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YEAR 2020

GOAL 11: POST-SECONDARY EDUCATION RESEARCH AND DEVELOPMENT

NEW BRUNSWICK WILL CLOSE THE GAP IN FUNDING LEVELS FOR POST-SECONDARY EDUCATION RESEARCH AND DEVELOPMENT BETWEEN ITSELF AND NOVA SCOTIA OVER THE COMING YEARS.

STATUS: NOT PROGRESSING

Overview

Problem

R&D for Universities in New Brunswick peaked in 2009 at $73 million. Since then, it has fallen by 43% to $51 million. The gap between current R&D funding and the target amount continues to increase.

Cause

According to a report by the Council of Canadian Academies, federal R&D capacity is concentrated in Toronto, Montreal, Vancouver, Ottawa, and Calgary. These five cities create patents and high-tech companies at twice the rate of other Canadian cities. New Brunswick does not boast as many research opportunities as these cities, hence the decline in federal government and business enterprise funding.

Importance

New Brunswick's higher education sector has a lower per capita R&D value than the national average. R&D encourages collaboration between private enterprises and post-secondary institutions and attracts students and researchers alike.

Recommendation

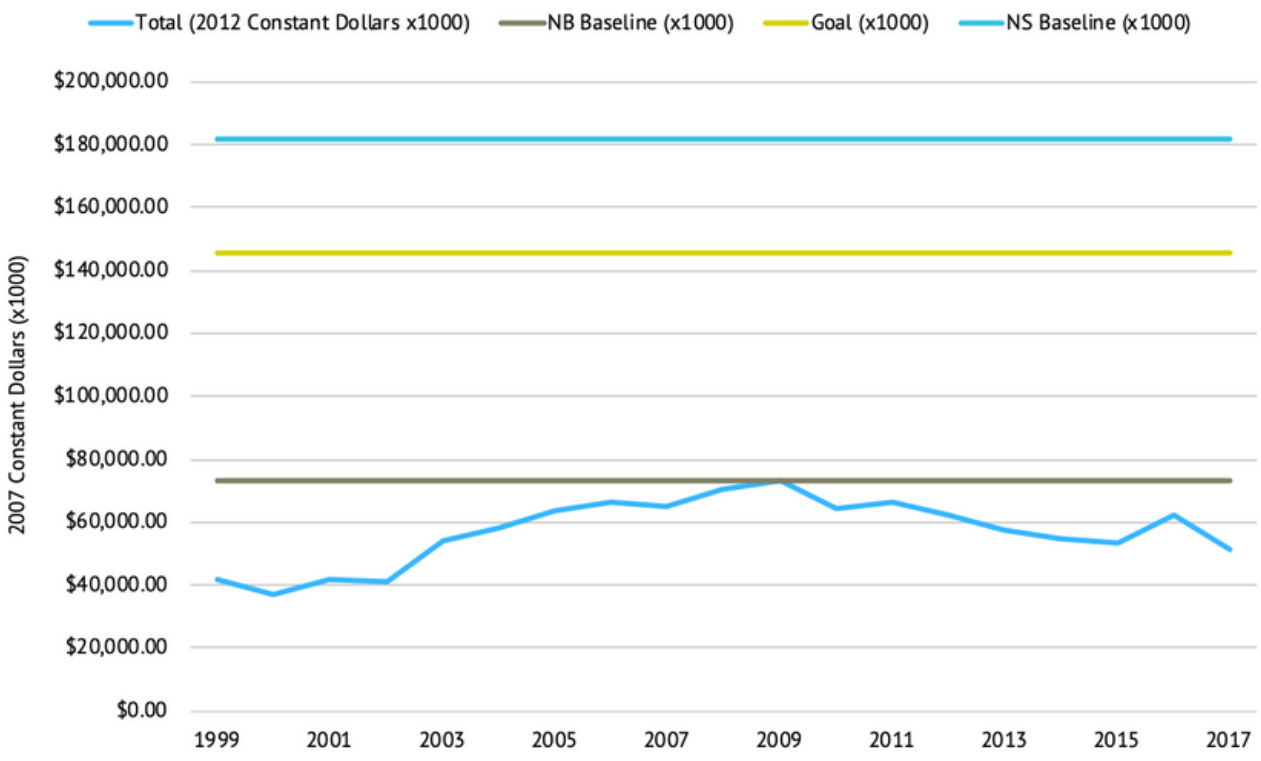
The province of Nova Scotia has set a goal of doubling post-secondary education (PSE) research funding through a combination of government support and additional funding secured through researcher collaborations and initiatives (see *OneNS*). If New Brunswick adopts the same goal (with a 2009 baseline of $73 million), it should aim to increase research funding for New Brunswick universities to $146 million by the year 2028.

In the Numbers

R&D Funding Gap

As shown in Figure 1, R&D Funding for Universities in New Brunswick was steadily increasing from 2002 to 2009, at which point is started to fall. It appeared to rebound from 2015 to 2016, but then fell again, further increasing the gap in post-secondary R&D funding between the province and Nova Scotia. The sharp dip from 2016 to 2017 is largely due to a decline in funding from the category of "Non-Government grants and contracts - Business Enterprises" (around $12,000 in 2016 to $4,000 in 2017).

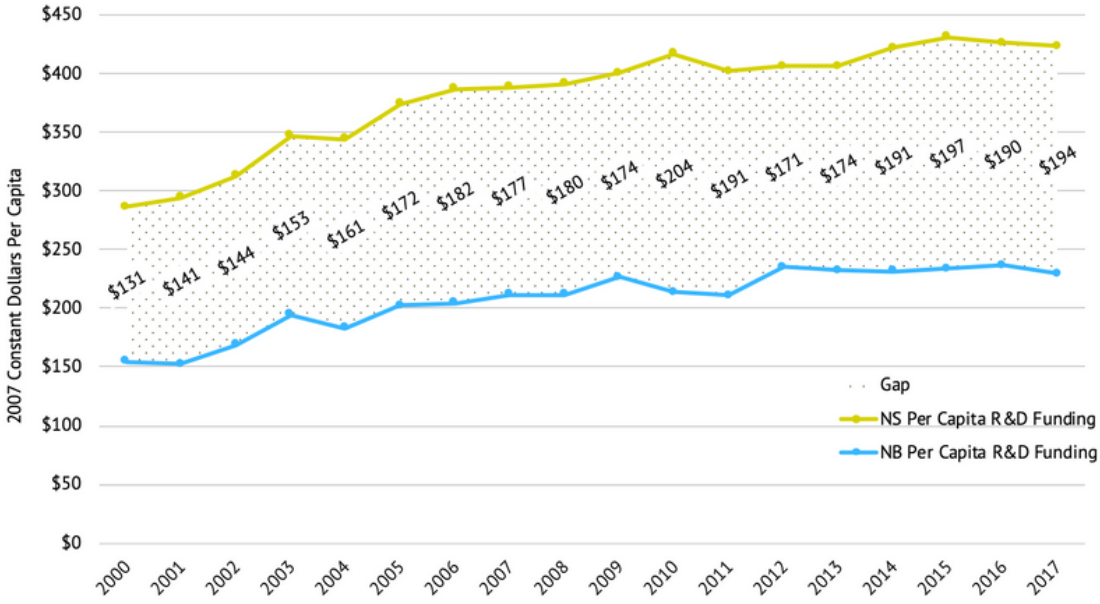
Figure 1: R&D Funding for Universities in New Brunswick
(2007 Constant Dollars)



(See full data set in Appendix A)

Figure 2 shows the gap in per capita funding levels between New Brunswick and Nova Scotia. Since 2000, the gap has changed by $63 per person, representing a 48% increase.

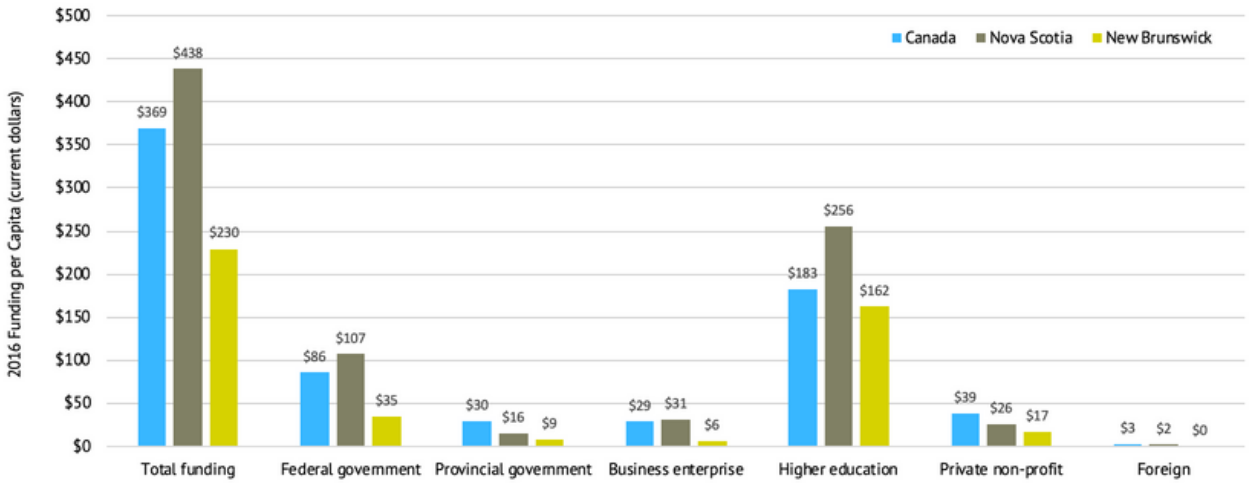
Figure 2: Per Capita Funding for Post-Secondary Education R&D in New Brunswick and Nova Scotia (2012 Constant Dollars)



(See full data set in Appendix A)

At $230 per person, New Brunswick's higher education sector has a lower per capita R&D value than the national average ($369 per person) and Nova Scotia ($438 per person). This gap in investment is consistent across all funding sources, as shown in Figure 3.

Figure 3: 2016 Per Capita Funding for Higher Education Sector R&D in New Brunswick, Nova Scotia, and Canada, by Source (2012 Constant Dollars)



(See full data set in Appendix A)

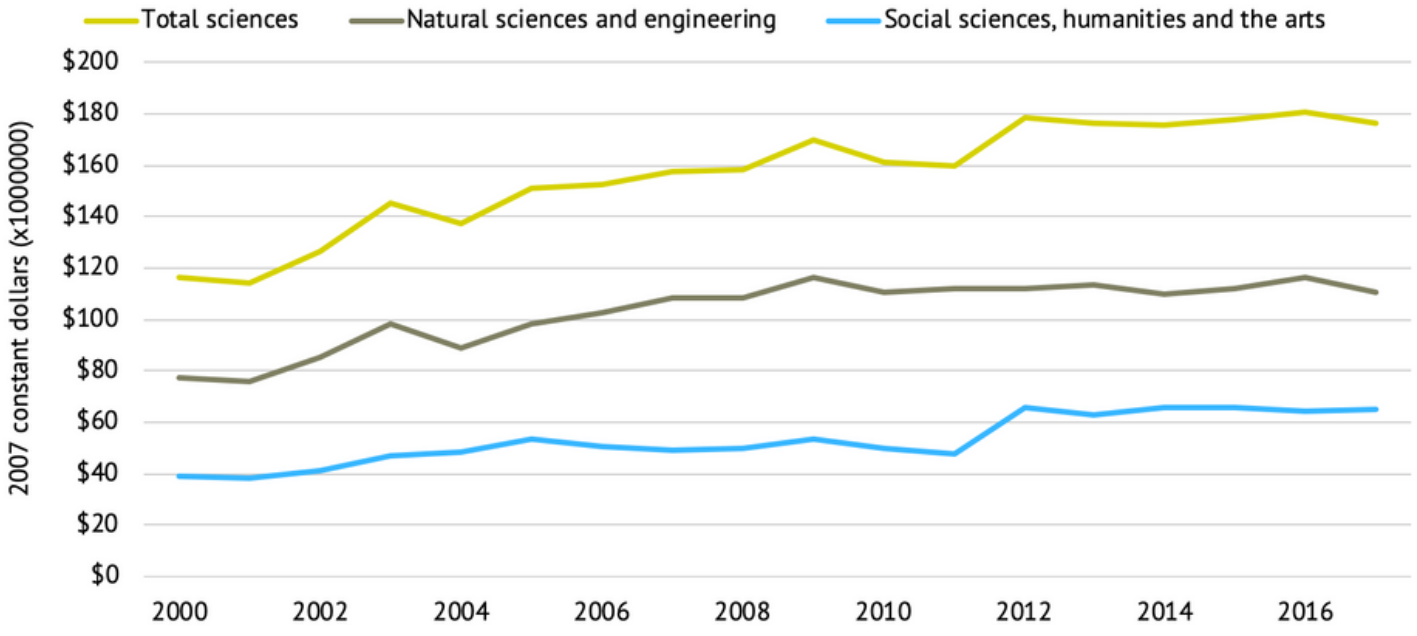
A Closer Look

R&D Funding for Various Subjects

Funding for R&D in New Brunswick is divided into two groups: 1) R&D in Natural Sciences and Engineering and 2) R&D in Social Sciences and Humanities. Of the $176 million R&D performed in New Brunswick during 2017/2018, $110.7 million (62.9%) went to Natural Sciences and Engineering and $65.3 million (37.1%) went to Social Sciences and Humanities.

Figure 4 shows that funding in both categories has steadily been growing since 2005, with Social Sciences and Humanities seeing a large increase between 2011 and 2012, and then stabilizing at around $65 million from 2014 to 2017.

Figure 4: Funding for Higher Education Sector R&D, by Subject (2012 Constant Dollars)

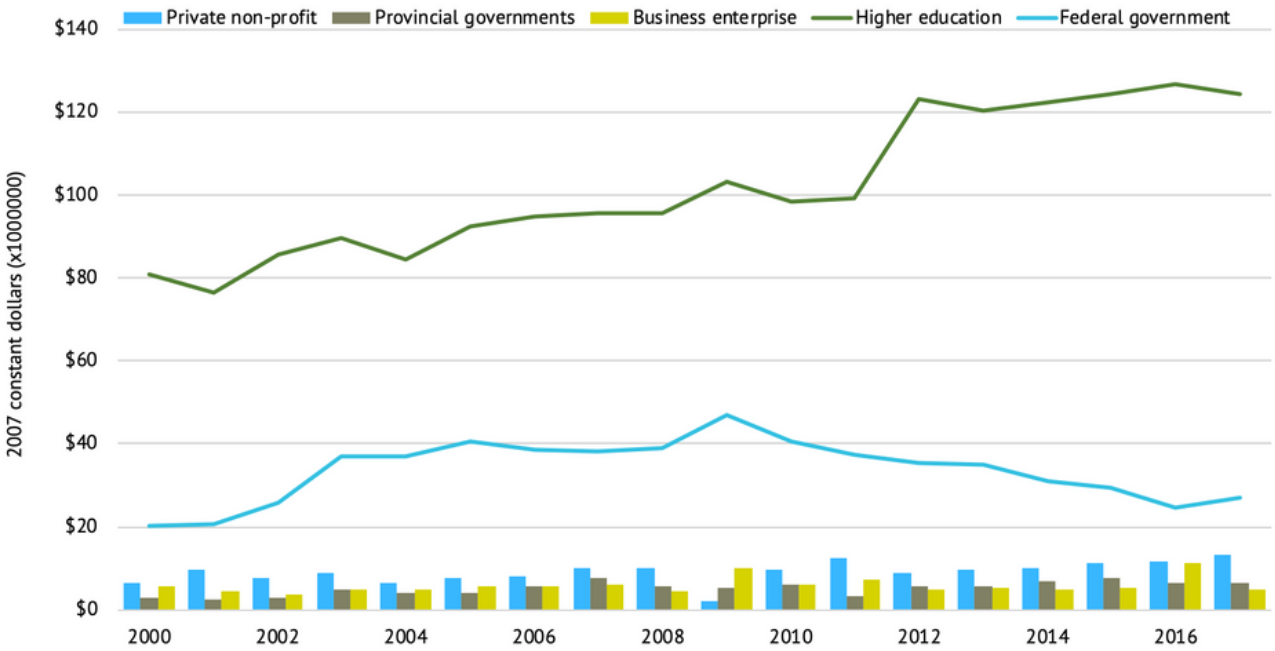


(See full data set in Appendix B)

R&D Funding Sources

Funding for R&D comes from six major sources: federal government, provincial government, private businesses, private non-profits, the higher education sector, and the foreign sector (see Figure 5). Over half of the funding for R&D activity in New Brunswick comes from the higher education sector, which provided $124.4 million (71%) in 2017. This sector is not only the most important source of funding for R&D, but it is also the fastest-growing, as other sources have flattened in recent years. The federal government is the second-largest source of funding, at $27 million (15%) in 2017.

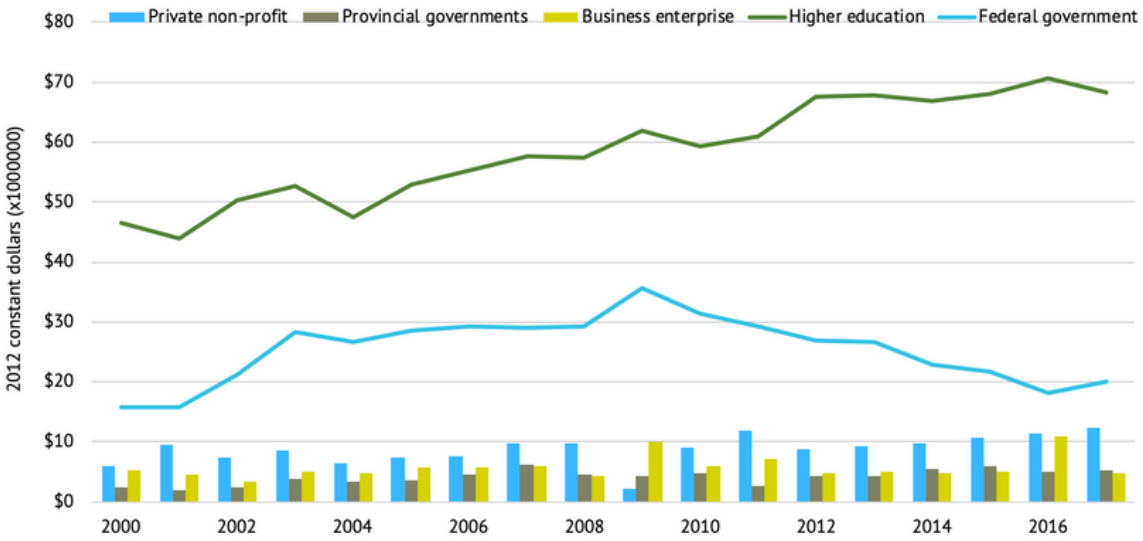
Figure 5: Funding for R&D Performed by Higher Education Sector, by Source (2007 Constant Dollars)



(See full data set in Appendix C)

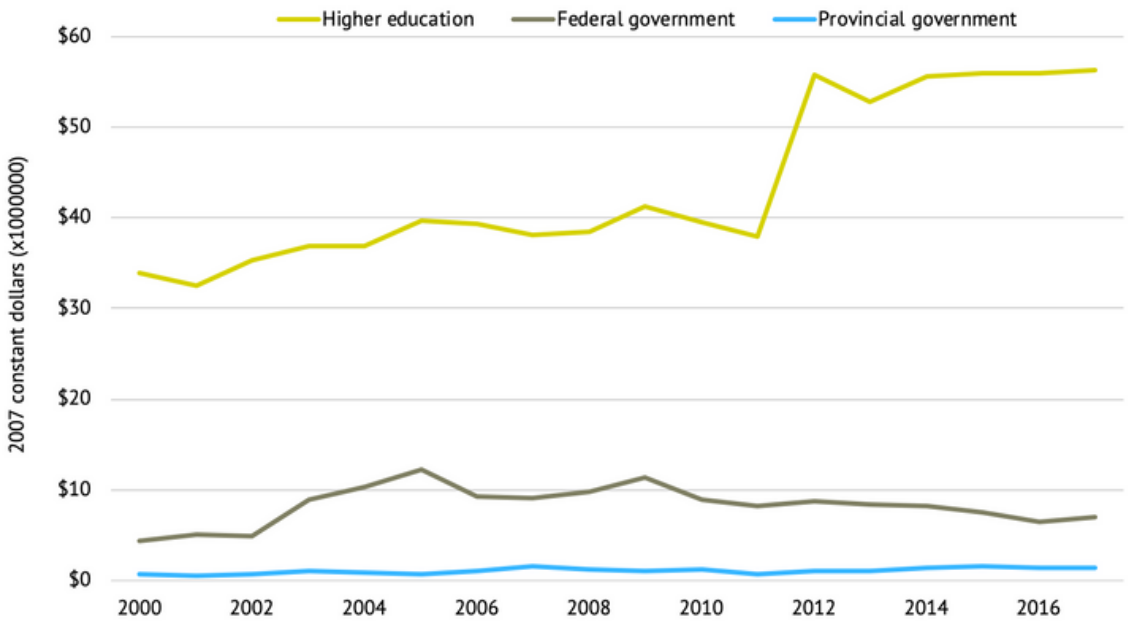
A comparison of Figures 6 and 7 shows that both Natural Sciences and Engineering and Social Sciences and Humanities saw a significant increase in R&D funding from the higher education sector from 2011 to 2012. Figure 7 registers this increase more dramatically since Social Sciences and Humanities has fewer funding sources than Natural Sciences and Engineering.

Figure 6: Funding for Natural Sciences and Engineering R&D Performed by Higher Education Sector, by Source (2012 Constant Dollars)



(See full data set in Appendix C)

Figure 7: Funding for Social Sciences and Humanities R&D Performed by Higher Education Sector, by Source (2012 Constant Dollars)



(See full data set in Appendix C)

Summary

R&D funding for New Brunswick post-secondary institutions has seen an overall decline in the past several years, which means the gap between NB and NS is widening and this goal is not progressing. Having higher post-secondary education (PSE) research and development is key in attracting more researchers and students. This can also lead to an increase in private sector entities interested in partnering with post-secondary institutions

Appendix A

R&D Funding for Universities in New Brunswick (2007 Constant Dollars)

Year	Actual Funding (thousands)	Baseline (2009) (thousands)	Target (2028) (thousands)	NS Baseline (thousands)
1999	$42,084.04	$72,909.78	$145,820	$182,000
2000	$36,738.55	$72,909.78	$145,820	$182,000
2001	$41,693.00	$72,909.78	$145,820	$182,000
2002	$41,049.34	$72,909.78	$145,820	$182,000
2003	$53,822.77	$72,909.78	$145,820	$182,000
2004	$58,297.16	$72,909.78	$145,820	$182,000
2005	$63,762.61	$72,909.78	$145,820	$182,000
2006	$66,657.58	$72,909.78	$145,820	$182,000
2007	$65,135.72	$72,909.78	$145,820	$182,000
2008	$70,332.14	$72,909.78	$145,820	$182,000
2009	$72,909.78	$72,909.78	$145,820	$182,000
2010	$64,152.63	$72,909.78	$145,820	$182,000
2011	$66,248.03	$72,909.78	$145,820	$182,000
2012	$62,599.00	$72,909.78	$145,820	$182,000
2013	$57,506.63	$72,909.78	$145,820	$182,000
2014	$54,515.82	$72,909.78	$145,820	$182,000
2015	$53,702.38	$72,909.78	$145,820	$182,000
2016	$62,084.87	$72,909.78	$145,820	$182,000
2017	$51,374.83	$72,909.78	$145,820	$182,000

Source: Financial Information of Universities and Colleges (FIUC) 1980-2017; Statistics Canada, CANSIM table 326-0021: Consumer Price Index, annual average, not seasonally adjusted

Appendix A

Per Capita Funding for Post-Secondary Education R&D in New Brunswick and Nova Scotia (2012 Constant Dollars)

Year	NS Per Capita Funding	NB Per Capita Funding	Gap Between NS and NB (NS - NB)
2000	$286	$155	$131
2001	$294	$152	$141
2002	$313	$169	$144
2003	$347	$194	$153
2004	$344	$183	$161
2005	$374	$202	$172
2006	$387	$205	$182
2007	$388	$211	$177
2008	$392	$212	$180
2009	$400	$227	$174
2010	$417	$214	$204
2011	$402	$211	$191
2012	$407	$235	$171
2013	$406	$232	$174
2014	$422	$231	$191
2015	$431	$234	$197
2016	$426	$236	$190
2017	$424	$230	$194

Source: Statistics Canada, CANSIM Table 358-0162: Provincial estimates of research and development expenditures in the higher education sector, by funding sector and type of science, annual (dollars x 1,000,000); Statistics Canada, CANSIM Table 051-0001: Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual (persons)

2016 Per Capita Funding for Higher Education Sector R&D in New Brunswick, Nova Scotia, and Canada, by Source (2012 Constant Dollars

Funding Source	Canada	Nova Scotia	New Brunswick
Total funding sectors	$369	$438	$230
Federal government	$86	$107	$35
Provincial government	$30	$16	$9
Business enterprise	$29	$31	$6
Higher education	$183	$256	$162
Private non-profit	$39	$26	$17
Foreign	$3	$2	$0

Source: Statistics Canada, CANSIM Table 358-0162: Provincial estimates of research and development expenditures in the higher education sector, by funding sector and type of science, annual (dollars x 1,000,000); Statistics Canada, CANSIM Table 051-0001: Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual (persons)

Appendix B

Funding for Higher Education Sector R&D, by Subject (2012 Constant Dollars)

Year	Total sciences (millions)	Natural sciences and engineering (millions)	Social sciences and humanities (millions)
2000	$116.19	$76.95	$39.24
2001	$114.33	$75.74	$38.47
2002	$126.60	$85.39	$41.21
2003	$145.57	$98.43	$47.02
2004	$137.13	$88.79	$48.23
2005	$151.27	$98.10	$53.27
2006	$152.69	$102.49	$50.20
2007	$157.62	$108.52	$49.11
2008	$158.06	$108.30	$49.65
2009	$170.01	$116.30	$53.71
2010	$160.80	$110.71	$50.09
2011	$159.49	$112.03	$47.57
2012	$178.30	$112.30	$66.00
2013	$176.00	$113.30	$62.70
2014	$175.50	$109.80	$65.60
2015	$177.50	$111.90	$65.70
2016	$180.50	$116.20	$64.30
2017	$176.00	$110.70	$65.30

Source: Statistics Canada, CANSIM Table 358-0162: Provincial estimates of research and development expenditures in the higher education sector, by funding sector and type of science, annual (dollars x 1,000,000)

Appendix C

Funding for R&D Performed by Higher Education Sector, by Source (2007 Constant Dollars)

Year	Federal government (millions)	Provincial government (millions)	Business enterprise (millions)	Higher education (millions)	Private non-profit (millions)	Foreign sector (millions)
2000	$20.06	$3.07	$5.48	$80.68	$6.36	$0.77
2001	$20.61	$2.30	$4.49	$76.40	$9.87	$0.55
2002	$25.98	$2.96	$3.51	$85.83	$7.67	$0.77
2003	$37.16	$4.71	$5.04	$89.55	$8.88	$0.11
2004	$37.05	$4.06	$4.82	$84.40	$6.58	$0.22
2005	$40.78	$4.27	$5.81	$92.51	$7.78	$0.11
2006	$38.58	$5.81	$5.70	$94.71	$7.89	$0.00
2007	$38.04	$7.67	$6.14	$95.58	$10.08	$0.11
2008	$38.80	$5.70	$4.38	$95.80	$10.08	$3.18
2009	$46.91	$5.37	$10.19	$103.04	$2.19	$2.19
2010	$40.45	$6.14	$6.14	$98.54	$9.54	$0.00
2011	$37.27	$3.40	$7.34	$99.09	$12.39	$0.11
2012	$35.50	$5.50	$5.00	$123.20	$9.00	$0.10
2013	$35.00	$5.50	$5.20	$120.50	$9.70	$0.10
2014	$31.00	$6.90	$5.00	$122.30	$10.10	$0.00
2015	$29.30	$7.60	$5.10	$124.20	$11.30	$0.10
2016	$24.70	$6.30	$11.10	$126.60	$11.80	$0.00
2017	$27.00	$6.60	$4.90	$124.40	$13.10	$0.00

Source: Statistics Canada, CANSIM Table 358-0162: Provincial estimates of research and development expenditures in the higher education sector, by funding sector and type of science, annual (dollars x 1,000,000)

Appendix C

Funding for Natural Sciences and Engineering R&D Performed by Higher Education Sector, by Source (2012 Constant Dollars)

Year	Federal government (millions)	Provincial government (millions)	Business enterprise (millions)	Higher education (millions)	Private non-profit (millions)	Foreign sector (millions)
2000	$15.67	$2.52	$5.37	$46.48	$6.03	$0.77
2001	$15.67	$1.86	$4.49	$43.96	$9.43	$0.55
2002	$21.16	$2.41	$3.29	$50.42	$7.34	$0.77
2003	$28.39	$3.84	$5.04	$52.72	$8.55	$0.11
2004	$26.75	$3.29	$4.71	$47.46	$6.36	$0.22
2005	$28.50	$3.51	$5.81	$52.94	$7.45	$0.11
2006	$29.27	$4.60	$5.70	$55.25	$7.56	$0.00
2007	$28.94	$6.14	$6.03	$57.55	$9.76	$0.11
2008	$29.16	$4.49	$4.27	$57.33	$9.87	$3.18
2009	$35.62	$4.27	$9.97	$61.93	$2.19	$2.19
2010	$31.46	$4.82	$6.03	$59.19	$9.10	$0.00
2011	$29.16	$2.63	$7.12	$61.05	$11.84	$0.11
2012	$26.80	$4.40	$4.80	$67.50	$8.70	$0.10
2013	$26.60	$4.40	$5.10	$67.80	$9.30	$0.10
2014	$22.80	$5.50	$4.90	$66.80	$9.70	$0.00
2015	$21.80	$6.00	$5.10	$68.10	$10.80	$0.10
2016	$18.20	$5.10	$11.00	$70.60	$11.30	$0.00
2017	$20.10	$5.20	$4.80	$68.20	$12.40	$0.00

Source: Statistics Canada, CANSIM Table 358-0162: Provincial estimates of research and development expenditures in the higher education sector, by funding sector and type of science, annual (dollars x 1,000,000)

Funding for Social Sciences and Humanities R&D Performed by Higher Education Sector, by Source (2012 Constant Dollars)

Date	Federal government (millions)	Provincial government (millions)	Business enterprise (millions)	Higher education (millions)	Private non-profit (millions)	Foreign sector (millions)
2000	$4.38	$0.66	$0.00	$33.98	$0.22	$0.00
2001	$5.04	$0.55	$0.00	$32.56	$0.55	$0.00
2002	$4.82	$0.66	$0.11	$35.30	$0.44	$0.00
2003	$8.88	$0.99	$0.00	$36.83	$0.33	$0.00
2004	$10.30	$0.88	$0.11	$36.83	$0.22	$0.00
2005	$12.28	$0.77	$0.00	$39.68	$0.33	$0.00
2006	$9.32	$1.10	$0.11	$39.35	$0.33	$0.00
2007	$9.10	$1.53	$0.11	$38.04	$0.33	$0.00
2008	$9.76	$1.21	$0.00	$38.36	$0.44	$0.00
2009	$11.29	$1.10	$0.22	$41.21	$0.00	$0.00
2010	$8.99	$1.21	$0.11	$39.46	$0.33	$0.00
2011	$8.22	$0.66	$0.22	$37.93	$0.44	$0.00
2012	$8.80	$1.10	$0.20	$55.70	$0.30	$0.00
2013	$8.40	$1.10	$0.10	$52.70	$0.40	$0.00
2014	$8.20	$1.40	$0.10	$55.50	$0.40	$0.00
2015	$7.50	$1.50	$0.10	$56.00	$0.50	$0.00
2016	$6.40	$1.30	$0.10	$55.90	$0.60	$0.00
2017	$7.00	$1.30	$0.10	$56.20	$0.70	$0.00

Source: Statistics Canada, CANSIM Table 358-0162: Provincial estimates of research and development expenditures in the higher education sector, by funding sector and type of science, annual (dollars x 1,000,000)