

Government budget appropriations or outlays allocated to R&D (GBAORD):

Highest increase between 1999 and 2003 in Ireland, Spain and Sweden

Statistics
in focus

SCIENCE AND
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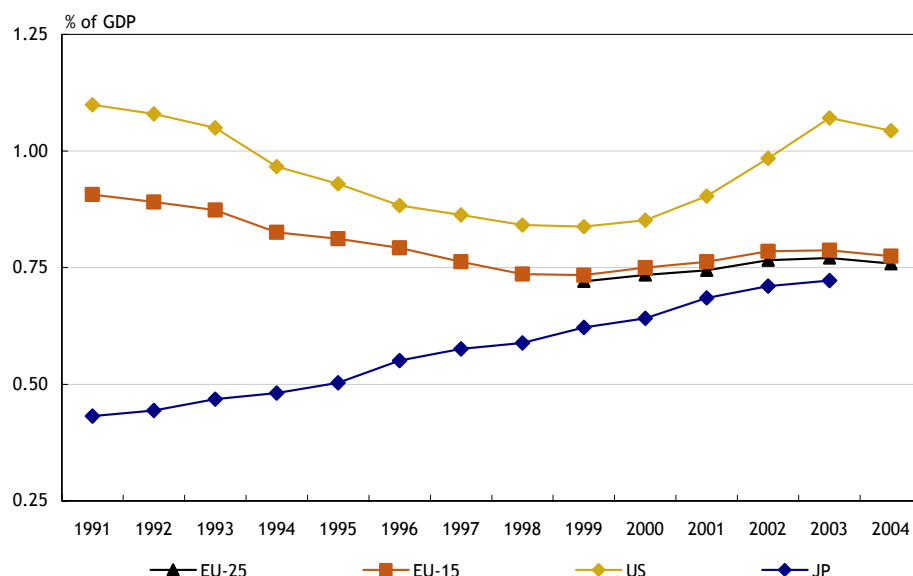
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Figure 1: Total GBAORD as a % of GDP, EU-25, EU-15, US and JP — 1991 to 2004



Eurostat estimations: EU-15 and EU-25.
Provisional data: EU-15, EU-25 and US 2004, JP 2002-2003

Main findings

- In 2004, GBAORD, illustrating the governments support of R&D activities, amounted to approximately EUR 78 billion in the EU-25, whereas in the United States it added up to almost EUR 100 billion and EUR 27 billion in Japan. In relative terms, expressed as a percentage of GDP, it represented 0.76 %, 1.04 % and 0.72 % for the EU-25, the United States and Japan respectively.
- Between 1999 and 2003, GBAORD in the EU-25 (expressed in current EUR) increased at an annual average growth rate of 5.8 % while GDP increased at a rate of 4.0 %. All Member States increased their GBAORD during this period. Countries where GBAORD rose the fastest were Ireland, Spain, Sweden and Romania with an annual average growth rate (AAGR) of 17.7 %, 14.6 %, 10.6 % and 14.5 % respectively.
- The main socio-economic objective within the EU-15 was, in 2003, "Research financed from General University Funds (GUF)" with 32.1% of total GBAORD. With a share of 34.8%, "Research financed from GUF" came first in Japan too, whereas in the United States "Defence" with more than half of its total GBAORD (53.7%) took the highest share.
- Apart from being the first socio-economic objective within the European Union, "Research financed from GUF" was also the only objective to increase in all countries between 1999 and 2003 (expressed in current prices). At the level of the EU-15, it increased at an AAGR of 6.1% during this period.



Total GBAORD: Worldwide convergence during the 1990s

During the 1990s, there was a convergence of Government Budget Appropriation or Outlays on Research and Development (GBAORD) as is shown in Figure 1.

In 1991 GBAORD amounted to 1.10 %, 0.91 % and 0.43 % of GDP in the United States, EU-15 and Japan respectively. In 1999, these ratios were 0.84 %, 0.73 % and 0.62 %. Since 2000, government budgets allocated to R&D increased faster in the United States than in the European Union and in Japan.

Within the EU-25 in 2004, budgets allocated to R&D as a percentage of GDP varied across Member States. France, Finland as well as Iceland allocated more than 1% of their GDP to the government R&D budget whereas Luxembourg only granted 0.28 % and Latvia 0.18 % — see Table 1.

In absolute terms, the EU-25 allocated approximately EUR 78 billion to GBAORD, where the United States allocated almost EUR 100 billion and Japan only EUR 27 billion. Four Member States were responsible for almost 70% of total GBAORD at EU-25 level. These were Germany, France, Italy

and the United Kingdom with allocations of EUR 16.7 billion, EUR 15.5 billion, EUR 9.2 billion and EUR 12.2 billion respectively.

When taking into account the population, countries which in 2004 allocated most to government support for R&D (based on GBAORD) were Finland, Sweden and France with EUR 294, EUR 292 and EUR 261 per inhabitant respectively. Four other countries granted more than EUR 200 per inhabitant: Denmark (EUR 260), the Netherlands (EUR 223), the United Kingdom (EUR 205) and Germany (EUR 203). Iceland and Norway assigned even more per inhabitant: EUR 381 and EUR 343 respectively.

As a percentage of total general government expenditure, the EU-15 average was 1.62 % in 2004. This average hides discrepancies between the Member States. Spain led with 2.06 % followed by Finland and France with 2.01 % and 1.90 % respectively. On the other hand, countries such as Greece, Cyprus, Latvia, Luxembourg and Slovakia allocated to GBAORD less than 1% of their government expenditure.

Table 1: Total GBAORD in million euros, in euros per inhabitants, in million 1995 constant PPS, as a % of GDP and as a % of government expenditure, EU-25 countries, candidate countries, Iceland, Norway, US and JP — 1999 and 2004⁽¹⁾

	Mio EUR		EUR per inhabitants		Mio PPS constant 1995		as a % of GDP		as a % of government expenditure	
	1999	2004	1999	2004	1999	2004	1999	2004	1999	2004
EU-25	60 430 s	77 868 ps	134 s	:	54 676 s	62 231 ps	0.72 s	0.76 ps	1.51 s	:
EU-15	59 115 s	75 864 ps	158 s	:	52 247 s	59 763 ps	0.73 s	0.77 ps	1.54 s	1.62 ps
BE	1 382	1 774 p	135	171 p	1 199	1 407 p	0.59	0.63 p	1.17	1.27 p
CZ	:	459 p	:	45 p	:	708 p	:	0.53 p	:	1.20 p
DK	1 290 be	1 406	243 be	260	878 be	862	0.79 be	0.72	1.41 be	1.28
DE	16 322	16 717 p	199	203 p	13 232	13 052 p	0.81	0.75 p	1.69	1.62 p
EE	22	:	16	:	40	:	0.42	:	0.99	:
EL	365	499 p	34	:	411	493 p	0.31	0.30 p	0.63	0.58 p
ES	3 328	6 687 p	84	158 p	3 568	5 697 p	0.59	0.80 p	1.46	2.06 p
FR	12 892	15 498	220	261	11 022	12 568	0.94	1.00	1.78	1.90
IE	249	591	67	147	216	419	0.27	0.40	0.81	1.18
IT	6 079 p	9 152 p	107 p	:	5 896 p	7 605 p	0.55 p	:	1.12 p	:
CY	:	37 p	:	51 p	:	35 p	:	0.30 p	:	0.68 p
LV	14	18	6	8	28	32	0.21	0.18	0.49	0.50
LT	35	:	10	:	78	:	0.35	:	0.81	:
LU	:	72 r	:	159 r	:	49 r	:	0.28 r	:	0.61 r
HU	:	:	:	:	:	:	:	:	:	:
MT	35	:	93	:	45	:	0.96	:	:	:
NL	3 025	3 623	192	223	2 659	2 601	0.81	0.74	1.72	1.59
AT	1 281	1 500 p	160	184 p	1 120	1 210 p	0.64	0.63 p	1.20	1.26 p
PL	623	639 p	16	17 p	1 195	1 128 p	0.40	0.33 p	0.84	:
PT	644	915 p	63	87 p	777	932 p	0.57	0.68 p	1.32	1.40 p
SI	112	167 p	57	84 p	139	187 p	0.56	0.64 p	:	1.35 p
SK	77	102	14	19	171	161	0.40	0.31	0.70	0.64 p
FI	1 275	1 535	247	294	1 047	1 172	1.05	1.03	2.04	2.01
SE	1 725 p	2 624 p	195 p	292 p	1 308 p	1 900 p	0.73 p	0.94 p	1.21 p	1.64 p
UK	9 374	12 230 p	158	205 p	7 494	8 988 p	0.68	0.71 p	1.72	1.63 p
IS	113	110	409	381	86	80	1.43	1.19	3.30	:
NO	1 090	1 571	245	343	751	879	0.73	0.78	1.53	1.67
EEA	61 633 s	79 561 ps	136 s	:	55 559 s	63 194 ps	0.72 s	0.76 ps	1.51 s	:
RO	49	103 p	2	5 p	:	:	0.15	0.18	:	:
JP	26 020	27 467 p	206	:	15 413	18 567 p	0.62	0.72 p	:	:
US	72 844	98 431 p	268	:	61 509	87 090 p	0.84 e	1.04 p	:	:

(1) Exceptions to the reference year (2004):

2005: IT.

2003: LV, IS and JP.

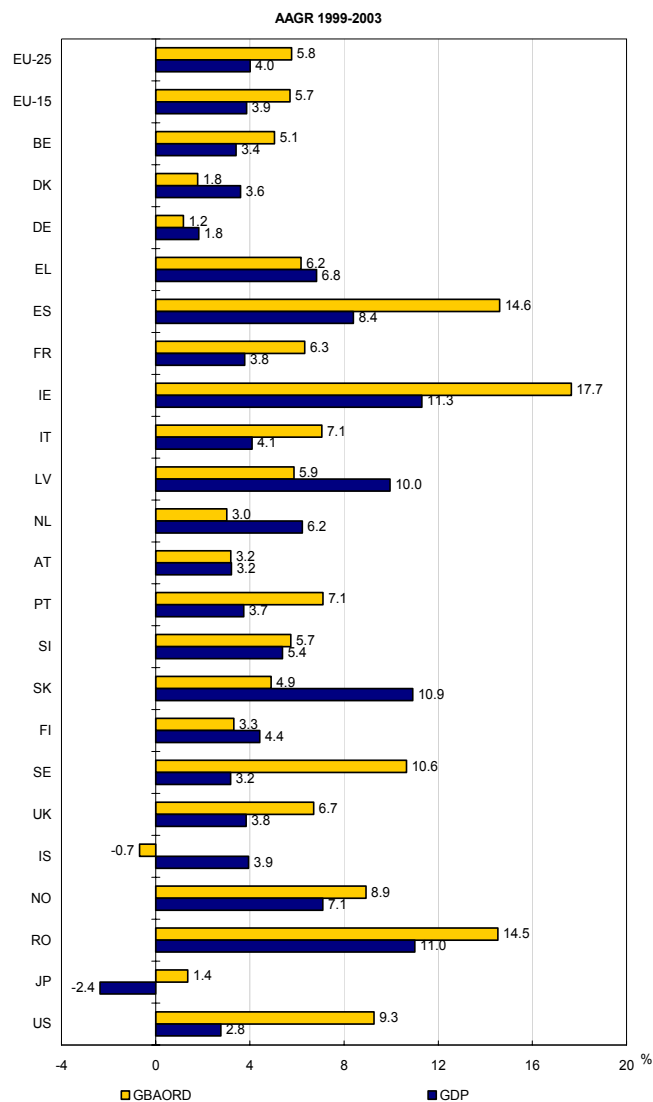
2002: FR.

Expressed in constant 1995 Purchasing Power Standard (PPS), Germany, France and the United Kingdom also led at European level.

However, still in constant prices, six countries saw the budget allocated to R&D decrease between 1999 and 2004: Denmark, Germany, the Netherlands, Poland, Slovakia and Iceland. As a comparison, only Iceland decreased taking into account current prices (million euros).

Figure 2 compares, by country, the annual average growth rate (AAGR) between 1999 and 2003 of total GBAORD (expressed in current prices) with that of GDP.

Figure 2: Average annual growth rate (AAGR) 1999-2003⁽¹⁾ of total GBAORD and of GDP, EU-25 countries, candidate countries, Iceland, Norway, US and JP



(1) AAGR has been calculated in current millions EUR. Exceptions to the reference period: FR 1999-2002, IT 1999-2005. Provisional data: IE, SE, IS and JP 2003; IT 2005. Eurostat estimations: EU-15 and EU-25.

GBAORD in the EU-25 increased at an annual average growth rate of 5.8 % whereas its GDP increased at 4.0%.

At the worldwide level, the United States increased its GBAORD most, with an AAGR of 9.3 %. The rates in Japan also increased but at a lower level (1.4 %). Japan's GDP however decreased during the same period (- 2.4 %).

Within the EU-25, all countries saw an increase of their GBAORD. Only Iceland saw its total GBAORD decline between 1999 and 2003.

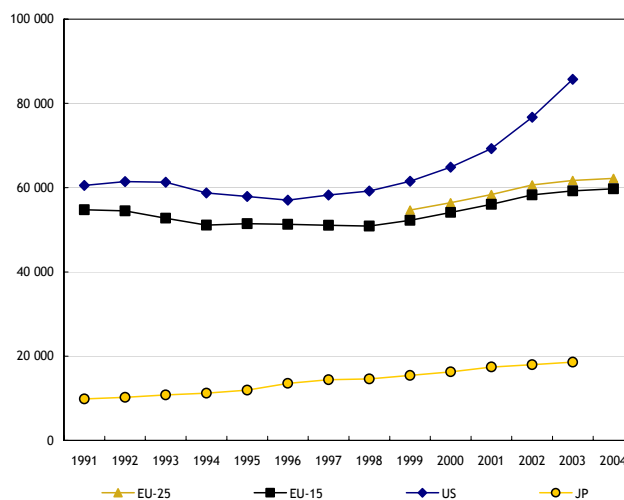
Countries where government support for R&D increased most were Ireland, Spain, Sweden and also Romania with an AAGR of 17.7 %, 14.6 %, 10.6 % and 14.5 % respectively.

Most of the countries saw their GBAORD increasing faster than their GDP. Nevertheless, the growth of GDP was higher than that of GBAORD in Denmark, Germany, Greece, Latvia, the Netherlands, Slovakia, Finland and also in Iceland.

As previously mentioned, Japan was the only country where GDP decreased between 1999 and 2003, at an annual rate of -2.4%. This explains a large part of the increase of its total GBAORD expressed as a percentage of GDP (Figure 1). If taking into account GBAORD in million constant 1995 PPS as shown in Figure 3, Japan's GBAORD increased over the entire 1991-2003 period, albeit at a slower pace.

The United States and the European Union showed similar trends until 2000 (Figure 3). In the following years, GBAORD grew faster in the United States.

Figure 3: Total GBAORD in million 1995 constant PPS, EU-25, EU-15, US and JP — 1991 to 2004



Eurostat estimations: EU-15 and EU-25. Provisional data: EU-15 and EU-25 2004, JP 2002 and 2003.

GBAORD by socio-economic objectives: Research financed from General University Funds (GUF) still growing in the EU-15

Table 2 displays GBAORD broken down by socio-economic objectives of the NABS — *Nomenclature for the analysis and comparison of scientific programmes and budgets*.

In 2003, the EU-15 allocated 32.1 % of its total GBAORD to “Research financed from General University Funds (GUF)”.

In Japan, the main socio-economic objective was “Research financed from GUF” too with a proportion of 34.8 % whereas it was “Defence” in the United States with more than half of its total GBAORD (53.7 %). As a comparison, “Defence” within the EU-15 came as second main objective but accounted only for only 15.1 % of total GBAORD.

Japan’s second main socio-economic objective of government R&D budget was energy (17.4 %). After “Defence”, the United States granted the largest part of their budget to “Protection and improvement of human health” (23.3 %).

At the level of the EU-15, “Research financed from GUF” and “Defence” were followed by the objectives “Non-oriented research” and “Industrial production and technology” with 15.0 % and 11.1 % of total GBAORD respectively.

Within the European Union, “Research financed from GUF” represented the largest share of total GBAORD in thirteen out of twenty countries for which data by socio-economic objectives of the NABS is available. It was also the most important objective in Norway.

The objective “Defence” was the leading socio-economic objective only in the United Kingdom with 31.9 % of its total GBAORD. However it represented 23.9 %, 23.0 % and 21.8 % in Spain, France and Sweden respectively. Hence, if “Defence” represented a substantial part of total European GBAORD, this is mainly due to the contribution made by this group of countries.

Table 2: Total GBAORD in million euros and GBAORD by NABS⁽¹⁾ as a % of total, EU-25 countries, candidate countries, Iceland, Norway, US and Japan — 2003

	Exploration and exploitation of the earth	Infrastructure and general planning of land-use	Control and care of the environment	Protection and improvement of human health	Production, distribution and rational utilization of energy	Agricultural production and technology	Industrial production and technology	Social structures and relationships	Exploration and exploitation of space	Research financed from GUF	Non-oriented research	Other civil research	Defence	Total civil GBAORD	Total GBAORD in mio eur
EU-25	:	:	:	:	:	:	:	:	:	:	:	:	:	:	75 629 s
EU-15	1.4 s	1.7 s	2.5 s	6.7 s	2.6 s	2.9 s	11.1 s	3.2 s	5.0 s	32.1 s	15.0 s	0.9 s	15.1 s	84.1 s	73 787 s
BE	0.7	1.4	2.1	1.7	2.1	2.1	32.5	4.1	9.1	17.9	23.0	3.0	0.3	97.7	1 683
CZ	3.1	3.7	4.1	7.4	1.8	4.6	10.1	2.3	0.8	24.2	26.0	8.5	3.3	96.7	422
DK	0.8	1.2	1.9	6.9 r	1.4	6.5 r	7.0	7.5 r	2.0	42.6 r	19.7 r	1.4 r	1.2	98.8	1 385
DE	1.7	1.8	3.3	4.3	3.0	2.0	12.4	5.0	5.0	38.9	16.3	0.6	6.5	93.5	17 101
EE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
EL	3.1 p	2.1 p	3.5 p	8.1 p	1.7 p	6.7 p	8.6 p	3.6 p	0.3 p	51.2 p	10.1 p	0.3 p	0.6 p	99.4 p	465 p
ES	1.1	3.5	1.9	7.5	1.7	3.8	21.4	0.4	3.0	24.9	6.0	0.9	23.9	76.1	5 742
FR	0.7	0.6	2.9	5.8	3.7	2.1	6.0	0.9	9.0	23.1	20.7	1.5	23.0	77.0	15 498
IE	2.3 p	-	2.1 p	5.5 p	-	12.0 p	27.6 p	0.8 p	-	36.7 p	12.9 p	-	-	100 p	477 p
IT	2.8 p	1.0 p	2.7 p	8.1 p	4.1 p	3.6 p	12.3 p	5.0 p	8.4 p	42.2 p	5.9 p	-	3.9 p	96.1 p	9 152 p
CY	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
LV	0.9	0.3	2.4	11.1	2.1	13.4	16.5	5.9	1.3	-	20.7	24.7	0.8	99.3	18
LT	1.6	5.2	5.2	10.3	0.9	5.4	15.6	8.7	-	-	-	47.0	0.1	99.9	39
LU	:	:	:	:	:	:	:	:	:	:	:	:	:	:	61 r
HU	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
MT	:	:	33.3	:	:	:	:	:	:	66.7	:	:	-	100	37
NL	0.4	6.2	2.8	3.7	3.4	4.5	9.6	2.9	3.4	46.0	11.7	3.8	1.8	98.2	3 407
AT	2.3	1.9	1.7	3.2	0.7	2.9	9.6	1.7	0.2	61.9	13.9	0.1	-	100	1 452
PL	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
PT	1.8 r	4.8 r	3.3 r	7.3 r	1.2 r	12.0 r	17.1 r	3.7 r	0.5 r	34.8 r	9.5 r	1.9 r	2.0 r	98.0 r	847 r
SI	0.5	2.6	2.0	5.2	0.9	3.5	23.0	3.4	-	4.4	54.4	-	0.1	99.9	140
SK	-	1.3	1.5	4.6	0.9	14.0	5.0	4.1	-	22.3	38.0	1.0	7.2	92.8	93
FI	1.0	2.0	2.0	6.6	4.6	6.1	26.9	5.5	1.8	27.1	13.6	-	2.9	97.1	1 453
SE	0.3 p	2.8 p	1.5 p	0.9 p	2.9 p	3.4 p	5.3 p	6.2 p	0.5 p	43.7 p	10.7 p	-	21.8 p	76.4 p	2 585 p
UK	2.1	1.4	1.8	13.7	0.3	3.3	5.2	3.2	1.6	19.8	15.3	0.5	31.9	68.1	12 154
IS	-	7.7 p	0.3 p	9.1 p	2.3 p	20.9 p	2.4 p	41.3 p	-	-	16.0 p	-	-	100 p	110 p
NO	2.0	2.2	2.4	7.5	2.3	9.4	7.7	6.8 r	2.0	37.7 r	13.2	-	6.9	94.2	1 535 r
EEA18	:	:	:	:	:	:	:	:	:	:	:	:	:	:	77 274 s
RO	0.4	2.5	2.0	2.8	1.7	6.2	17.6	1.1	2.5	-	38.2	23.8	1.4	96.0	84
JP	1.9	4.4	0.8	3.9	17.4	3.5	7.5	0.9	6.7	34.8	13.8	-	4.3	95.7	27 467
US	0.9 p	1.4 p	0.5 p	23.3 p	1.2 p	1.8 p	0.3 p	0.7 p	6.3 p	:	5.0 p	:	53.7 p	46.3 e	103 850 e

(1) NABS: Nomenclature for the analysis and comparison of scientific programmes and budgets
 Exceptions to the reference year: IT 2005; FR 2002; LT, MT and JP 2001.
 Eurostat estimations: EU-15 and EU-25.

“Non-oriented research” was the third socio-economic objectives in terms of importance within the EU-15. It was the first objective for three new Member States: the Czech Republic (26.0 %), Slovenia (54.4 %) and Slovakia (38.0 %). Noticeable shares were also registered in Belgium, Latvia and France.

Compared to the EU-15 average (11.1 %), some countries allocated a large part of their total government R&D budget to “Industrial production and technology”. This was especially the case in Belgium (32.5 %), Ireland (27.6 %) and Finland (26.9 %).

More than 10% of the total GBAORD was granted to “Agricultural production and technology” only in Ireland, Latvia, Portugal and Slovakia. Iceland spent more than one fifth of its budgets to this objective.

The Health R&D in government budget accounted for more than 10 % only in Latvia, Lithuania and in the United Kingdom.

The area where the EU-15 granted the smallest budgets in 2003 was “Other civil research”. Budgets allocated were also slight for the objectives “Exploration and exploitation of the earth”, “Infrastructure and general planning of land-use”,

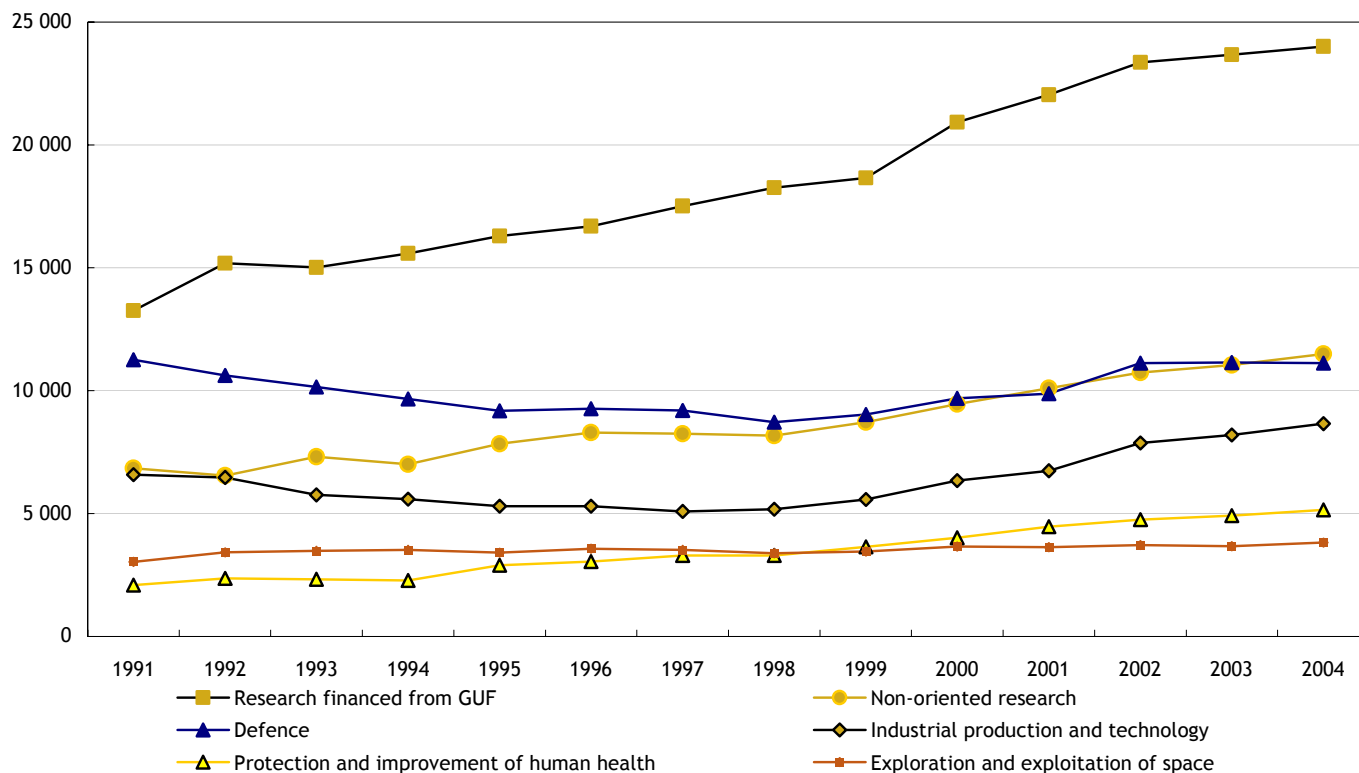
“Control and care of the environment”, “Production and rational utilization of energy”. With the exception of Malta for the “Control and care of the environment”, none of the countries allocated 10 % or more of its total GBAORD to one of these four objectives.

Figure 4 displays the trends of the main EU-15 socio-economic objectives expressed in million 1995 constant PPS.

These trends highlight two distinct periods. The first runs from 1991 to 1998 and the second from 1998 onwards. Between 1991 and 1998, only three objectives showed an increase: “Research financed from GUF”, “Non-oriented research” and “Protection and improvement of human health”. The objective “Exploration and exploitation of space” remained quite stable during this period.

During the period from 1998 onwards, all main socio-economic objectives increased. As shown in Table 3, “Industrial production and technology” expressed in current prices had the highest annual average growth rate (AAGR) between 1999 and 2003 with 10.1 %. Conversely, “Exploration and exploitation of space” was one of the main objectives that increased at the lowest rate between 1999 and 2003 (1.5 %).

Figure 4: Trends of main NABS⁽¹⁾ socio-economic objectives in million 1995 constant PPS, EU-15 — 1991 to 2004



(1) NABS: Nomenclature for the analysis and comparison of scientific programmes and budgets
Eurostat estimations: EU-15
Provisional data: 2004.

At the level of the EU-15, budgets increased for all socio-economic objectives except for “Production and rational utilization of energy” and “Other civil research”. The latter objectives declined between 1999 and 2003 with annual average growth rates of -1.4 % and -6.0 % respectively.

However, the European trends hide some fairly large differences between countries, as much in the total GBAORD as previously detailed, than by socio-economic objectives.

One main finding emerges from Table 3: apart from being the first socio-economic objective in the European Union, “Research financed from GUF” is the only category that increased in all countries between 1999 and 2003.

“Defence”, the second main objective at European level varies considerably among individual Member States, both in terms of trends and volume. Indeed, it sharply increased in some countries such as Denmark, Italy, Slovenia, Finland and Sweden whereas it decreased in Germany, Greece and in the Netherlands.

Government R&D budget trends for “Industrial production and technology” are also contrasted among countries, but at a lesser extent. For example, whilst the United Kingdom’s GBAORD allocations to this objective increased at an AAGR of 82.8 %, Slovakia’s decreased at a rate of 17.9 % between 1999 and 2003.

Conversely, “Production and rational utilization of energy”, decreasing at EU-15 level, increased between 1999 and 2003 in Greece, Italy, the Netherlands, Austria, Portugal and Slovenia. The AAGR even reached 17.3% in Portugal.

In the United States, the objectives that experienced the fastest increase between 1999 and 2003 were “Protection and improvement of human health” and “Defence” with AAGR of 12.4 % and 9.5 % respectively. On the other hand, GBAORD granted to “Infrastructure and general planning of land-use”, “Industrial production and technology” and to “Exploration and exploitation of space” decreased at annual average rates of around -4% over the same period.

Table 3: Annual average growth rate (AAGR) 1999-2003⁽¹⁾ of GBAORD by NABS chapters, EU-25 countries, candidate countries, Iceland, Norway, US and Japan

	Total GBAORD	Exploration and exploitation of the earth	Infrastructure and general planning of land-use	Control and care of the environment	Protection and improvement of human health	Production, distribution and rational utilization of energy	Agricultural production and technology	Industrial production and technology	Social structures and relationships	Exploration and exploitation of space	Research financed from GUF	Non-oriented research	Other civil research	Defence	Civil GBAORD
EU-25	5.8 s	:	:	:	:	:	:	:	:	:	:	:	:	:	:
EU-15	5.7 s	4.5 s	7.3 s	4.5 s	7.8 s	-1.4 s	1.8 s	10.1 s	6.9 s	1.5 s	6.1 s	6.1 s	-6.0 s	5.4 s	5.5 s
BE	5.1	-5.2	16.1	-0.8	11.4	-0.6	-4.6	13.5	3.2	-2.3	2.9	5.3	-9.0	1.0	5.1
CZ	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
DK	1.8	-8.1	-6.9	-10.6	12.0	-6.5	-4.0	-8.3	-1.6	-2.6	6.4	0.7	18.2	24.4	1.6
DE	1.2	-0.1	1.9	0.2	7.5	-3.5	-5.4	0.4	11.5	3.9	1.6	1.7	27.3	-4.8	1.7
EE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
EL	6.2	-4.2	-7.3	8.5	17.4	8.2	4.6	-0.9	0.8	-13.5	7.4	13.4	1.6	-3.4	6.3
ES	14.6	-0.5	57.2	4.6	26.8	-7.4	15.0	18.9	-4.1	1.9	14.5	15.2	12.0	12.5	15.3
FR	6.3	4.2	2.2	30.5	8.3	-2.9	-4.8	5.4	3.6	-0.5	15.2	4.5	-13.9	6.7	6.2
IE	17.7	83.5	:	28.1	37.4	:	2.9	14.6	-23.9	:	30.5	17.5	:	:	17.7
IT	7.1	15.1	26.8	7.0	9.6	5.0	15.8	16.3	8.5	6.1	5.1	-4.4	:	29.2	6.6
CY	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
LV	5.9	:	:	:	:	:	:	:	:	:	:	:	:	:	:
LT	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
LU	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HU	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
MT	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
NL	3.0	-18.1	15.7	-5.6	8.3	7.3	12.6	-6.1	0.3	3.7	3.7	5.1	3.5	-4.9	3.6
AT	3.2	-0.3	7.3	4.8	8.9	3.3	2.6	11.4	-1.8	:	1.9	3.5	:	:	3.2
PL	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
PT	7.1	11.0	-4.0	0.4	10.4	17.3	6.9	9.8	9.8	2.8	7.0	11.9	-6.9	13.3	7.0
SI	5.7	0.6	8.3	11.7	31.0	5.3	2.8	15.2	9.0	:	13.7	0.8	:	54.2	5.7
SK	4.9	:	8.6	6.4	0.6	-12.6	6.3	-17.9	-9.6	:	10.0	10.9	-35.7	:	3.0
FI	3.3	-8.7	-1.4	0.3	2.0	-4.3	5.0	2.3	5.1	-5.5	5.0	5.7	:	24.2	2.9
SE	10.6	-31.7	-8.6	8.8	-5.2	-7.4	27.5	18.3	10.1	-29.4	6.5	:	:	45.3	6.0
UK	6.7	20.7	2.2	-0.7	4.0	-2.8	0.2	82.8	4.0	-3.2	8.2	15.1	15.9	2.1	9.2
IS	-0.7	:	4.2	-16.7	4.2	-6.9	-9.1	-2.9	3.0	:	:	1.7	:	:	-0.7
NO	8.9	5.2	7.4	3.4	10.1	11.9	11.0	-2.7	7.8	2.8	7.7	23.0	:	16.2	8.5
EEA	5.8 s	:	:	:	:	:	:	:	:	:	:	:	:	:	:
RO	14.5	-38.7	-15.7	8.1	26.8	8.1	0.1	-0.8	9.5	30.5	:	27.7	66.2	1.6	14.8
JP	1.4	:	:	:	:	:	:	:	:	:	:	:	:	0.4	1.4
US	9.3	2.0	-4.1	1.7	12.4	4.1	5.2	-4.1	1.5	-4.0	:	4.3	:	9.5	9.0

(1) AAGR has been calculated in current millions EUR. Exceptions to the reference period: FR 1999-2002, IT 1999-2005
Provisional data: IE, SE, IS and JP 2003; IT 2005
Eurostat estimations: EU-15 and EU-25.

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Definitions

GBAORD

Government budget appropriations or outlays on R&D (GBAORD) are all appropriations allocated to R&D in central government or federal budgets and therefore refer to budget provisions, not to actual expenditure. Provincial or state government should be included where the contribution is significant. Unless otherwise stated, data include both current and capital expenditure and cover not only government-financed R&D performed in government establishments, but also government-financed R&D in the business enterprise, private non-profit and higher education sectors, as well as abroad (*Frascati Manual*, § 496). Data on actual R&D expenditure, which are not available in their final form until some time after the end of the budget year concerned, may well differ from the original budget provisions. This and further methodological information can be found in the *Frascati Manual*, OECD, 2002.

These data are assembled by national authorities using data for public budgets. The procedure consists of a two step process:

- within the budget statistics, it is first necessary to identify the budget items that involve R&D;
- the R&D content of these budget items must then be measured or estimated.

GBAORD data are measuring government support to R&D activities, or, in other words, how much priority Governments place on the public funding of R&D. These are difficult to compile because they are not obtained through surveys, but in most countries national budget data is used as administrative data source. Problems of data compilation are due to the fact that national budgets have their own terminology and methodology and therefore often do not match with the Eurostat/OECD methodology contained in the 'Proposed standard Practice for surveys of research and experimental development' (*Frascati Manual*, 2002).

Eurostat is collecting aggregated data which are checked and processed, and compared with other data sources such as the MSTI – OECD.

Then, all the necessary aggregates are calculated (or estimated). For data in national currency, ECU/EUR current, current and constant 1995 PPS, EU aggregates are calculated as the sum of corresponding countries. For 2004, EU aggregates are estimated using provisional data and estimating the annual average growth rate.

Rules on statistical compilation

Until 2003, data on GBAORD was collected under gentleman's agreement. From the reference year 2004 onwards the data collection is based on the Commission Regulation on statistics on science and technology No 753/2004 (OJ L 118, page 23 from 23 April 2004).

Breakdown by socio-economic objectives – NABS

Government R&D appropriations or outlays on R&D are broken down by socio-economic objectives on the basis of NABS — *Nomenclature for the analysis and comparison of scientific programmes and budgets, Eurostat 1994*. The 1993 version of NABS applies from the 1993 final and the 1994 provisional budgets onwards. Not all countries collect the data directly by NABS: some follow other compatible classifications (OECD, Nordforsk), which are then converted to the data compiled in accordance to NABS classification (see Table 8.2 of the *Frascati Manual*).

Exceptions

No GBAORD data exist for Luxembourg before 2000 and therefore EU aggregates exclude Luxembourg before that year. From 2000 onwards, Luxembourg is included only for the total GBAORD.

No GBAORD data exist for Cyprus (until 2003) and Hungary, therefore EU-25 and EEA exclude them.

Time series

The analysis in the present Statistic in focus covers the period 1991 to 2004, with 2004 being provisional.

Sources

The basic data are forwarded to Eurostat by the national administrations of Member States and other countries involved. Data for Japan and the United States come from the OECD – *Main Science and Technology Indicators* (MSTI).

Abbreviations and symbols

:	Not available
-	Not applicable or real zero or zero by default
e	Estimated value
b	Break in series
p	Provisional value
r	Revised value
s	Eurostat estimate


AAGR	Annual Average Growth Rate
GUF	General University Fund
PPS	Purchasing Power Standard


Data presented in this Statistics in Focus shows the data availability in Eurostat's reference database as of 20 October 2005.

Further information:


Data: [EUROSTAT Website/Home page/Science and technology/Data](#)


Science and technology


 Research and development

 Statistics on research and development

 **Government budget appropriations or outlays on R&D**

 Annual provisional data on GBAORD by NABS socio-economic objectives at the chapter level

 Annual final data on GBAORD by NABS socio-economic objectives at the chapter level

 Annual final data on total GBAORD as a % of total general government expenditure, for total NABS socio-economic objectives only

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European Statistical Data Support:

Eurostat set up with the members of the 'European statistical system' a network of support centres, which will exist in nearly all Member States as well as in some EFTA countries.

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