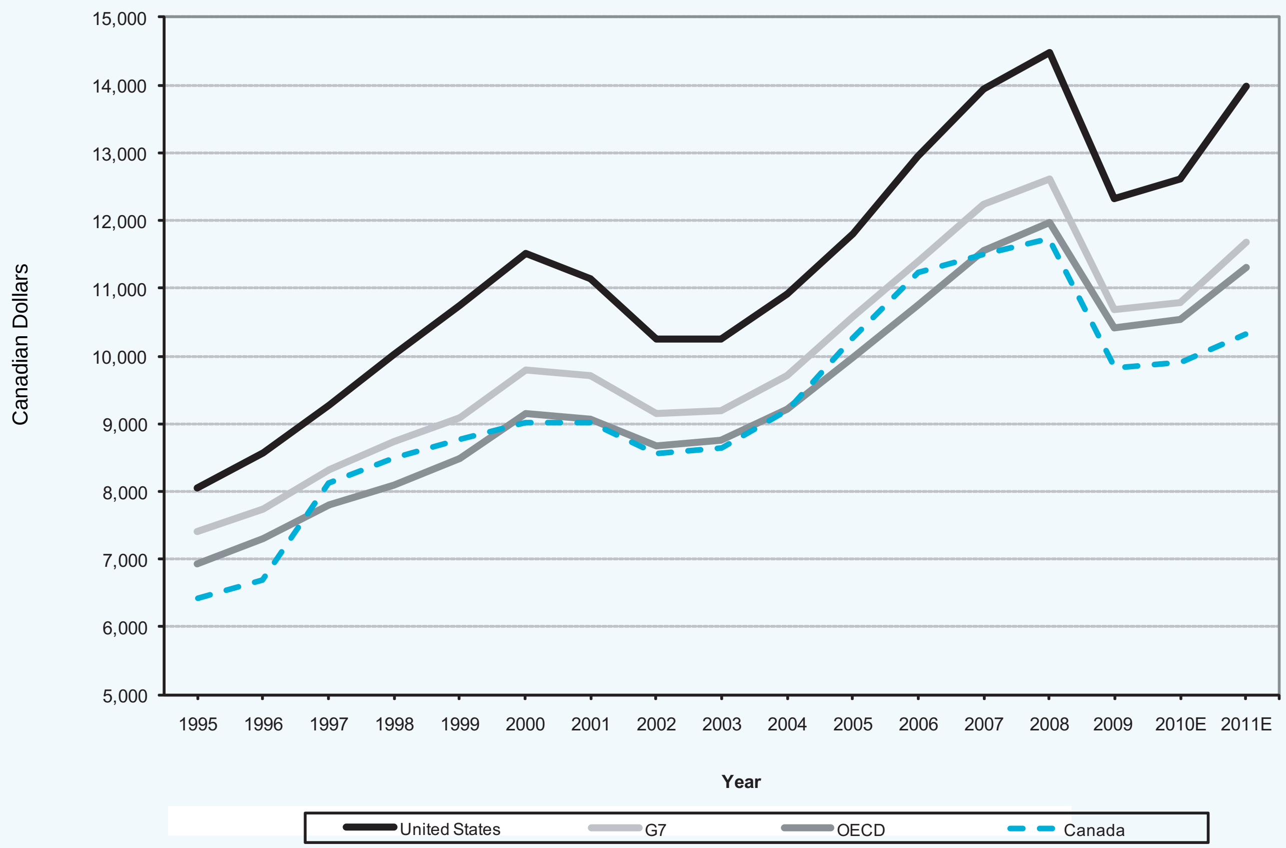
3 These figures come from OECD's Economic Outlook data.

4 The OECD and Statistics Canada investment numbers include private businesses and government business enterprises functioning in a commercial environment.

5 The purchasing-power adjustment allows more meaningful comparisons of the "bang per buck" of investment spending in different countries than market exchange rates would do, since – especially at a point in time – market rates will reflect relative domestic price levels very imprecisely. We make capital-goods-specific adjustments using OECD's 2005 benchmark PPP figures for gross fixed capital formation, and then construct time series from economy – wide PPP measures for each country.

6 To the extent that Saskatchewan is attracting fossil-fuel investment from Alberta, where the fiscal regime affecting the industry changed for the worse, some of the change in activity represents migration within the country rather than a national trend.

Figure 1: Private Non-Residential Gross Capital Formation per Worker, 1995 - 2011E.



Sources: OECD; Statistics Canada; authors' calculations.

Table 1: Private Non-Residential Gross Capital Formation per Worker, in Canadian Dollars, for Provinces, Canada, OECD, G7 and US, 2000-2010E

	Canadian Dollars											Ratio to OECD		Ratio to G7	
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010E**	**2009**	**2010E**	**2009**	**2010E**
AB	19,100	20,300	19,000	20,000	22,400	28,700	32,000	32,100	32,000	22,500	23,000	216	218	211	213
BC	6,900	7,500	7,100	7,200	7,800	8,500	9,700	9,800	10,500	8,700	8,900	83	84	81	82
MB	7,100	7,300	7,200	7,000	7,300	7,200	7,900	8,300	10,000	9,100	8,400	87	80	85	78
NB	8,000	6,100	5,900	6,600	6,900	7,300	9,400	10,000	10,200	9,100	9,100	87	87	85	85
NL	11,800	10,900	10,100	11,600	13,900	15,300	13,400	11,600	10,900	10,900	13,100	104	124	102	121
NS	7,800	8,000	8,200	7,500	7,000	7,100	7,000	7,400	6,900	7,200	7,100	69	67	67	66
ON	8,000	7,700	7,400	7,200	7,300	7,800	8,200	8,400	8,300	7,200	7,200	69	68	68	67
PEI	5,300	5,100	5,000	5,100	5,500	5,200	5,700	7,300	6,700	5,500	5,400	53	51	51	50
QC	7,100	6,500	6,300	6,400	6,900	6,800	7,000	7,200	7,300	6,900	6,900	66	65	64	64
SK	11,900	11,700	10,700	11,400	11,200	13,500	15,400	17,000	19,000	17,600	18,400	169	175	165	171
Canada	9,000	9,100	8,500	8,600	9,200	10,400	11,400	11,700	11,700	9,800	9,900	94	94	92	92
OECD	9,200	9,100	8,700	8,800	9,200	10,000	10,800	11,600	12,000	10,400	10,500	100	100	98	98
G7	9,800	9,700	9,200	9,200	9,700	10,600	11,400	12,200	12,600	10,700	10,800	103	102	100	100
US	11,500	11,100	10,200	10,200	10,900	11,800	12,900	13,900	14,500	12,300	12,600	118	120	115	117

Sources: OECD; Statistics Canada; authors' calculations.
Note: The Figures use total employment, full and part time; Canadian national and provincial figures are derived from Statistics Canada data whereas international figures use OECD data.

What about the BRIC Countries?

Because Canada must compete with the rapidly rising economic giants – Brazil, Russia, India and China (BRIC) in particular – it would be good to widen the comparison of investment per worker to include them as well. Differences in data, however, prevent the same sorts of comparisons outside the OECD.

If we use purchasing-power adjustments from the International Monetary Fund for these countries, and national data on investment and employment, we get investment rates that are considerably lower than Canada's, but rising rapidly – from about 14 cents per dollar invested in a Canadian worker in 2002 to about 22 cents in 2008. While the magnitudes are suspect, the trends are convincing: Canada is not matching the pace of major developing countries' progress in closing investment-per-worker gaps with other developed countries.

Fostering More Robust Investment

Before turning to possible ways to improve Canada's relative performance, two caveats are in order. The numbers for 2010 may be affected by differences in timing: the Statistics Canada survey we use for domestic investment came later than many of the numbers going into the OECD projections, so downward revisions in forecasts and intentions in the intervening period may make the Canadian numbers more pessimistic.

Perhaps, moreover, Canada's performance is not quite as bad as the investment-per-worker measure suggests. A remarkable feature of Canada's experience in the slump and the recovery is the robustness of the job market. Employment fell by much less than in the United States, for example, and has rebounded more smartly. It is not clear why this happened, and in the midst of a still uncertain recovery, this relatively healthy employment record is welcome. Looking further ahead, however, we want not just lots of jobs, but well-paying, secure jobs. For that, healthy rates of investment per worker are critical, and the task of ensuring that the new plant and equipment being put in place is sufficient for the number of workers who need it is no less urgent.

In the wake of an economic crisis that featured a virtually unprecedented seizing up of credit markets, it seems reasonable to ask if investment has sagged because of lack of funds. Data on the financial state of Canadian firms suggest no such problem however: in fact, a striking feature of recent experience is the extent to which Canadian companies, historically net borrowers of funds from the rest of the economy, have become major net lenders (Figure 2). Lack of funds is not the issue; hesitancy in reinvesting them in the business, and tapping into household saving to add to capital, is what needs explaining.

While some may be inclined to criticize Canadian managers for less aggressive investment than their counterparts abroad, economists tend to look for features of the environment in which managers are operating that might explain their behaviour. One suspect is taxation. Corporate income taxes, capital taxes and sales taxes on business inputs made Canada, until recently, one of the world's least hospitable tax jurisdictions. With corporate tax rates generally coming down, and this year's replacement of provincial sales taxes in Ontario and British Columbia lessening the tax bite on investment and other business inputs, Canada's position in that respect has improved markedly (Chen, Mintz and Tarazov 2007, Poschmann 2009), holding out hope for better numbers in 2011 and beyond.

Regulatory reform is critical to boosting domestic competition. On this score, important policy reforms would remove ownership limitations on large domestic industries, such as transportation, telecommunications and finance (Canada 2008b).[7]

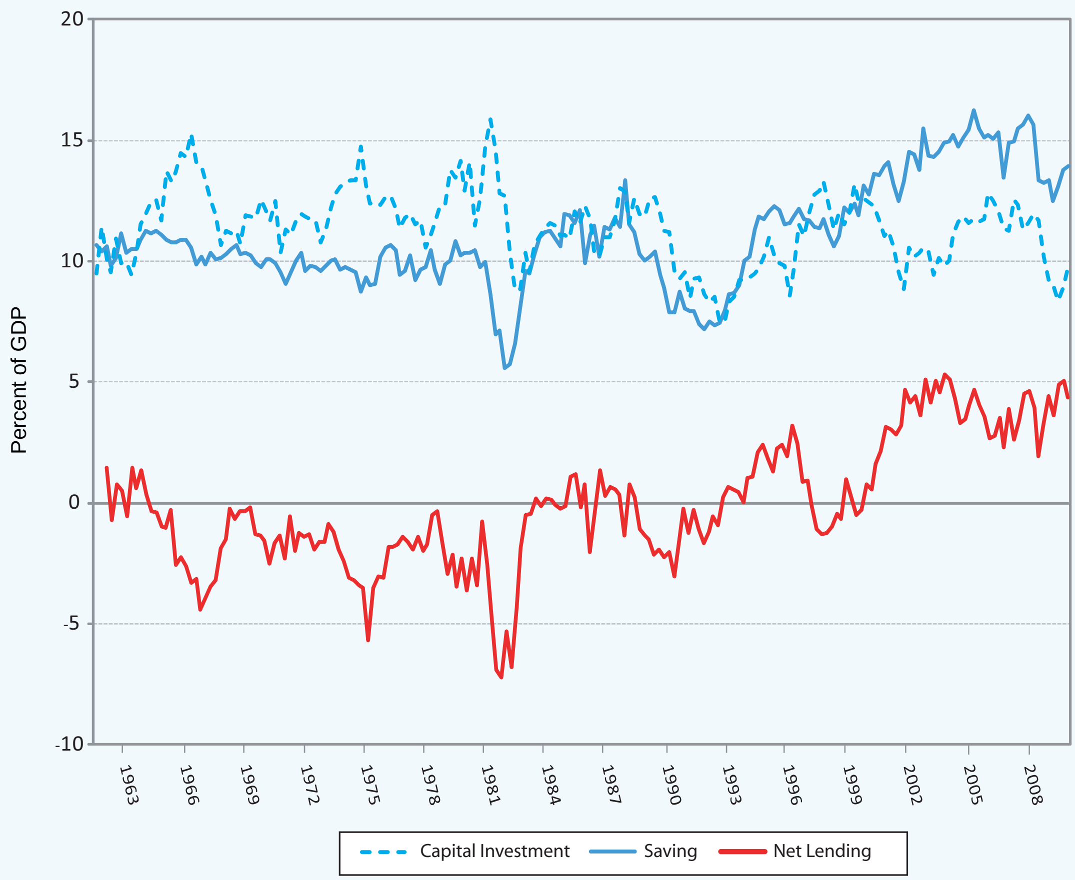
7 Non-resident withholding taxes in Canada make non-resident investors pay a 25 percent tax on interest, dividends, royalties, and other payments from Canadians. Under bilateral tax treaties, the tax rate is normally reduced to around 15 percent or lower. Offering national (or non-discriminatory) treatment similar to the treatment that applies to Canadian corporations operating in many foreign countries would also help boost inbound investment (Cockfield 2008).

Table 2: Private Non-Residential Gross Capital Formation per Worker, US=100, 2000 - 2010E

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010E
AB	165.9	182.4	185.3	194.9	205.0	243.3	247.4	230.1	221.3	182.6	182.2
BC	60.0	67.6	69.1	70.7	71.4	71.9	75.1	70.0	72.2	70.3	70.3
MB	62.0	66.0	70.7	68.7	67.3	60.7	61.1	59.8	69.0	73.9	66.6
NB	69.3	54.8	57.3	64.3	63.1	61.8	72.4	71.8	70.6	73.8	72.3
NL	102.9	98.3	98.2	113.3	127.4	129.3	103.6	83.4	75.0	88.3	103.8
NS	67.7	71.9	80.2	73.3	64.3	59.9	54.4	52.9	47.8	58.1	56.2
ON	69.2	69.5	71.9	70.0	66.9	65.7	63.7	59.9	57.5	58.6	57.1
PEI	45.7	45.9	48.7	49.5	50.6	44.2	44.0	52.4	46.5	44.5	42.5
QC	61.7	58.8	61.7	62.8	63.3	57.2	53.9	51.8	50.3	55.7	54.4
SK	103.2	105.3	104.3	111.2	102.9	114.5	118.9	121.6	131.3	143.1	145.9
Canada	78.4	81.0	83.5	84.3	84.4	86.9	86.8	82.5	81.1	79.7	78.5
OECD	79.6	81.4	84.8	85.5	84.5	84.5	83.1	82.9	82.7	84.5	83.4
G7	85.1	87.2	89.4	89.7	89.0	89.7	88.0	87.7	87.1	86.7	85.4

Sources: OECD; Statistics Canada; authors' calculations.
Note: The Figures use total employment, full and part time; Canadian national and provincial figures are derived from Statistics Canada data whereas international figures use OECD data.

Figure 2: National Business Saving and Net Lending, 1961Q1-2010Q2.



Sources: Statistics Canada; authors' calculations.

Given the increasing mobility of investable capital across national boundaries, modest changes to Canada's treatment of foreign investment might also encourage more domestic capital investment. Reducing non-resident withholding taxes in future bilateral tax treaties would help. And Canadian firms investing outside Canada might repatriate and reinvest more of the income they earn abroad if Canadian taxes treated all foreign active business income as exempt surplus (Canada 2008a).

Turning to the larger fiscal and economic environment, it is worth highlighting the fact that, before the recent crisis, investment rates per Canadian worker were improving relative to those in other developed countries. With its generally supportive and sustainable fiscal environment and its openness to flows of goods, services, people and capital from abroad, Canada had a growing reputation as a good place to invest. Thanks to its robust financial system and relatively sound public finances, its reputation stands all the higher after the slump. Each province, and the country as a whole, should monitor the rate at which its workers are getting new tools with which to do their jobs. Making higher rates of investment a priority will help ensure that Canadians enjoy high and rising incomes, whatever their competitors abroad are doing.

References

Banerjee, Robin, and William Robson. 2008. "New Tools for a Richer, Greener Future: Why Canadian Workers Need More Robust Business Investment." C.D. Howe Institute e-brief. Toronto: C.D. Howe Institute. July.

———. 2007. "Give Canadian Workers the Tools to do the Job! Why Canada Needs More Robust Capital Investment." C.D. Howe Institute e-brief. Toronto: C.D. Howe Institute. May.

Busby, Colin and William Robson. 2009. "Equipping Ourselves in Tough Times: Canada's Improved Business Investment Performance." C.D. Howe Institute e-brief. Toronto: C.D. Howe Institute. June.

Canada. 2008a. "Enhancing Canada's International Tax Advantage." Consultation Paper Issued by the Advisory Panel on Canada's System of International Taxation. Final Report. December.

Canada. 2008b. *Compete To Win*. Competition Policy Review Panel: Final Report. Ottawa: Industry Canada. June.

Chen, Duanjie, Jack Mintz and Andrey Tarazov. 2007. "Federal and Provincial Tax Reforms: Let's Get Back on Track." Backgrounder 102. Toronto: C.D. Howe Institute. July.

Cockfield, Arthur J. 2008. *Finding Silver Linings in the Storm: An Evaluation of Recent Canada-US Crossborder Tax Developments*. Commentary 272. Toronto: C.D. Howe Institute. September.

Goldfarb, Danielle, and William B.P. Robson. 2005. "Canadian Workers Need the Tools to Do the Job and Keep Pace in the Global Investment Race." C.D. Howe Institute e-brief. Toronto: C.D. Howe Institute. May.

Robson, William B.P., and Danielle Goldfarb. 2004. "Tools for Workers: How Canada is Faring in the Competition for Capital Investment." Backgrounder 87. Toronto: C.D. Howe Institute. December.

———. 2006. "Canadian Workers Need Better Tools: Rating Canada's Performance in the Global Investment Race." C.D. Howe Institute e-brief. Toronto: C.D. Howe Institute. June.

Poschmann, Finn. 2009. "Sales Tax Reform in Ontario: The Time is Right." C.D. Howe Institute e-brief. Toronto: C.D. Howe Institute. March.

Sala-i-Martin, Xavier. 1997. "I Just Ran Two Million Regressions." *The American Economic Review*, 87: 2 (Papers and Proceedings).

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