ISEI - IVEI

Rs7. GRADUATES IN SCIENCE, MATHEMATICS AND TECHNOLOGY

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IRAKAS-SISTEMA EBALUATU ETA IKERTZEKO ERAKUNDEA
INSTITUTO VASCO DE EVALUACIÓN E INVESTIGACIÓN EDUCATIVA

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SHARE OF THE POPULATION (PERSONS PER THOUSAND INHABITANTS) AGED 20-29 WITH A TERTIARY QUALIFICATION (ISCED 5A, 5B AND 6)[1] IN SCIENCE, MATHEMATICS AND TECHNOLOGY IN THE YEAR INDICATED.

European Union Objective for 2010: Increase the total number of graduates by 15% and reduce the gender imbalance.

In order to boost economic development and scientific research the European Union considers it is vitally important to increase the number of graduates in Mathematics, Science and Technology

The European Union also aims to reduce the gender imbalance among science and technology graduates. Considerably fewer women choose to study and complete these courses than men.

In 2006, the average share of graduates in Science, Mathematics and Technology in EU 25 was 13.3‰, although the integration of the 2 accession countries caused it to drop slightly to 13‰. Inter-country variability, however, is very wide, ranging from 4.3‰ in Cyprus to 21.4‰ in Ireland, with 10.7‰ in Germany, 11.5‰ in Spain and 15‰ in Sweden.

In the Basque Country, the 1992-2006 period shows a constant, regularly positive evolution of this indicator, passing from 5.9‰ graduates in Science, Mathematics and Technology in 1992 to 27.8‰ in 2006[2]. These latest figures are the highest of all EU countries, probably due to the numerical importance of vocational training in technology (ISCED 5B) in the Basque Country.

It has been found that over the years the highest shares of graduates in Mathematics, Science and Technology in the Basque Country are at advanced vocational training level, followed by 5-year tertiary courses, 3-year tertiary courses and doctorates respectively.

The breakdown by sex is also illuminating. In 2006 the share of women graduates in Science, Mathematics and Technology reached 16.8‰, 21.3 points lower than the share of men (38.1‰). Therefore, although the indicator is favourable, sex differences must be addressed to encourage women to graduate in science and technology fields. However, the higher the level of education, the smaller the sex differences.

[1] ISCED 5A level corresponds to university qualifications, 5B to qualifications in advanced education cycles and 6 to doctorates.
[2] EUSTAT data for the Basque Country calculated with EUROSTAT criteria.
Since 1996/97 to 2003/04 doctoral theses have been included only from the UPV (the Basque Country University).
Except for the 2005/06 academic year, which used population forecasts, the other courses used the updated population.
Since 2004/05 doctoral theses from Mondragón have been included. At Deusto, for the moment, there are no theses in science or technology.

Between 2005-06 the share of graduates in Science, Mathematics and Technology varied greatly in the Spanish regions (from 1.7‰ in Melilla to 16.9‰ in Castilla y Leon). The share of tertiary graduates (7‰) was higher than the share of those completing advanced vocational training cycles (4.1‰) except in the Basque Country where the share was similar with 11.7‰ completing cycles and 13.7‰ completing university. With regard to sex differences, the higher the level of education, the smaller the difference.

EU countries show a positive trend in the share of tertiary education graduates in Science, Mathematics and Technology.

Comparison of EU 27 graduate numbers (13‰) in Mathematics, Science and Technology in 2006 with world powers such as the United States and Japan (10.3‰ and 14.4‰ respectively) shows that the EU is 2.7 points below the United States and 1.4 points below Japan.

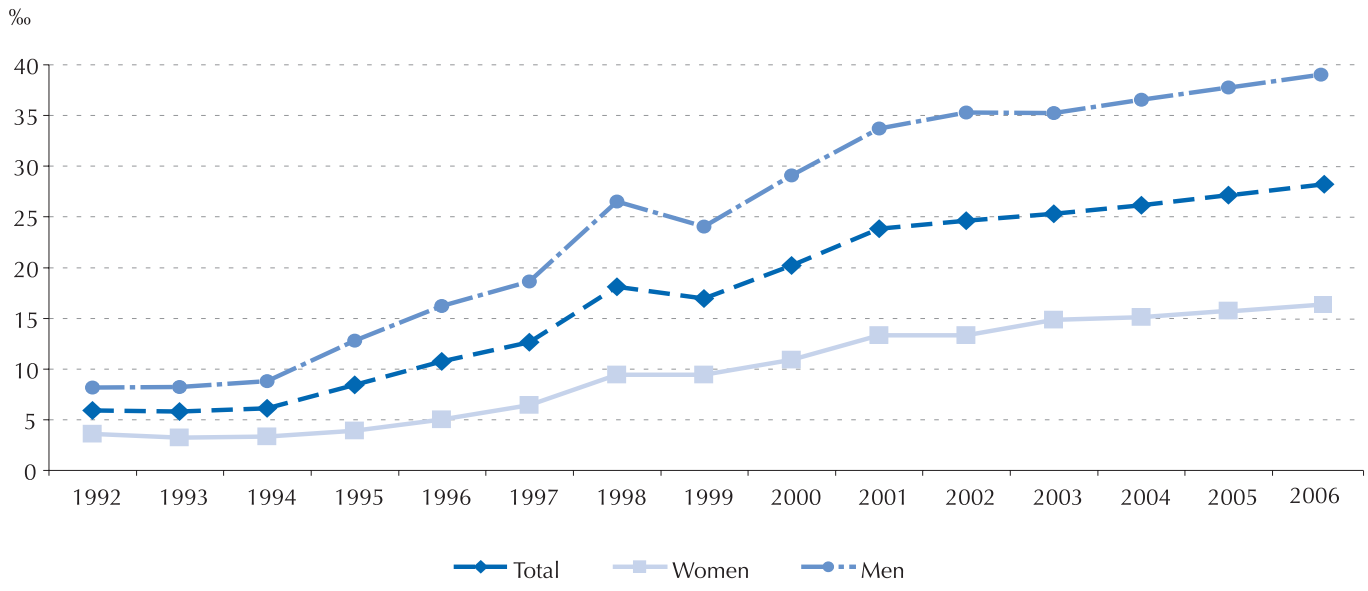
In EU member states, the Spanish regions and the Basque Country there is always twice the number of men to women and the trend continues, which suggests that greater effort is needed before things will change.

Table and Graph Rs7.1:

Population aged 20-29 (persons per thousand inhabitants) with a tertiary qualification (ISCED 5A, B AND 6) in Mathematics, Science and Technology. Total, by sex. CAE (Basque Country Regional Government) data

Year	Total No. Graduates	Population aged 20-29	SHARE PER THOUSAND		
			TOTAL	WOMEN	MEN
1992	2,118	358,722	**5.9**	3.6	8.1
1993	2,064	358,762	**5.8**	3.2	8.2
1994	2,185	357,232	**6.1**	3.3	8.8
1995	3,002	356,288	**8.4**	3.9	12.8
1996	3,768	351,728	**10.7**	5.0	16.2
1997	4,453	352,154	**12.6**	6.4	18.6
1998	6,349	350,143	**18.1**	9.4	26.5
1999	5,830	344,980	**16.9**	9.4	24.0
2000	6,871	339,699	**20.2**	10.9	29.1
2001	7,921	333,405	**23.8**	13.3	33.7
2002	7,980	324,688	**24.6**	13.3	35.3
2003	7,940	314,252	**25.3**	14.8	35.2
2004	7,811	298,907	**26.1**	15.1	36.6
2005	7,755	291,695	**26.6**	15.4	37.2
2006	7,587	273,083	**27.8**	16.8	38.1

Note: Except for 2005/06, where population forecasts were used, the other years are based on the updated population



Source: EUSTAT

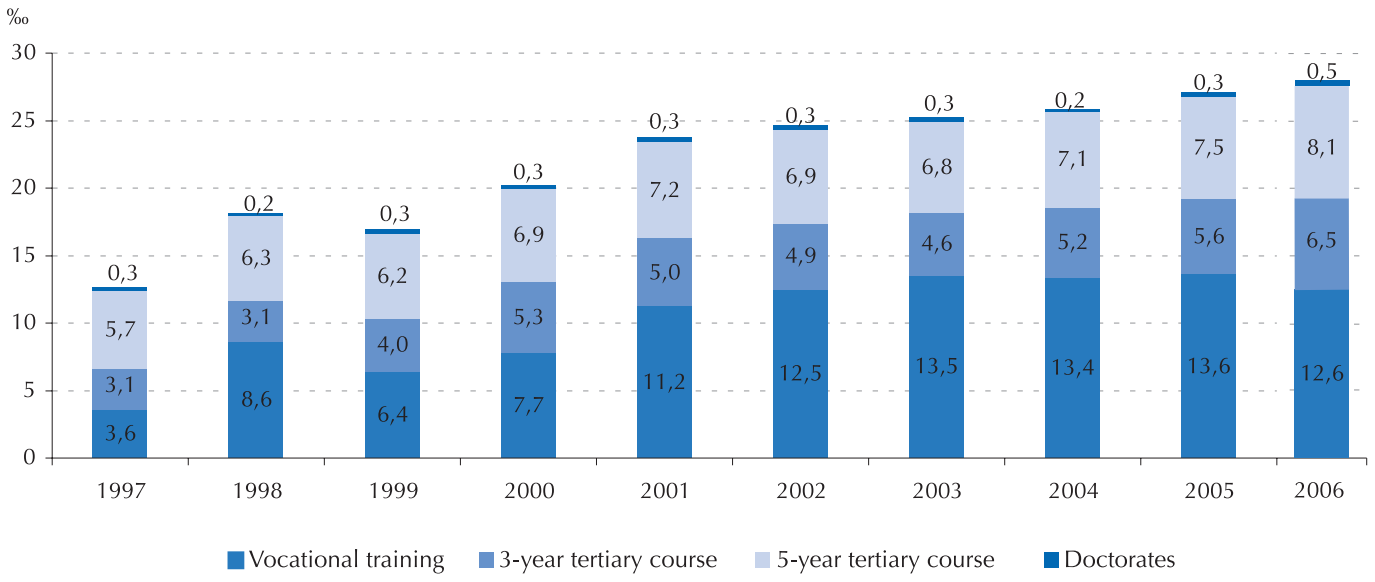
Table Rs7.2:

Population aged 20-29 (persons per thousand inhabitants) with a tertiary qualification (ISCED 5A, B AND 6) in Mathematics, Science and Technology by type of qualification and sex.

	Vocational training			3-year course			5-year course			Doctorates		
	Men	Women	Difference	Men	Women	Difference	Men	Women	Difference	Men	Women	Difference
1996-97	6.4	0.6	**5.8**	4.9	1.2	**3.7**	6.9	4.4	**2.6**	0.4	0.2	**0.2**
1997-98	13.9	3.1	**10.8**	4.9	1.2	**3.7**	7.6	5.0	**2.6**	0.2	0.1	**0.0**
1998-99	10.3	2.3	**8.0**	5.9	1.9	**4.0**	7.5	4.9	**2.6**	0.3	0.3	**0.0**
1999-00	12.3	2.9	**9.4**	8.1	2.4	**5.8**	8.3	5.5	**2.8**	0.4	0.2	**0.2**
2000-01	17.5	4.7	**12.8**	7.4	2.6	**4.8**	8.5	5.8	**2.7**	0.4	0.3	**0.1**
2001-02	19.2	5.3	**13.9**	7.2	2.5	**4.7**	8.4	5.3	**3.1**	0.4	0.2	**0.2**
2002-03	20.4	6.2	**14.2**	6.6	2.6	**4.0**	8.0	5.6	**2.3**	0.3	0.3	**0.0**
2003-04	20.0	6.3	**13.7**	7.5	2.8	**4.7**	8.5	5.6	**2.8**	0.2	0.1	**0.0**
2004-05	20.3	6.0	**14.3**	7.9	3.1	**4.8**	8.8	5.9	**2.8**	0.3	0.3	**0.0**
2005-06	19.3	5.5	**13.8**	8.7	4.1	**4.6**	9.5	6.7	**2.8**	0.7	0.4	**0.3**

Graph Rs7.2.1:

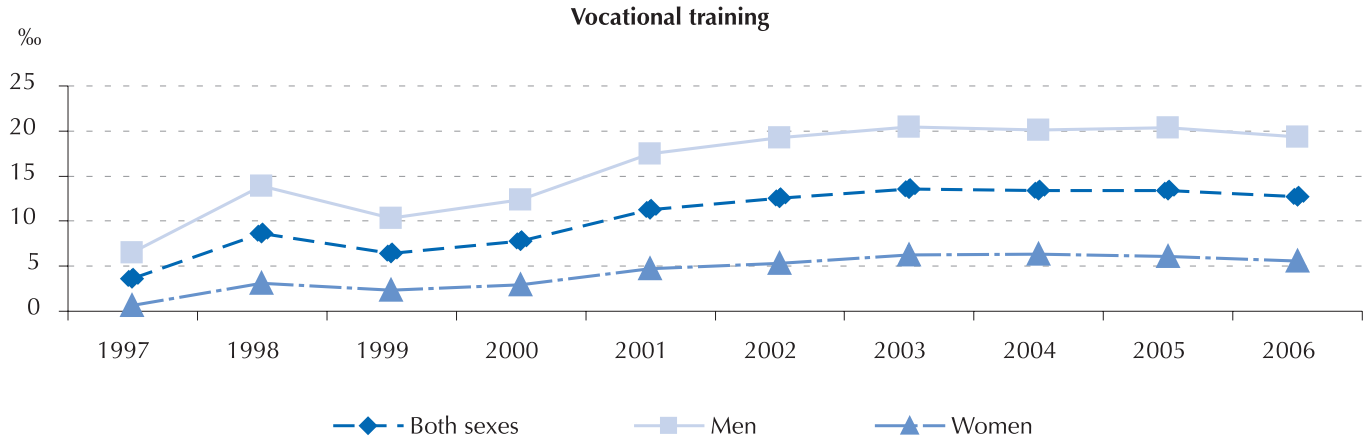
Population aged 20-29 (persons per thousand inhabitants) with a tertiary qualification (ISCED 5A, B AND 6) in Mathematics, Science and Technology by type of qualification.

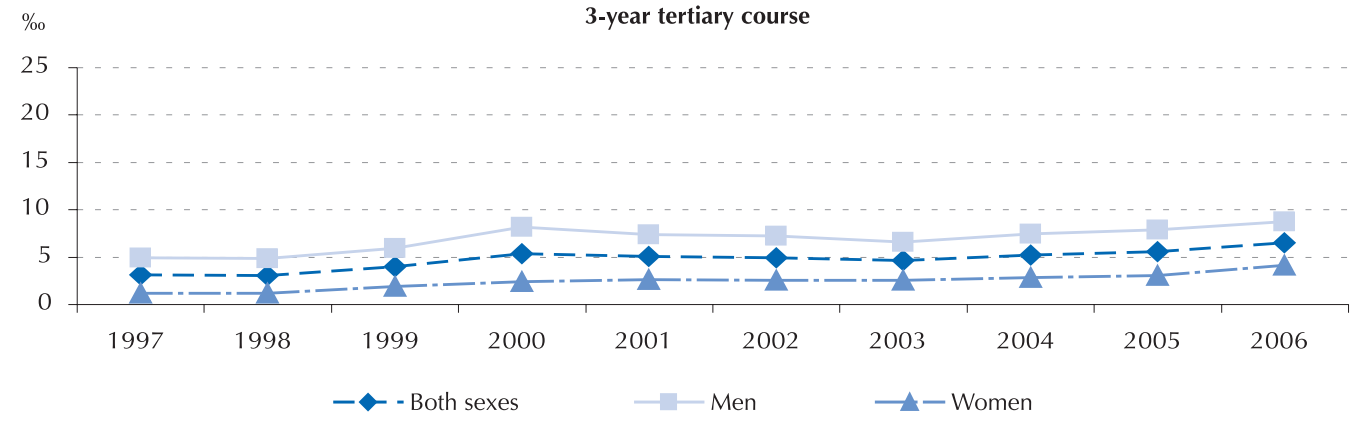


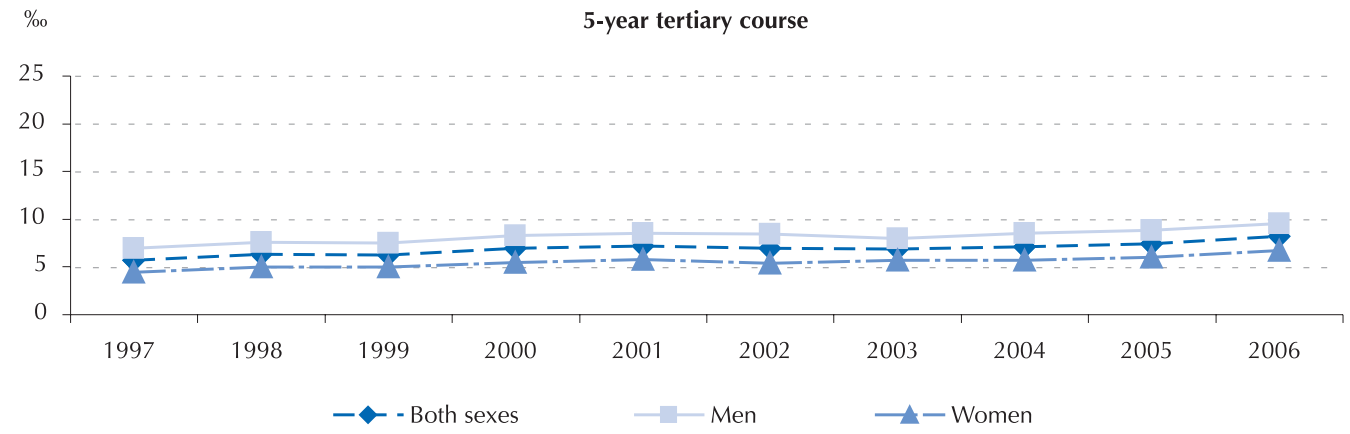
Source: EUSTAT

Graph Rs7.2.2:

Population aged 20-29 (persons per thousand inhabitants) with a tertiary qualification (ISCED 5A, B AND 6) in Mathematics, Science and Technology by type of qualification and sex.





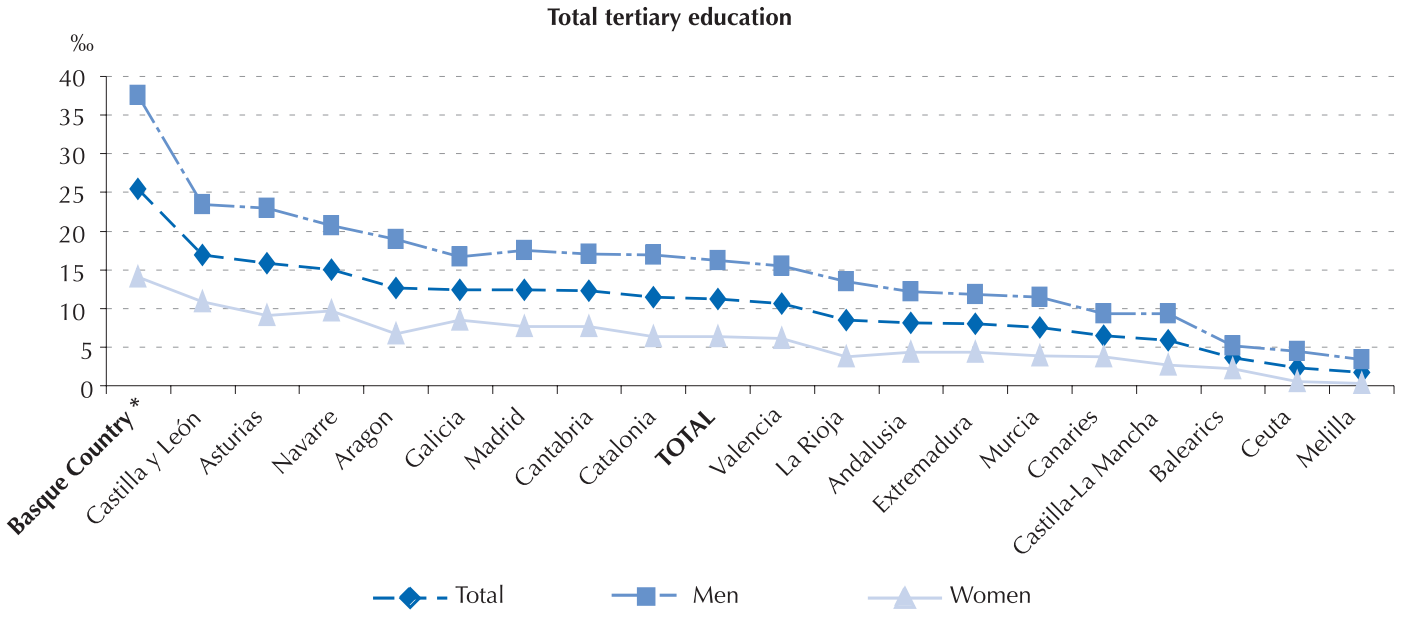


Source: EUSTAT

Table and Graph Rs7.3:

Share of tertiary education graduates in Science and Technology (persons per 1000 inhabitants) aged 20-29 by education level and sex. 2005-06.

	Tertiary education			Vocational training			University courses		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
TOTAL	**11.1**	**16.1**	**6.3**	**4.1**	**6.8**	**1.4**	**7.0**	**9.2**	**5.0**
Andalusia	8.1	12.1	4.3	3.0	5.2	0.9	5.1	6.8	3.3
Aragon	12.6	18.9	6.6	5.3	9.4	1.4	7.3	9.5	5.2
Asturias	15.8	22.9	9.0	6.8	11.2	2.5	9.0	11.7	6.5
Balearics	3.6	5.1	2.1	1.2	2.3	0.2	2.4	2.8	2.0
Canaries	6.4	9.2	3.7	2.4	3.9	0.9	4.0	5.3	2.8
Cantabria	12.2	17.0	7.6	5.3	8.2	2.5	6.9	8.8	5.0
Castilla y León	16.9	23.4	10.8	6.1	9.7	2.8	10.8	13.7	8.0
Castilla-La Mancha	5.8	9.2	2.6	3.0	5.2	0.9	2.8	4.0	1.6
Catalonia	11.4	16.8	6.3	3.9	6.6	1.3	7.5	10.1	5.0
Ceuta	2.3	4.4	0.5	2.3	4.2	0.5	0.1	0.2	0.0
Basque Country*	**25.4**	**37.5**	**14.0**	**11.7**	**19.5**	**4.4**	**13.7**	**17.9**	**9.6**
Extremadura	7.9	11.7	4.3	3.0	5.3	0.9	4.9	6.4	3.4
Galicia	12.4	16.6	8.4	5.8	9.1	2.5	6.7	7.5	5.8
La Rioja	8.4	13.4	3.7	4.7	8.5	1.2	3.7	4.9	2.6
Madrid	12.4	17.4	7.6	3.3	5.4	1.1	9.1	12.0	6.4
Melilla	1.7	3.3	0.2	1.7	3.3	0.2	0.0	0.0	0.0
Murcia	7.5	11.4	3.8	2.9	5.1	1.0	4.5	6.3	2.9
Navarre	14.9	20.6	9.6	6.3	11.6	1.3	8.6	9.0	8.3
Valencia	10.6	15.4	6.0	3.2	5.7	0.8	7.4	9.6	5.2

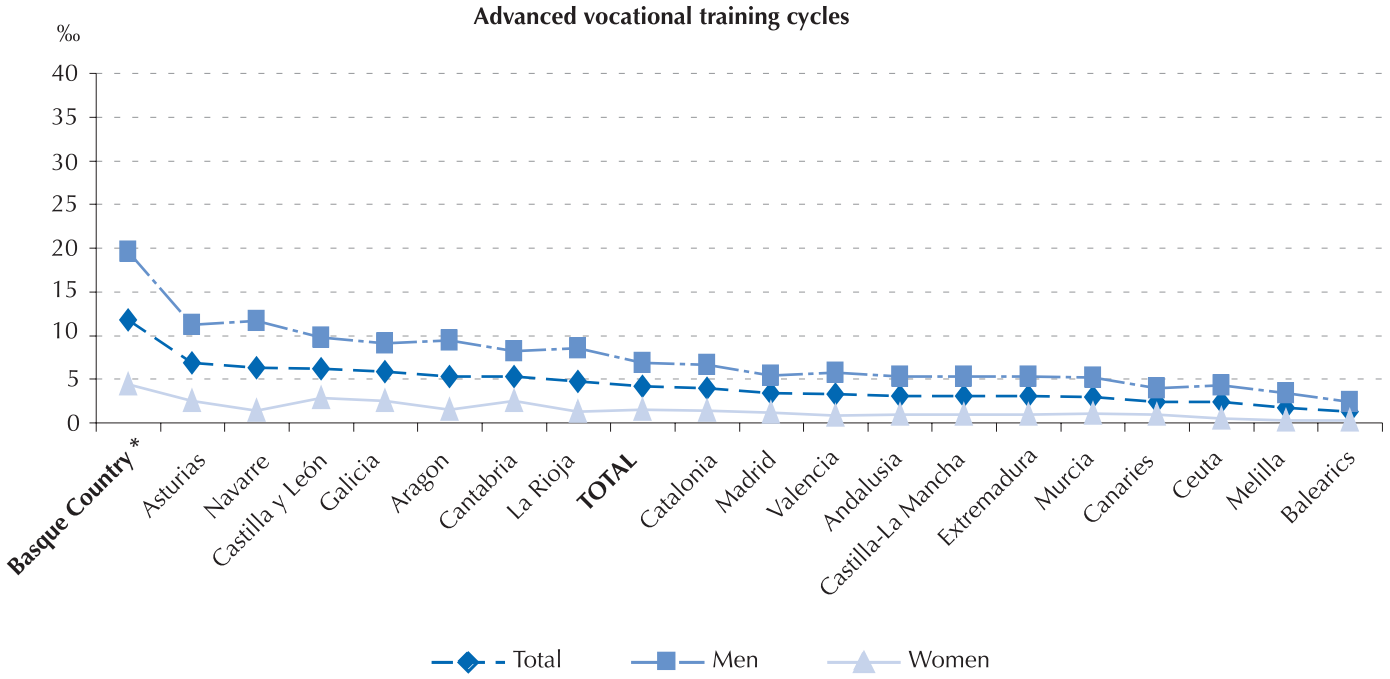


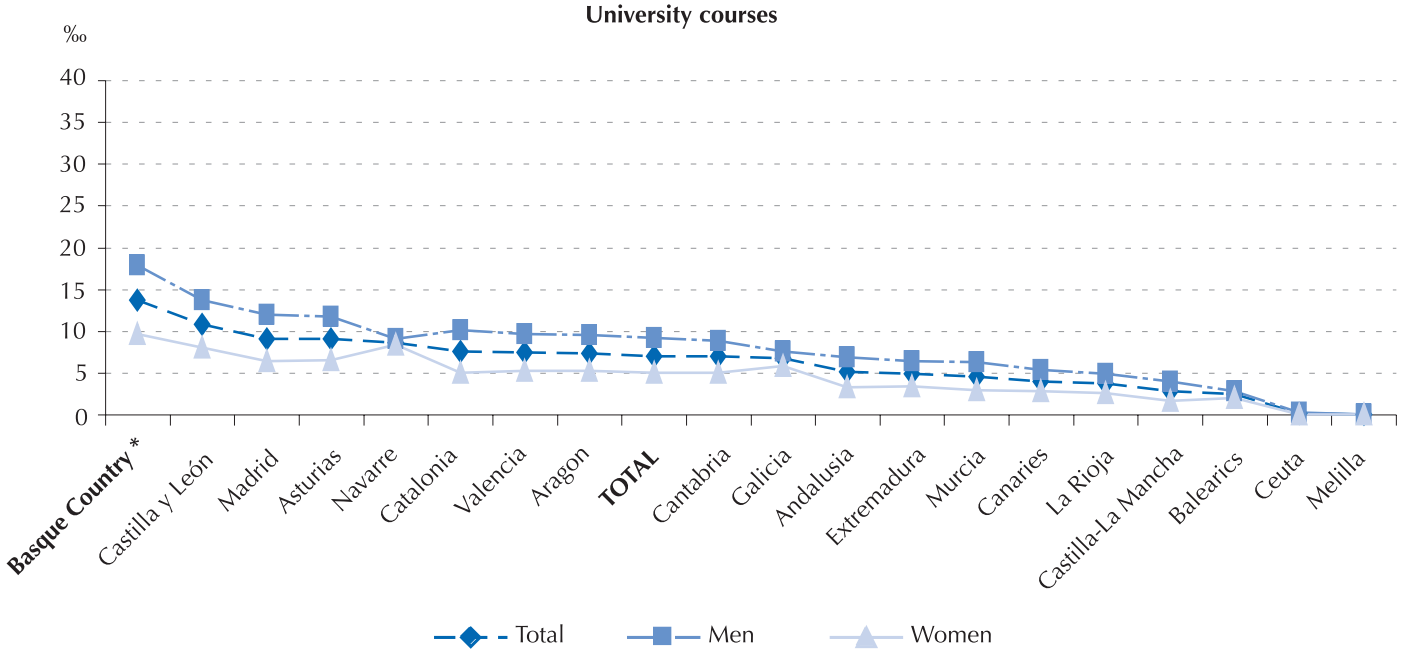
* EUSTAT data for the Basque Country

Source: Spanish Ministry of Education and Science's statistics department using EUROSTAT methodology.

Table and Graph Rs7.3. (cont.):

Share of tertiary education graduates in Science and Technology (persons per 1000 inhabitants) aged 20-29 by education level and sex. 2004-06.





* EUSTAT data for the Basque Country

Source: Spanish Ministry of Education and Science's statistics department using EUROSTAT methodology.

Tabl3 Rs7.4:

Share of tertiary education graduates in Science and Technology (persons per 1000 inhabitants) aged 20-29 in EU countries.

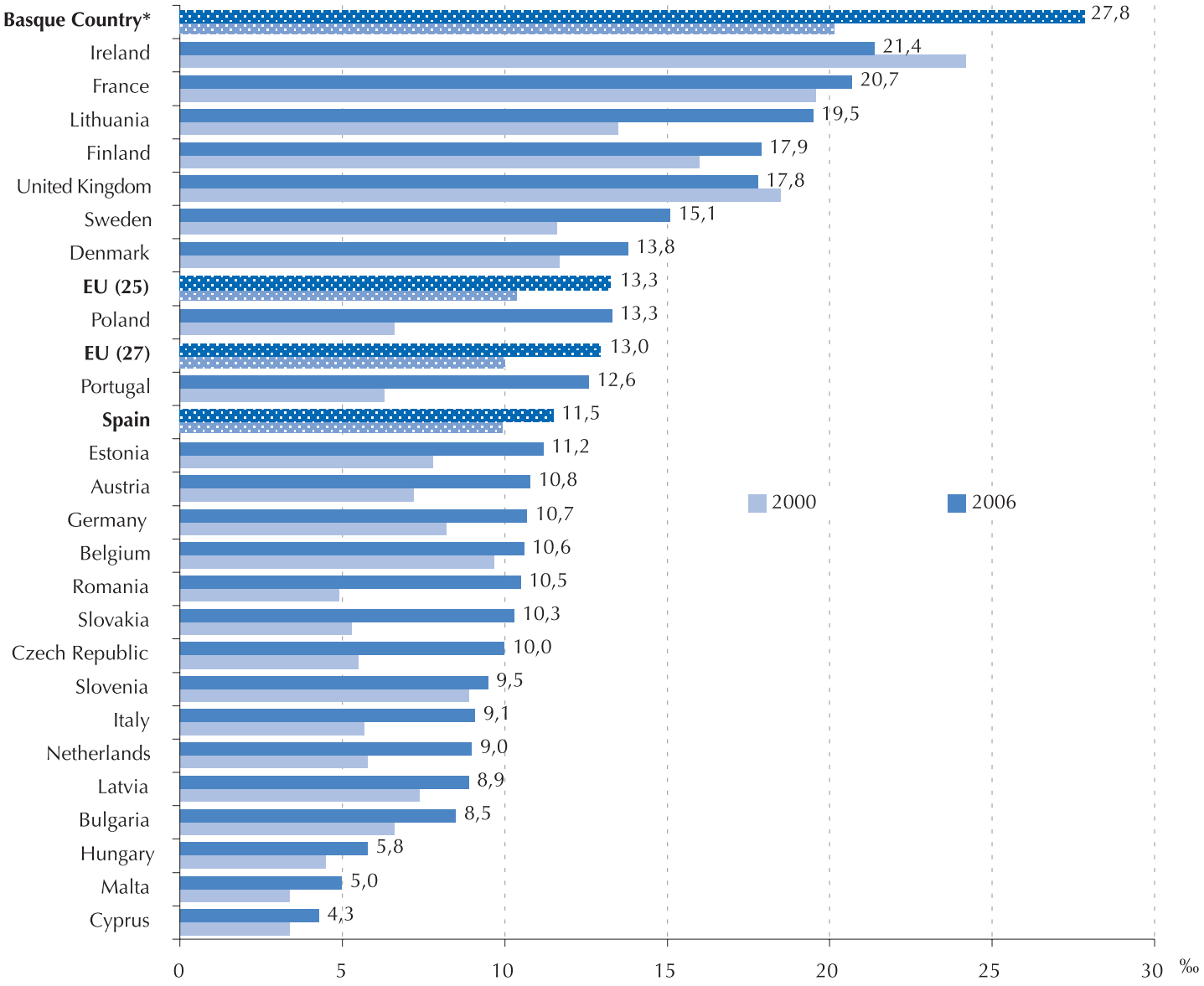
	1998	1999	2000	2001	2002	2003	2004	2005	2006
EU (27)	**8.8**	**9.3 (s)**	**10.0 (s)**	**10.6 (s)**	**11.1 (s)**	**12.1 (s)**	**12.5 (s)**	**13.2**	**13.0**
EU (25)	**9.1**	**9.6**	**10.4 (s)**	**11.0 (s)**	**11.4 (s)**	**12.3 (s)**	**12.7 (s)**	**13.5**	**13.3**
Germany	8.8	8.6	8.2	8.0	8.1	8.4	9.0	9.7	10.7
Austria	7.9 (i)	6.9 (i)	7.2 (i)	7.3	7.9	8.2	8.7	9.8	10.8
Belgium	:	:	9.7 (i)	10.1 (i)	10.5 (i)	11.0 (i)	11.2 (i)	10.9 (i)	10.6 (i)
Bulgaria	5.5	6.5	6.6	7.5	11.7	8.3	8.5	8.6	8.5
Cyprus	:	3.8 (i)	3.4 (i)	3.7 (i)	3.8 (i)	3.6 (i)	4.2 (i)	3.6 (i)	4.3 (i)
Denmark	8.1	8.2	11.7	12.2	11.7	12.5	13.8	14.7	13.8
Slovakia	4.3 (i)	5.1	5.3	7.5	7.8	8.3	9.2	10.2	10.3
Slovenia	8.0	8.4	8.9	8.2	9.5	8.7	9.3	9.8	9.5
Spain	**8.0**	**9.5**	**9.9**	**11.2**	**11.9**	**12.6**	**12.5**	**11.8**	**11.5**
Estonia	3.3	6.3	7.8 (i)	8.3 (i)	8.0 (i)	8.8	8.9	12.1	11.2
Basque Country*	**18.1**	**16.9**	**20.2**	**23.8**	**24.6**	**25.3**	**26.1**	**26.6**	**27.8**
Finland	15.9	17.8	16.0	17.2	17.4	17.4	:	17.7	17.9
France	18.5	19.0	19.6	20.1	:	22.0	:	22.5	20.7
Greece	:	:	:	:	:	:	8.0	10.1	:
Hungary	5.0	5.1	4.5	3.7	4.8	4.8	5.1 (i)	5.1	5.8
Ireland	22.9	23.8	24.2	22.9	20.5	24.2	23.1	24.5	21.4
Italy	5.1	5.5	5.7	6.2	7.4	9.1	10.8	12.4	9.1 (i)
Latvia	6.1	6.4	7.4	7.6	8.1	8.6	9.4	9.8	8.9
Lithuania	9.3	11.7	13.5	14.8	14.6	16.3	17.5	18.9	19.5
Luxembourg	1.4 (i)	:	1.8 (i)	:	:	:	:	:	:
Malta	1.3	3.9	3.4	2.7	3.1	3.6	:	3.4	5.0
Netherlands	6.0	5.8	5.8	6.1	6.6	7.3	7.9	8.6	9.0
Poland	4.9	5.7	6.6 (i)	7.6	8.3	9.0	9.4	11.1	13.3
Portugal	5.2	6.1	6.3	6.6	7.4	8.2	11.0 (i)	12.0	12.6
United Kingdom	15.5	16.0	18.5	20.0 (i)	20.3	21.0	18.1	18.4	17.8
Czech Republic	4.6	5.0	5.5	5.6	6.0	6.4	7.4	8.2	10.0
Romania	4.5 (i)	4.4 (i)	4.9 (i)	5.3 (i)	5.8 (i)	9.4	9.8	10.3	10.5
Sweden	7.9	9.7	11.6	12.4	13.3	13.9	15.9 (i)	14.4	15.1

(:) Data not available
(s) EUROSTAT estimate
(i) See explanatory texts: ttp://europa.eu.int/estatref/info/sdds/en/strind/innore_ir04.htm
(*) EUSTAT data for the Basque country

Source: EUROSTAT

Graph Rs7.4:

Share of tertiary education graduates in Science and Technology (persons per 1000 inhabitants) aged 20-29 in EU countries. 2000-2006.



(*) EUSTAT data for the Basque country
(:) No data available for Greece or Luxembourg

Source: EUROSTAT

Table Rs7.5:

Share of tertiary education graduates in Science and Technology (persons per 1000 inhabitants) aged 20-29 in EU countries by sex. 2006.

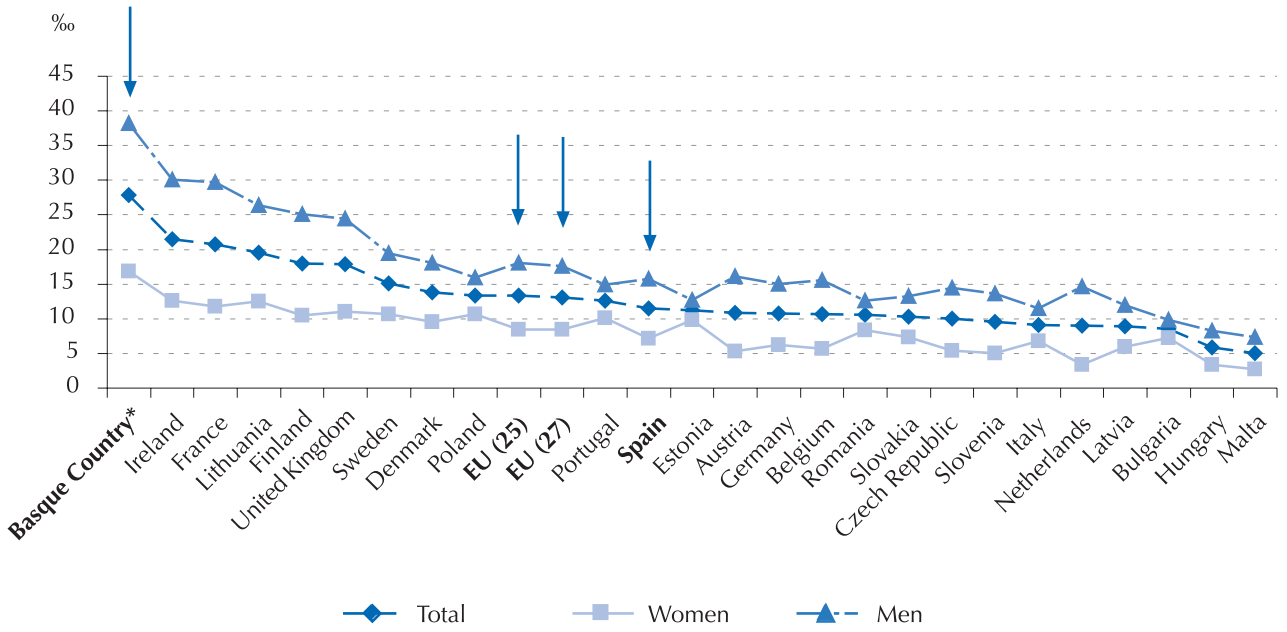
	Both sexes	Men	Women	Difference
EU (27)	**13.0**	**17.6**	**8.4**	**9.2**
EU (25)	**13.3**	**18.0**	**8.4**	**9.6**
Germany	10.7	15.0	6.2	8.8
Austria	10.8	16.1	5.3	10.8
Belgium	10.6 (i)	15.5 (i)	5.6 (i)	9.9 (i)
Bulgaria	8.5	9.8	7.2	2.6
Cyprus	4.3 (i)	5.4 (i)	3.1 (i)	2.3 (i)
Denmark	13.8	18.0	9.5	8.5
Slovakia	10.3	13.2	7.3	5.9
Slovenia	9.5	13.6	5.0	8.6
Spain	**11.5**	**15.7**	**7.1**	**8.6**
Estonia	11.2	12.7	9.8	2.9
Basque Country*	**27.8**	**38.1**	**16.8**	**21.3**
Finland	17.9	25.0	10.4	14.6
France	20.7	29.7	11.7	18.0
Greece	:	:	:	:
Hungary	5.8	8.2	3.3	4.9
Ireland	21.4	30.0	12.6	17.4
Italy	9.1 (i)	11.5 (i)	6.7 (i)	4.8 (i)
Latvia	8.9	11.9	5.9	6.0
Lithuania	19.5	26.3	12.5	13.8
Luxembourg	:	:	:	:
Malta	5.0	7.3	2.7	4.6
Netherlands	9.0	14.6	3.3	11.3
Poland	13.3	15.9	10.6	5.3
Portugal	12.6	14.9	10.1	4.8
United Kingdom	17.8	24.4	11.0	13.4
Czech Republic	10.0	14.4	5.4	9.0
Romania	10.5	12.6	8.3	4.3
Sweden	15.1	19.4	10.6	8.8

(:) Data not available
(i) See explanatory texts: ttp://europa.eu.int/estatref/info/sdds/en/strind/innore_ir04.htm
(*) EUSTAT data for the Basque country

Source: EUROSTAT

Graph Rs7.5:

Share of tertiary education graduates in Science and Technology (persons per 1000 inhabitants) aged 20-29 in EU countries by sex. 2006.



(*) EUSTAT data for the Basque country

Source: EUROSTAT