

A hand in a dark suit jacket points towards a world map. The map is overlaid with several circular icons: a green dollar sign, a purple icon of three test tubes, an orange icon of a head with a brain, a blue icon of a tractor, a yellow lightbulb, and a green icon of a bar chart with an upward arrow. The background is a blurred image of a person in a suit.

Capital Investment in Canada: Recent Behaviour and Implications

by Steven Globerman and Trevor Press

SUMMARY

- The growth of overall capital investment in Canada slowed substantially from 2005–2017 compared to earlier periods—and was lower than in virtually any period since 1970.
- Further, the share of business investment in total capital investment declined dramatically from 2014–2016. Conversely, the share of household investment in total investment increased; by 2015–2016, household investment's share was higher than in any period since 1981.
- The share of total investment accounted for by dwellings is higher since 2014 than in earlier periods. This phenomenon is related to the increased share of household investment since the main asset category for households is residential dwellings.
- Conversely, the shares of total investment going to machinery and equipment, and intellectual property, declined in the 2010–2016 period compared to earlier years. These two asset categories are important channels through which new technology is introduced and diffused through the economy.
- This bulletin's findings support recently expressed concerns from other researchers that the environment for business investment in Canada is deteriorating. In particular, the environment for business investment in assets that are critical to productivity growth has apparently become less favourable in recent years than the environments for other categories of assets.
- Against the background of uncertainty surrounding NAFTA and reductions in the corporate tax rate and business regulations in the US, more favourable treatment of business income and capital gains in Canada should be a Canadian government priority.

Introduction

Capital investment, also known as capital deepening, is an important contributor to economic growth through the growth of labour productivity. Indeed, from 1980 to 2011, capital investment accounted for almost two-thirds of the average annual growth in labour productivity in Canada.¹ Since capital is a complementary input to labour, capital deepening directly increases the productivity of workers. Moreover, to the extent that capital investment is a vehicle for introducing new technology into the economy, primarily in the form of new and improved machinery and equipment, capital deepening also promotes a faster growth of total factor productivity, which represents the productivity of all conventional factors of production in an economy. Capital investment is also often associated with the start-up of new entrepreneurial businesses that act as a stimulus to innovation and technological change.

The importance of capital investment to the growth of productivity and, hence, to improvements in standards of living makes the recent behaviour of capital investment in Canada of particular concern. A number of recent research contributions highlight a slowdown, and in some cases a decline, in private sector capital investment in Canada in recent years. Most notably, Cross (2017) evaluated business invest-

¹ The remainder of the increase in labour productivity was accounted for by an increase in the educational and skill levels of the domestic labour force. Over the same time period, capital investment accounted for over one-third of the growth in average annual labour productivity in the United States. The second most important contributor was the growth in multi-factor productivity, which is primarily technological change. See Baldwin, Gu, Macdonald, and Yan (2014).

ment behaviour in Canada post-2000. He concludes that business investment in Canada has been low compared to other developed countries.² This is particularly true for the important category of machinery and equipment. Lammam and McIntyre (2018) report a consistent decline since 2014 in Statistics Canada's survey results on the investment intentions of Canadian private and public sector organizations. This survey asks some 25,000 organizations about how much they intend to invest in non-residential capital assets such as buildings and machinery and equipment. Reported investment intentions declined consistently from 2014 through 2018. Finally, Clemens and Veldhuis (2018a and b) refer to a growing chorus of business leaders who have stated that Canada has an investment crisis. They also offer data supporting the concern of business leaders that capital investment in Canada is collapsing. The data show not only declining domestic business investment adjusted for inflation since 2014, but also decreasing foreign direct investment in Canada.

This bulletin looks at total capital investment expenditures in Canada by all three major sectors: households, businesses, and governments.³ While recent attention has focused primarily on business capital expenditures, investments

² Canada's business investment performance improved somewhat between 2009 and 2014 because of higher energy prices, which boosted investment in the energy sector. However, business investment performance weakened substantially after 2014 when the energy sector no longer compensated for weakness in other industries (see Cross, 2017). For a short debate about the competitiveness of Canada's business sector, see the exchange between Mintz (2018, March 9) and Morneau (2018, March 9).

³ A forthcoming study will compare capital investment behaviour in Canada to that of a number of other developed countries.

by households and governments also contribute to Canada's capital stock and, therefore, potentially to productivity growth.⁴ To the extent that capital expenditures in other sectors of the economy, including household and government, increased in recent years, a comprehensive overview of capital investment might provide additional perspective on the behaviour of private sector investment. In particular, it might help identify whether the apparent deterioration in the business investment climate in Canada is shared by other sectors of the economy, or if other forms of investment might be "crowding out" business investment. In the latter case, governments in Canada need to pay more attention to how policies influencing investment behaviour in other sectors are affecting the specific environment for business investment.

This bulletin evaluates the growth and mix of capital expenditures in Canada over the past four to five decades. An examination of the behaviour of capital expenditures over time offers a perspective on whether recent experience differs markedly from the past. If so, it would support recent warnings to governments by business leaders in Canada that urgent attention should be paid to a deteriorating domestic capital investment environment.

Our main finding is that the growth rate of overall gross fixed capital formation (GFCF) for Canada slowed substantially between 2005 and 2017 compared to earlier periods. In particular, the growth rate from 2015 to 2017 was lower than in virtually any other period since

⁴ A changing mix of the capital stock across economic sectors and asset categories might also influence productivity performance. The potential relevance of the changing mix of capital asset expenditures in Canada is briefly discussed later in this bulletin.

1970. These data point to a potentially substantial deterioration in Canada's overall investment climate in recent years. We also identify a declining share of business investment in total GFCF in Canada that was particularly dramatic between 2014 and 2016. Conversely, the share of household investment in GFCF, reflecting a strong increase in the importance of residential dwellings in the mix of capital expenditures, increased, so that household investment's share of GFCF in Canada in 2015–2016 was higher than it had been in any period since 1981.

This bulletin proceeds as follows. The following section presents and discusses data on total gross fixed capital formation in Canada from 1970–2017. The bulletin reports changes in capital expenditure shares in each of the main sectors of the Canadian economy, and then examines capital expenditures across major asset categories. It ends with conclusions and policy implications.

Gross fixed capital formation in Canada

This section presents data on gross fixed capital formation in Canada over time. All of the data reported are from the Organization for Economic Development Data (OECD Data) *Investment (GFCF)* website. The OECD defines gross fixed capital formation (GFCF) as the acquisition (including purchases of new or second-hand assets) and creation of assets by producers for their own use, minus disposals of produced fixed assets. The relevant assets relate to products that are intended for use in the production of other goods and services for a period of more than one year.

Table 1 provides an overview of changes in gross fixed capital formation in Canada for five-year periods from 1970–2015, and from 2015–2017. Specifically, the table reports the percent-

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age change in GFCF expenditures between the beginning and end years of each period, where GFCF is measured in millions of current US dollars and where original Canadian dollar values are converted to US dollars using the Purchasing Power Parity exchange rate. It is apparent that the decade between 1970 and 1980 saw the fastest growth in GFCF for Canada over the entire sample period. Furthermore, with the exception of the period between 1990 and 1995, Canada experienced its slowest rate of GFCF growth between 2010 and 2017. Indeed, the years 2015 to 2017 saw the slowest rate of growth of GFCF since 1970.

While various factors can influence capital expenditures including interest rates, tax rates, demography (including population growth and the age distribution of the population), and political and economic uncertainty, economic growth is certainly an important factor influencing investment.⁵ Specifically, faster economic growth creates an increased demand for production capacity and therefore for capital investments. In this regard, it is possible that the relatively slow rate of growth of GFCF in Canada in recent years reflects a tepid rate of growth in the country's gross domestic product (GDP). Column 2 of table 2 provides some perspective on this possibility. Specifically, it reports the percentage change in GDP measured in millions of US dollars at current prices, where the purchasing power equivalent (PPP) exchange rate is again used to convert Canadian dollar values into US dollar values.⁶

⁵ Energy prices also play a role given the prominence of the energy sector in Canada. Di Matteo (2018) discusses the recent decline in business investment in Canada's energy sector.

⁶ Again, the percentage change for each five-year period is calculated by taking the difference between the beginning and end year values, dividing

Table 1: Percentage Changes in Gross Fixed Capital Formation and Gross Domestic Product for Canada

Years	Gross fixed capital formation	Gross domestic product
1970-75	94.2	70.7
1975-80	62.9	69.8
1980-85	28.8	47.1
1985-90	39.1	32.8
1990-95	3.7	22.7
1995-2000	40.0	31.0
2000-2005	44.7	30.0
2005-2010	25.1	16.6
2010-2015	19.3	17.5
2015-2017	2.5	6.4

Source: Authors' calculations from OECD Data, *Investment (GFCF)*.

One point regarding the GDP growth estimates: capital expenditures contribute to GDP, so slower rates of growth of GFCF can also contribute to (as well as be caused by) slower rates of GDP growth. One might therefore expect a reasonably close statistical correspondence between the growth rates of GFCF and GDP. Indeed, the data show that, for the most part, the growth of GFCF was faster in periods when GDP was also growing relatively quickly. Similarly, the relatively slow rate of GFCF growth post-2010, and especially from 2015–2017, coincides with relatively slow GDP growth. The close relationship between GFCF and GDP growth is illustrated by the observation that the ratio of GFCF to GDP for 2015–2017 (.234) was virtually identical to the ratio for 1970–1980 (.236).

by the beginning year value, and multiplying the quotient by 100.

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The data reported in table 1, by itself, suggests that the recent slowdown in Canadian business investment highlighted by Cross (2017) and others might simply reflect the more general slowdown in overall capital investment in Canada related to sluggish economic growth in the country, as well as in the economies of Canada's main trading partners, primarily the United States.⁷ However, to the extent that business investment accounted for a smaller share of total investment (GFCF) in recent years, the slower growth of GFCF in Canada after 2010 reported in table 1 will understate the slowdown in business investment specifically. We evaluate this possibility in the next two sections.

GFCF by sector

The OECD website referred to earlier reports the shares of GFCF accounted for by corporations, households, and governments. Table 2 states the percentages of GFCF accounted for by each of the three sectors for Canada for five-year periods from 1981–2016, as well as for the individual years 2014, 2015, and 2016.⁸

Table 2 reveals that corporate investment as a share of GFCF was lower from 2005 to 2016 than it was from 1995 to 2005. However, its share in the 2005 to 2016 period was comparable to that from 1985 to 1995. Conversely, household investment as a share of GFCF was

⁷ GDP growth in the United States from 2005–2017 was substantially slower than for earlier periods, and it was virtually identical to Canada's GDP growth rate from 2015–2017, i.e., 7 percent for the U.S. compared to 6.4 percent for Canada.

⁸ Data on the distribution of GFCF by sector is unavailable for Canada prior to 1981 and after 2016. The numbers reported in table 2 are average annual values of the share of GFCF for each sector in the relevant period. The sums of the shares may not equal 100 because of rounding done in our averaging.

Table 2: Sector Investment as a Percentage of GFCF for Canada

	Corporate	Household	Government
1981-85	52.2	30.1	17.7
1985-90	48.7	34.7	16.8
1990-95	47.8	34.0	18.2
1995-2000	54.2	30.6	15.0
2000-2005	50.5	34.0	15.5
2005-2010	47.2	35.4	17.4
2010-2016	48.7	34.3	16.7
2014	53.2	32.9	13.9
2015	48.9	36.0	15.1
2016	46.8	36.3	17.0

Source: Authors' calculations from OECD Data, *Investment (GFCF)*.

greater from 2005 to 2016 than in earlier periods, and this was especially true for 2015 and 2016. The share of government investment in GFCF, unlike corporate investment, was larger in the 2005 to 2016 period than from 1995 to 2005, although the 2005 to 2016 share is comparable to the periods prior to 1995. Hence, it can be inferred that the slowdown in corporate investment in recent years was more pronounced than the slowdown in aggregate investment. In particular, household investment strengthened relative to business investment.

Residential housing is the main component of household investment. Given rapid increases in housing prices in Canada's major cities in recent years, increased investment in residential housing relative to other forms of investment would not be surprising. Indeed, the next section documents the relative increase in capital expenditures on residential dwellings. In the

absence of a more elaborate statistical analysis, we cannot determine whether household investment “crowded-out” corporate investment in recent years. However, it is clear that the environment for corporate investment in Canada became less favourable than the environment for household investment, particularly in 2015 and 2016.⁹

GFCF by asset category

A consideration of the changes over time in capital expenditures across asset categories can give additional perspective on the behaviour of total capital expenditures in Canada. The OECD website (*Investment (GFCF)*) reports capital expenditure shares for six asset categories. The two largest are residential dwellings and other buildings and structures.¹⁰ The other four are machinery and equipment, intellectual property products, transportation equipment, and cultivated assets. Machinery and equipment includes information and communications equipment, office machinery, and hardware and related products. Intellectual property encompasses intangible assets such as R&D, mineral exploration, software and databases, and original literary and artistic works. Transportation equipment includes ships, trains, airplanes, and so forth, while cultivated assets includes managed forests and livestock raised for milk production.

It is not possible from the way the data are reported on the OECD website to assign shares of capital expenditures in each of the individual asset categories to specific economic sectors. Presumably, business and government primarily

account for investments in building and structures, while dwellings primarily reflect investments by households in residences. Machinery and equipment is likely to reflect primarily corporate investment expenditures, as is the asset category identified as intellectual property products. Both corporations and governments are likely to be responsible for capital investments in transportation equipment and cultivated assets.

In the interest of brevity, we do not present data on the shares of GFCF accounted for by transportation equipment and cultivated assets. Transportation equipment accounts for less than 4 percent of GFCF in Canada from 2010 to 2017, while the OECD does not report the share of GFCF represented by cultivated assets for Canada. Over the entire period from 1981 to 2015, the four included asset categories account for around 83 percent of all capital expenditures in Canada. Hence, the behaviour over time of the four included asset categories will largely reflect the time series behaviour of total gross capital expenditures.

Tables 3 and 4 report the individual shares of GFCF accounted for by the asset categories identified above. Perhaps the most striking observation is the higher share of GFCF accounted for by dwellings post-2014 compared to earlier periods. The declining share accounted for by machinery and equipment, at least when comparing the 2010 to 2015 period to earlier years post-1990, mirrors the growing share of GFCF accounted for by dwellings.¹¹ It also reflects the data reported in table 2 showing an increasing share of household investment relative to corporate investment in recent years. Investments in intellectual property between 2010 and 2016

⁹ Government investment’s share of GFCF also increased sharply in 2015 and 2016.

¹⁰ Other buildings and structures also include roads, bridges, airfields, dams, and related infrastructure.

¹¹ The OECD does not report machinery and equipment’s share of GFCF for Canada for 2016 and 2017.

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Table 3: Percentages of Specific Asset Categories in Total GFCF for Canada

	Other buildings and structures	Dwellings
1981-85	37.2	23.8
1985-90	32.0	28.9
1990-95	31.4	27.4
1995-2000	29.0	23.3
2000-2005	27.8	27.0
2005-2010	32.8	29.3
2010-2016	38.7	29.7
2014	41.3	28.4
2015	37.9	30.8
2016	36.1	33.3
2017	35.5	34.0

Source: Authors' calculations from OECD Data, *Investment (GFCF)*.

were a smaller share of GFCF compared to other years post-1995, and the share of GFCF going to investments in intellectual property declined fairly consistently from 2005 to 2017. Conversely, the share of other buildings and structures in GFCF was higher from 2010 to 2016 than in earlier periods, although this share appears to have peaked in 2014.

In summary, the slower growth of GFCF in recent years identified in table 1 seems primarily to reflect a slowdown in the growth of capital expenditures by corporations, particularly in the machinery and equipment and intellectual property asset categories. The latter two asset categories are arguably particularly important to developing and diffusing new technology into the Canadian economy.¹² The data we

¹² The recent slowdown in the growth of investments in machinery and equipment and intellectual

Table 4: Percentages of Specific Asset Categories in Total GFCF for Canada

	Machinery & equipment	Intangible assets
1981-85	7.9	8.4
1985-90	9.1	8.8
1990-95	11.4	11.2
1995-2000	14.1	13.3
2000-2005	13.8	15.0
2005-2010	11.5	13.9
2010-2016	9.2**	12.5
2014	8.0	12.1
2015	8.9	12.0
2016	na	11.9
2017	na	11.5

Source: Authors' calculations from OECD Data, *Investment (GFCF)*.

have presented, therefore, highlight the potential relevance of changes in the mix of capital expenditures to economic growth, as well as changes in the growth rate of overall capital expenditures.

Summary and conclusions

This bulletin has examined overall capital expenditures in Canada over time. It has also identified changes in the mix of capital expenditures over time both across sectors and across asset categories. One main finding is that overall capital investment in Canada measured by gross fixed capital formation has grown substantially more slowly in recent years than in earlier periods. While this slowdown is consistent with a slower

property suggests that Canada might be suffering particularly in expanding economic activity in the new “information economy.”

rate of GDP growth, it is particularly evident for categories of business investment that are key to productivity growth, namely, machinery and equipment and intellectual property. Conversely, investment in residential dwellings became a substantially more important focus for capital expenditures in recent years. It is beyond the scope of this report to assess whether and to what extent investment in residential dwellings crowded-out investment in asset categories such as machinery and equipment and intellectual property. It is also beyond the scope of this report to evaluate the implications of the observed change in the asset category mix for productivity growth in Canada. However, these are important policy questions that governments in Canada should address.

This bulletin's findings provide additional perspective on recently expressed concerns about a deteriorating business investment environment in Canada. In a forthcoming report, we provide evidence that while the share of business investment in total GFCF declined in Canada when comparing the 2000 to 2005 period to the 2010 to 2016 period, it increased in most other OECD countries for which we have data over those two periods. Conversely, household investment as a share of GFCF was higher in Canada than in most other OECD countries from 2010 to 2016, particularly in the most recent years.

It is possible that the relatively favourable tax treatment of capital gains on owner-occupied dwellings compared to the treatment of capital gains on business-related investments is contributing to the changing distribution of investment across asset categories. Certainly, more favourable tax treatment of business income and capital gains is a priority for policymakers to consider against the backdrop of uncertainty surrounding the future of NAFTA and the bilateral trade relationship more generally. This un-

certainty combined with deregulation and a reduction in the corporate tax rate in the United States implemented by the Trump Administration further weakens incentives for business investment in Canada.

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