

Comparing Business Investment per Worker in Canada and the United States, 2002–2021

by Tegan Hill and Joel Emes

MAIN CONCLUSIONS

■ Economists have warned of Canada's weak business investment, particularly compared to the United States. This should concern Canadians as strong business investment is key to higher incomes, greater economic prosperity, and improved living standards.

■ Real (\$2012) non-residential business investment per worker in the United States exceeded that of Canada in every year from 2002 to 2021: Canada's business investment grew by \$2,889 per worker from \$11,798 to \$14,687 while US investment grew by \$11,064 per worker from \$15,686 to \$26,751.

■ The gap between Canada and the United States increased significantly after 2014 as real business investment began to decline in Canada. In 2014, Canada invested about 79 cents per worker for every dollar invested in the United States; in 2021, investment was 55 cents for every US dollar.

■ In 2014, three Canadian provinces had significantly higher real business investment per worker than the United States (\$23,333): Alberta (\$52,533), Newfoundland & Labrador (\$48,867), and Saskatchewan (\$44,699). From 2014 to 2021, however, US growth in real business investment per worker was higher than growth in any Canadian province except Ontario. In fact, growth declined in five provinces: Alberta, Newfoundland & Labrador, Saskatchewan, Manitoba, and Nova Scotia. By 2021, real US business investment per worker (\$26,751) exceeded that of any Canadian province.

■ Canadian prosperity depends in large part on the strength of business investment. Policy makers must recognize the current challenge, understand its causes, and prioritize policies that support business investment moving forward.

Introduction

In recent years, economists have warned of Canada's relatively weak business investment, particularly when compared to the United States.¹ Business investment in physical and intellectual capital equips workers with the tools and technology to produce more and provide higher quality goods and services, which in turn fuels innovation and improved productivity. Put simply, strong business investment is key to higher incomes and employee earnings, greater economic prosperity, and improved living standards.

Weak business investment should be of particular concern to policy makers and to Canadians more

broadly as Canada's recent economic performance has been relatively poor in historical terms (Clemens, Palacios and Veldhuis, 2021), particularly when measured on a per-worker basis (Williams, 2019). Moreover, the Organisation for Economic Co-operation and Development (OECD) forecasts that Canada will record the worst economic growth among the advanced countries from 2030 to 2060 (Guillemette and Turner, 2021). The intention of this bulletin is to help Canadians understand this issue by providing a closer look at Canada's business investment per worker compared, both nationally and provincially, to the United States.

Business investment per worker, Canada and the United States

This Research Bulletin measures business investment per worker.² Business investment is reviewed per worker, rather than by overall changes in capital stock, as investment per worker directly contributes to increases in labour productivity, which, in turn, directly contributes to increases in wages and other forms of labour compensation. The study excludes government investment, and workers employed in the public sector, since the intention is to focus on

the private sector. Similarly, it excludes investment in residential construction to focus exclusively on business-related investment in factories, plants, machinery, intellectual capital, and technologies.³ These are private-sector investments that improve both total factor and labour productivity, which are essential to increasing overall economic prosperity (Globerman and Press, 2018). The analysis focuses on Canada and the United States as the United States

1 See, for example, Globerman and Emes, 2021a, 2021b; Bazel and Mintz, 2021; Robson and Bafale, 2022; Globerman, 2023.

2 The data in this report use the chained Fisher index formula to measure real GDP. While this allows better comparability with US data, chained series are not additive, meaning that when component values are summed they will not match the reported total. In our Canadian data, there is a gap creating some uncertainty because we calculate business investment as "business gross fixed capital formation" less "non-residential structures". Although this gap exists in the values presented, it ranges from zero in the base year to negative 0.8% to positive 0.6%. The average maximum gap over the entire period is less than one-tenth of one percent.

3 Specifically, our investment data come from the Gross Fixed Capital Formation section of Canada's National Accounts and covers the main categories of non-residential structures (which includes factories, office towers, and engineering structures such as pipelines, power and communication networks), machinery and equipment (for example, computers, electronic machinery, transportation equipment), and intellectual property (including mineral exploration, research and development, and software). Equivalently, US data are from the Gross Private Domestic Investment section of the US National Accounts and similarly covers non-residential: structures, equipment, and intellectual property products.

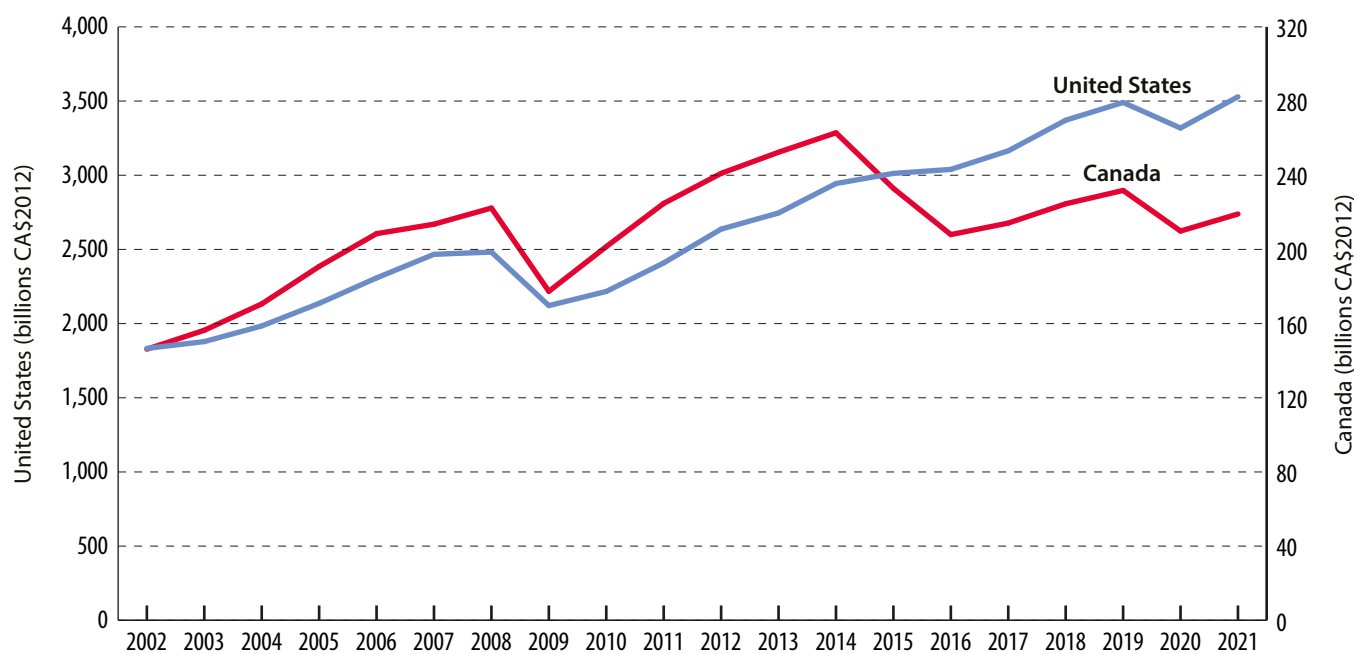
is not only Canada’s largest trading partner but also the country that Canada competes most closely with in attracting capital and labour. Relatively weak business investment compared to the United States would indicate that businesses see less opportunity in Canada—a worrying prospect for economic growth in the years ahead.

Data on business investment and employment data comes from Statistics Canada (2023a, 2023c), the US Bureau of Economic Analysis (2023) and the US Bureau of Labor Statistics (2023). All values are expressed in real (\$2012) Canadian dollars using the OECD’s Benchmark Purchasing Power Parities

data (2023).⁴ Hereafter, inflation-adjusted (\$2012) non-residential business investment per worker, in Canadian dollars, will simply be referred to as “business investment per worker”.

For reference, **figure 1** shows real (\$2012) business investment in Canada and the United States from 2002 to 2021 (the latest year of available data).⁵ **Figure 2** shows real (\$2012) business investment in Canada and the United States adjusted per worker. As shown in figure 2, real business investment per worker in the United States exceeded that in Canada every year from 2002 to 2021. Over the entire period, real business investment per worker in Canada increased

Figure 1: Business investment (CA\$2012) in Canada and the United States, 2002–2021

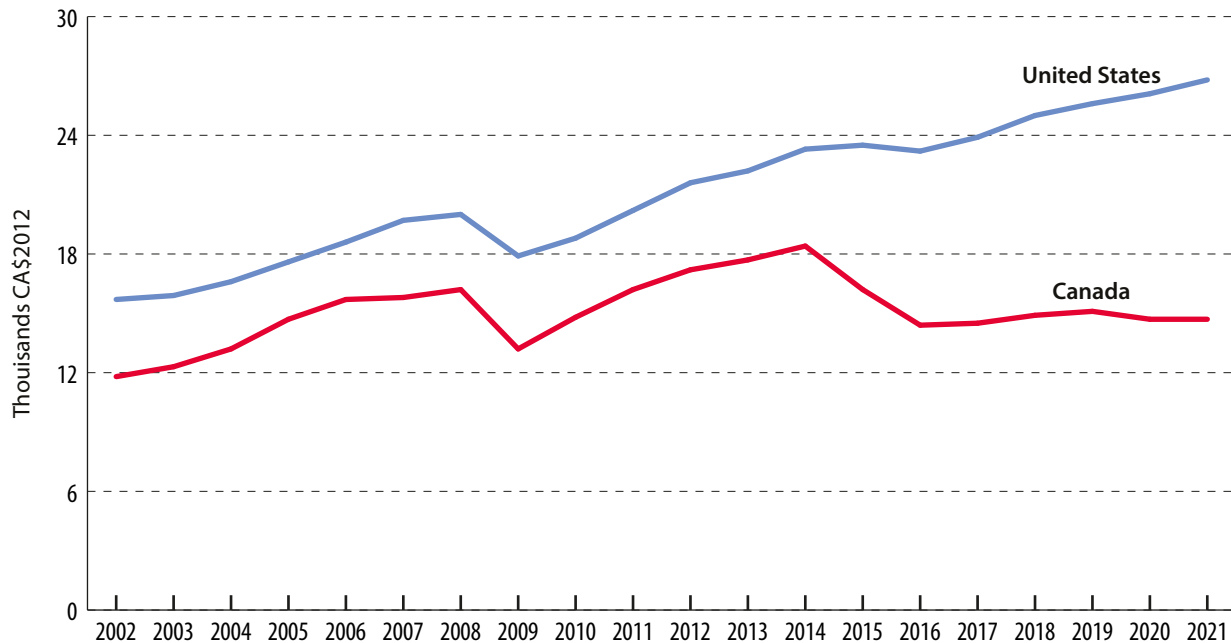


Note: Business investment excludes residential construction.
Sources: Statistics Canada, 2023c; US Bureau of Economic Analysis, 2023; OECD, 2023.

4 This analysis uses purchasing power parity, rather than the exchange rate, as investment goods tend to be less expensive in the United States than in Canada and the exchange rate alone could understate the relative value for money in the United States per dollar of investment (Robson and Bafale, 2022).

5 The analysis starts in 2002 because that is the first year that a detailed breakdown of investment data is available for the United States.

Figure 2: Business investment per worker (CA\$2012) in Canada and the United States, 2002–2021

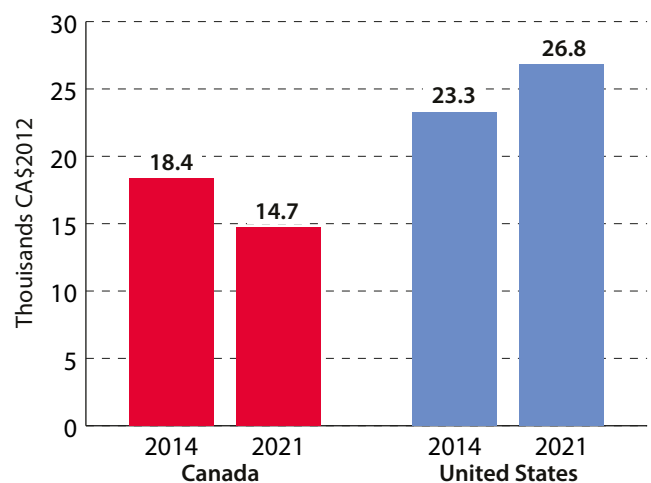


Note: Business investment excludes residential construction.
Sources: Statistics Canada, 2023a, 2023c; US Bureau of Economic Analysis, 2023; US Bureau of Labor Statistics, 2023; OECD, 2023.

from \$11,798 in 2002 to \$14,687 in 2021, which is an increase of approximately \$2,900 per worker. In the United States, real business investment per worker rose from \$15,686 in 2002 to \$26,751 in 2021, an increase of approximately \$11,100 per worker. In other words, over the two decades, Canada’s business investment per worker increased by 24.5%, compared to 70.5% in the United States.

As shown in figure 2, the gap between Canadian and US business investment per worker widened significantly after 2014. **Figure 3** takes a closer look at real (\$2012) business investment per worker in the United States and Canada in 2014 and 2021. As shown, real business investment per worker was \$18,363 in Canada in 2014 and then declined to \$14,687 in 2021. This reflects a real (\$2012) \$43.7 billion decline in total annual business investment in Canada, from \$262.9 billion in 2014 to \$219.1 billion in 2021 (figure 1). In contrast, US real business

Figure 3: Business investment per worker (CA\$2012) in Canada and the United States, 2014 and 2021



Note: Business investment excludes residential construction.
Sources: Statistics Canada, 2023a, 2023c; US Bureau of Economic Analysis, 2023; US Bureau of Labor Statistics, 2023; OECD, 2023.

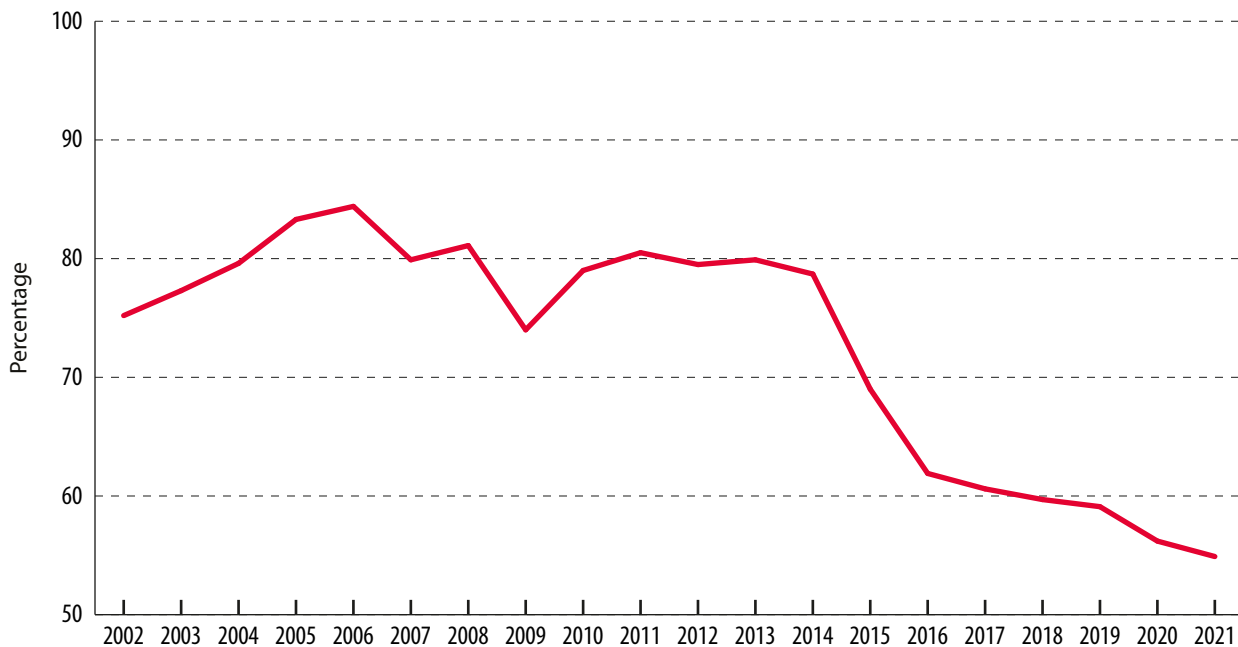
investment per worker increased from \$23,333 in 2014 to \$26,751 in 2021. This is equivalent to a real (\$2012) \$585.1 billion CAD increase in business investment from \$2,943.9 billion in 2014 to \$3,529.0 billion in 2021 (figure 1).

So, while Canada began with lower business investment per worker in 2002, the gap between Canada and the United States has increased as growth in our competitor outpaced growth in Canada, particularly after 2014. Given this trend, it is useful to assess Canada’s business investment per worker as a share of business investment per worker in the United States (figure 4). As shown, Canada’s business investment per worker was 75.2% of the United States level in 2002. It gradually increased until it reached a peak at 84.4% in 2006. Setting aside fluctuations around the time of the 2008/09 financial crisis, from 2010 to 2014 Canada’s business investment per worker as a share of the investment in the United States

remained relatively stable, ranging between 78.7% to 80.5%. In 2015, however, Canada’s business investment per worker fell sharply to 69.0% of the U.S. level, before sinking further to 61.9% in 2016—a decline of 16.8 percentage points over two years. It also declined steadily in the following years and, by 2021, Canada’s business investment per worker as a share of the investment in the United States stood at 54.9%—its lowest point over the 20-year period. In other words, since 2014, Canada went from investing approximately 79 cents (per worker) for every dollar invested in the United States to 55 cents (per worker) in 2021, barely half the US figure.

It is important to recognize that growth in the number of workers will influence the overall change in business investment per worker. Indeed, the number of business-sector workers increased more in Canada (20.4%) than in the United States between 2002 and 2021 (12.9%), which means that Canada’s weaker

Figure 4: Business investment per worker, Canada as a share (%) of the United States, 2002–2021



Note: Business investment excludes residential construction.

Sources: Statistics Canada, 2023a, 2023c; US Bureau of Economic Analysis, 2023; US Bureau of Labor Statistics, 2023; OECD, 2023.

business investment in part reflects faster growth in the number of workers. However, adjusting for this factor does not change the overarching trend as presented in figure 4. For instance, if the number of US business-sector workers is increased by the annual Canadian rate, Canada goes from investing approximately 84 cents (per worker) for every dollar invested in the United States in 2014 to 59 cents (per worker) in 2021—roughly the same relative decline as in the previous calculation.⁶

While this analysis is not intended to determine the *causes* of Canada’s decline in business investment, it is important to identify a few key factors. First, the oil-price collapse in 2014 contributed to the overall decline in Canada’s business investment. The energy sector is a larger share of the Canadian economy than of the United States’,⁷ and oil and gas investment did not recover in Canada as it did in the United States following the price collapse.⁸ In part, this likely reflects an increase in regulatory constraints, perceived policy uncertainty, and an unfavourable business environment for energy development in Canada (Globerman and Emes, 2021c; Mejia and Aliakbari, 2022).

At the same time, Canada’s faltering business investment cannot be explained solely by developments in the energy sector. As many analysts have indicated, there is evidence that the federal government’s recent tax and regulatory policies have contributed

to an overall flight of investment capital from Canada (Globerman, 2018b; Grubel, 2018; Mintz, 2022). One analysis found that that roughly two thirds of Canada’s 15 main industries experienced declines in business investment from 2014 to 2017, including wholesale trade, accommodation and food services, utilities, professional services, and manufacturing (Globerman and Emes, 2019b), while nearly half (7 of 15) saw a decline in investment from 2014 to 2019 (Globerman and Emes, 2021b). Differences in industrial mix combined with different sectoral growth rates could also be influencing business investment per worker. For instance, the much larger (absolute and relative) size of the information and communications technology (ICT) and related semiconductor industries in the United States likely contributes to the overall difference in investment performance, particularly as those were sectors grew particularly rapidly in the United States over the past two decades (Finlayson, 2022).

Overall, business investment per worker in the United States exceeded that in Canada every year from 2002 to 2021. Moreover, since 2014, Canada’s real business investment per worker has steadily declined, and the gap between United States and Canada has therefore significantly widened. This has worrying implications for Canada’s economic growth, and in particular, for the incomes and earnings of Canadian workers compared to the incomes of workers in the United States.

6 It may be argued that average hours worked should be used rather than the number of workers; however, using this alternative measure does not change the overarching trend presented in figure 4 because workers in Canada and the United States averaged approximately the same number of hours per week—33.0 and 34.3—during the period of analysis.

7 Since the energy industry is particularly capital intensive, this will influence overall business investment per worker in Canada more than in the United States.

8 Globerman and Emes (2019a) find that “while economic activity in the US upstream segment increased substantially with a modest recovery in crude oil prices in 2017 and 2018, investment in Canada’s upstream segment as a share of total capital expenditures in Canada declined consistently from 2014 through 2018” (2019a: i). Moreover, even as oil prices recovered from US\$93.17 WTI per barrel in 2014 to US \$94.90 WTI per barrel in 2022, capital investment in Canada’s oil and gas sector in 2022 (\$31.9 billion) was less than half 2014 levels (\$76.1 billion) (Statistics Canada, 2023b; US Energy Information Administration, 2023).

Provincial business investment per worker, 2014–2021

Reviewing business investment across the provinces will provide some context to Canada's recent decline. Figure 5a and figure 5b show real (\$2012) business investment per worker provincially and in the United States in 2014 and 2021.⁹ In 2014, three Canadian provinces had higher real business investment per worker than the United States (\$23,333)—Alberta (\$52,533), Newfoundland & Labrador (\$48,867) Saskatchewan (\$44,699) (**figure 5a**). Notably, these are Canada's three main oil-producing provinces. All other provinces were both below the Canadian average and below that of the United States. Real business investment per worker in 2014 was \$16,474 in Manitoba and \$14,548 in British Columbia, while in Ontario (\$10,938) and Quebec (\$10,036), Canada's largest provinces, business investment per worker was less than half that of the United States. In 2014, real business investment per worker was lowest in the three maritime provinces. In Prince Edward Island, the worst performing province in 2014, real business investment per worker (\$7,616) was roughly a third (32.6%) of business investment per worker in the United States (\$23,333).

As shown in **figure 5b**, by 2021 real (\$2012) US business investment per worker (\$26,751) exceeded that of any Canadian province.¹⁰ Among Canadian provinces, real business investment per worker was highest in Saskatchewan (\$24,666), followed by Alberta (\$23,839) and Newfoundland & Labrador (\$23,489).

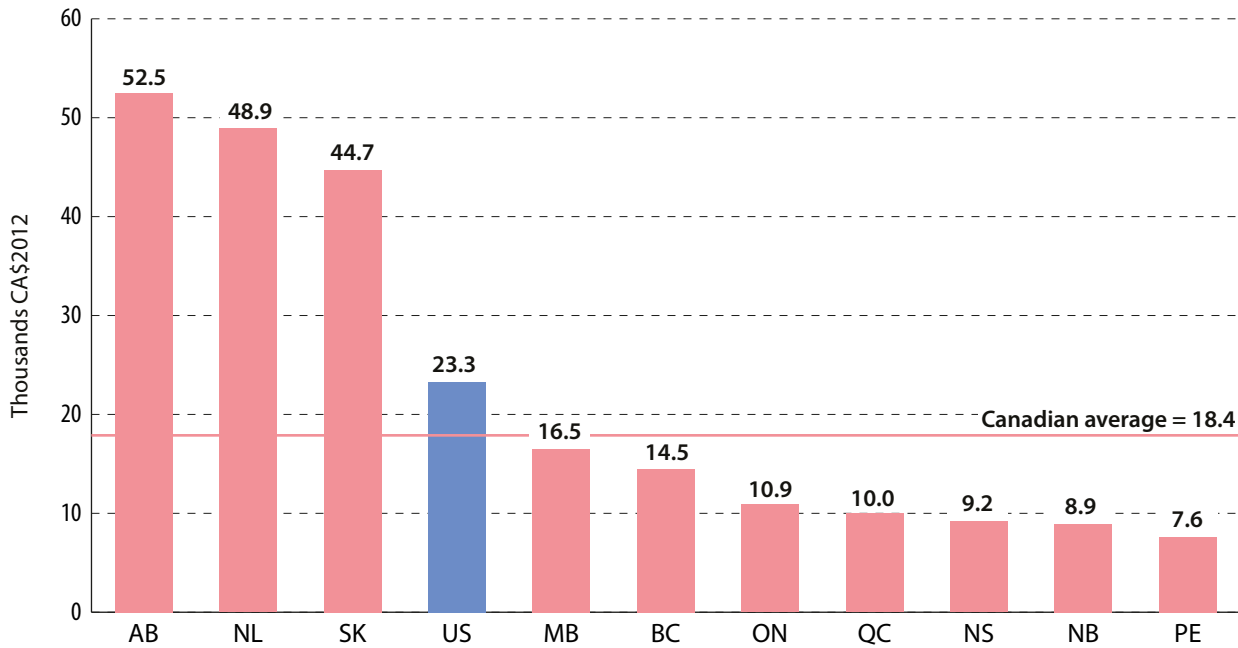
In these provinces, business investment per worker was roughly half its 2014 level. Moreover, real business investment per worker in Saskatchewan, the highest-ranking province, was still \$2,085 lower than US investment in 2021. Real business investment per worker increased in British Columbia to \$16,631 and declined to \$11,970 in Manitoba. In Ontario, real business investment per worker increased to \$12,756; in Quebec, it increased to \$11,242. Nevertheless, these results remained well below half of the US investment at \$26,751. Finally, real business investment per worker was once again lowest in the maritime provinces. In Nova Scotia, the lowest ranking province in 2021, real business investment per worker (\$7,611) was less than one third (28.5%) that in the United States.

In sum, real business investment per worker declined in five provinces from 2014 to 2021: Alberta (–54.6%), Newfoundland & Labrador (–51.9%), Saskatchewan (–44.8%), Manitoba (–27.3%), and Nova Scotia (–17.2%). While it increased in Prince Edward Island (1.5%), New Brunswick (8.4%), Quebec (12.0%), and British Columbia (14.3%), Ontario was the only Canadian province to experience stronger business investment growth per worker (16.6%) than the United States (14.6%) over the period. Recall, however, that despite this growth, the actual level of real business investment per worker in the United States (\$26,751) greatly exceeded that in Ontario (\$12,756) in 2021.

9 Comparable US state level data are not available.

10 As noted earlier, in reference to the US ICT and semiconductor industries, it is important to note that differences in industrial mix across provinces combined with different sectoral growth rates also influences investment per worker. For instance, provinces with relatively labour-intensive sectors that enjoyed above average growth over the sample period (such as financial and professional services in Ontario) would arguably contribute to relatively poor investment performance per worker.

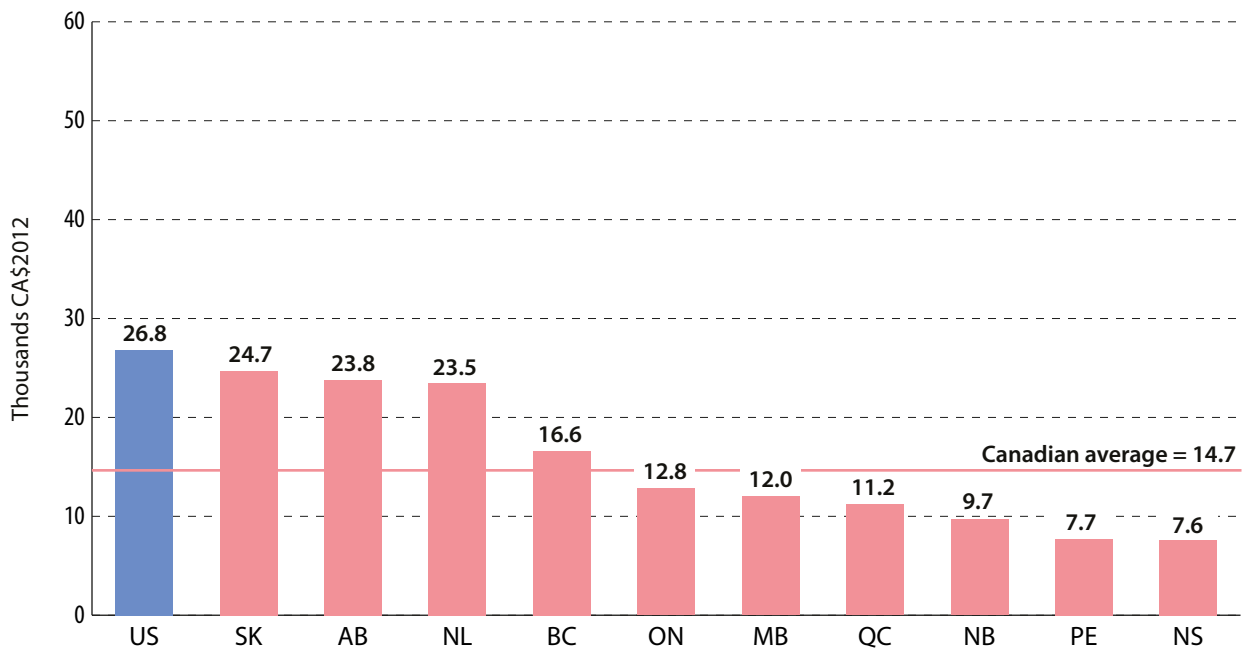
Figure 5a: Business investment per worker (CA\$2012), by province and in the United States, 2014



Note: Business investment excludes residential construction.

Sources: Statistics Canada, 2023a, 2023c; US Bureau of Economic Analysis, 2023; US Bureau of Labor Statistics, 2023; OECD, 2023.

Figure 5b: Business investment per worker (CA\$2012), by province and in the United States, 2021



Note: Business investment excludes residential construction.

Sources: Statistics Canada, 2023a, 2023c; US Bureau of Economic Analysis, 2023; US Bureau of Labor Statistics, 2023; OECD, 2023.

Conclusion

Canadian prosperity depends in large part on the strength of business investment in productive assets—plant and equipment, machinery, technology products, intellectual property, and engineering infrastructure. From 2002 to 2021, Canada’s business investment per worker was consistently lower than investment in the United States; moreover, the gap between Canada and the United States has

widened significantly since 2014. This reflects a real decline in business investment in Canada, and correspondingly, lower growth in business investment per worker than in the United States. Policy makers across Canada need to recognize this challenge, understand its causes, and prioritize policies that support business investment and stronger economic growth moving forward.

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Acknowledgments

The authors would like to thank the anonymous reviewers for their helpful comments and suggestions. Any remaining errors or oversights are the sole responsibility of the authors. As the researchers have worked independently, the views and conclusions expressed in this paper do not necessarily reflect those of the Board of Directors of the Fraser Institute, the staff, or supporters. This publication in no way implies that the Fraser Institute, its directors, or staff are in favour of, or oppose the passage of, any bill; or that they support or oppose any particular political party or candidate.

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