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Total spending on research and development in Canada, 1990 to 2006, and provinces, 1990 to 2004

Gross Domestic Expenditure on Research and Development (GERD) represents total research and development (R&D) expenditures performed in a country's national territory during a given year. GERD includes R&D performed within a country and funded from all sources, including governments, business enterprises, non-profit organizations, higher education institutions and foreign sources, but excludes payments sent abroad for R&D performed in other countries.

Highlights

- ▶ Preliminary estimates for GERD in 2006 suggest that this indicator will continue to grow at a modest pace. Total spending on R&D in Canada is expected to amount to \$28.4 billion dollars in 2006, a 4.4% increase over the figures for 2005 (\$27.2 billion). Although this increase is slightly below the 4.5% increase in GERD experienced in 2005, it is higher than the meager 1.6% rise recorded in 2002.
- ▶ As has been the case since 2004, increases in expenditure on R&D in the higher education sector continue to account for a major proportion of the growth in GERD. In 2006, a 10% (\$990 million) increase in expenditure on R&D by higher education institutions is expected to account for 84% of the estimated growth in GERD of \$1.2 billion. Business enterprises' R&D performance dollars are expected to contribute only 16% (or \$195 million) to the growth in GERD.
- ▶ In 2006, the federal government is projected to be the second largest funder of R&D (behind business enterprises) accounting for \$5.2 billion (18%) of the total funding of R&D. This amount represents a 5.0% increase over the figures for 2005 (\$5 billion). Business enterprises are expected to account for \$13.2 billion (or 47%) of the total funding for R&D in Canada, a 1.9% increase over the amount they provided in 2005 (\$13 billion).
- ▶ Private non-profit organizations are also expected to increase their funding of R&D by 9.8%, from \$799 million to \$877 million in 2006. Although the contribution of these organizations is projected to account for only 3% of GERD in 2006, the amount of funds they allocate to R&D has been increasing for fourteen consecutive years.
- ▶ R&D funding from abroad will account for just 9% of total R&D funding down from 12.6% five years ago.
- ▶ Provincial distribution of GERD figures are calculated when the actual research and development (R&D) data are available therefore the most recent data are for 2004. Manitoba (+14.1%) Alberta (+12.1%) and British Columbia (+11.9%) chalked up major increases in their expenditures on R&D in 2004. These increases were mainly due to substantial growth in R&D performance by business enterprises within these provinces (Manitoba (+21.3%), British Columbia (16.2%), and Alberta (+12.9%).

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- In 2004, business enterprises accounted for more than 50% of R&D performance in Quebec, Ontario and British Columbia. On the other hand, in Alberta, the Atlantic provinces, Manitoba and Saskatchewan, universities were the dominant R&D performers in those provinces.

Table 1 Gross domestic expenditures on R&D (GERD) in current dollars, in 1997 dollars and as a percentage of the gross domestic product, 1990 to 2006

Year	GERD	GDP	GERD/GDP	GDP implicit price index ²	GERD ³
	in millions of dollars		%	%	in millions of 1997 dollars
1990	10,260	679,921	1.51	88.8	11,554
1991	10,770	685,367	1.57	91.5	11,770
1992	11,338	700,480	1.62	92.7	12,231
1993	12,184	727,184	1.68	94.0	12,962
1994	13,341	770,873	1.73	95.1	14,028
1995	13,754	810,426	1.70	97.2	14,150
1996 ^f	13,817	836,864	1.65	98.8	13,985
1997	14,634	882,733	1.66	100.0	14,634
1998	16,088	914,973	1.76	99.6	16,153
1999	17,637	982,441	1.80	101.3	17,411
2000 ^f	20,580	1,076,577	1.91	105.5	19,507
2001 ^f	23,169	1,108,048	2.09	106.7	21,714
2002 ^f	23,539	1,152,905	2.04	107.8	21,836
2003 ^f	24,337	1,213,408	2.01	111.3	21,866
2004 ^f	26,003	1,290,788	2.01	114.7	22,670
2005 ^p	27,174	1,371,425	1.98	118.3	22,970
2006 ^p	28,357	...	..	..	..

1. CANSIM II Table 380-0017.

2. CANSIM II Table 384-0036.

3. GERD data are deflated by the GDP implicit price index.

Direct international comparisons of the levels of effort devoted to R&D can be confounded by constantly fluctuating exchange rates among international currencies and changes in the relative costs of human resources and financial imports into the R&D programs of different nations. One of the methods the OECD employs to circumvent these difficulties is to express the GERD as a ratio of GDP. This ratio has become a standard OECD tool for international comparisons and also a convenient summary statistic. However, as a summary statistic, it is influenced by the economic structure and by the propensity to perform R&D in particular sectors. Both change from country to country.

Table 2 presents the GERD/GDP ratios for selected OECD countries. Most of these countries have a higher ratio than Canada. In part, this is due to greater defence R&D expenditures in some countries.

Table 2 Gross domestic expenditures on R&D (GERD) as a percentage of gross domestic product for selected OECD countries

Country	1998	1999 ^f	2000 ^f	2001 ^f	2002 ^f	2003 ^f	2004 ^p	2005 ^p
Canada	1.76	1.80	1.91	2.09	2.04	2.01	2.01	1.98
France	2.17	2.16	2.15	2.20	2.23	2.18	2.16	..
Germany	2.31	2.40	2.45	2.46	2.49	2.52	2.49	..
Italy	1.07	1.04	1.05	1.09	1.13	1.11	..	..
Japan	2.95	2.96	2.99	3.07	3.12	3.15	3.13	..
Sweden ¹	..	3.65	..	4.25	..	3.95	..	..
U.K.	1.80	1.87	1.86	1.87	1.89	1.88	..	..
U.S.A. ²	2.60	2.66	2.74	2.76	2.65	2.68	2.68	..

1. Underestimated or based on underestimated data.

2. Excludes most or all capital expenditures.

Source: Main Science and Technology Indicators, No. 1, DSTI, OECD, 2006.

In Table 3, GERD is presented historically by both the performing and the funding sectors.

Table 3 Gross domestic expenditures on R&D (GERD), by performing sector and funding sector, 1990 to 2006							
Year	Federal government	Provincial governments	Business enterprise	Higher education	Private non-profit organizations	Foreign	Total
Performing sector:							
in millions of dollars							
1990	1,654	302	5,169	3,033	102	...	10,260
1991	1,685	328	5,355	3,292	110	...	10,770
1992	1,716	293	5,742 ^e	3,519	68	...	11,338
1993	1,757	269	6,424	3,660	74	...	12,184
1994	1,753	260	7,567 ^e	3,675	86	...	13,341
1995	1,727	254	7,991	3,691	91	...	13,754
1996 ^f	1,792	242	7,997	3,697	89	...	13,817
1997	1,720	214	8,739	3,879	82	...	14,634
1998	1,743	216	9,682	4,370	77	...	16,088
1999	1,859	233	10,400	5,082	63	...	17,637
2000 ^f	2,080	255	12,395	5,793	57	...	20,580
2001 ^f	2,103	307	14,272	6,424	63	...	23,169
2002 ^f	2,190	315	13,516	7,455	63	...	23,539
2003 ^f	2,083	315	13,704	8,143	92	...	24,337
2004 ^f	2,083	326	14,441	9,037	116	...	26,003
2005 ^p	2,162	336	14,655	9,900	121	...	27,174
2006 ^p	2,145	345	14,850	10,890	127	...	28,357
Funding sector:							
1990	2,859	641	3,960	1,618	233	949	10,260
1991	2,946	696	4,113	1,735	267	1,013	10,770
1992	3,109	644	4,445 ^e	1,867	224	1,049	11,338
1993	3,156	665	5,025	1,892	276	1,170	12,184
1994	3,094	663	5,874 ^e	1,914	298	1,498	13,341
1995	2,989	652	6,288	1,926	309	1,590	13,754
1996 ^f	2,815	629	6,396	1,905	358	1,714	13,817
1997	2,813	658	7,031	1,971	367	1,794	14,634
1998	2,831	639	7,354	2,339	372	2,553	16,088
1999	3,216	770	7,917	2,649	380	2,705	17,637
2000 ^f	3,560	878	9,224	2,892	445	3,580	20,580
2001 ^f	4,096	1,048	11,643	2,928	536	2,918	23,169
2002 ^f	4,254	1,185	12,086	3,462	628	1,924	23,539
2003 ^f	4,533	1,396	12,057	3,589	637	2,125	24,337
2004 ^f	4,666	1,407	12,743	4,126	729	2,332	26,003
2005 ^p	4,978	1,520	13,004	4,498	799	2,375	27,174
2006 ^p	5,227	1,644	13,245	4,948	877	2,416	28,357

^e estimates, as a complete survey was not conducted.

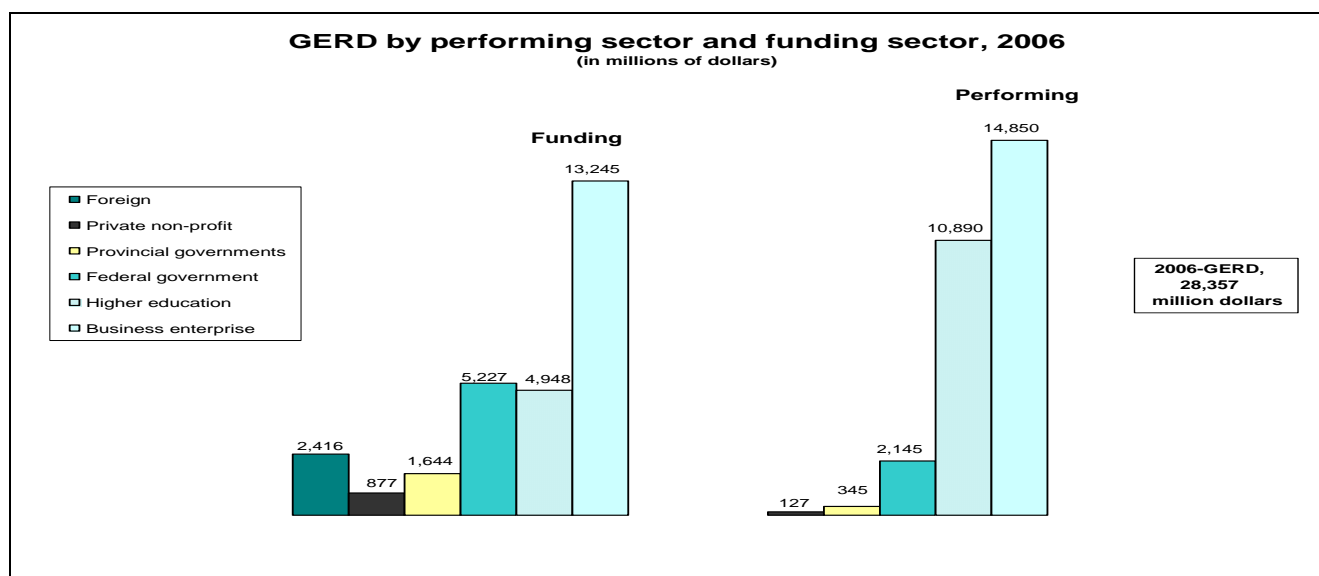


Table 4 Provincial statistics and their relationship to GERD, 2004

Province	Provincial gross domestic product ¹ (PGDP)		Gross domestic expenditures on research and development [*] (GERD)		Population ²		GERD/PGDP	GERD per capita
	(\$000,000)	%	(\$000,000)	%	(000)	%	ratio	dollars
Newfoundland and Labrador	19,433	2	169	1	519	2	0.9	326
Prince Edward Island	4,023	0	40	0	138	0	1.0	290
Nova Scotia	29,879	2	446	2	937	3	1.5	476
New Brunswick	22,976	2	222	1	751	2	1.0	296
Quebec	265,063	21	7,161	26	7,520	24	2.7	952
Ontario	517,407	40	11,720	45	12,320	39	2.3	951
Manitoba	39,990	3	519	2	1,165	4	1.3	445
Saskatchewan	39,999	3	422	2	994	3	1.1	425
Alberta	187,152	15	2,053	8	3,181	10	1.1	634
British Columbia	157,241	12	2,282	9	4,178	13	1.5	546
National Capital Region								
Quebec	..		47	0	..		..	..
Ontario	..		913	4	..		..	..
Canada³	1,290,185	100	26,003	100	31,806	100	2.0	816

1. CANSIM II, Table 384-0002.

2. CANSIM II, Table 051-0005.

3. Includes the Yukon, Northwest Territories and Nunavut.

* Quebec and Ontario figures exclude federal government expenditures performed in the National Capital Region.

Estimates of R&D activities by region may be easily misunderstood. For example, the financial data are identified with the region of the physical location of the R&D unit. It would be wrong to assume all of the expenditures of a unit are spent in the region of location. Supplies and equipment can be purchased from other regions or countries. Furthermore, in cases such as the National Capital Region, labour moves freely between Québec and Ontario so that even wages and salaries paid by a unit are partly spent outside the area of location.

Expenditures for R&D performed by the federal government in the National Capital Region (NCR) are excluded from the provincial totals and are reported separately. The NCR is, in effect, treated as a separate entity. However, these expenditures, distributed geographically, are presented in Table 10.

Table 5 Provincial distribution of the GERD, 1990 to 2004

Year	N.-L.	P.E.I.	N.S.	N.B.	Que.*	Ont.*	Man.	Sask.	Alta.	B.C.	Subtotal Canada ¹	NCR	Total Canada ¹
in millions of dollars													
1990	103	16	236	134	2,594	4,444	263	201	781	772	9,549	711	10,260
1991	106	16	240	121	2,863	4,616	284	216	789	782	10,034	733	10,770
1992	110	14	233	122	3,113	4,818	281	235	779	879	10,585	753	11,338
1993	111	17	245	130	3,294	5,331	296	233	834	916	11,410	774	12,184
1994	108	17	265	134	3,495	5,940	311	239	966	1,067	12,552	789	13,341
1995	100	16	265	140	3,689	6,148	295	254	972	1,068	12,949	805	13,754
1996 ^f	103	17	257	150	3,801	6,176	295	233	1,007	1,002	13,046	771	13,817
1997	103	17	257	127	3,933	6,787	269	287	1,052	1,039	13,877	757	14,634
1998	119	24	311	155	4,325	7,465	299	278	1,183	1,113	15,276	812	16,088
1999	127	26	342	165	4,885	8,115	384	323	1,164	1,290	16,829	808	17,637
2000 ^f	138	36	363	161	5,680	9,564	412	376	1,337	1,616	19,691	889	20,580
2001 ^f	143	37	378	166	6,380	10,887	476	396	1,607	1,769	22,243	926	23,169
2002 ^f	153	31	404	216	6,660	10,468	466	433	1,730	1,959	22,524	1,015	23,539
2003 ^f	168	44	409	217	6,898	10,878	455	394	1,831	2,039	23,338	999	24,337
2004	169	40	446	222	7,161	11,720	519	422	2,053	2,282	25,043	960	26,003
as a percentage of the Canada total													
1990	1.0	0.2	2.3	1.3	25.3	43.3	2.6	2.0	7.6	7.5	93.1	6.9	100.0
1991	1.0	0.1	2.2	1.1	26.6	42.9	2.6	2.0	7.3	7.3	93.2	6.8	100.0
1992	1.0	0.1	2.1	1.1	27.5	42.5	2.5	2.1	6.9	7.8	93.4	6.6	100.0
1993	0.9	0.1	2.0	1.1	27.0	43.8	2.4	1.9	6.8	7.5	93.6	6.4	100.0
1994	0.8	0.1	2.0	1.0	26.2	44.5	2.3	1.8	7.2	8.0	94.1	5.9	100.0
1995	0.7	0.1	1.9	1.0	26.8	44.7	2.1	1.8	7.1	7.8	94.1	5.9	100.0
1996 ^f	0.7	0.1	1.9	1.1	27.5	44.7	2.1	1.7	7.3	7.3	94.4	5.6	100.0
1997	0.7	0.1	1.8	0.9	26.9	46.4	1.8	2.0	7.2	7.1	94.8	5.2	100.0
1998	0.7	0.1	1.9	1.0	26.9	46.4	1.9	1.7	7.4	6.9	95.0	5.0	100.0
1999	0.7	0.1	1.9	0.9	27.7	46.0	2.2	1.8	6.6	7.3	95.4	4.6	100.0
2000 ^f	0.7	0.2	1.8	0.8	27.6	46.5	2.0	1.8	6.5	7.9	95.7	4.3	100.0
2001 ^f	0.6	0.2	1.6	0.7	27.5	47.0	2.1	1.7	6.9	7.6	96.0	4.0	100.0
2002 ^f	0.6	0.1	1.7	0.9	28.3	44.5	2.0	1.8	7.3	8.3	95.7	4.3	100.0
2003 ^f	0.7	0.2	1.7	0.9	28.3	44.7	1.9	1.6	7.5	8.4	95.9	4.1	100.0
2004	0.6	0.2	1.7	0.9	27.5	45.1	2.0	1.6	7.9	8.8	96.3	3.7	100.0
as a percentage of PGDP													
1990	1.1	0.7	1.4	1.0	1.7	1.6	1.1	0.9	1.1	1.0	...	...	1.5
1991	1.1	0.7	1.4	0.9	1.8	1.6	1.2	1.0	1.1	1.0	...	...	1.6
1992	1.2	0.6	1.3	0.9	2.0	1.7	1.2	1.1	1.0	1.0	...	...	1.6
1993	1.1	0.7	1.3	0.9	2.0	1.8	1.2	1.0	1.0	1.0	...	...	1.7
1994	1.1	0.7	1.4	0.9	2.1	1.9	1.2	1.0	1.1	1.1	...	...	1.7
1995	0.9	0.6	1.4	0.9	2.1	1.9	1.1	1.0	1.1	1.0	...	...	1.7
1996 ^f	1.0	0.6	1.3	0.9	2.1	1.8	1.0	0.8	1.0	0.9	...	...	1.7
1997	1.0	0.6	1.3	0.8	2.1	1.9	0.9	1.0	1.0	0.9	...	...	1.7
1998	1.1	0.8	1.5	0.9	2.2	2.0	1.0	0.9	1.1	1.0	...	...	1.8
1999	1.0	0.8	1.5	0.9	2.3	2.0	1.2	1.0	1.0	1.1	...	...	1.8
2000	1.0	1.1	1.5	0.8	2.5	2.2	1.2	1.1	0.9	1.2	...	...	1.9
2001 ^f	1.0	1.1	1.5	0.8	2.8	2.4	1.4	1.2	1.1	1.3	...	...	2.1
2002 ^f	0.9	0.8	1.5	1.0	2.8	2.2	1.3	1.3	1.1	1.4	...	...	2.0
2003	0.9	1.1	1.4	1.0	2.7	2.2	1.2	1.1	1.1	1.4	...	...	2.0
2004	0.9	1.0	1.5	1.0	2.7	2.3	1.3	1.1	1.1	1.5	...	...	2.0

1. Includes the Yukon, Northwest Territories and Nunavut.

* Quebec and Ontario figures exclude federal government expenditures performed in the National Capital Region.

Table 6 R&D expenditures in the provinces by the federal government, in terms of performing and funding, 1990 to 2004

Year	N.-L.	P.E.I.	N.S.	N.B.	Que.*	Ont.*	Man.	Sask.	Alta.	B.C.	Subtotal Canada ¹	NCR	Total Canada ¹
Performing													
in millions of dollars													
1990	35	10	81	36	215	249	94	50	77	95	943	711	1,654
1991	35	10	81	37	217	251	95	51	78	96	952	733	1,685
1992	35	9	73	36	234	274	81	56	78	86	963	753	1,716
1993	36	11	75	33	250	276	83	54	75	88	983	774	1,757
1994	33	11	84	28	225	253	79	48	93	103	964	789	1,753
1995	27	9	77	29	218	259	71	52	98	81	922	805	1,727
1996	25	10	79	32	226	348	77	47	94	78	1,021	771	1,792
1997	23	10	70	29	212	302	59	74	96	83	963	757	1,720
1998	26	10	77	31	226	276	49	54	94	85	931	812	1,743
1999	25	12	72	32	250	322	58	60	108	106	1,051	808	1,859
2000	30	16	88	27	350	314	69	62	116	111	1,191	889	2,080
2001	27	16	70	26	373	328	77	63	98	96	1,177	926	2,103
2002	32	8	76	46	370	324	72	53	92	99	1,175	1,015	2,190
2003	23	12	65	30	314	351	63	54	87	80	1,084	999	2,083
2004	23	10	81	26	320	329	73	54	110	91	1,123	960	2,083
as a percentage of the Canada total													
1990	2.1	0.6	4.9	2.2	13.0	15.1	5.7	3.0	4.7	5.7	57.0	43.0	100.0
1991	2.1	0.6	4.8	2.2	12.9	14.9	5.6	3.0	4.6	5.7	56.5	43.5	100.0
1992	2.0	0.5	4.3	2.1	13.6	16.0	4.7	3.3	4.5	5.0	56.1	43.9	100.0
1993	2.0	0.6	4.3	1.9	14.2	15.7	4.7	3.1	4.3	5.0	55.9	44.1	100.0
1994	1.9	0.6	4.8	1.6	12.8	14.4	4.5	2.7	5.3	5.9	55.0	45.0	100.0
1995	1.6	0.5	4.5	1.7	12.6	15.0	4.1	3.0	5.7	4.7	53.4	46.6	100.0
1996	1.4	0.6	4.4	1.8	12.6	19.4	4.3	2.6	5.2	4.4	57.0	43.0	100.0
1997	1.3	0.6	4.1	1.7	12.3	17.5	3.4	4.3	5.6	4.8	56.0	44.0	100.0
1998	1.5	0.6	4.4	1.8	13.0	15.8	2.8	3.1	5.4	4.9	53.4	46.6	100.0
1999	1.3	0.6	3.9	1.7	13.4	17.3	3.1	3.2	5.8	5.7	56.6	43.4	100.0
2000	1.4	0.8	4.2	1.3	16.8	15.1	3.3	3.0	5.6	5.3	57.3	42.7	100.0
2001	1.3	0.8	3.3	1.2	17.7	15.6	3.7	3.0	4.7	4.6	56.0	44.0	100.0
2002	1.5	0.4	3.5	2.1	16.9	14.8	3.3	2.4	4.2	4.5	53.7	46.3	100.0
2003	1.1	0.6	3.1	1.4	15.1	16.9	3.0	2.6	4.2	3.8	52.0	48.0	100.0
2004	1.1	0.5	3.9	1.2	15.4	15.8	3.5	2.6	5.3	4.4	53.9	46.1	100.0
Funding													
in millions of dollars													
1990	56	11	133	56	550	730	131	78	162	240	2,148	711	2,859
1991	54	12	135	54	568	746	133	84	168	258	2,213	733	2,946
1992	62	10	125	54	634	848	119	89	167	252	2,361	748	3,109
1993	59	12	120	63	660	849	121	87	164	251	2,388	767	3,156
1994	52	12	127	60	592	799	119	82	190	270	2,310	784	3,094
1995	42	11	113	60	580	756	108	81	207	234	2,193	796	2,989
1996 ^f	42	12	112	44	546	719	108	75	191	206	2,060	755	2,815
1997	40	11	107	41	547	741	88	96	195	200	2,073	740	2,813
1998	44	12	113	44	540	737	82	77	183	198	2,033	798	2,831
1999	48	14	113	49	665	868	98	103	218	238	2,420	796	3,216
2000	54	19	129	42	806	899	113	121	234	263	2,688	872	3,560
2001 ^f	52	20	121	45	999	1,126	126	123	284	290	3,189	907	4,096
2002 ^f	63	13	134	68	994	1,118	132	113	282	340	3,260	994	4,254
2003 ^f	59	20	132	61	1,056	1,289	132	121	325	349	3,550	983	4,533
2004	60	19	157	58	1,057	1,327	148	124	339	427	3,721	945	4,666
as a percentage of the Canada total													
1990	2.0	0.4	4.7	2.0	19.2	25.5	4.6	2.7	5.7	8.4	75.1	24.9	100.0
1991	1.8	0.4	4.6	1.8	19.3	25.3	4.5	2.9	5.7	8.8	75.1	24.9	100.0
1992	2.0	0.3	4.0	1.7	20.4	27.3	3.8	2.9	5.4	8.1	75.9	24.1	100.0
1993	1.9	0.4	3.8	2.0	20.9	26.9	3.8	2.8	5.2	8.0	75.7	24.3	100.0
1994	1.7	0.4	4.1	1.9	19.1	25.8	3.8	2.7	6.1	8.7	74.7	25.3	100.0
1995	1.4	0.4	3.8	2.0	19.4	25.3	3.6	2.7	6.9	7.8	73.4	26.6	100.0
1996	1.5	0.4	4.0	1.6	19.4	25.5	3.8	2.7	6.8	7.3	73.2	26.8	100.0
1997	1.4	0.4	3.8	1.5	19.5	26.4	3.1	3.4	6.9	7.1	73.7	26.3	100.0
1998	1.6	0.4	4.0	1.6	19.1	26.0	2.9	2.7	6.5	7.0	71.8	28.2	100.0
1999	1.5	0.4	3.5	1.5	20.7	27.0	3.0	3.2	6.8	7.4	75.3	24.7	100.0
2000	1.5	0.5	3.6	1.2	22.6	25.3	3.2	3.4	6.6	7.4	75.5	24.5	100.0
2001 ^f	1.3	0.5	3.0	1.1	24.4	27.5	3.1	3.0	6.9	7.1	77.9	22.1	100.0
2002 ^f	1.5	0.3	3.1	1.6	23.4	26.3	3.1	2.7	6.6	8.0	76.6	23.4	100.0
2003 ^f	1.3	0.4	2.9	1.3	23.3	28.4	2.9	2.7	7.2	7.4	78.3	21.7	100.0
2004	1.3	0.4	3.4	1.2	22.7	28.4	3.2	2.7	7.3	7.5	79.7	20.3	100.0

1. Includes the Yukon, Northwest Territories and Nunavut.

* Quebec and Ontario figures exclude federal government expenditures performed in the National Capital Region.

Table 7 R&D expenditures in the provinces by business enterprise, in terms of performing and funding, 1990 to 2004

Year	N.-L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total Canada ¹
Performing											
in millions of dollars											
1990	10	2	30	46	1,415	2,842	49	47	357	367	5,169
1991	10	2	26	30	1,520	2,952	64	54	349	348	5,355
1992 ^e	10	1	33	29	1,644	3,123	72	66	337	427	5,742
1993	11	2	44	41	1,802	3,507	90	60	396	471	6,424
1994 ^e	12	2	61	49	2,056	4,112	102	70	509	591	7,567
1995	11	3	64	52	2,277	4,320	96	74	491	602	7,991
1996 ^r	17	3	54	59	2,394	4,257	93	58	524	538	7,997
1997	14	2	54	35	2,519	4,833	89	82	546	564	8,739
1998	17	3	62	39	2,764	5,394	102	74	618	608	9,682
1999	18	3	62	39	3,047	5,799	148	78	490	714	10,400
2000 ^r	20	5	67	40	3,642	6,856	133	76	583	973	12,395
2001 ^r	21	6	91	45	4,158	7,900	173	87	710	1,080	14,272
2002 ^r	21	4	95	64	4,131	7,064	150	112	782	1,092	13,516
2003 ^r	26	7	77	62	4,154	7,241	136	84	790	1,127	13,704
2004	26	6	89	75	4,308	7,457	165	111	892	1,309	14,441
as a percentage of the Canada total											
1990	0.2	0.0	0.6	0.9	27.4	55.0	0.9	0.9	6.9	7.1	100.0
1991	0.2	0.0	0.5	0.6	28.4	55.1	1.2	1.0	6.5	6.5	100.0
1992 ^e	0.2	0.0	0.6	0.5	28.6	54.4	1.3	1.1	5.9	7.4	100.0
1993	0.2	0.0	0.7	0.6	28.1	54.6	1.4	0.9	6.2	7.3	100.0
1994 ^e	0.2	0.0	0.8	0.6	27.2	54.3	1.3	0.9	6.7	7.8	100.0
1995	0.1	0.0	0.8	0.7	28.5	54.1	1.2	0.9	6.1	7.5	100.0
1996 ^r	0.2	0.0	0.7	0.7	29.9	53.2	1.2	0.7	6.6	6.7	100.0
1997	0.2	0.0	0.6	0.4	28.8	55.3	1.0	0.9	6.2	6.5	100.0
1998	0.2	0.0	0.6	0.4	28.5	55.7	1.1	0.8	6.4	6.3	100.0
1999	0.2	0.0	0.6	0.4	29.3	55.8	1.4	0.8	4.7	6.9	100.0
2000 ^r	0.2	0.0	0.5	0.3	29.4	55.3	1.1	0.6	4.7	7.8	100.0
2001 ^r	0.1	0.0	0.6	0.3	29.1	55.4	1.2	0.6	5.0	7.6	100.0
2002 ^r	0.2	0.0	0.7	0.5	30.6	52.3	1.1	0.8	5.8	8.1	100.0
2003 ^r	0.2	0.1	0.6	0.5	30.3	52.8	1.0	0.6	5.8	8.2	100.0
2004	0.2	0.0	0.6	0.5	29.8	51.6	1.1	0.8	6.2	9.1	100.0
Funding											
in millions of dollars											
1990	6	2	23	43	1,197	1,996	41	44	315	289	3,960
1991	7	1	18	29	1,354	2,065	46	49	284	260	4,113
1992 ^e	7	1	25	29	1,444	2,181	55	62	301	335	4,445
1993	9	2	35	27	1,585	2,487	78	61	356	378	5,025
1994 ^e	11	2	54	35	1,810	2,880	90	71	448	465	5,874
1995	14	3	57	36	2,005	3,086	86	72	437	483	6,288
1996	18	2	49	60	2,142	3,108	87	60	467	388	6,396
1997	19	2	38	40	2,219	3,574	96	80	487	460	7,031
1998	23	3	44	43	2,461	3,591	105	57	482	531	7,354
1999	18	2	63	42	2,721	3,852	120	72	407	608	7,917
2000 ^r	21	5	67	44	3,252	4,260	140	77	507	835	9,224
2001 ^r	16	6	82	46	3,672	5,907	179	85	697	936	11,643
2002 ^r	23	4	84	67	3,694	6,154	152	116	822	951	12,086
2003 ^r	28	5	66	66	3,746	6,183	142	93	789	924	12,057
2004	33	5	78	79	3,889	6,515	167	120	903	936	12,743
as a percentage of the Canada total											
1990	0.2	0.1	0.6	1.1	30.2	50.4	1.0	1.1	8.0	7.3	100.0
1991	0.2	0.0	0.4	0.7	32.9	50.2	1.1	1.2	6.9	6.3	100.0
1992 ^e	0.2	0.0	0.6	0.7	32.5	49.1	1.2	1.4	6.8	7.5	100.0
1993	0.2	0.0	0.7	0.5	31.5	49.5	1.6	1.2	7.1	7.5	100.0
1994 ^e	0.2	0.0	0.9	0.6	30.8	49.0	1.5	1.2	7.6	7.9	100.0
1995	0.2	0.0	0.9	0.6	31.9	49.1	1.4	1.1	6.9	7.7	100.0
1996	0.3	0.0	0.8	0.9	33.5	48.6	1.4	0.9	7.3	6.1	100.0
1997	0.3	0.0	0.5	0.6	31.6	50.8	1.4	1.1	6.9	6.5	100.0
1998	0.3	0.0	0.6	0.6	33.5	48.8	1.4	0.8	6.6	7.2	100.0
1999	0.2	0.0	0.8	0.5	34.4	48.7	1.5	0.9	5.1	7.7	100.0
2000 ^r	0.2	0.1	0.7	0.5	35.3	46.2	1.5	0.8	5.5	9.1	100.0
2001 ^r	0.1	0.1	0.7	0.4	31.5	50.7	1.5	0.7	6.0	8.0	100.0
2002 ^r	0.2	0.0	0.7	0.6	30.6	50.9	1.3	1.0	6.8	7.9	100.0
2003 ^r	0.2	0.0	0.5	0.5	31.1	51.3	1.2	0.8	6.5	7.7	100.0
2004	0.3	0.0	0.6	0.6	30.5	51.1	1.3	0.9	7.1	7.3	100.0

1. Includes the Yukon, Northwest Territories and Nunavut and Industry funding of federal R&D in the National Capital Region.

^e estimates, as a complete survey was not conducted.

The business enterprises' participation in the performance of provincial R&D accounts for more than 50% of R&D in the provinces of Ontario, Quebec and British Columbia. The share of the federal government's performance dollars for provincial R&D is more significant in the Atlantic provinces, Manitoba and Saskatchewan than in the other provinces.

Table 8 Provincial distribution of GERD by performing sectors, 2004

Performing Sector	N.-L.	P.E.I.	N.S.	N.B.	Que.*	Ont.*	Man.	Sask.	Alta.	B.C.	Subtotal Canada ¹	NCR	Total Canada ¹
in millions of dollars													
Federal government	23	10	81	26	320	329	73	54	110	91	1,123	960	2,083
Provincial governments ²	5	0	6	4	82	86	4	13	113	13	326	0	326
Business enterprise	26	6	89	75	4,308	7,457	165	111	892	1,309	14,441	0	14,441
Higher Education ³	115	24	270	117	2,451	3,848	277	244	938	869	9,153	0	9,153
All sectors	169	40	446	222	7,161	11,720	519	422	2,053	2,282	25,043	960	26,003
as a percentage of the provincial total													
Federal government	13.6	25.0	18.2	11.7	4.5	2.8	14.1	12.8	5.4	4.0	4.5	100.0	8.0
Provincial governments ²	3.0	0.0	1.3	1.8	1.1	0.7	0.8	3.1	5.5	0.6	1.3	0.0	1.3
Business enterprise	15.4	15.0	20.0	33.8	60.2	63.6	31.8	26.3	43.4	57.4	57.7	0.0	55.5
Higher Education ³	68.0	60.0	60.5	52.7	34.2	32.8	53.4	57.8	45.7	38.1	36.5	0.0	35.2
All sectors	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
as a percentage of the Canada total													
Federal government	1.1	0.5	3.9	1.2	15.4	15.8	3.5	2.6	5.3	4.4	53.9	46.1	100.0
Provincial governments ²	1.5	0.0	1.8	1.2	25.2	26.4	1.2	4.0	34.7	4.0	100.0	0.0	100.0
Business enterprise	0.2	0.0	0.6	0.5	29.8	51.6	1.1	0.8	6.2	9.1	100.0	0.0	100.0
Higher Education ³	1.3	0.3	2.9	1.3	26.8	42.0	3.0	2.7	10.2	9.5	100.0	0.0	100.0
All sectors	0.6	0.2	1.7	0.9	27.5	45.1	2.0	1.6	7.9	8.8	96.3	3.7	100.0

1. Includes the Yukon, Northwest Territories and Nunavut.

2. Includes provincial research councils and foundations.

3. Includes private non-profit institutions.

* Quebec and Ontario figures exclude federal government expenditures performed in the National Capital Region.

Table 9 Provincial distribution of GERD by funding sectors, 2004

Funding Sector	N.-L.	P.E.I.	N.S.	N.B.	Que.*	Ont.*	Man.	Sask.	Alta.	B.C.	Subtotal Canada ¹	NCR	Total Canada ¹
in millions of dollars													
Federal government	60	19	157	58	1,057	1,327	148	124	339	427	3,721	945	4,666
Provincial governments ²	7	1	15	7	436	489	28	36	325	62	1,406	1	1,407
Business enterprise	33	5	78	79	3,889	6,515	167	120	903	936	12,729	14	12,743
Higher Education ³	63	15	166	76	1,280	2,078	161	134	410	472	4,855	0	4,855
Foreign	6	0	30	2	499	1,311	15	8	76	385	2,332	0	2,332
All sectors	169	40	446	222	7,161	11,720	519	422	2,053	2,282	25,043	960	26,003
as a percentage of the provincial total													
Federal government	35.5	47.5	35.2	26.1	14.8	11.3	28.5	29.4	16.5	18.7	14.9	98.4	17.9
Provincial governments ²	4.1	2.5	3.4	3.2	6.1	4.2	5.4	8.5	15.8	2.7	5.6	0.1	5.4
Business enterprise	19.5	12.5	17.5	35.6	54.3	55.6	32.2	28.4	44.0	41.0	50.8	1.5	49.0
Higher Education ³	37.3	37.5	37.2	34.2	17.9	17.7	31.0	31.8	20.0	20.7	19.4	0.0	18.7
Foreign	3.6	0.0	6.7	0.9	7.0	11.2	2.9	1.9	3.7	16.9	9.3	0.0	9.0
All sectors	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
as a percentage of the Canada total													
Federal government	1.3	0.4	3.4	1.2	22.7	28.4	3.2	2.7	7.3	9.2	79.7	20.3	100.0
Provincial governments ²	0.5	0.1	1.1	0.5	31.0	34.8	2.0	2.6	23.1	4.4	99.9	0.1	100.0
Business enterprise	0.3	0.0	0.6	0.6	30.5	51.1	1.3	0.9	7.1	7.3	99.9	0.1	100.0
Higher Education ³	1.3	0.3	3.4	1.6	26.4	42.8	3.3	2.8	8.4	9.7	100.0	0.0	100.0
Foreign	0.3	0.0	1.3	0.1	21.4	56.2	0.6	0.3	3.3	16.5	100.0	0.0	100.0
All sectors	0.6	0.2	1.7	0.9	27.5	45.1	2.0	1.6	7.9	8.8	96.3	3.7	100.0

1. Includes the Yukon, Northwest Territories and Nunavut.

2. Includes provincial research councils and foundations.

3. Includes private non-profit institutions.

* Quebec and Ontario figures exclude federal government expenditures performed in the National Capital Region.

Table 10 R&D expenditures performed by the federal government in the national capital region, 1990 to 2004			
Year	National Capital Region Quebec	National Capital Region Ontario	National Capital Region Total
in millions of dollars			
1990	16	695	711
1991	16	717	733
1992	16	737	753
1993	15	759	774
1994	43	746	789
1995	30	775	805
1996	21	750	771
1997	20	737	757
1998	30	781	812
1999	33	775	808
2000	39	850	889
2001	41	885	926
2002	65	950	1,015
2003	49	950	999
2004	47	913	960

GERD estimates have improved in recent years through changes made in the estimation of higher education R&D values (HERD). Details on revisions made to the estimation procedure are available at: [Higher Education Research and Development Web page](#). More improvements to HERD are expected in future years as investigations into the estimation procedures continue.

More details of the GERD can be found in the working paper titled *Estimates of Canadian research and development expenditures (GERD), Canada, 1995 to 2006, and by province 1995 to 2004*. This paper provides more detail for both Canada and the provinces in the matrix format.

Symbols

The following standard symbols are used in Statistics Canada publications:

- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- ^p preliminary
- ^r revised
- x suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^E use with caution
- F too unreliable to be published

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<http://www.statcan.ca:8096/bsolc/english/bsolc?catno=88-001-X>

Current publications of the Science and Technology Surveys section include:

Industrial Research and Development, 2005 Intentions, (with 2004 preliminary estimates and 2003 actual expenditures) Catalogue No. 88-202-XIE, annual. It presents statistics on research and development (R&D) activities performed and funded by Canadian business enterprises. The report covers current and capital expenditures on R&D, R&D as a percent of performing company revenues, R&D expenditures by province, the company's country of control, personnel engaged in R&D and payments for technological services.

<http://www.statcan.ca:8096/bsolc/english/bsolc?catno=88-202-X>

Federal Science Activities, 2004-2005 estimates, Catalogue No. 88-204-XIE, annual. It presents statistics on the federal government's activities in science and technology (S&T). It covers expenditures and person-years by type of science, performing sectors, provinces, federal departments and agencies.

<http://www.statcan.ca:8096/bsolc/english/bsolc?catno=88-204-X>

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