INSTITUT C.D. HOWE INSTITUTE
Essential Policy Intelligence | Conseils indispensables sur les politiques

E-BRIEF

July 17, 2014

ECONOMIC GROWTH & INNOVATION

Capital Needed: Canada Needs More Robust Business Investment

by
Benjamin Dachis, William B.P. Robson and Nicholas Chesterley

- Business investment per worker in 2014 in Canada is falling relative to the rest of the developed world and the United States.
- Ontario and Quebec have become the national laggards, with the lowest per-worker investment levels in Canada.
- In the energy and resources sectors, which have been leading Canada's capital investment, the latest figures suggest a loss of momentum.
- Policymakers can and should boost private-sector investment, through such measures as prioritizing growth-friendly taxation, creating opportunities in infrastructure and electric power, and increasing the rewards for R&D and innovation.

Every Canadian worker – from a manufacturing worker in Ontario, to a welder in the oil sands, to a lawyer in Montreal – needs tools, buildings and equipment. But workers in some sectors and some provinces are getting more new kit than others. And Canadian workers as a whole get less new physical capital than workers in similar countries.

Recent figures suggest that, after several years of improved performance against international competitors, Canadian non-residential business investment per worker is again falling behind. Per-worker spending on new capital in Canada is lower than the average figure among reporting countries in the Organisation for Economic Co-operation and Development (OECD). Ontario and Quebec are of particular concern: the two provinces have – for the first time in at least three

Many thanks to the reviewers of a previous draft of this paper and to reviewers of previous editions of this series. Many Organisation for Economic Co-operation and Development staff members helped us in interpreting their data, for which we are most grateful. Of course, any errors of data interpretation or otherwise are our own.

decades – the lowest rates of investment per worker in all of Canada. All levels of Canadian government can do more to improve the tax and regulatory environment for private-sector capital investment in Canada.

Canada Is Falling Behind its Peers

Business investment is critical to economic growth. Capital spending produces the new tools that workers use on the job, the structures they work in, and the engineering infrastructure that makes them more productive. Business investment is how innovations such as 3-D printing technology, new ways of extracting oil and gas, and even better layouts for offices and warehouses, go from ideas to actual drivers of higher living standards.

The International Gap in Investment per Worker

Although most of the OECD does not yet account for all non-residential capital spending in the same way Canada, the US and Australia do – one of the most important differences is that some OECD countries still measure research and development (R&D) as something businesses consume, rather than treat it as a longer-term investment – we can compare the most recent trends in Canadian investment growth relative to growth among the OECD (Box 1 discusses our empirical approach). The latest news is bleak: Canada's investment per worker seems likely to fall precipitously relative to the rest of the OECD in 2014 (Table 1).[1]

The comparison to the United States shows a reversal of what had been an encouraging trend. Over much of the past 10 years, investment per Canadian worker was catching up with investment per US worker. Canadian workers only enjoyed an average of 67 cents of new investment for every dollar of investment enjoyed by US workers from 2003 to 2007, but that number increased to 74 cents from 2008 to 2012. In 2014, however, the average Canadian worker appears likely to enjoy only 71 cents of new investment for every dollar of investment enjoyed by US workers. The most recent three years show a discouraging about-face of the trend that promised greater parity between Canadian and US workers in how well they are equipped on the job.[2]

Because the United States and Australia are natural comparators for Canada, both in economic make-up and in their treatment of R&D as capital spending, it makes sense to focus more closely on them in evaluating Canada's relative investment-per-worker performance. Like Canada, Australia has seen business spending on

1 As explained in Box 1, the OECD recently began including R&D expenditures in capital investment for Canada and a handful of other countries that provide the necessary data. To test the importance of this change in measurement on our investment-per-worker figures, we compute Canada investment per worker relative to OECD and US investment per worker in two ways: one based on the levels reported by the OECD (as in Table 1), another in which we removed business R&D expenses from gross capital investment in countries that include R&D in business investment flows. Because ups and downs in R&D spending do not follow ups and downs in other capital investment exactly, the measures that include it can differ from those that exclude it by small amounts year to year. For example, between 2011 and 2013, comparisons of investment per worker excluding R&D showed Canada catching up to the OECD average, while comparisons including R&D showed Canada falling behind. Both measures, however, show a decline in investment per worker in Canada relative to the OECD in 2014.

2 The recent decline in Canadian investment per worker relative to the US is apparent, and percentage changes do not vary, whether the measure includes R&D or not. Because Canadian businesses invest less in R&D than US businesses, however, the R&D-inclusive measure shows investment per worker in Canada as five cents lower, on average, since 1999, than the R&D-exclusive measure.

Box 1: Measuring and Interpreting Investment per Worker

Our historical comparisons use data on business capital investment in machinery and non-residential structures, and on employment, from the OECD's Economic Outlook No. 95 (May 2014) database for countries abroad, and the Canadian System of National Accounts (CSNA) for Canada and the provinces. A major revision to the CSNA in 2012 produced new data for the period after 2007. We apply the rates of change in provincial investment from the old CSNA to the new CSNA level of investment to link our historical time series to pre-2007 data.

The most recent OECD data embodied a major revision to capital investment figures, including expenditures on research and development (R&D) as investments in knowledge capital, rather than treating them as operating expenses, as before. The change only affected data for countries that provide the necessary information: in addition to Canada, the United States, Australia and South Korea record R&D that way, but other OECD countries have yet to do so. For the time being, therefore, the capital spending figures across the OECD are not on the same basis: comparisons of relative levels over time are likely to be more informative than the levels themselves.

Our 2013 estimates and 2014 forecasts use the projections in the OECD database, and Statistics Canada's Capital Repair and Expenditure Survey. The OECD and Statistics Canada investment numbers include private businesses and government business enterprises functioning in a commercial environment. Not all the data are available for all OECD countries throughout the period: our figures include Australia, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Japan, Korea, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, and the United States. The OECD averages we report are for the above countries, which represent 79 percent of 2014 total OECD-country GDP.*

All dollar figures are in current Canadian dollars. We convert investment abroad into Canadian dollars using purchasing-power parity (PPP) exchange rates from the OECD. The purchasing-power adjustment allows more meaningful comparisons of the "bang per buck" of 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 imprecisely. To obtain comparative measures more reflective of prices for capital-investment goods and services than for goods and services generally, we benchmark the PPP measures across countries using the OECD's 2008 PPP figures for gross fixed capital formation (residential plus non-residential, separate figures not being available), and construct national time series from each country's economy-wide PPP measures before and after that date.

* Previous versions of this report included Austria, the Czech Republic, Greece, Italy, Ireland, Mexico and Spain in the OECD comparison, but we have dropped them in this edition because they no longer appear in the OECD database.

Table 1: Investment per Worker Compared to OECD and US, 2003–2014

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013E	2014F	Average: 2003-2007	Average: 2008-2012
	(Canadian dollars)													
BC	7,400	8,000	8,800	10,100	10,200	11,100	9,700	10,400	11,000	11,900	11,600	10,400	n.m.	n.m.
AB	19,600	21,900	27,800	30,900	31,400	33,000	23,100	29,500	33,400	35,200	36,800	37,000	n.m.	n.m.
SK	11,100	10,900	13,200	15,100	16,500	20,100	20,900	24,900	27,500	27,700	25,900	26,400	n.m.	n.m.
MB	6,900	7,200	7,000	7,800	8,200	9,300	8,800	10,300	10,200	10,900	12,300	12,400	n.m.	n.m.
ON	7,500	7,700	8,200	8,700	8,600	8,800	7,900	8,000	8,500	8,500	6,800	7,000	n.m.	n.m.
QC	6,900	7,400	7,300	7,600	7,900	8,100	7,400	7,300	7,900	8,700	6,700	5,700	n.m.	n.m.
NB	6,500	6,800	7,200	9,400	9,300	10,900	9,200	8,400	8,500	8,600	7,500	9,000	n.m.	n.m.
PEI	4,700	5,200	4,900	5,300	7,100	6,700	5,000	4,600	5,600	5,700	6,700	7,200	n.m.	n.m.
NS	7,400	6,900	7,000	6,900	7,000	6,300	7,400	8,800	8,700	7,800	9,100	10,100	n.m.	n.m.
NL	11,300	13,600	14,900	13,100	11,300	13,700	12,300	14,400	20,800	30,000	47,300	46,100	n.m.	n.m.
Canada	**8,800**	**9,400**	**10,500**	**11,500**	**11,700**	**12,400**	**10,400**	**11,500**	**12,600**	**13,300**	**13,200**	**13,200**	n.m.	n.m.
OECD	11,500	12,000	12,600	13,200	14,100	14,400	12,300	12,900	13,900	14,500	14,500	14,800	n.m.	n.m.
US	14,200	14,800	15,400	16,100	16,900	17,200	14,700	15,400	16,700	17,600	17,800	18,500	n.m.	n.m.
Relative to OECD*														
BC	64	67	70	76	72	77	78	80	78	81	80	69	70	79
AB	170	182	221	234	222	228	187	227	238	242	252	244	206	224
SK	97	91	105	114	117	139	169	192	197	190	178	174	105	177
MB	60	60	56	59	58	65	71	79	73	74	84	82	59	72
ON	65	64	65	66	61	61	64	61	61	58	47	46	64	61
QC	60	62	58	57	56	56	60	56	56	60	46	38	59	58
NB	57	57	58	71	66	75	74	64	61	59	51	59	62	67
PEI	41	43	39	40	50	46	41	35	40	39	46	48	43	40
NS	64	58	55	52	50	44	60	67	62	53	63	67	56	57
NL	98	113	119	99	80	95	99	110	148	206	325	305	102	132
Canada	**77**	**78**	**83**	**87**	**83**	**86**	**84**	**88**	**90**	**91**	**91**	**87**	**77**	**78**

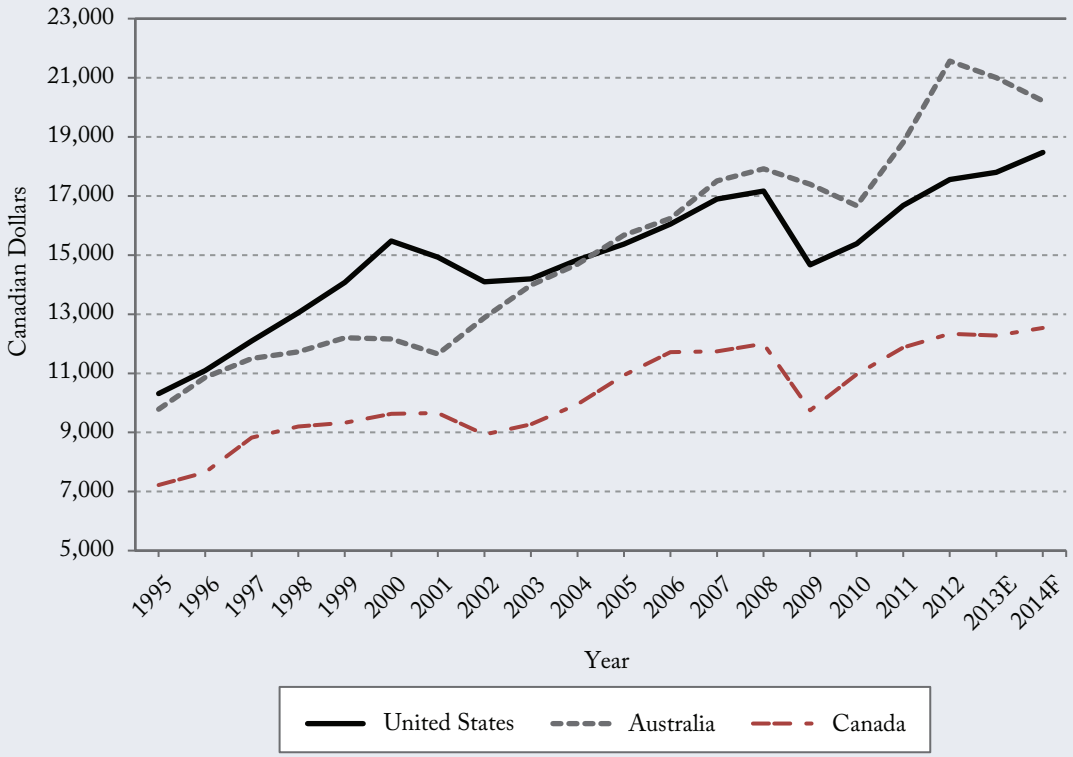
Table 1: Continued

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013E	2014F	Average: 2003-2007	Average: 2008-2012
Relative to US														
BC	52	54	57	63	60	65	66	67	66	68	65	57	57	66
AB	138	147	181	193	186	192	158	192	200	201	207	200	169	188
SK	78	74	86	94	98	117	143	162	165	158	145	143	86	149
MB	49	49	46	48	48	54	60	67	61	62	69	67	48	61
ON	53	52	53	54	51	51	54	52	51	49	38	38	53	51
QC	49	50	48	47	47	47	51	48	47	50	38	31	48	48
NB	46	46	47	58	55	64	63	54	51	49	42	49	50	56
PEI	33	35	32	33	42	39	34	30	33	32	38	39	35	34
NS	52	47	45	43	42	37	51	57	52	44	51	55	46	48
NL	80	91	97	82	67	80	84	93	125	171	266	250	83	111
Canada	**62**	**63**	**68**	**72**	**70**	**72**	**71**	**75**	**76**	**76**	**74**	**71**	**67**	**74**

Note: n.m. – not meaningful. OECD average is not directly comparable to Canadian data because of accounting practices.

Source: Authors' calculations from OECD and Statistics Canada data. 2013 data are estimates; 2014 are forecasts.

Figure 1: Investment per Worker: Canada, Australia, United States



Source: Authors' calculations from OECD data.

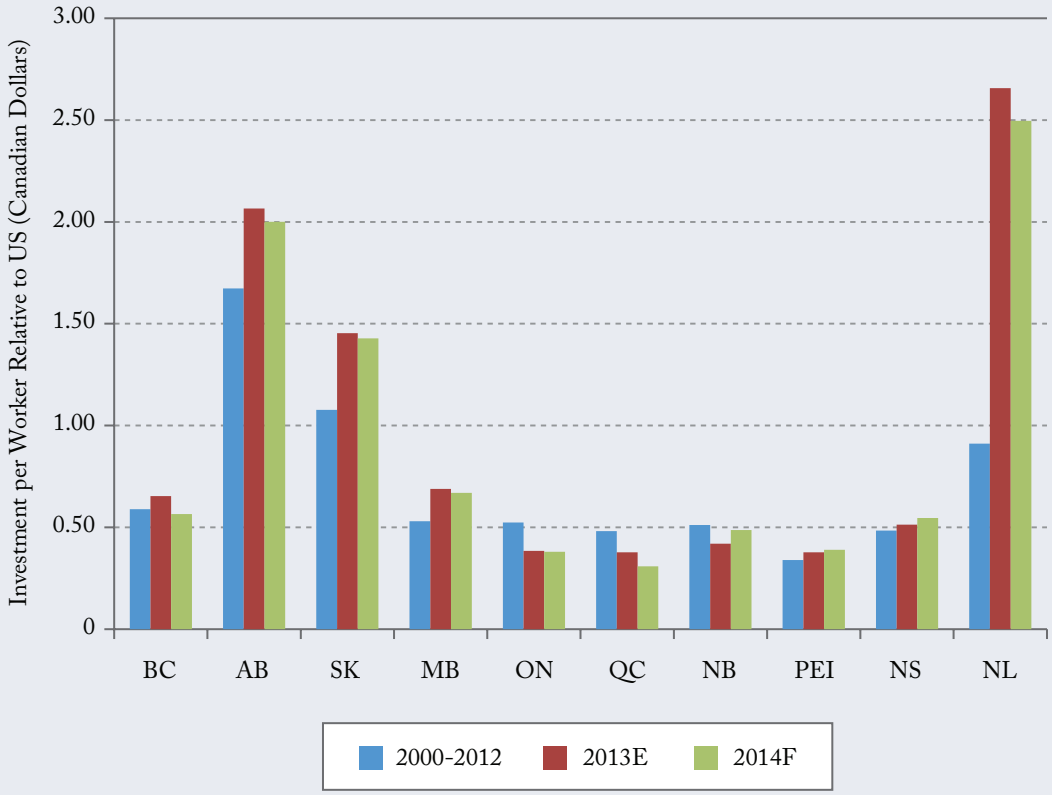
plant and equipment sag in the last two years. However, Australian investment per worker still outstrips Canadian investment per worker by more than $6,000. That underperformance is nothing new: Canada has equipped its workers less well than either Australia or the United States throughout the past 15 years.

A Cross-province Comparison: Historic Lows in Central Canada, Slowing Growth Elsewhere

Stagnant business investment in Central Canada – Ontario and Quebec – has been a common theme in recent public discussion (see Cross 2014, and Dachis and Robson 2013). Estimated and forecast investment per worker in Ontario and Quebec in 2013 and 2014 is at its lowest levels in the last 10 years.[3] Ontario and Quebec's investment looks even more anaemic when compared to the United States, with investment per worker in Central Canada in 2013 and 2014 hovering between 38 and 50 cents per dollar invested per US worker – significantly below their average over the 2000-to-2012 period (Figure 2).

3 Note that the figures are in nominal dollars, implying that the fall in real investment per worker may be even steeper than that reported here.

Figure 2: Investment per Worker Relative to US



Source: Authors' calculations from OECD and Statistics Canada data.

The 2014 figure for Quebec, a paltry $5,700 per worker, is especially startling. Quebec's investment per worker will be the lowest among Canadian provinces for the first time in 30 years of data.[4] A future upward revision in investment intentions in Quebec is not out of the question, given that a majority government with a more distinct pro-growth economic and political agenda is now in place in that province. Ontario, with an anticipated investment of $7,000 per worker, ranks second lowest in the country and behind the Maritime provinces – the historical laggards of investment per worker – for the first time in our records. Clearly, the implementation of policies conducive to more private investment is one of its principal tasks ahead.

Western Canada has been the country's capital investment powerhouse, yet there, too, the latest numbers are less robust. After three years between 2009 and 2011 in which annual investment growth in the West averaged from about 7 percent in BC to upwards of 15 percent in Alberta, the trend is reversing. 2014 portends

4 See Robson and Goldfarb (2004, 2006); Goldfarb and Robson (2005); Banerjee and Robson (2007, 2008); and Busby and Robson (2009, 2010, 2011); and Dachis and Robson (2012, 2013).

stagnant investment per worker in all of Western Canada: a 10 percent decline in BC, and 1 to 2 percent growth elsewhere. At $10,400 per worker in BC, upwards of $37,000 per worker in Alberta and $26,400 in Saskatchewan, investment in Western Canada still exceeds most of the rest of the country. Further, investment per worker in Alberta and Saskatchewan still exceeds investment per worker in the United States. But the Alberta and Saskatchewan advantage seems to be narrowing in 2014, and Manitoba and British Columbia are falling further behind the US (Figure 2).

One bright spot in 2014 is robust growth in the Atlantic Provinces. While surging investment in Newfoundland and Labrador is not a new story, anticipated investment there is at unprecedented levels: around $47,000 per worker. Performances by other provinces in the region are also looking up. All three are set to slightly narrow their still large gap in investment per worker relative to the US (Figure 2). Forecast private investment is set to exceed $10,000 per worker in 2014 for the first time in Nova Scotia. While still short of its 2008 peak of $10,900 per worker, investment in New Brunswick is set to hit its highest level since then, recording $9,000 per worker in 2014.

The Importance of Energy and Resource Investment to the Canadian Economy

It is not news that energy and natural resources have been key drivers behind Canada's recent economic performance. But the importance of these sectors to capital investment nationally is still striking. Investment in the energy and resources sectors should represent 41 percent of total business non-residential investment in Canada in 2014, almost double the 22 percent recorded in 2000 (Figure 3).

However, the 2013 and 2014 estimates of investment in the energy utilities, oil and gas extraction, and mining sectors show slower growth or declines in investment per worker. Many factors may be driving that trend, such as global trends of weaker commodity prices and demand, particularly in the mining sector, as well as Canada-specific problems of market access for oil, gas and mining products, environmental and social concerns, and in some cases higher labour costs.[5]

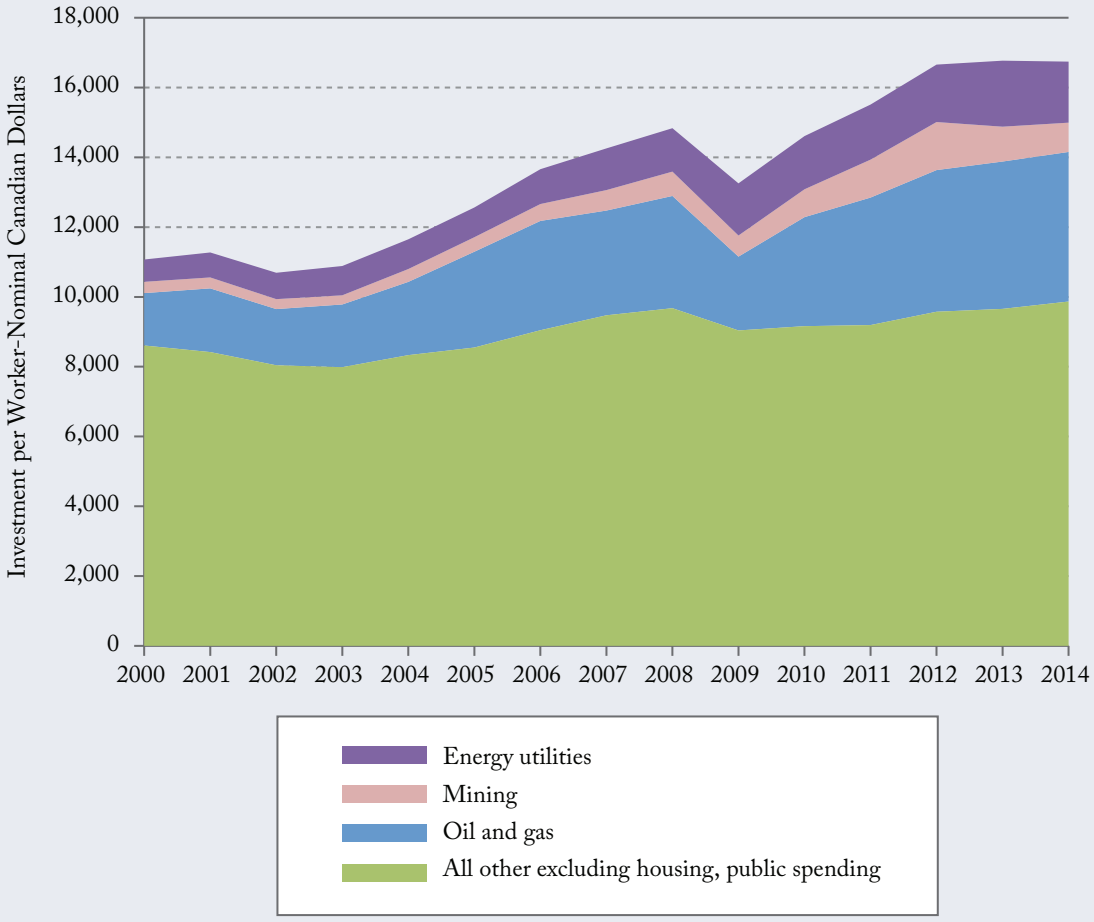
After three years of double digit growth, oil and gas investment per worker slowed to 5 and 2 percent annual growth in the two most recent years. The steepest decline has been in the mining sector, which saw a 27 percent decline in estimated investment per worker between 2012 and 2013 and a further 16 percent decline in forecast investment per worker between 2013 and 2014. After a strong 2013, energy utilities (especially electricity utilities) are forecast to have their first annual decline in investment per worker in over a decade.

Restoring Investment Growth in Central Canada and the Rest of the Economy

It is time for Canadian policymakers – especially in Ontario and Quebec – to refocus their attention on boosting private-sector investment. The fact that overall capital spending is growing at a slower rate than the United States for the second year in a row should be a spur to immediate action.

5 The impact of higher labour costs on capital investment is ambiguous: discouraging to the extent that capital is complementary with labour; encouraging to the extent that capital substitutes for labour.

Figure 3: Investment per Worker, by Sector, 2000-2014



Note: Public spending includes spending on education, public administration, and healthcare. We allocate support services investment (NAICS code 213) to the oil and gas (NAICS code 211) and mining sector (NAICS code 212) based on the relative share of NAICS code 212 and 211. Energy utilities includes electrical and natural gas utilities sector (NAICS code 2211 and 2212). These levels of investment are not comparable to the international comparison in Table 1 and Figure 1 that are from national account estimates from CANSIM table 348-0038 and OECD data.

Source: Investment levels are based on capital expenditure survey from CANSIM table 029-0005.

Infrastructure is an area that needs attention. Many Canadian jurisdictions lean toward providing infrastructure through the public sector. But funding infrastructure through distorting taxes such as levies on personal and business incomes imposes costs on the economy that can be larger than the amounts raised (Dahlby and Ferede 2011). Further, despite the appearance that the public sector can borrow at a lower interest rate than the private sector, private investment in infrastructure puts less risk on taxpayers and may end up being a better bargain than public dollars (Boyer et al. 2013). Private financing and construction of infrastructure tends to create market disciplines that produce greater efficiency (Dachis 2013).

Taxes that discourage investment are another area for action. Taxes on profits, the fruits of new investment, and on investment itself – such as retail sales taxes in some provinces and land-transfer and business-property taxes – all reduce the reward investors receive for their capital spending. As Dachis and Robson (2013) showed, there is a strong negative relationship between the provincial marginal effective tax rate on new investment, including taxes on property,[6] and provincial investment per worker. Even after controlling for the relative share of investment in each province that comes from mining and oil and gas investment, a one-percentage-point increase in the provincial marginal investment tax rate is associated with 1 to 2 percent lower total investment per worker.

Canada's relatively weak performance in R&D compared to other countries that include it in their capital investment figures points in other useful directions. While federal and provincial governments have supported R&D investment through generous tax credits (giving with one hand), they have been taxing the profits of R&D (taking away with the other hand). Instead of generous subsidies, governments should look to reducing the tax on profits of innovation, such as through a patent box as argued by Pantaleo, Poschmann and Wilkie (2013).[7]

Finally, policymakers should take note of the important role of investment in the energy and resources sector to Canada's economic strength in recent years – and the evidence in the most recent numbers of a loss of momentum. Here, too, policy can help. For example, the Ontario government should open new opportunities for private investment in its electricity utility sector, such as in local distribution (Fyfe, Garner and Vegh 2013) and generation (Goulding 2013). Investment in the oil, gas and mining sector particularly depends on a clear regime for foreign investors (Schwanen 2012), and on an investment-friendly fiscal and royalty regime (Busby, Dachis and Dahlby 2011). The ability of fossil fuel producers, in particular, to sell in foreign markets has come into question recently: it is important to respond to concerns about environmental stress, land use, and cost sharing in ways that do not stymie access to customers abroad.

Conclusion

Canada cannot be complacent about its performance in equipping its workers with the capital they need to do their jobs and raise their living standards. With the previous strong growth in investment in the energy and resources sector slipping and Central Canada in the doldrums, Canada's investment per worker is falling relative to the United States and international peers. Boosting private investment in the electricity utilities sector in Ontario, removing tax barriers to growth and investment, increasing the rewards for R&D and innovation, and encouraging private-sector investment in all sectors, including infrastructure and natural resources, should all be priorities to reverse a worrying trend.

6 As calculated in Found, Dachis and Tomlinson (2013) for the largest municipality in each province.

7 Under a patent box model, a firm can designate intellectual property (such as a patent) to have a reduced tax rate for income derived from it.

References

Banerjee, Robin, and William B.P. Robson. 2007. "Give Canadian Workers the Tools to Do the Job! Why Canada Needs More Robust Capital Investment." E-Brief 44. Toronto: C.D. Howe Institute. May.

———. 2008. "New Tools for a Richer, Greener Future: Why Canadian Workers Need More Robust Business Investment." E-Brief 60. Toronto: C.D. Howe Institute. July.

Boyer, Marcel, Éric Gravel, and Sandy Mokbel. 2013. *The Valuation of Public Projects: Risks, Cost of Financing and Cost of Capital*. Commentary 388. Toronto: C.D. Howe Institute. September.

Busby, Colin, and William B.P Robson. 2009. "Equipping Ourselves in Tough Times: Canada's Improved Business Investment Performance." E-Brief 83. Toronto: C.D. Howe Institute. June.

———. 2010. "Disarmed and Disadvantaged: Canada's Workers Need More Physical Capital to Confront the Productivity Challenge." E-Brief 107. Toronto: C.D. Howe Institute. October.

———. 2011. "The Retooling Challenge: Canada's Struggle to Close the Capital Investment Gap." E-Brief 126. Toronto: C.D. Howe Institute. December.

Busby, Colin, Benjamin Dachis, and Bev Dahlby. 2011. *Rethinking Royalty Rates: Why There Is a Better Way to Tax Oil and Gas Development*. Commentary 333. Toronto: C.D. Howe Institute. September.

Cross, Philip. 2014. "The Public Purse versus Private Wallets: Comparing Provincial Approaches to Investing in Economic Growth." E-Brief 178. Toronto: C.D. Howe Institute. June.

Dachis, Benjamin. 2013. *Cars, Congestion and Costs: A New Approach to Evaluating Government Infrastructure Investment*. Commentary 385. Toronto: C.D. Howe Institute. July.

Dachis, Benjamin, and William B.P. Robson. 2012. "From Living Well to Working Well: Raising Canada's Performance in Non-residential Investment." E-Brief 137. Toronto: C.D. Howe Institute. August.

———. 2013. "Equipping Canadian Workers: Business Investment Loses a Step against Competitors Abroad." E-Brief 167. Toronto: C.D. Howe Institute. November.

Dahlby Bev, and Ergete Ferede. 2011. *What Does it Cost Society to Raise a Dollar of Tax Revenue? The Marginal Cost of Public Funds*. Commentary 324. Toronto: C.D. Howe Institute. March.

Found, Adam, Benjamin Dachis, and Peter Tomlinson. 2013. "What Gets Measured Gets Managed: The Burden of Provincial Business Property Taxes." E-Brief 166. Toronto: C.D. Howe Institute. October.

Fyfe, Stephen, Mark Garner, and George Vegh. 2013. *Mergers by Choice, Not Edict: Reforming Ontario's Electricity Distribution Policy*. Commentary 376. Toronto: C.D. Howe Institute. March.

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." E-Brief 17. Toronto: C.D. Howe Institute. May.

Goulding, A.J. 2013. *A New Blueprint for Ontario's Electricity Market*. Commentary 389. Toronto: C.D. Howe Institute. September.

Pantaleo, Nick, Finn Poschmann, and Scott Wilkie. 2013. *Improving the Tax Treatment of Intellectual Property Income in Canada*. Commentary 379. Toronto: C.D. Howe Institute. April.

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." E-Brief 30. Toronto: C.D. Howe Institute. June.

Schwanen, Daniel. 2012. "Speed Dating or Serious Courtship? Canada and Foreign State-Owned Enterprises." E-Brief. 142. Toronto: C.D. Howe Institute. November.

This E-Brief is a publication of the C.D. Howe Institute.

Benjamin Dachis is a Senior Policy Analyst at the C.D. Howe Institute.

William B.P. Robson is President and Chief Executive Officer of the C.D. Howe Institute.

Nicholas Chesterley is an intern at the C.D. Howe Institute.

This E-Brief is available at www.cdhowe.org.