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INNOVATION AND BUSINESS GROWTH

Equipment Failure: Feeble Business Investment Costs Canadians their Competitive Edge

by

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- Capital investments by businesses boost Canada's economy, and raise the output and earnings of Canadian workers.
- After years of narrowing the gaps between investment per worker in Canada and abroad, capital investments by Canadian businesses have fallen sharply, and 2017 looks especially bleak.
- Among the policy measures that can promote business investment are trade liberalization, faster and more certain regulatory processes, affordable electricity and lower taxes on non-residential investment.

Investment by Canadian businesses is critical to Canada's economic growth. In the short run, capital spending boosts demand for products and services. Over time, business investment adds to Canada's capital stock – the buildings, equipment and intellectual property workers need to boost their productivity and pay.

Unhappily, the latest figures from Statistics Canada and the Organisation for Economic Co-operation and Development (OECD) suggest that, after a relatively robust performance between 2009 and 2014, capital investment in Canada has fallen dramatically. In response, all levels of Canadian government can and should liberalize trade and adjust the tax environment to boost private-sector capital investment.

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Canada's Investment per Worker

New investment by Canadian businesses is a key indicator of future prosperity. The machinery and equipment workers use in their jobs, the intellectual property that drives productivity, the structures where production takes place, and the engineering infrastructure that connects it all, improve our chances for higher living standards in years to come.¹ Critically, trends in investment per worker in Canada shed light on how the business investment environment is developing here vis-à-vis other countries, and how prepared Canadian workers will be to compete in the future.²

Although Canadian business investment was strong and rising between 2009 and 2014, the period since has seen a large fall-off across much of the country. After spending some \$15,100 per worker on new non-residential business investment at the 2014 peak, early data suggest that Canadian businesses will likely invest only about \$11,700 per worker in 2017 (Table 1a).

The International Gap in Investment per Worker

Comparisons within Canada over time provide one kind of perspective on business investment; another useful angle is international. To the extent we care about the competitiveness of Canadian production, we want to keep an eye on Canadian business investment per worker relative to other countries (see Box 1 for details on these calculations) and especially relative to the United States, which accounts for about one-half of total OECD investment (Table 1b).

Historically, Canadian businesses have tended to invest less per worker than their counterparts abroad. Throughout the 1990s and early 2000s, Canadian workers got less investment than their peers in the OECD as a whole, and much less than their peers in the United States (Figure 1a). This gap began to close somewhat after the mid-2000s, particularly since Canada weathered the 2008-2009 crisis and recession relatively well. On average, Canadian workers received 84 cents of new investment for every investment dollar received by OECD workers as a whole from 2006 to 2011 (Figure 1b). But after rising to a comparative high of 91 cents in 2013, Canadian investment per worker fell: in 2017, it will likely register a dismal 67 cents for every dollar of investment elsewhere in the OECD.

The US comparison shows an equally stark reversal of what had been an encouraging trend. Over much of the past 10 years, Canadian investment per worker was catching up with investment in their American counterparts. After enjoying just 72 cents of new investment for every dollar enjoyed by US workers from 2006 to 2011, Canadian workers enjoyed 77 cents in 2013. But that measure has slipped badly since then. In 2017, the average Canadian worker will probably receive just 55 cents of new investment for every dollar received by her or his US counterpart.

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- 1 The connection between economic growth and capital accumulation goes back to Solow (1956), who maintained that a capital-stock increase expands both overall output and output per worker. See Sali-i-Martin (1997) for the evidence of a strong nation-level empirical link between growth and investment, especially in equipment. A more recent look at the correlation between capital stock and output among countries is Caselli and Feyrer (2007).
 - 2 For earlier comparative per-worker investment studies, see Robson and Goldfarb (2004, 2006); Goldfarb and Robson (2005); Banerjee and Robson (2007, 2008); Busby and Robson (2009, 2010, 2011); Dachis and Robson (2012, 2013); Dachis, Robson and Chesterley (2014) and Dachis, Robson and Jacobs (2015).

Table 1a: Non-residential Business Investment per Worker, Compared to OECD and US, 2006-2017

Region	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017F	Annualized growth 2006-2016 (Percent)	Change 2016-2017 (Percent)
	<i>Canadian Dollars Nearest Hundred</i>													
BC	10,000	10,300	11,200	9,800	10,500	11,400	11,900	11,600	12,500	11,700	11,100	10,800	1.0	-2.6
AB	31,300	31,300	32,900	23,000	29,300	34,000	38,000	42,800	44,600	33,900	26,600	26,500	-1.6	-0.2
SK	15,100	16,500	19,900	20,900	24,600	27,400	30,200	32,800	35,200	28,700	21,600	22,800	3.6	5.6
MB	7,600	8,200	9,400	9,000	10,500	10,300	10,900	11,200	12,900	13,900	12,800	13,100	5.4	2.4
ON	8,700	8,600	8,800	7,900	7,900	8,500	8,700	8,100	8,600	9,400	8,800	8,800	0.1	0.5
QC	7,500	7,900	8,100	7,400	7,300	8,100	8,900	8,800	8,100	7,900	8,200	7,800	0.9	-4.6
NB	9,400	9,300	10,800	9,200	8,400	8,400	7,400	7,300	7,200	7,800	7,400	6,500	-2.4	-11.9
PEI	5,400	7,100	6,700	5,100	4,700	5,300	4,900	5,700	5,600	5,600	5,500	5,800	0.2	5.5
NS	6,800	7,000	6,300	7,400	8,800	8,100	5,800	6,600	6,800	6,700	8,000	7,700	1.6	-4.5
NL	13,200	11,200	13,500	12,300	14,300	20,500	26,800	34,700	41,600	41,900	40,600	32,100	11.9	-21.0
Canada	11,500	11,700	12,400	10,500	11,500	12,800	13,800	14,400	15,100	13,700	12,000	11,700	0.4	-2.3
OECD	13,200	14,300	15,000	12,900	13,600	14,900	15,900	15,900	16,800	17,100	17,000	17,400	2.6	2.5
US	15,500	16,800	17,300	14,700	15,300	16,900	18,400	18,700	20,300	20,800	20,400	21,100	2.8	3.5

Note: 2017 numbers are forecasts. Converted to current Canadian dollars using purchasing power parities. The OECD figure includes all countries for which we have data: besides Canada, we include Australia, Belgium, Denmark, Finland, France, Germany, Iceland, Japan, Korea, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the US. See Box 1 for more details.

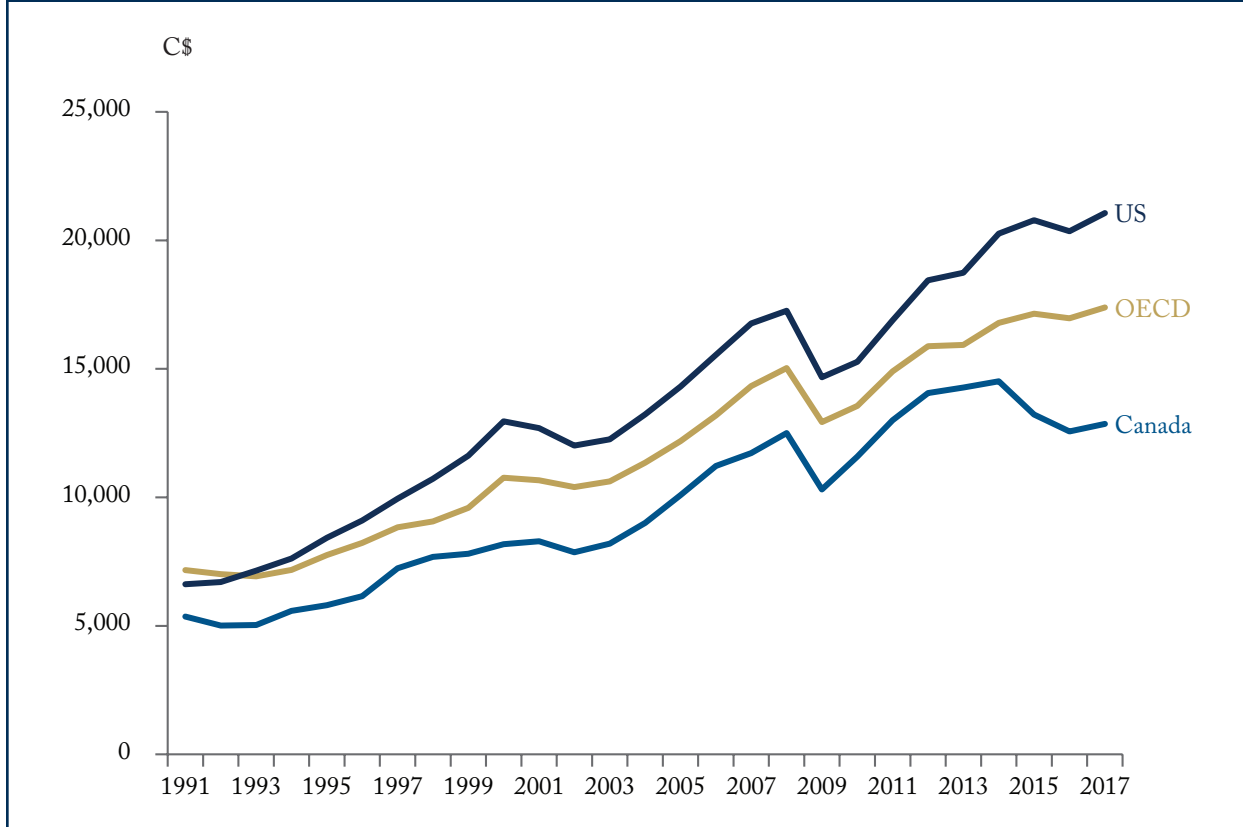
Sources: Authors' calculations from Statistics Canada and OECD.

Table 1b: Non-residential Business Investment per Worker, Relative to OECD and US, 2006-2017

Region	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017F	Average: 2006-2011	Average: 2011-2017
<i>Relative to OECD (OECD Average = 100)</i>														
BC	76	72	75	76	77	77	75	73	74	68	65	62	75	70
AB	237	219	219	178	215	228	239	269	265	198	156	152	216	213
SK	114	115	133	162	181	184	190	206	210	168	127	131	148	172
MB	58	57	63	70	77	69	69	70	77	81	75	75	66	75
ON	66	60	59	61	58	57	55	51	51	55	52	51	60	52
QC	57	55	54	57	54	54	56	55	48	46	48	45	55	50
NB	71	65	72	71	62	56	47	46	43	46	44	37	66	44
PEI	41	50	45	40	35	36	31	36	33	33	32	33	41	33
NS	52	49	42	57	65	54	36	42	40	39	47	44	53	41
NL	100	78	90	95	105	138	169	218	248	245	239	184	101	217
Canada	87	82	83	81	85	86	87	91	90	80	71	67	84	81
<i>Relative to United States (US Average = 100)</i>														
BC	65	61	65	67	69	67	65	62	62	56	54	51	65	58
AB	202	186	190	156	192	201	207	229	220	163	130	126	185	179
SK	97	98	115	142	161	162	164	175	173	138	106	108	123	144
MB	49	49	54	61	69	61	59	60	64	67	63	62	56	62
ON	56	51	51	54	52	50	47	43	42	45	43	42	53	44
QC	48	47	47	50	48	48	48	47	40	38	40	37	48	42
NB	61	55	62	63	55	50	40	39	35	38	36	31	59	37
PEI	35	42	39	35	31	31	27	30	28	27	27	27	36	28
NS	44	42	36	50	58	48	32	35	33	32	39	36	46	35
NL	85	67	78	84	93	121	146	186	205	201	199	152	81	181
Canada	74	70	72	71	75	76	75	77	74	66	59	55	72	68

Sources: Authors' calculations from data in Table 1a.

Figure 1a: Non-residential Business Investment per Worker, Canadian Dollars*, 1991-2017



* Converted at PPP exchange rates as explained in Box 1

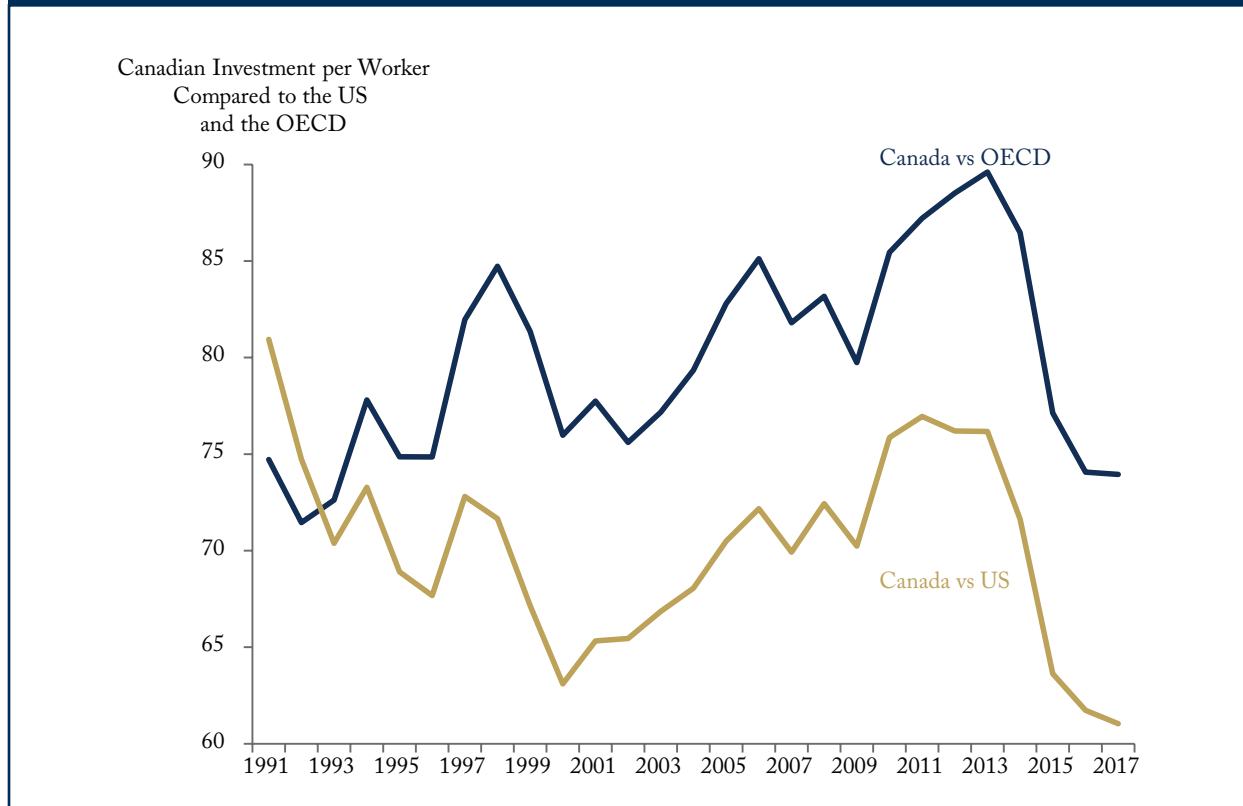
Source: Authors' calculations from Statistics Canada and OECD.

A Cross-province Comparison

The recent weakness in commodity prices, and particularly the fall in oil prices after mid-2014, has had an outsized effect on business investment in some provinces. Per-worker investment in Alberta and Saskatchewan is down more than a third since then. In fact, Alberta accounted for almost \$2,500, and Saskatchewan about \$400, of the \$3,400 fall in national per-worker investment between 2014 and 2017.³ Businesses in British Columbia, a province with a middling level of investment per worker and sensitive to commodity prices, also cut back. Manitoba, where investment per worker may register \$13,100 in 2017, has held up relatively well. Newfoundland and Labrador fared better than its western oil-producing counterparts in 2015 and 2016. Although it appears set for a 20 percent fall in investment in 2017, that would still leave per-worker investment in Newfoundland and Labrador at \$32,100 – highest among all provinces.

3 Investment in Alberta in 2014 accounted for about 38 percent of the national total, or about \$5,700 per worker, while in 2017 it will likely account for about 28 percent, or \$3,200 per worker. The figures for Saskatchewan are 7.5 and 6.0 percent, respectively.

Figure 1b: Non-residential Business Investment per Worker: Canada versus OECD and United States, 1991-2017



Source: Authors' calculations based on data from Statistics Canada and the OECD, as described in Box 1

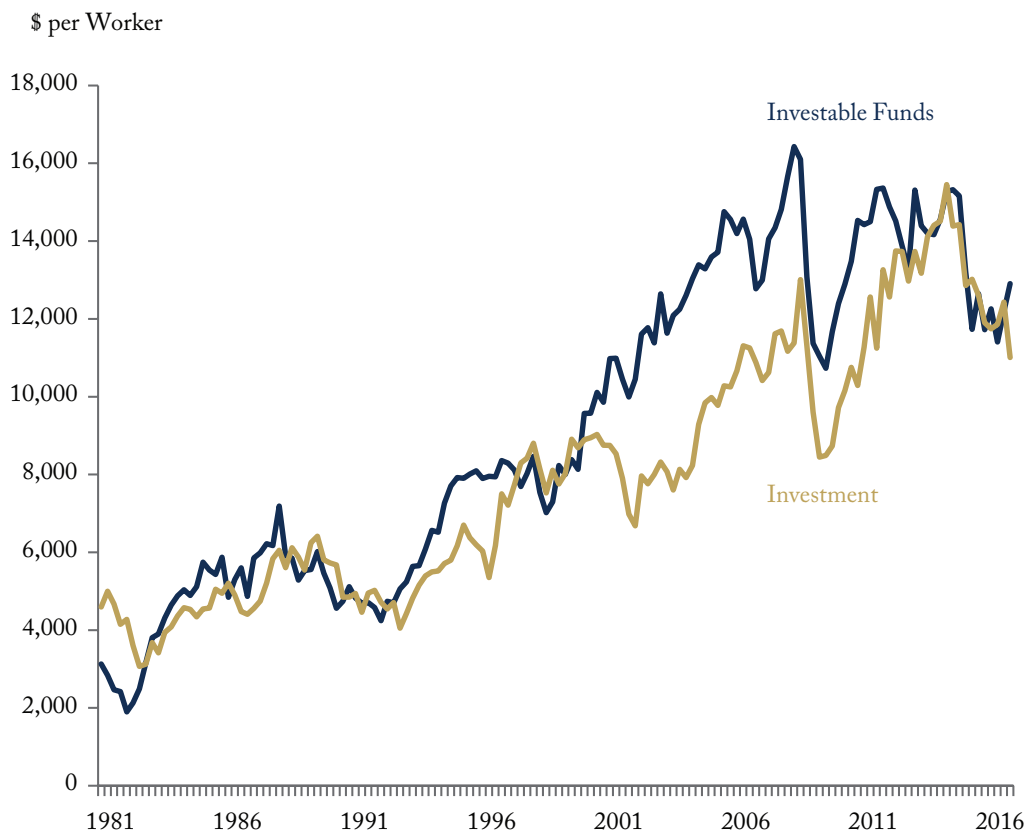
Elsewhere in Canada, workers suffer from anemic capital investment relative to their global peers. Per-worker investment in the Maritimes is among the lowest in Canada: from 27 cents to 44 cents for every dollar invested elsewhere in the OECD and in the United States. New Brunswick's relative investment figures are at their lowest level in a decade. Ontario's per-worker tally is just 51 cents per dollar invested in the average OECD worker, and a mere 42 cents per dollar invested in the average US worker. The comparable numbers in Quebec are worse: 45 cents for every dollar enjoyed by the average OECD worker, and 37 cents when measured against the United States.

Providing Better Tools for all Canadian Workers

Many factors influence levels of investment abroad, in Canada, and among Canadian provinces. Business investment is strongly correlated with cash flows and profitability (Figure 2), so some kind of cyclical rebound is likely as long as the economy continues to move ahead. And policymakers looking to encourage business investment beyond what improving fortune will produce have no shortage of available levers.

To begin with, taxes that raise costs and reduce returns on investment could use some attention. Business property taxes at the municipal and provincial levels drive a wedge between the potential returns on new projects and those investors actually realize; that wedge varies widely across the country but is large everywhere (Found

Figure 2: Investable Funds on Hand and Investment by Canadian Businesses, 1981-2016



Note: Investable funds on hand is net corporate saving plus consumption of fixed capital and net capital transfers. Investment is total acquisition of non-financial capital.

Source: Authors' calculations from national income and expenditure accounts (CANSIM Table 380-0071) and labour force survey (CANSIM Table 282-0087).

and Tomlinson 2016). These and other policies often steer investment away from business and into residential construction, where the tax burden is lower. Non-harmonized retail sales taxes and land-transfer taxes also discourage capital spending in some parts of the country.

There is a strong negative relationship between the tax burden on a potential dollar of investment – the marginal effective tax rate (METR) on investment – and provincial investment per worker (Dachis and Robson 2013). Even after controlling for the relative share of investment in each province that comes from mining, oil and natural-gas investment, a one-percentage-point increase in the provincial METR is associated with 1- to 2-percent lower total investment per worker. Although the Maritimes' demographic outlook for fewer workers may be causing companies to pull back on investment, high tax burdens in the region are also likely suspects.

Trade agreements and regulatory measures that encourage movement of goods, services, savings and people across borders heighten competitive pressures and opportunities and can spur investment and productivity. For example, capital investment has a strong link with Canada's exports to world markets (Caranci, Preston, and Saldarelli 2015). Although the medium-term outlook for trade with the United States is murky, Canada can pursue liberalization with other partners and drop its own barriers to imports and internal trade.

British Columbia and Alberta are also provinces experiencing their lowest levels of investment per worker, relative to both US and OECD peers, in more than 10 years. Might energy projects turn things around in 2017? The start of major investments in the energy sector, such as liquefied natural gas (LNG) export facilities and a major pipeline for oil, could boost the numbers in those provinces, with benefits to Saskatchewan as well. Facilitating those investments means getting past misplaced concerns about greenhouse-gas emissions: building LNG export facilities and pipelines for oil export are compatible with nation-wide plans to reduce greenhouse gases. Coleman and Jordaan (2016) show that Canadian LNG exports can lower global greenhouse gas emissions if they displace higher-emitting power sources abroad, while Shaffer and Tombe (2016) show that blocking pipelines is a costly way to reduce emissions.

Steadily increasing electricity prices are also a potential reason for reduced capital investment. In 2006, electricity in Ontario was about 40 percent cheaper than in New York, which helped attract and retain businesses. That advantage is gone: Ontario's electricity prices are now 5 percent higher than those in nearby Western New York (Dachis, Jacobs and Muthukumaran 2016). Even if policy changes provide near-term relief, businesses making investments that will last decades will continue to see future escalation as one less reason to invest in Ontario. Fundamental reform of the Ontario electricity market that focuses on improving competition will reduce the cost of generation (Dachis 2016). Ontario's trouble should give caution to Alberta as it embarks on reforms of its electricity market. The province should not follow the Ontario model of long-term contracts, and should focus on a competitive market for electricity generation (Shaffer 2016).

Conclusion

After more than a decade of catching up to competitors, business investment per worker in Canada has suffered a major setback since 2014. Sagging business investment doesn't just damp activity now; it limits the improvements in wages and living standards we can hope for in the future. Reducing and restructuring taxes that raise costs and squeeze returns on investment, avoiding policies that raise the prices of key inputs and ensuring that competition and opportunities abroad keep Canadian businesses sharp can get us back on track, equipping Canadian workers with the tools they need to increase our collective prosperity.

Box 1: Measuring and Interpreting Investment per Worker

Our historical comparisons use data on business capital investment in machinery, intellectual property, non-residential structures, and on employment, from the OECD's Economic Outlook No. 100 (November 2016) database for countries abroad. We use the Canadian System of National Accounts (CSNA) for Canada as a whole and the provinces for investment data, and the Labour Force Survey for employment data. The most recent CSNA data are only available up to 2015. Our figures for Canada and the provinces for 2016 and 2017 apply growth rates from Statistic Canada's Capital and Repair Expenditure Survey to CSNA non-residential business investment. This process allows for something close to consistency with the OECD, which reports gross fixed-capital formation projections for its member countries.

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. While inconsistencies in the treatment of research and development spending have been a concern in the past (see Dachis, Robson and Chesterley 2014), more consistent capitalization of this spending in the national statistics of OECD countries improves the comparability of more recent figures.

All dollar figures are in current Canadian dollars. We convert investment abroad from national currencies using the OECD's purchasing-power parity (PPP) exchange rates instead of market rates, since market rates may not reflect domestic price levels. The OECD reports PPP rates for gross fixed capital formation for 2008 only, so we derive PPP exchange rates for other years by benchmarking PPP data for overall gross domestic product to 2008.

While dividing investment in the business sector by employment economy-wide is open to challenge, it avoids some classification problems; i.e., in some jurisdictions, workers in government business enterprises are included in the public sector while others place them in the private sector. Our method also lets us focus on the impact of investment that has met a market test for which there is a stronger presumption that it will raise productivity and future earnings, including the tax revenues needed to support employment in the government sector.

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