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Thin Capitalization: Weak Business Investment Undermines Canadian Workers

Business investment in Canada lags investment in the United States and other advanced economies, and the gaps in machinery and equipment and intellectual property products are alarmingly wide. Growth-promoting changes to taxes, energy policies, and competition-inhibiting barriers can all help give Canadian workers the capital they need to compete and raise their living standards.

William B.P. Robson

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The Study In Brief

Capital investment boosts the economy in the short run and equips Canadian workers to raise their output and earn higher incomes over time. It does so by adding to Canada's stock of machinery, buildings, engineering infrastructure and intellectual property. Unhappily, after years of relatively robust performance, business investment in Canada has recently slipped ominously.

The latest figures from Statistics Canada and the Organisation for Economic Co-operation and Development (OECD) suggest that Canadian businesses in 2019 are investing only about $15,000 per worker. By contrast, businesses across the OECD are investing about $21,000 per worker, while US businesses are investing about $26,000. For every new capital dollar enjoyed by OECD workers this year, their Canadian counterparts will receive only 71 cents. And for every new capital dollar enjoyed by US workers, Canadian counterparts will receive a dismal 58 cents.

Although weak prices and market-access problems have hurt capital investment in Alberta, Saskatchewan, and Newfoundland and Labrador, investment in these provinces remains relatively robust on a per-worker basis. Manitoba is also above the Canadian average, with investment per worker on track to hit $15,800 in 2019.

In other provinces, however, per-worker investment is feeble. The 2019 B.C. tally will come in around $12,900, Ontario $10,800, and Quebec and New Brunswick around $9,000. Nova Scotia at $8,400 and Prince Edward Island at $6,400 round out a discouraging picture. In only one province – Newfoundland and Labrador – is per-worker investment above the US level, and investment per worker in most provinces will be less than half that garnered by US workers.

Because investment in new machinery and equipment (M&E) is particularly important for spurring economy-wide productivity, Canada's weak performance there is particularly troubling. Notwithstanding some recent encouraging quarterly numbers, the international comparisons show Canada as a chronic underperformer. The contrast with the US, where M&E recently received a boost from capital-spending-friendly tax changes, is particularly stark.

Why is capital investment so weak in Canada? This far into the current economic expansion, with most measures showing little slack, deficient demand is an unlikely culprit. Among the likelier causes are bottlenecks in getting energy resources to market, a loss of tax competitiveness, rising electricity costs, and barriers to international and internal trade generally – with the Trump administration's unpredictable protectionism and Chinese hostility particularly weighing on business confidence.

Weak capital spending is a threat to Canada's future prosperity – one all levels of Canadian government should address. Moving ahead with vital infrastructure, addressing growth-inhibiting taxes, and liberalizing internal and international trade can all help Canadian businesses equip their workers better to compete and thrive.

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Private-sector investment that boosts Canada's stock of machinery, buildings, engineering infrastructure and intellectual property is critical to economic growth.

As it occurs, it creates demand for products and services, boosting gross non-residential capital product (GDP) and employment. Once in place, it equips workers to raise their output, generating higher wages, better returns on savings and tax revenues for Canadian governments.

Unhappily, the latest figures tell a bleak story. Statistics Canada's data on domestic investment show a sharp fall-off since mid-decade. Machinery and equipment (M&E) investment showed a burst of strength in the first quarter of this year, but it would take many more quarters of such robust performance to keep up with investment rates abroad. The weakness in spending on structures and new intellectual property products (IPP) is alarming. Using per-worker investment data from the US and the Organisation for Economic Co-operation and Development (OECD) reveals that Canada's business investment performance – which had improved relative to the US and other developed countries from the early 2000s to the mid-2010s – has since sagged. Although capital spending generally has disappointed many commentators, the picture abroad is one of late-cycle strength. Canada is markedly, and worryingly, different.

While weakness in the natural resource industries explains some of Canada's disappointing performance, much of that weakness is attributable to policy dysfunctions that governments can and should fix. Moreover, Canada's lacklustre performance is evident in investment categories that have suffered less directly from the resource sector's weak prices and market-access problems. Years of weak M&E spending is a particular concern, given that M&E is especially important for economy-wide productivity (Sala-i-Martin 2001, Rao et al. 2003, and Stewart and Atkinson 2013). As well, low levels of intellectual property investment are an emerging concern. In both cases, Canada's anemic performance contrasts strikingly with the robust US story, where workers are benefiting from new capital investments some $9,000 higher than their Canadian counterparts.

Many factors influence business investment, and the list of potential explanations and remedies for Canada's weaknesses is correspondingly long. This far into an economic expansion that began in 2009, with other economic measures showing little slack, deficient demand is an unlikely suspect. Lack of investment in infrastructure, particularly energy-transportation infrastructure, directly hurts the fossil-fuels sector – which is facing vigorous competition from US production – and indirectly hurts many industries that supply it. Taxation is a suspect: in Canada, business property taxes are

This *Commentary* is the latest in an ongoing C.D. Howe Institute project tracking business investment in Canada and comparing it to investment abroad, the latest update before this being Robson, Kronick, and Kim (2018). I thank Dan Ciuriak, Pierre Fortin, many colleagues, and readers for comments and insights on earlier reports and on this *Commentary*'s previous drafts. Particular thanks are due to Miles Wu for his assistance with the data, Jeremy Kronick for his collaboration and Alexandre Laurin for coordinating the drafts and review process. Responsibility for any errors is mine.

high from coast to coast (Found and Tomlinson 2017), and US corporate tax changes are making investment more attractive south of the border.

Regulations that blunt competitive pressure, and tax/subsidy programs that discourage business growth also need a look. Trade uncertainty, notably with respect to the US and China, is likely inducing businesses not to invest, or to invest in the US in preference to Canada. Energy and electricity prices also matter in some regions: Ontario's longstanding cost advantages over neighbouring US states are long gone. Although access to funds does not appear to be a problem for Canadian firms overall – internal cash flows are solid and credit conditions supportive – measures to foster asset-based finance and scaling-oriented private equity could help.

All levels of Canadian government can help improve investment performance. Better infrastructure, more competitive tax rates and growth-friendly tax provisions, along with internal and international trade liberalization, can all help Canadian workers get the tools they need to compete and prosper.

Canada's Investment per Worker: The Numbers

Capital investment creates the M&E workers use in their jobs, the intellectual property that drives innovation, the buildings where production takes place, and the engineering infrastructure that moves intermediate and final products and services to market. All of this activity increases productivity, raising output per hour worked, a key driver and predictor of incomes and living standards.[1]

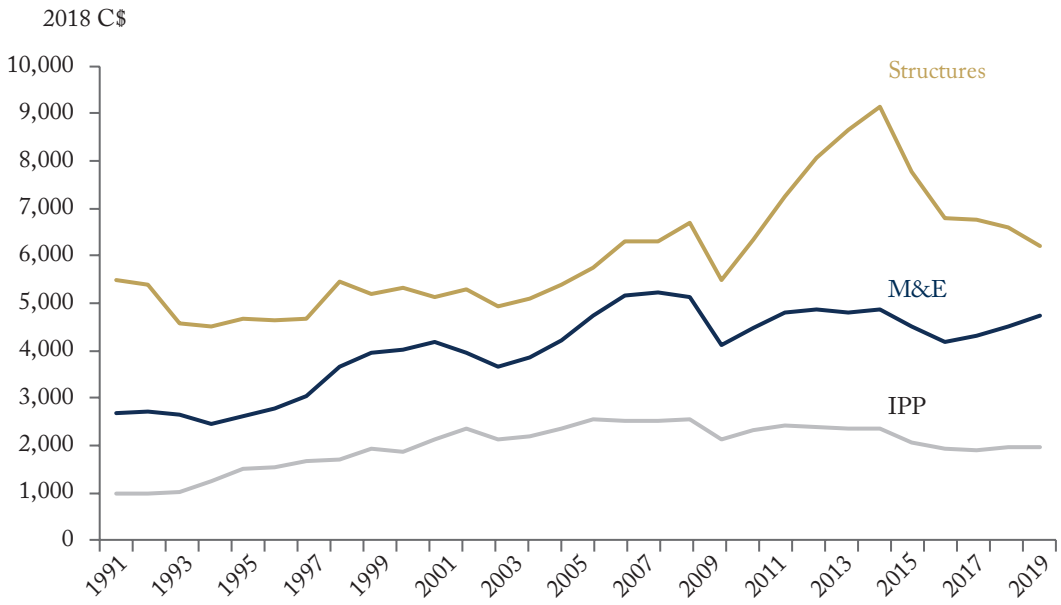
Investment by Type of Capital

Current headline numbers tell a glum story. For an opening view, Figure 1 shows business capital investment in the three main categories tracked by Statistics Canada and most other national statistical agencies: non-residential structures, M&E and IPP. Because capital equips workers to produce more, it is illuminating to express the investment figures in per-worker terms, underlining the degree to which the average employed Canadian has benefited from new capital. The per-worker numbers also allow for comparability over a period during which the economy and employment have grown.[2] The 2019 results reflect Statistics Canada business-investment figures up to the year's first quarter and employment figures up to the second quarter. The investment figures for the remaining quarters are estimates using growth rates from Statistics Canada's annual survey of business expectations for capital and repair expenditures, assuming 2-percent inflation. The employment figures are estimates using growth

1 The idea that capital accumulation is a key driver of economic growth goes back centuries. A key contribution to modelling it formally, showing how a rising stock of capital expands output and output per worker, is Solow (1956). Sala-i-Martin (1997) and Caselli and Feyrer (2007) provide key investigations of the correlation between growth and investment at a national level.

2 While dividing business investment by employment, economy-wide, is open to challenge, this approach avoids some classification problems that can complicate international comparisons. In some jurisdictions, workers in government business enterprises are included in the public sector while others place them in the private sector – as Canada does when the businesses in question are operating in a commercial environment. The focus on business investment as opposed to economy-wide investment also directs attention to 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).

Figure 1: Business Investment Per Worker



Source: Author's calculations based on data from Statistics Canada's National Income and Expenditure Accounts and Labour Force Survey.

rates from the OECD's Economic Outlook.[3]

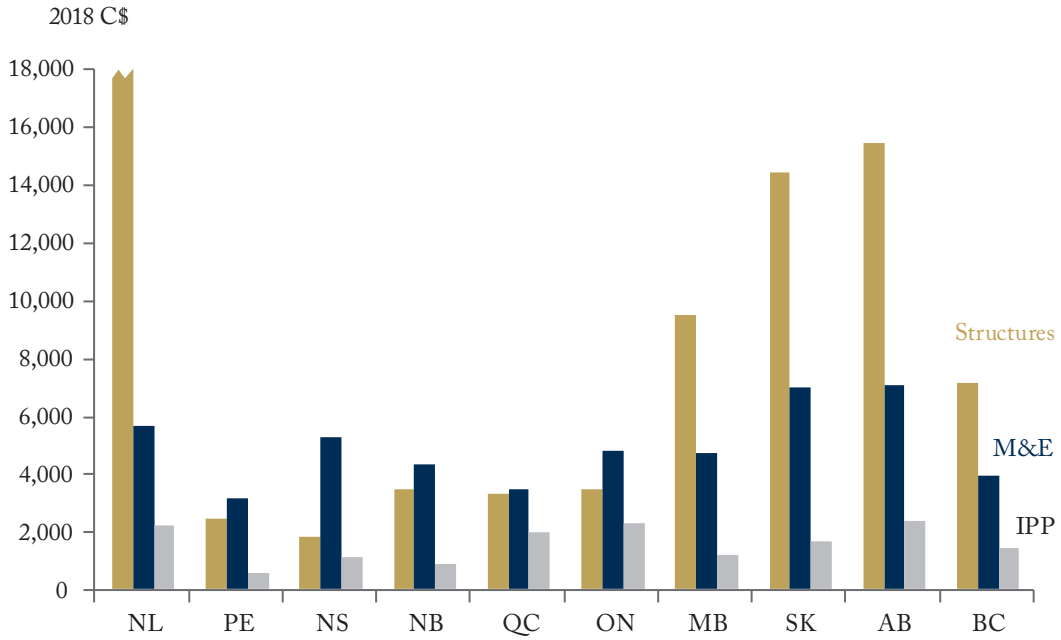
The story in these Canadian numbers is a relatively high level of per-worker investment in structures from the early 1990s to the early 2000s, accompanied by faster-growing per-worker investment in M&E and IPP. After a setback during the brief slump of the early 2000s, investment in all three categories rose. The 2008 recession hit all three, and their recoveries differed markedly: strong growth in structures as strong demand for natural resources buoyed that sector, a less impressive rebound in M&E and a still more subdued performance in IPP. The middle of the current decade marked another inflection point: much weaker investment in structures, a simultaneous dip in M&E followed by a promising – but as yet modest – rebound, and a prolonged lower level of IPP. Summing across all three categories, Canadian 2019 per-worker investment in real terms seems likely to come in one-fifth below its 2014 peak and barely ahead of its slump-related trough of a decade ago.

Per-Worker Investment by Province

The same breakdown – current and inflation-adjusted estimates of investment in non-residential

3 The figures for non-residential structures and M&E in 2019 are 3.0 percent and 2.4 percent (annual rates) respectively, as per the Statistics Canada survey (https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3410003801). IPP investment is assumed to grow at the same rate as M&E investment: the correlation between these two from 1991 to 2018 is 90 percent. The employment growth projection is 1 percent (annual rate), as per the June 2019 OECD Economic Outlook.

Figure 2: Provincial Investment Per Worker by Type, 2019



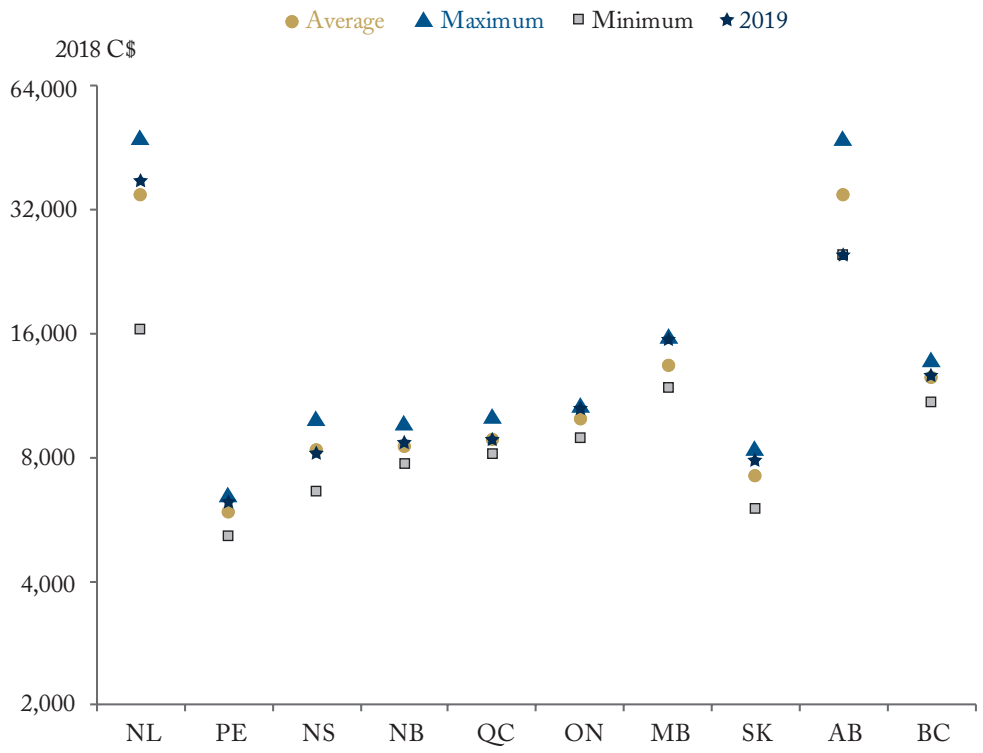
Source: Author's calculations based on data from Statistics Canada's Provincial Economic Accounts, Capital and Repair Expenditures Survey, and Labour Force Survey.

structures, M&E and IPP – is available for the provinces. As well, historical and projected employment data allow further per-worker comparisons.[4] Because displaying this many jurisdictions as individual time-series would clutter the chart, Figure 2 shows only investment per worker in 2019 by type of capital.

Newfoundland and Labrador workers will enjoy the highest rates of business investment in 2019, thanks to investment in structures and engineering close to $30,000 (2018 dollars) per worker (Figure 2 truncates the scale to avoid compressing the figures for other categories and other provinces to the point where they would be hard to distinguish.) Per-worker investment in structures will also be relatively high this year in Alberta and Saskatchewan, with Manitoba putting in a good showing and B.C. also ahead of the

4 For 2018, investments in each spending category are assumed to grow at the rate indicated in the Statistics Canada annual capital repair and expenditures (CapEx) survey, plus an adjustment to reflect the difference between the CapEx growth rate for the country as a whole and the actual national figure for that category. Price changes in each category are assumed to match the national average in 2018; the 2019 estimates reflect actual national figures for the first quarter and projections, using the OECD Economic Outlook's 1.9-percent investment-price index estimate, for the remaining quarters. The province-specific changes in IPP investment are assumed, as with their national counterpart, to match the changes in M&E investment. The per-worker figures reflect actual numbers to the second quarter of 2019 and projections for the remaining quarters using the employment growth rate in the 2019 OECD Economic Outlook for Canada.

Figure 3: Provincial Investment Per Worker 2010-2019



Source: Author's calculations based on data from Statistics Canada's National and Provincial Economic Accounts, Capital and Repair Expenditures Survey, Labour Force Survey and OECD Economic Outlook.

national average. However, the Maritimes, Quebec and Ontario will see less than $4,000 per worker invested in new structures.

Meanwhile, 2019 M&E per-worker investment is likely to be above the national average by a healthy margin in Newfoundland and Labrador, Saskatchewan and Alberta – largely because resource development spurs demand for equipment. Nova Scotia, Ontario and Manitoba also look likely to equip their workers with M&E relatively well this year, with PEI, Quebec and B.C. registering relatively weak performances.

As for IPP – assuming that such investment per worker in 2018 and 2019 tracks M&E investment – Newfoundland and Labrador, Ontario and Alberta will equip their workers with more than $2,000 (2018 dollars) each this year. New IPP investment will be much weaker in the Maritimes, Manitoba and B.C.

For a perspective over time, Figure 3 summarizes the situation in each province by showing estimated 2019 per-worker investment in all types of capital (in 2018 dollars) by comparison with the best, worst and average figures over the past decade. (As in Figure 2, the much higher per-worker investment rates in the resource-rich provinces would compress the differences in the other provinces to the point of being hard to see; Figure 3 uses a logarithmic scale to make those differences more visible.)

Although the resource-rich provinces continue to register per-worker investment far above what the other provinces are achieving, weakness in commodity prices and market-access problems have noticeably hurt business investment in Alberta and Saskatchewan. Figure 3 obscures the minimum dot for Alberta, because its 2019 numbers are the lowest it has recorded in a decade. In Newfoundland and

Labrador, 2019 will be short of the decade's peak, but better than its average.

Elsewhere, Ontario and Manitoba will register 2019 per-worker investment levels that are close to their best at any time in the past decade. PEI, a chronic underperformer, looks set to do better this year than its usual low figures. The other Maritime provinces, Quebec and B.C. are off their peaks – not where we would expect them to be this far into an expansion and disappointing in the message it sends about their future productivity and workers' income growth.

Canada's Performance against Competitors Abroad

New capital per worker is not only a useful indicator of our current situation and the prospects for future income growth, it also – as the above discussion of the provinces illustrates – provides a convenient measure of performance across jurisdictions. To repeat, business investment per worker is an indicator of the extent to which the average employee is getting equipped with new capital that can raise productivity and enhance competitiveness relative to workers elsewhere. Comparisons of per-worker investment levels and trends between Canada and the United States, and against other OECD countries, prefigure whether Canada is on a path toward higher capital intensity, higher productivity and a higher wages economy, or a path toward lower capital intensity, lower productivity and lower wages.

Canada versus the US

Because Canada and the US collect similar data on capital investment, and because Statistics Canada takes particular care to compare Canadian to US prices, we can measure per-worker investment in the two countries with relatively high confidence. Figure 4 shows per-worker investment in the major types of capital in the two countries, converted into Canadian dollars using Statistics Canada's measures of relative price levels to adjust for purchasing power. It shows how much bang businesses get per buck spent on structures, M&E or IPP on either side of the border.[5]

Investment in structures is the only category that shows a Canadian advantage. Businesses in Canada, with its relatively large natural-resource sector, have tended to invest more per worker in structures than those in the US. The difference became unprecedentedly large after the 2008 economic crisis and slump, as Canada's resource sector benefited disproportionately from buoyant markets. It shrank somewhat after the middle of the current decade, however, with Canada's per-worker investment in structures stagnating after the mid-decade slump, while similar US per-worker investment has rebounded – reflecting in large degree the relatively robust performance of the US energy sector at a time when Canada's has struggled with policy-related obstacles.

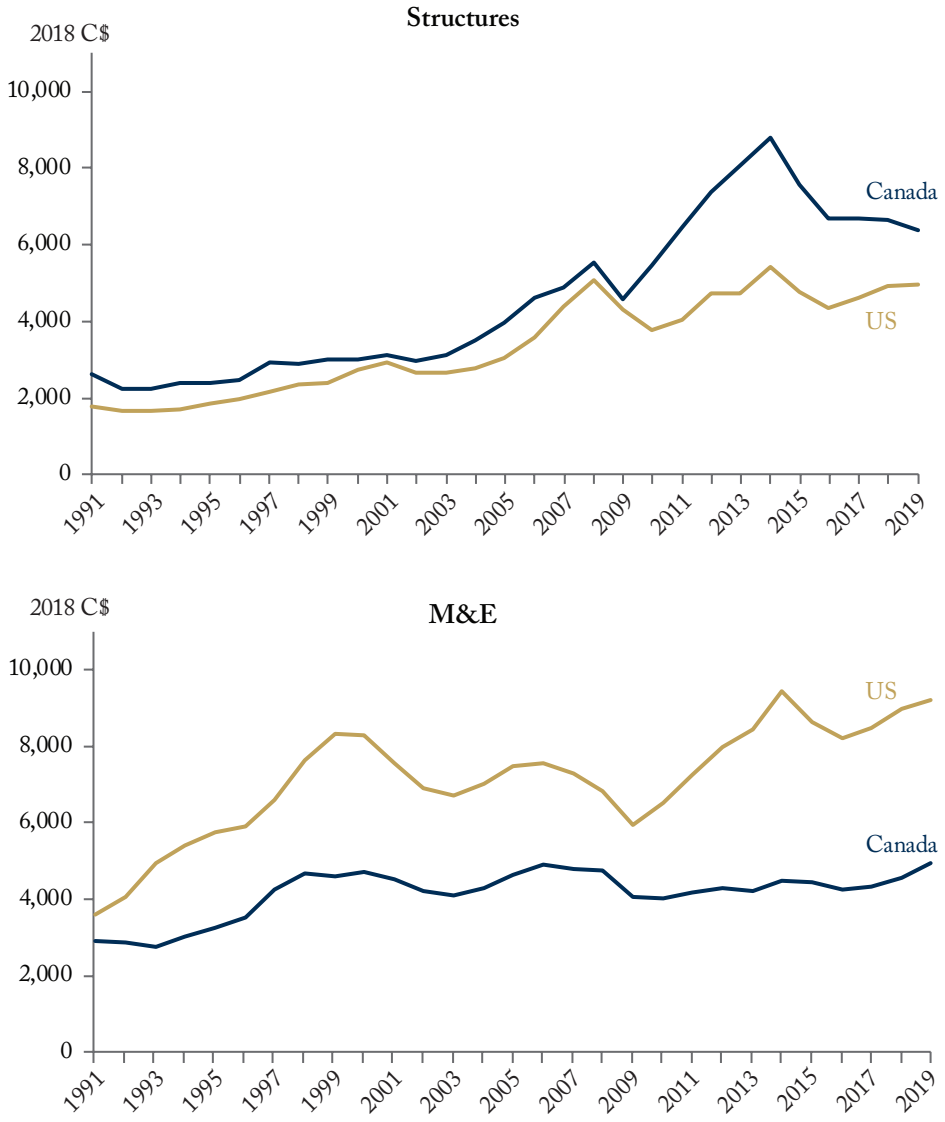
The comparison between the two countries in M&E investment is much less favourable to Canada. US M&E business spending per worker has typically been higher than in Canada, and the gap has tended to widen over the past decade. Indications to date are that the gap in Canadian dollar terms in 2019 will be more than $4,000 per worker.

The IPP gap is worse yet. Since the mid-2000s, Canadian IPP per-worker spending has been stuck at just $2,000 while in the US it has risen from the $3,000 range to surpass $6,000 per worker in 2019.

Summing across all categories reveals a troubling picture. US business per-worker investment

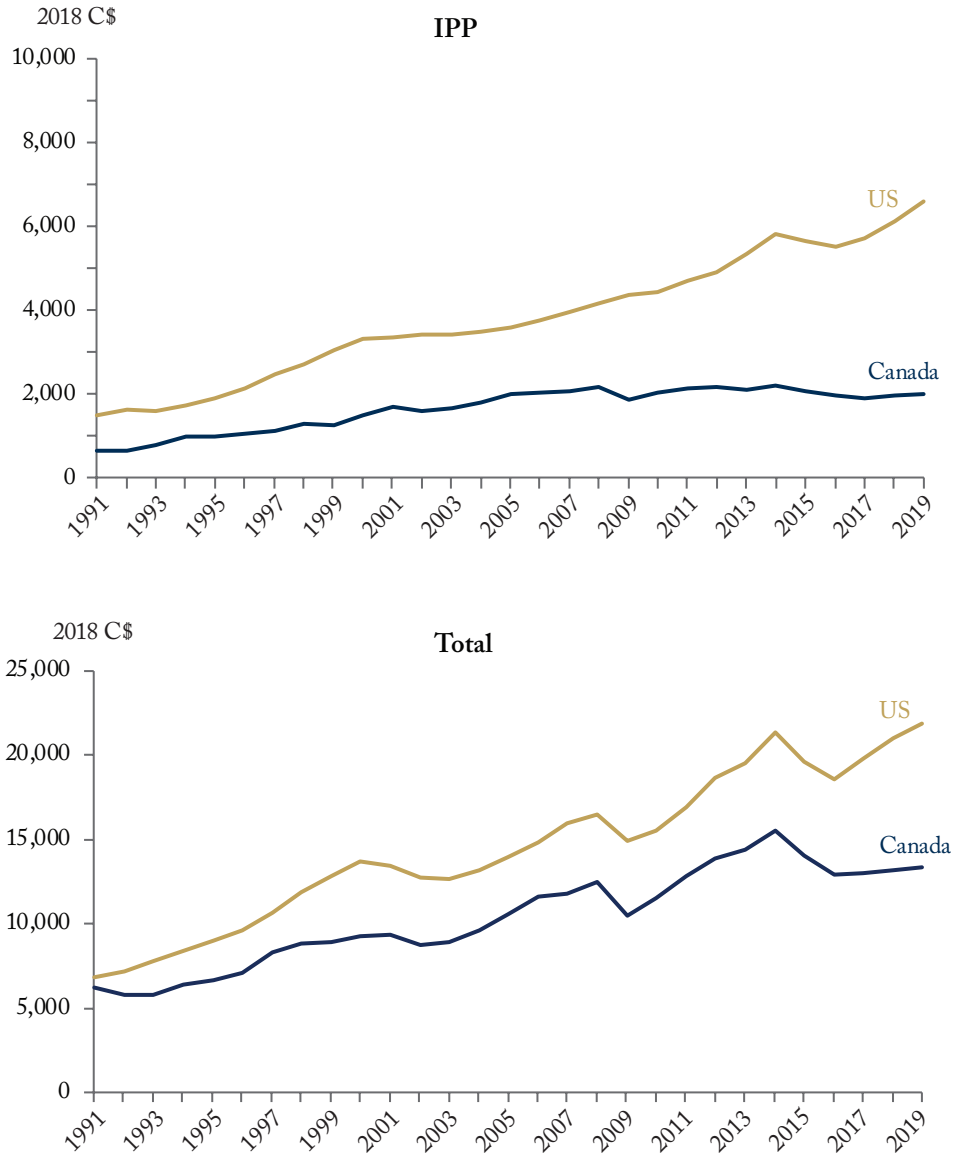
5 Investment goods tend to be less expensive overall in the US than in Canada, so converting US dollars to Canadian dollars, using the exchange rate alone, would understate the bang US companies are getting per dollar of investment.

Figure 4: Investment Per Worker in Canada and the US, Adjusted for Purchasing Power Parity (PPP)



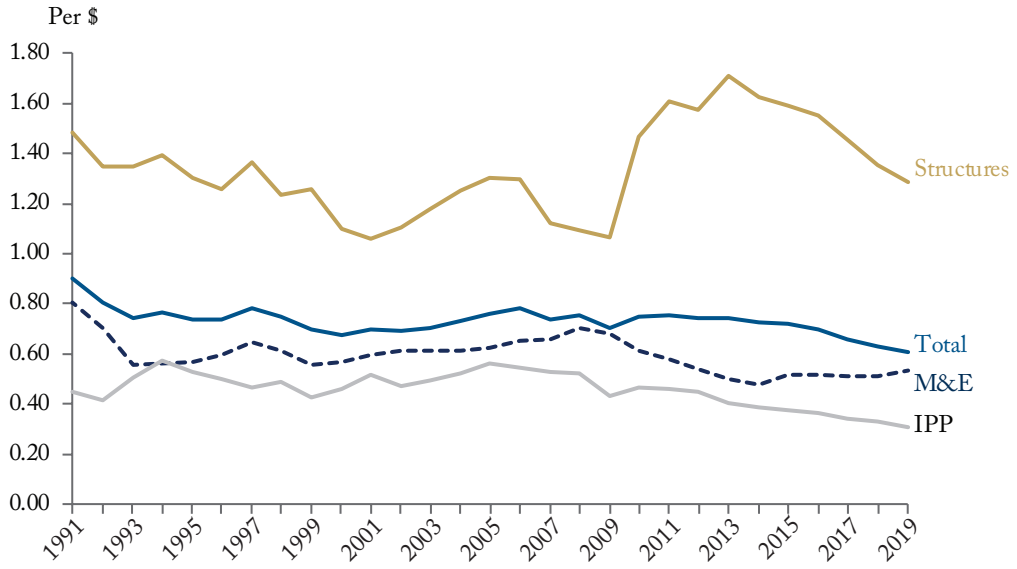
Source: Author's calculations based on data from Statistics Canada's National Income and Expenditure Accounts, Labour Force Surveys, Comparative Price Levels and from the US Bureau of Economic Analysis.

Figure 4: Continued



Source: Author's calculations based on data from Statistics Canada's National Income and Expenditure Accounts, Labour Force Surveys, comparative price levels and from the US Bureau of Economic Analysis.

Figure 5: Per-Worker Investment in Canada Per Dollar Invested in the United States



Source: Author's calculations based on data from Statistics Canada's National Income and Expenditure Accounts, Labour Force Survey, and comparative price levels, and from US Bureau of Economic Analysis.

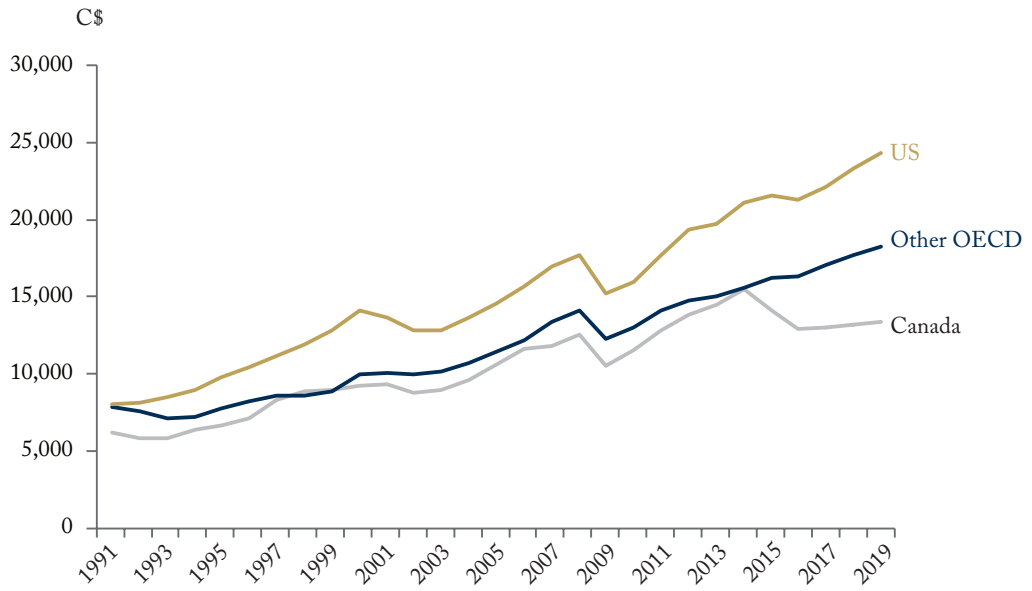
exceeded that in Canada by widening margins through the 1990s. Then, in the 2000s, Canadian per-worker investment kept better pace against the US and, initially, rebounded relatively well after the slump late in that decade. However, the gap between the two countries has widened dramatically since the middle of the current decade: while Canadian per-worker investment is still below its 2014 peak, US per-worker investment is reaching new highs.

A useful – and, unfortunately, disheartening – way to summarize the per-worker levels in both countries is to ask how much new investment Canadian workers get compared to their US counterparts. Figure 5 shows those figures for each category since 1991.

Canada's relatively robust rate of investment in structures stands out in this figure, with Canadian workers benefiting from more new capital throughout the period. The surge to the 2013 peak – when Canadian workers were getting about $1.70 for every dollar of new capital enjoyed by their US counterparts – is striking. So, unfortunately, is the subsequent decline to about $1.30 per dollar invested in the US.

The more disheartening stories are in the lines for M&E and IPP – and for total spending. For every dollar of new M&E per US worker, Canadian workers were improving from fewer than 60 cents around the turn of the century to close to 70 cents around the time of the 2008 crisis and slump. Since then, however, the relative rate of M&E investment is down and recently stood just above 50 cents. IPP is worse, with a steadily declining trend since the mid-2000s, to the point where the average Canadian worker seems likely to enjoy only 30 cents of new IPP investment in 2019 for every dollar enjoyed by the average US worker. Add them all together, and new capital per Canadian worker, adjusted for purchasing power parity (PPP), is now only about 60 cents for every dollar enjoyed by the average US worker – lower than at any point since the beginning of the 1990s.

Figure 6: Business Investment Per Worker



Source: Author's calculations based on data from Statistics Canada's National Income and Expenditure Accounts and Labour Force Survey, and OECD Economic Outlook Database.

Canada versus the OECD

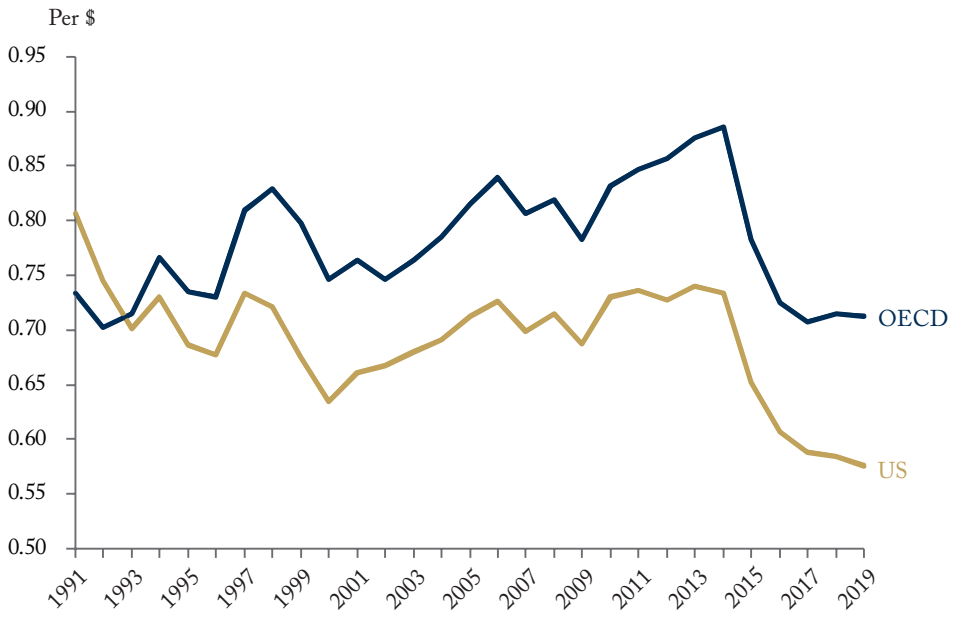
How does Canada compare to a larger group of developed countries? In casting the net more widely, we have the advantage of projections from the OECD Economic Outlook to estimate figures for 2019. We also face some data challenges.

Not all OECD countries break business investment down by type the way Canada and the US do, and not all measure IPP the same way, so we must use aggregate business investment with less confidence that we are measuring like with like. Moreover, no category-specific measures of relative prices like those available for Canada and the US exist, so the bang-per-buck adjustment is less precise: an alternative is to use PPP exchange rates, benchmarked to relative prices of investment goods in 2008. For consistency's sake, this section uses the same OECD measures for the US as well, which means that the per-worker numbers in Canadian dollars are not identical to those just discussed when comparing the US to Canada. But the big picture is consistent, as is the story of Canadian underperformance (Figure 6).

Per-worker investment in other OECD countries considered together has typically been less robust than in the US, but – with the exception of the period earlier in this decade when Canada's resource sector was booming and much of the rest of the more developed world was still struggling with the aftermath of the economic crisis and slump – it has typically been more robust than in Canada. The widening of the gap between Canada's per-worker investment rate and that of other OECD countries since then is discouraging. Businesses in those countries are likely to add more than $18,000 of new capital per worker this year – almost $3,000 more than in Canada. Across the entire OECD, the per-worker tally will be around $21,000 – some $6,000 more than in Canada.

As in the US comparison above, it is possible to highlight the relative Canadian per-worker performance by showing how much new capital

Figure 7: Per-Worker Investment in Canada per Dollar Invested Abroad



Source: Author's calculations based on data from Statistics Canada's National Income and Expenditure Accounts and Labour Force Survey, and OECD Economic Outlook Database.

Canadian workers enjoyed each year for every dollar enjoyed by counterparts abroad. Figure 7 shows how much new investment each Canadian worker receives compared to the US and the OECD as a whole.

While per-worker investment rates have been lower in Canada since the early 1990s, the gap did close between the late 1990s and the mid-2000s. For every dollar enjoyed by OECD workers, their Canadian counterparts enjoyed about 75 cents in the early 2000s. By the middle of this decade, a Canadian worker was receiving somewhat more, 85 cents. Subsequently, the investment rate in Canada fell off even as it made further gains abroad. Now, Canadian workers are enjoying barely more than 70 cents of new capital for every dollar spent on their OECD counterparts. In other words, Canadian workers are getting new tools at much lower rates than in the US and other developed countries.

Although the data challenges make precise country rankings suspect, 2019 per-worker investment figures put Canada 15th among the 17 OECD countries where the OECD data permit this sort of comparison. Only in the UK and New Zealand do businesses invest less per worker than in Canada. In the leading country, Switzerland, businesses invest twice as much per worker as Canadian businesses do. As a result, Switzerland, like the US, is equipping its workers much better for international competition than Canada.

The Provinces versus the US and the OECD

Measuring the provinces against the OECD data confirms what the country-level numbers suggest: per-worker business investment in most Canadian provinces is unimpressive compared to per-worker investment abroad (Table 1).

Alberta, Saskatchewan, and Newfoundland and Labrador had per-worker investment rates double those in OECD generally in this decade's earlier years. Although Newfoundland and Labrador still invests at a markedly superior rate, Alberta and

Table 1a: Investment Per Worker Compared to OECD and US, 2006-2019

Jurisdiction	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Change, 2006-2019	Change, 2018-2019
	Canadian dollars; nearest hundred														*percent (annual rate)*	
NL	13,200	11,200	13,500	12,300	14,300	20,500	26,800	34,700	37,600	39,300	49,400	38,400	35,300	37,800	8.4	7.1
PEI	5,400	7,100	6,700	5,100	4,700	5,300	4,900	5,700	5,700	5,000	5,300	6,200	6,400	6,200	1.1	-3.1
NS	6,800	7,000	6,300	7,400	8,800	8,100	5,800	6,600	7,500	7,800	8,900	8,300	8,000	8,100	1.4	1.3
NB	9,400	9,300	10,800	9,200	8,400	8,400	7,400	7,300	7,200	7,800	7,700	8,200	8,400	8,600	-0.7	2.4
QC	7,500	7,900	8,100	7,400	7,300	8,100	8,900	8,800	8,200	8,100	8,300	8,200	8,200	8,800	1.2	7.3
ON	8,700	8,600	8,800	7,900	7,900	8,500	8,700	8,100	9,300	10,300	9,800	10,100	10,700	10,400	1.4	-2.8
MB	7,600	8,200	9,400	9,000	10,500	10,300	10,900	11,200	12,800	13,500	12,900	13,500	15,700	15,400	5.6	-1.9
SK	15,100	16,500	19,900	20,900	24,600	27,400	30,200	32,800	35,300	28,800	24,100	24,700	24,700	23,100	3.3	-6.5
AB	31,300	31,300	32,900	23,000	29,300	34,000	38,000	42,800	45,500	33,500	27,100	26,500	26,300	24,800	-1.8	-5.7
BC	10,000	10,300	11,200	9,800	10,500	11,400	11,900	11,600	12,800	11,400	10,800	12,200	12,100	12,600	1.8	4.1
Canada	11,200	11,700	12,500	10,300	11,600	13,000	14,100	14,700	15,700	14,300	13,200	13,500	14,400	15,000	2.3	4.2
OECD*	13,400	14,500	15,300	13,200	13,900	15,300	16,400	16,800	17,700	18,200	18,200	19,100	20,100	21,000	3.5	4.5
US	15,400	16,800	17,500	15,000	15,900	17,700	19,300	19,800	21,400	21,900	21,700	22,900	24,600	26,000	4.1	5.7

* OECD countries for which we have comparable data: in addition to Canada and the United States, includes Australia, Belgium, Denmark, Finland, France, Germany, Iceland, Japan, Korea, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United Kingdom.

Table 1b: Per-worker Investment – Provinces versus OECD and US

Jurisdiction	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average: 2006-2011	Average: 2012-2019
	Relative to OECD (OECD average = 100)															
NL	99	77	88	93	103	134	163	207	212	216	271	201	176	180	99	203
PEI	40	49	44	39	34	35	30	34	32	27	29	32	32	30	40	31
NS	51	48	41	56	63	53	35	39	42	43	49	43	40	39	52	41
NB	70	64	71	70	60	55	45	43	41	43	42	43	42	41	65	43
QC	56	54	53	56	53	53	54	52	46	45	46	43	41	42	54	46
ON	65	59	58	60	57	56	53	48	53	57	54	53	53	50	59	52
MB	57	57	61	68	76	67	66	67	72	74	71	71	78	73	64	72
SK	113	114	130	158	177	179	184	195	199	158	132	129	123	110	145	154
AB	234	216	215	174	211	222	232	255	257	184	149	139	131	118	212	183
BC	75	71	73	74	76	75	73	69	72	63	59	64	60	60	74	65
Canada	84	81	82	78	83	85	86	88	89	78	72	71	71	71	82	78

Table 1b: Continued

Jurisdiction	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average: 2006-2011	Average: 2012-2019
	Relative to US (US = 100)															
NL	86	67	77	82	90	116	139	175	176	179	228	168	143	145	80	169
PEI	35	42	38	34	30	30	25	29	27	23	24	27	26	24	36	26
NS	44	42	36	49	55	46	30	33	35	36	41	36	33	31	45	34
NB	61	55	62	61	53	47	38	37	34	36	35	36	34	33	58	35
QC	49	47	46	49	46	46	46	44	38	37	38	36	33	34	47	38
ON	56	51	50	53	50	48	45	41	43	47	45	44	43	40	52	44
MB	49	49	54	60	66	58	56	57	60	62	59	59	64	59	56	59
SK	98	98	114	139	155	155	156	166	165	132	111	108	100	89	121	128
AB	203	186	188	153	184	192	197	216	213	153	125	116	107	95	183	153
BC	65	61	64	65	66	64	62	59	60	52	50	53	49	48	64	54
Canada	73	70	71	69	73	74	73	74	73	65	61	59	58	58	71	65

Source: Author's calculations based on data from Statistics Canada's Provincial Economic Accounts, Capital and Repair Expenditure Survey, Labour Force Survey, and OECD Economic Outlook Database.

Saskatchewan are now investing only about one-fifth above the OECD rate and below the US rate.

In 2019, per-worker investment across the Maritimes seems likely to average about 40 cents for every dollar invested elsewhere in the OECD and about 30 cents for every dollar invested in the US – relative per-worker investment rates that are well down from a decade ago. Ontario's projected per-worker tally in 2019 is about half what the OECD worker will enjoy and only about two-fifths what the US worker will receive – some 10 cents less than if the province had maintained its relative position of the late 2000s. Quebec has also slipped, and in 2019 looks set to equip its workers with only 43 cents of new capital for every dollar invested in OECD workers generally and only 35 cents for every dollar provided for US workers.

Reasons for Canada's Weak Investment Rates

The disappointing Canadian business investment over the past few years occurred against a backdrop of capital spending in many developed countries that was below historical levels and lower than one might have expected, given the abundance and low cost of saving, along with the prolonged expansion since the last recession. Benign explanations for low investment rates exist: in particular, the world may be getting less physical-capital-intensive, with many of the services that increasingly enhance quality of life requiring fewer structures and less M&E – so businesses simply need to invest fewer dollars per worker to reap productivity gains.

Other potential explanations are less encouraging. People have speculated that population aging and a consequently slower growth outlook over the long term may be reducing expected innovation returns. Another potential culprit is less competition, as the number of firms in key industries drops, and common ownership by large institutional investors fosters collusive behaviour. Some blame short-termism: moves to boost share prices and distribute earnings in the short term, pre-empting capital spending with a longer-term focus. Lately, threats to international trade from mercantilism and great-power rivalries have hurt business confidence.

Whatever the merits of these and other explanations for low capital spending, only US protectionism is persuasive as an explanation for particularly weak Canadian spending – and since Donald Trump's election was something of a surprise in late 2016, it cannot account for much of the weakness before the last two to three years. Some factors are beyond Canadian control: as a resource-oriented economy, Canada will typically experience strong investment when demand for fossil fuels, other minerals, forest products and food is strong and weak investment when demand is weak. But other factors are more within our control.

Deficient Aggregate Demand

With the experience of the 2008-2009 crisis – and the initially disappointing recovery – still fresh in mind, economic slack comes readily to mind as an explanation for weak private-sector capital investment. Like some of the other general explanations canvassed at the beginning of this section, however, deficient aggregate demand is not a convincing explanation for Canada's especially weak investment climate. Canada recovered from the 2009 slump relatively well. Indeed, as Figure 7 shows, Canada's per-worker investment rates improved from 2009 to 2014 compared to the OECD generally, and from 2009 to 2013 against the US.

Moreover, in recent years the Canadian economy appears to have been operating close to capacity. Inflation has returned to the Bank of Canada's 2 percent target. As well, Canada is running a significant current account deficit – not the surplus one would expect if aggregate demand were below productive capacity. Furthermore, the Bank of Canada's Business Outlook Survey has been showing consistently positive balances of opinion with respect to M&E investment and hiring since

mid-2016, and the proportion of businesses saying they would have difficulty meeting an unexpected increase in demand – a key indicator of pressure on productive capacity – reached its highest level in more than a decade last year. Therefore, deficient domestic demand is an unlikely suspect for chronic investment weakness.

Obstacles to Fossil-Fuel Investment

As almost daily headlines demonstrate, Western Canadian fossil-fuel producers face particular challenges, especially bottlenecks getting their products to market. While 2019 per-worker investment in Newfoundland and Labrador, which faces no comparable obstacles, will likely surpass its 2014 level, per-worker investment in Saskatchewan will likely be down almost one-third and in Alberta will likely be down more than 40 percent since then.

Bishop and Sprague (2019) document a drop of $100 billion in planned investments in major resource sector projects between 2017 and 2018, mainly owing to these obstacles. Another C.D. Howe Institute *Commentary* (Dachis 2018) calculated that policy-induced costs for producers of conventional oil in Alberta and Saskatchewan are double those faced by their counterparts in Texas and more than triple those in North Dakota and Pennsylvania, with delays in pipeline construction being the single most important factor behind this uncompetitive situation. The recent dynamism of US oil and gas production, so different from Canada's situation, has also made it a net oil exporter – reducing demand for Canadian products in what was previously Canada's most important customer.

The start of major energy investments, such as liquefied natural gas export facilities and the Trans Mountain Pipeline expansion, would help – but the passage of Bill C-69, overhauling the regulatory process for major infrastructure projects, heralds no improvement of the uncertainty that has hurt this sector in recent years.

Uncompetitive Taxation

Onerous taxation is also a likely suspect behind Canada's relatively poor investment rates. During the 2000s, Canada improved its relative attractiveness for business investment with cuts to corporate income tax rates and the conversion of sales taxes to value-added taxes in many provinces. Since then, however, other countries have improved their tax environments. Corporate income tax rates have been falling abroad, while some provinces have raised theirs, and B.C. reverted from a harmonized sales tax to a more distorting sales tax.

One well regarded comparison of effective tax rates on incremental investment (the marginal effective tax rate, or METR) shows Canada with the 12th highest rate among 34 OECD countries in 2017, a deterioration from 14th in 2010 (Bazel, Mintz, and Thompson 2018). The 2018 US tax reform further eroded Canada's position: lower US corporate income-tax rates and accelerated write-offs cut its overall METR on new investment from 34.6 percent to 18.8 percent.

Less high profile, but potentially as important in determining the relative attractiveness of different jurisdictions for business investment, are property taxes. Business property taxes at the municipal and provincial levels add significantly to METRs (Found and Tomlinson 2017) – and while no comparable information on the size of property-tax wedges exists elsewhere, the METRs these taxes create are high enough to discourage investment, generally, and steer it into more lightly taxed residential construction.

Obstacles to International and Interprovincial Trade

Trade agreements and regulatory measures that heighten competitive pressures and opportunities as well as encouraging movement of goods, services, saving and people across borders 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).

The threat of barriers to exports has probably hurt business confidence and capital spending in Canada particularly badly since the election of an avowedly protectionist US administration in late 2016. A survey of more than 1,200 experts in almost 120 countries by the ifo Institute at the University of Munich asks a biquarterly question about various concerns affecting the economic outlook. Its most recent results, from the second quarter of 2019 (ifo 2019), showed 80 percent of Canadian respondents citing barriers to exports as a threat to the economy. The level of concern in Canada was far higher than the level worldwide (43 percent) and among advanced economies generally (34 percent). Moreover, it was up 60 percentage points since early 2017 – a far worse heightening of anxiety than the 9-percentage-point increase worldwide and in the advanced economies generally.

Since Canada appears for at least some time to be exposed to protectionist US moves, it makes all the more sense to pursue liberalization with other like-minded partners and follow up recent successes, such as the Canada-EU Trade Agreement and the Trans-Pacific Partnership, with other trade-promotion initiatives. Meanwhile, Canada can improve its competitiveness and cut input costs by lowering its own import barriers – as, for example, the 2010 elimination of tariffs on capital equipment did – and, as highlighted in a recent speech by Bank of Canada Senior Deputy Governor Carolyn Wilkins, by reducing the frictions within the Canadian market that business leaders often identify as obstacles to expansion (Wilkins 2019).

Blunted Competitive Pressure for Canadian Firms

Explanations for lower capital spending that focus on greater industrial concentration, common ownership or other factors that blunt competitive pressures may apply to Canada.

Canada has some markedly anti-competitive regimes in particular sectors, such as alcohol retailing and supply-managed agricultural commodities. These regimes not only reduce incentives to invest in facilities and process improvements that would raise productivity to attract buyers of products, they also increase expenses related to lobbying governments and regulators to maintain the incumbents' advantages (Schwanen 2017). Allowing more competition among current incumbents and challengers would likely spur higher investment in these sectors.

In other sectors, such as traditional utilities, telecommunications and financial services, the challenge is not to increase the number of incumbent firms – many of these activities naturally tend to foster limited numbers of producers. Instead, regulators must strive to serve the interest of buyers more than sellers and to foster competition "for the market" as, for example, when consumers of home entertainment services have options for delivery from firms delivering data by wire, cable, cellular networks or satellites. The C.D. Howe Institute's 2018 Innovation Policy Report Card ranked Canada 13th of 14 countries when it comes to "Access to Markets and Competition Regime" and 11th of 14 when it comes to "Regulatory Environment" (Schwanen and Wyonch 2018). Better relative performance on these measures would likely foster better relative performance in business investment, particularly in M&E and IPP.

Uncompetitive Electricity Prices

Electricity prices – also highlighted in Senior Deputy Governor Wilkins's speech – are another likely suspect behind weak capital investment in some provinces.

In 2006, electricity in Ontario was about 40 percent cheaper than in New York, which helped attract and retain businesses. That advantage is gone. Even if policy changes provide temporary relief, businesses making investments that will last

decades will view future electricity-cost escalation with dismay. Fundamental reform of the Ontario electricity market that focuses on improving competition is required to reduce generation costs (Dachis 2016).

Obstacles to Investment in Intellectual Property

Canada's stagnant IPP capital spending is a reminder that its traditional approach to intellectual property – stimulating R&D directly – is not the only, and almost certainly not the most important, way to promote innovation and productivity growth. Canadian businesses today have access to ideas and IPP such as computer software from anywhere in the world. But they are not investing in this form of capital at the same rates as their US counterparts and likely elsewhere as well. Canada's high METR on production (McKenzie and Sershun 2010) may also be part of the IPP problem.

Current policies focusing on intellectual property and growth are oriented toward small businesses. The Small Business Deduction cuts corporate income tax for all small Canadian-owned businesses while the Scientific Research and Experimental Development program awards an enhanced tax credit rate to small Canadian-owned businesses conducting R&D. Such preferential tax treatments conditional on firm size act as a barrier to growth (Howitt 2015, Chen, and Mintz 2011). Lowering taxes on income from IPP, often known as a "patent box" regime, could incentivize more R&D across the board. If preferential tax treatment is attractive to policymakers as a means of encouraging growth, it should be directed not to small firms but to young firms (Robson et al. 2018).

Investment Financing

Availability of capital – how easily people with attractive potential projects can access the funds needed to finance them – often arises in discussions of Canada's investment performance.

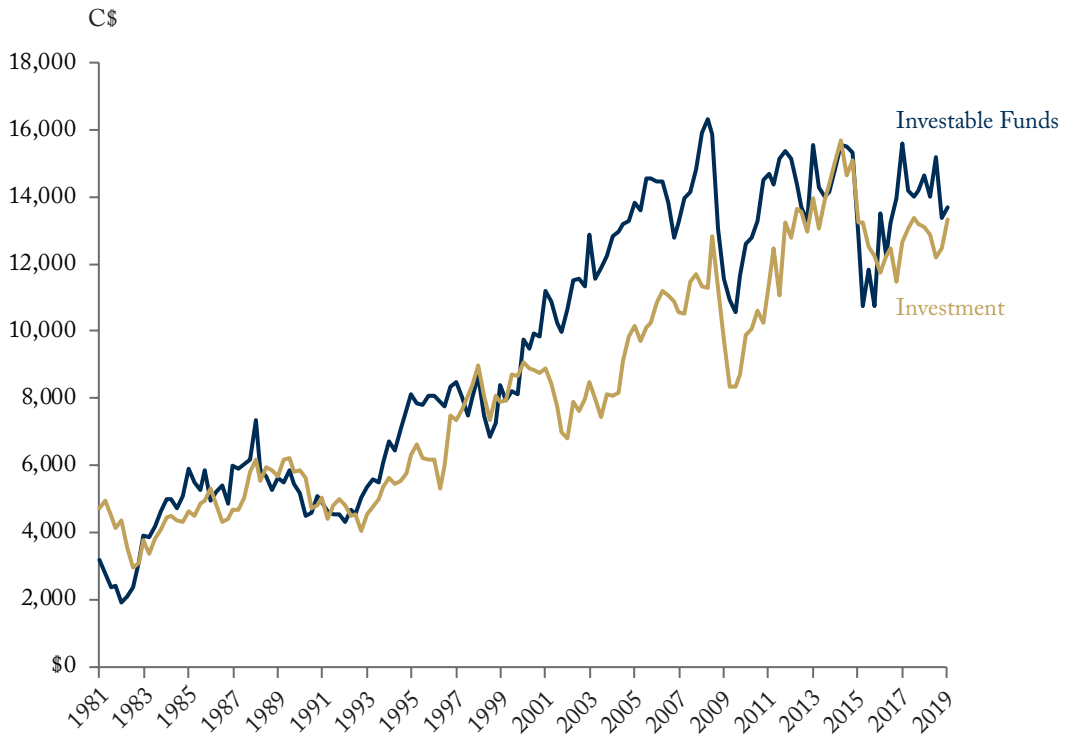
For most businesses, the readiest source of capital investment is internal funds – retained earnings plus non-cash costs (mainly depreciation). Business investment and internally generated investable funds tend to vary together, both because profitability and opportunities for productive capital spending fluctuate with the business cycle, and because healthy cash flow is a signal for, and an enabler of, investment (Figure 8).

For much of the 2000s, and again after the 2008 financial crisis when many businesses stocked liquid assets as protection against another downturn, Canadian businesses invested somewhat less than the funds they were generating indicated they could. In the first half of the current decade, internally generated funds and investment were more closely aligned. Since late 2016, however, Canadian businesses have again tended to invest less than indicated by their internal funds. Over this period, the balance of responses to the Bank of Canada's Business Outlook Survey question about terms and conditions of credit has more often than not leaned toward readier availability. In general, then, caution is as likely an explanation for the lack of investment as difficulty in financing due to lacklustre investment rates.

However, with the gap between investable funds and investment having closed in early 2019, boosting Canadian business investment to levels more competitive with the US and other developed countries would require more than the internally generated funds illustrated in Figure 8. Asset-based finance is a particularly important source of M&E investment funds (Robson, Kronick, and Kim 2018), and post-financial crisis regulations, along with uncertain liquidity support in the event of a future crisis, may be making the conditions of such loans less attractive to borrowers than they need be.

A recent report on the importance of private equity in stimulating investment and growth (Schwanen, Kronick, and Omran 2019) highlights three other areas where policy could better support domestic capital formation. First, exempting gains on share sales of small businesses with gross assets

Figure 8: Canadian Businesses' Investable Funds and Investment Per Worker



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

Source: Authors' calculations from Statistics Canada, National Income and Expenditure accounts and Labour Force Survey.

below $50 million that have been held for at least five years from capital gains tax, as the US does, could improve the environment for small businesses seeking to scale up (Lortie 2019). Second, more opportunities to invest in Canadian infrastructure could attract Canadian institutional investors, particularly pension funds, which currently look abroad for assets that match their long-term liabilities (Dachis 2017). And, finally, reorienting the Small Business Deduction to young and growing firms, rather than firms that are simply small (as recommended by Howitt 2015) would remove a tax disincentive to scaling up (Robson, Laurin, and Wyonch 2018).

Equipping Canadian Workers Better

While Canadian policymakers cannot influence all the factors affecting the environment for business investment in Canada, they can make progress on several important ones.

The western provinces, in particular, need better market access for their products. Tax competitiveness needs to improve: while matching the faster write-offs in the 2018 US reforms was a key step, and likely helps explain the robustness of M&E investment in the first quarter of this year, lower corporate income tax rates generally would encourage more capital spending. We can mitigate

the threat of US protectionism by liberalizing on our own, and particularly by lowering barriers that fragment Canada's internal market. Specifically, pro-competitive reforms in sectors such as alcohol retailing, supply-managed agricultural products and telecommunications would increase investment incentives. Action to limit the seemingly inexorable increase in electricity prices would also encourage business investment, generally, and in Ontario particularly. Refocusing efforts to stimulate IPP investment from small firms to growing firms with better chances of commercializing their efforts could improve Canada's weak performance on that front.

After narrowing the gap with international competitors during the 2000s and early in this decade, business investment per worker in Canada has slipped badly since 2014. This weakness has not just accentuated Canada's excessive dependence on consumption to support economic activity in the present, it means that Canadian workers will have less capital – less non-residential building and engineering, less M&E and less in the way of IPP – with which to produce goods and services, earn incomes and raise their living standards in the future.

The prospect that Canadians will find themselves increasingly relegated to lower value-added activities relative to workers in the US and elsewhere who are raising their productivity and earnings faster should spur policymakers to action on many fronts: infrastructure investments, lower and less distorting taxes, incentives oriented toward growth and competition at home and abroad.

Canadian workers need better tools. Policymakers must help.

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