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Total spending on research and development in Canada, 1990 to 2005[p], and provinces, 1990 to 2003

Gross Domestic Expenditures on Research and Development (GERD) represents total 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 abroad but excludes payments sent abroad for R&D performed in other countries.

Highlights

- After a slow down of Gross Domestic Expenditures on Research and Development (GERD) reported in 2002, the 2003, 2004 and 2005 estimates indicate a recovery. For 2004, GERD is expected to reach $25.3 billion, an increase of 5.3% over 2003. Preliminary estimates for 2005 ($26.3 billion) represent a 4.0% increase over 2004. Respondents made their forecasts in late 2004 and early 2005.

- The $ 1,009 million GERD increase is essentially explained by a substantial increase of $ 900 million of the R&D performed by the higher education sector. Business enterprises contributed lesser to the GERD increase with $ 218 million. Inversely, the R&D performed by the federal government decreases by $ 119 million.

- The largest increases in provincial GERD are observed in Alberta (6%), Québec (4%) and Ontario (2.3%).

- In 2003, 73% of Canadian R&D was performed in Ontario and Quebec. This level of concentration has been constant for the last five years. Since no attempt is made to forecast or estimate provincial expenditures, only actual expenditures are presented. Thus provincial data are available only to 2003.

Summary statistics for GERD and GERD/GDP ratios are given in Table 1. The figures for 2005 are spending estimates, whereas the 2004 figures are revised preliminary actual expenditures.

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Canada

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 2005

Year	GERD	GDP[1]	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	13,816	836,864	1.65	98.8	13,984
1997[r]	14,634	882,733	1.66	100.0	14,634
1998[r]	16,088	914,973	1.76	99.6	16,153
1999[r]	17,637	982,441	1.80	101.3	17,411
2000[r]	20,635	1,076,577	1.92	105.5	19,559
2001[r]	23,206	1,108,048	2.09	106.7	21,749
2002[r]	23,382	1,154,204	2.03	107.8	21,690
2003[r]	23,992	1,216,191	1.97	111.3	21,556
2004[p]	25,259	1,290,185	1.96	114.7	22,022
2005[p]	26,268	..	..	..	..

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	2000[r]	2001[r]	2002[r]	2003[p]	2004[p]
Canada	1.76	1.80	1.92	2.09	2.03	1.97	1.96
France	2.17	2.18	2.18	2.23	2.26	2.19	..
Germany	2.31	2.44	2.49	2.51	2.53	2.55	..
Italy	1.07	1.04	1.07	1.11	1.16	..	..
Japan	2.95	2.96	2.99	3.07	3.12	3.15	..
Sweden[1]	..	3.65	..	4.27	..	..	..
U.K.	1.80	1.87	1.86	1.87	1.90	1.89	..
U.S.A.[2]	2.60	2.65	2.72	2.73	2.66	2.60	..

1. Underestimated or based on underestimated data.
2. Excludes most or all capital expenditures.
***Source**: Main Science and Technology Indicators, No. 1, DSTI, OECD, 2005.*

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 2005

Year	Federal government	Provincial governments	Business enterprise	Higher education	Private non-profit organizations	Foreign	Total
			in millions of dollars				
Performing sector:							
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	3,675	86	...	13,341
1995	1,727	254	7,991	3,691	91	...	13,754
1996	1,792	242	7,996	3,697	89	...	13,816
1997[r]	1,720	214	8,739	3,879	82	...	14,634
1998[r]	1,743	216	9,682	4,370	77	...	16,088
1999[r]	1,859	233	10,400	5,082	63	...	17,637
2000[r]	2,080	255	12,450	5,793	57	...	20,635
2001[r]	2,103	307	14,320	6,424	52	...	23,206
2002[r]	2,190	315	13,367	7,455	55	...	23,382
2003[r]	2,083	318	13,391	8,132	68	...	23,992
2004[p]	2,257	357	13,630	8,945	70	...	25,259
2005[p]	2,138	367	13,848	9,841	74	...	26,268
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	1,914	298	1,498	13,341
1995	2,989	652	6,288	1,926	309	1,590	13,754
1996	2,814	629	6,396	1,905	358	1,714	13,816
1997[r]	2,813	658	7,031	1,971	367	1,794	14,634
1998[r]	2,831	639	7,354	2,339	372	2,553	16,088
1999[r]	3,216	770	7,917	2,649	380	2,705	17,637
2000[r]	3,560	879	9,258	2,892	445	3,601	20,635
2001[r]	4,097	1,045	11,662	2,928	533	2,941	23,206
2002[r]	4,215	1,183	11,988	3,462	624	1,910	23,382
2003[r]	4,495	1,392	11,838	3,578	627	2,062	23,992
2004[p]	4,896	1,532	12,103	3,936	688	2,104	25,259
2005[p]	5,017	1,657	12,364	4,330	755	2,145	26,268

[e] *estimates, as a complete survey was not conducted.*

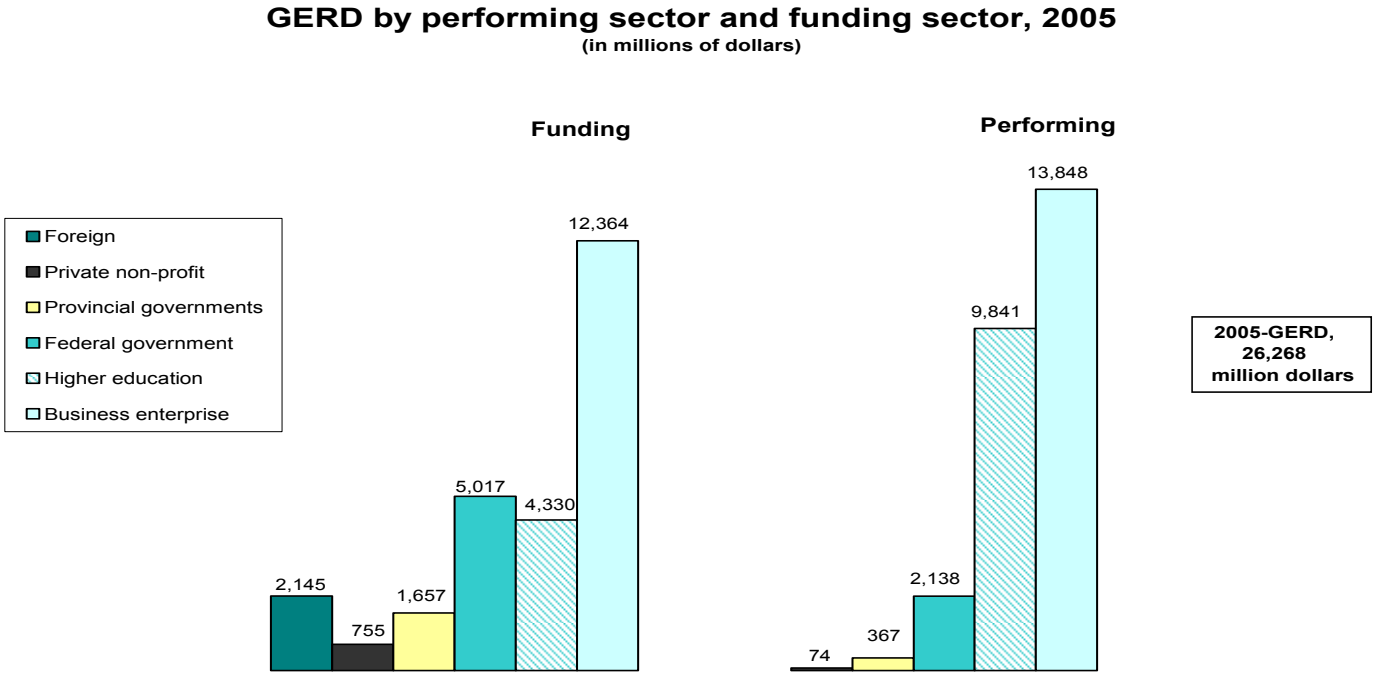

Table 4. Provincial background, 2003

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	18,131	2	161	1	519	2	0.9	310
Prince Edward Island	3,845	0	42	0	137	0	1.1	306
Nova Scotia	28,715	2	410	2	935	3	1.4	438
New Brunswick	22,179	2	194	1	751	2	0.9	258
Quebec	252,367	21	6,856	26	7,467	24	2.7	918
Ontario	493,345	41	10,700	41	12,169	39	2.2	879
Manitoba	37,719	3	443	2	1,158	4	1.2	383
Saskatchewan	36,394	3	391	2	995	3	1.1	393
Alberta	171,175	14	1,821	7	3,137	10	1.1	580
British Columbia	145,948	12	1,969	8	4,132	13	1.3	477
National Capital Region								
Quebec	..		49	0	..	..	..	..
Ontario	..		950	4	..	..	..	..
Canada[3]	**1,216,191**	**100**	**23,992**	**100**	**31,502**	**100**	**2.0**	**762**

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 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 2003

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	10,767
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	103	17	257	150	3,801	6,175	295	233	1,007	1,002	13,045	771	13,816
1997[r]	103	17	257	127	3,933	6,787	269	287	1,052	1,039	13,877	757	14,634
1998[r]	119	24	311	155	4,325	7,465	299	278	1,183	1,113	15,276	812	16,088
1999[r]	127	26	342	165	4,885	8,115	384	323	1,164	1,290	16,829	808	17,637
2000[r]	138	36	363	161	5,680	9,611	412	376	1,345	1,616	19,746	889	20,635
2001[r]	143	37	378	165	6,376	10,932	465	396	1,615	1,769	22,280	926	23,206
2002[r]	150	32	399	196	6,586	10,452	446	434	1,715	1,953	22,367	1,015	23,382
2003	161	42	410	194	6,856	10,700	443	391	1,821	1,969	22,993	999	23,992
						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	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[r]	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[r]	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[r]	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[r]	0.7	0.2	1.8	0.8	27.5	46.6	2.0	1.8	6.5	7.8	95.7	4.3	100.0
2001[r]	0.6	0.2	1.6	0.7	27.5	47.1	2.0	1.7	7.0	7.6	96.0	4.0	100.0
2002[r]	0.6	0.1	1.7	0.8	28.2	44.7	1.9	1.9	7.3	8.4	95.7	4.3	100.0
2003	0.7	0.2	1.7	0.8	28.6	44.6	1.8	1.6	7.6	8.2	95.8	4.2	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	1.0	0.6	1.3	0.9	2.1	1.8	1.0	0.8	1.0	0.9	...	...	1.7
1997[r]	1.0	0.6	1.3	0.8	2.1	1.9	0.9	1.0	1.0	0.9	...	...	1.7
1998[r]	1.1	0.8	1.5	0.9	2.2	2.0	1.0	0.9	1.1	1.0	...	...	1.8
1999[r]	1.0	0.8	1.5	0.9	2.3	2.0	1.2	1.0	1.0	1.1	...	...	1.8
2000[r]	1.0	1.1	1.5	0.8	2.5	2.2	1.2	1.1	0.9	1.2	...	...	1.9
2001[r]	1.0	1.1	1.4	0.8	2.7	2.4	1.3	1.2	1.1	1.3	...	...	2.1
2002[r]	0.9	0.9	1.5	0.9	2.7	2.2	1.2	1.3	1.1	1.4	...	...	2.0
2003	0.9	1.1	1.4	0.9	2.7	2.2	1.2	1.2	1.1	1.3	...	...	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 2003

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						
Performing													
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[r]	23	10	70	29	212	302	59	74	96	83	963	757	1,720
1998[r]	26	10	77	31	226	276	49	54	94	85	931	812	1,743
1999[r]	25	12	72	32	250	322	58	60	108	106	1,051	808	1,859
2000[r]	30	16	88	27	350	314	69	62	116	111	1,192	889	2,080
2001[r]	27	16	70	26	373	328	77	63	98	96	1,177	926	2,103
2002[r]	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
							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[r]	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[r]	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[r]	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[r]	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[r]	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[r]	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
							in millions of dollars						
Funding													
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	42	12	112	44	546	718	108	75	191	206	2,059	755	2,814
1997[r]	40	11	107	41	547	741	88	96	195	200	2,073	740	2,813
1998[r]	44	12	113	44	540	737	82	77	183	198	2,033	798	2,831
1999[r]	48	14	113	49	665	868	98	103	218	238	2,420	796	3,216
2000[r]	54	19	129	42	806	899	113	121	234	263	2,688	872	3,560
2001[r]	52	20	121	45	999	1,129	124	123	284	290	3,190	907	4,097
2002[r]	62	13	130	67	973	1,122	130	113	281	327	3,221	994	4,215
2003	60	20	127	61	1,047	1,286	132	121	319	334	3,512	983	4,495
							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[r]	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[r]	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[r]	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[r]	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[r]	1.3	0.5	3.0	1.1	24.4	27.6	3.0	3.0	6.9	7.1	77.9	22.1	100.0
2002[r]	1.5	0.3	3.1	1.6	23.1	26.6	3.1	2.7	6.7	7.8	76.4	23.6	100.0
2003	1.3	0.4	2.8	1.4	23.3	28.6	2.9	2.7	7.1	7.4	78.1	21.9	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 2003

Year	N.-L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total Canada[1]
						in millions of dollars					
Performing											
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	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	17	3	54	59	2,394	4,256	93	58	524	538	7,996
1997[r]	14	2	54	35	2,519	4,833	89	82	546	564	8,739
1998[r]	17	3	62	39	2,764	5,394	102	74	618	608	9,682
1999[r]	18	3	62	39	3,047	5,799	148	78	490	714	10,400
2000[r]	20	5	67	40	3,642	6,903	133	76	591	973	12,450
2001[r]	21	6	91	45	4,154	7,944	173	87	718	1,080	14,320
2002[r]	18	5	90	44	4,057	7,048	138	113	767	1,086	13,367
2003	19	7	78	43	4,115	7,066	126	82	779	1,075	13,391
						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	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	0.2	0.0	0.7	0.7	29.9	53.2	1.2	0.7	6.6	6.7	100.0
1997[r]	0.2	0.0	0.6	0.4	28.8	55.3	1.0	0.9	6.2	6.5	100.0
1998[r]	0.2	0.0	0.6	0.4	28.5	55.7	1.1	0.8	6.4	6.3	100.0
1999[r]	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	29.3	55.4	1.1	0.6	4.7	7.8	100.0
2001[r]	0.1	0.0	0.6	0.3	29.0	55.5	1.2	0.6	5.0	7.5	100.0
2002[r]	0.1	0.0	0.7	0.3	30.4	52.7	1.0	0.8	5.7	8.1	100.0
2003	0.1	0.1	0.6	0.3	30.7	52.8	0.9	0.6	5.8	8.0	100.0
						in millions of dollars					
Funding											
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	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[r]	19	2	38	40	2,219	3,574	96	80	487	460	7,031
1998[r]	23	3	44	43	2,461	3,591	105	57	482	531	7,354
1999[r]	18	2	63	42	2,721	3,852	120	72	407	608	7,917
2000[r]	21	5	67	44	3,252	4,294	140	77	507	835	9,258
2001[r]	16	6	82	45	3,671	5,929	178	85	697	936	11,662
2002[r]	21	5	82	47	3,641	6,142	140	116	811	964	11,988
2003	23	6	72	48	3,701	6,025	131	88	782	946	11,838
						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	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[r]	0.3	0.0	0.5	0.6	31.6	50.8	1.4	1.1	6.9	6.5	100.0
1998[r]	0.3	0.0	0.6	0.6	33.5	48.8	1.4	0.8	6.6	7.2	100.0
1999[r]	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	35.1	46.4	1.5	0.8	5.5	9.0	100.0
2001[r]	0.1	0.1	0.7	0.4	31.5	50.8	1.5	0.7	6.0	8.0	100.0
2002[r]	0.2	0.0	0.7	0.4	30.4	51.2	1.2	1.0	6.8	8.0	100.0
2003	0.2	0.1	0.6	0.4	31.3	50.9	1.1	0.7	6.6	8.0	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 R&D by performing sectors, 2003

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	12	65	30	314	351	63	54	87	80	1,084	999	2,083
Provincial governments[2]	5	0	6	4	82	87	4	11	102	17	318	0	318
Business enterprise	19	7	78	43	4,115	7,066	126	82	779	1,075	13,391	0	13,391
Higher Education[3]	114	23	261	117	2,345	3,196	250	244	853	797	8,200	0	8,200
All sectors	**161**	**42**	**410**	**194**	**6,856**	**10,700**	**443**	**391**	**1,821**	**1,969**	**22,993**	**999**	**23,992**
						as a percentage of the provincial total							
Federal government	14.3	28.6	15.9	15.5	4.6	3.3	14.2	13.8	4.8	4.1	4.7	100.0	8.7
Provincial governments[2]	3.1	0.0	1.5	2.1	1.2	0.8	0.9	2.8	5.6	0.9	1.4	0.0	1.3
Business enterprise	11.8	16.7	19.0	22.2	60.0	66.0	28.4	21.0	42.8	54.6	58.2	0.0	55.8
Higher Education[3]	70.8	54.8	63.7	60.3	34.2	29.9	56.4	62.4	46.8	40.5	35.7	0.0	34.2
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	0.6	3.1	1.4	15.1	16.9	3.0	2.6	4.2	3.8	52.0	48.0	100.0
Provincial governments[2]	1.6	0.0	1.9	1.3	25.8	27.4	1.3	3.5	32.1	5.3	100.0	0.0	100.0
Business enterprise	0.1	0.1	0.6	0.3	30.7	52.8	0.9	0.6	5.8	8.0	100.0	0.0	100.0
Higher Education[3]	1.4	0.3	3.2	1.4	28.6	39.0	3.0	3.0	10.4	9.7	100.0	0.0	100.0
All sectors	**0.7**	**0.2**	**1.7**	**0.8**	**28.6**	**44.6**	**1.8**	**1.6**	**7.6**	**8.2**	**95.8**	**4.2**	**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 R&D by funding sectors, 2003

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	20	127	61	1,047	1,286	132	121	319	334	3,512	983	4,495
Provincial governments[2]	6	0	14	8	458	457	24	39	268	117	1,391	1	1,392
Business enterprise	23	6	72	48	3,701	6,025	131	88	782	946	11,823	15	11,838
Higher Education[3]	68	16	172	75	1,161	1,666	146	133	365	403	4,205	0	4,205
Foreign	4	0	25	2	489	1,266	10	10	87	169	2,062	0	2,062
All sectors	**161**	**42**	**410**	**194**	**6,856**	**10,700**	**443**	**391**	**1,821**	**1,969**	**22,993**	**999**	**23,992**
						as a percentage of the provincial total							
Federal government	37.3	47.6	31.0	31.4	15.3	12.0	29.8	30.9	17.5	17.0	15.3	98.4	18.7
Provincial governments[2]	3.7	0.0	3.4	4.1	6.7	4.3	5.4	10.0	14.7	5.9	6.0	0.1	5.8
Business enterprise	14.3	14.3	17.6	24.7	54.0	56.3	29.6	22.5	42.9	48.0	51.4	1.5	49.3
Higher Education[3]	42.2	38.1	42.0	38.7	16.9	15.6	33.0	34.0	20.0	20.5	18.3	0.0	17.5
Foreign	2.5	0.0	6.1	1.0	7.1	11.8	2.3	2.6	4.8	8.6	9.0	0.0	8.6
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	2.8	1.4	23.3	28.6	2.9	2.7	7.1	7.4	78.1	21.9	100.0
Provincial governments[2]	0.4	0.0	1.0	0.6	32.9	32.8	1.7	2.8	19.3	8.4	99.9	0.1	100.0
Business enterprise	0.2	0.1	0.6	0.4	31.3	50.9	1.1	0.7	6.6	8.0	99.9	0.1	100.0
Higher Education[3]	1.6	0.4	4.1	1.8	27.6	39.6	3.5	3.2	8.7	9.6	100.0	0.0	100.0
Foreign	0.2	0.0	1.2	0.1	23.7	61.4	0.5	0.5	4.2	8.2	100.0	0.0	100.0
All sectors	**0.7**	**0.2**	**1.7**	**0.8**	**28.6**	**44.6**	**1.8**	**1.6**	**7.6**	**8.2**	**95.8**	**4.2**	**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 2003

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

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 published in *Estimation of research and development expenditures in the higher education sector, 2003-2004*. 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, 1994 to 2005^{p}, and by province 1994 to 2003*. This paper provides more detail for both Canada and the provinces in the matrix format.

Note of appreciation

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. 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

This publication was prepared by **Janet Thompson** under the direction of **Antoine Rose**, Chief, Science and Innovation Surveys section, Science, Innovation and Electronic Information Division.

Current publications of the Science and Innovation Surveys Section include:

Industrial Research and Development, 2005 Intentions, (with 2004 preliminary estimates and 2003 actual expenditures), to be released in December 2005, 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, country of control of company, personnel engaged in R&D and payments for technological services.

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

Federal Scientific Activities, 2004/2005, 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