Proyecto Atlas de la Ciencia

Santiago de Chile, CONICYT - Marzo 2005

Félix de Moya Anegón – Grupo SCIMAGO
Universidad de Granada

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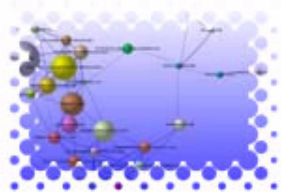

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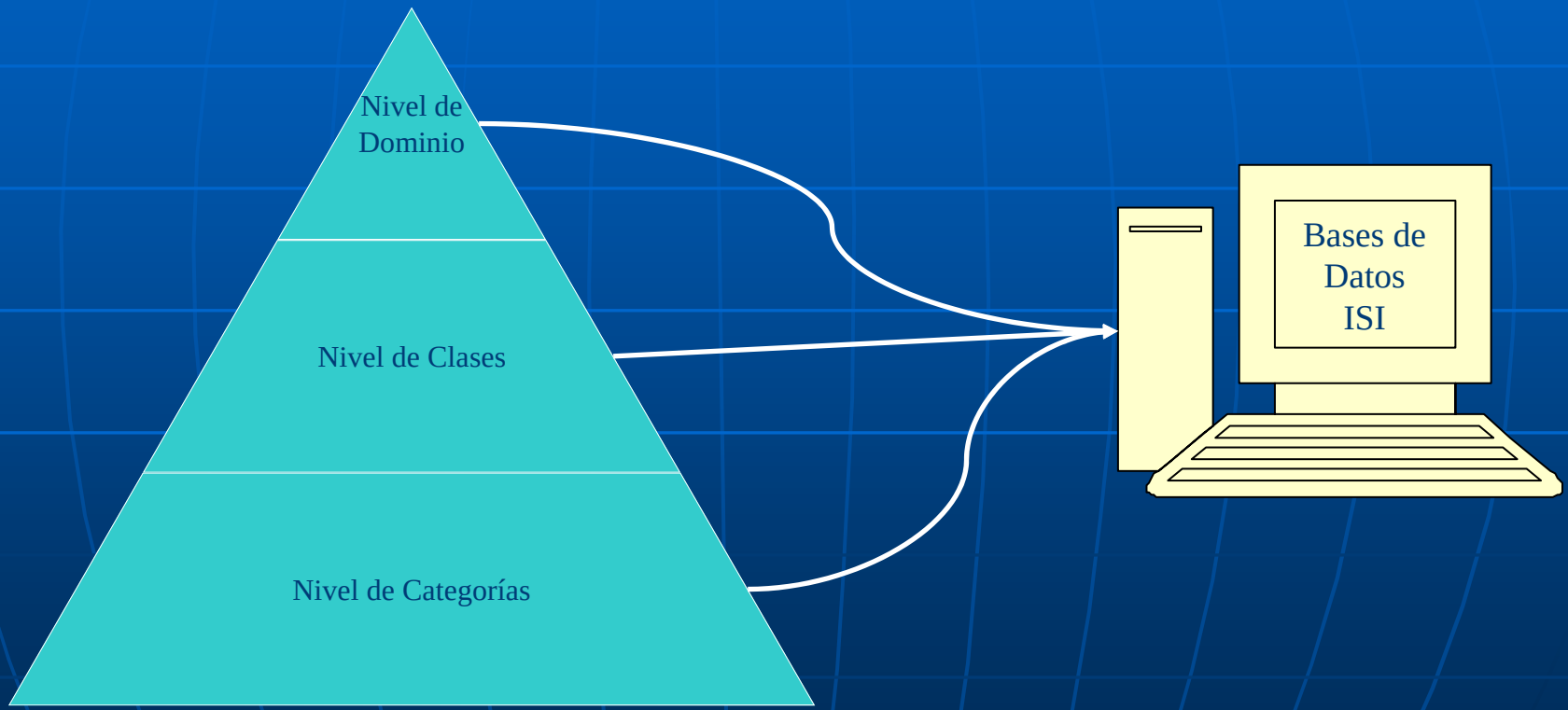
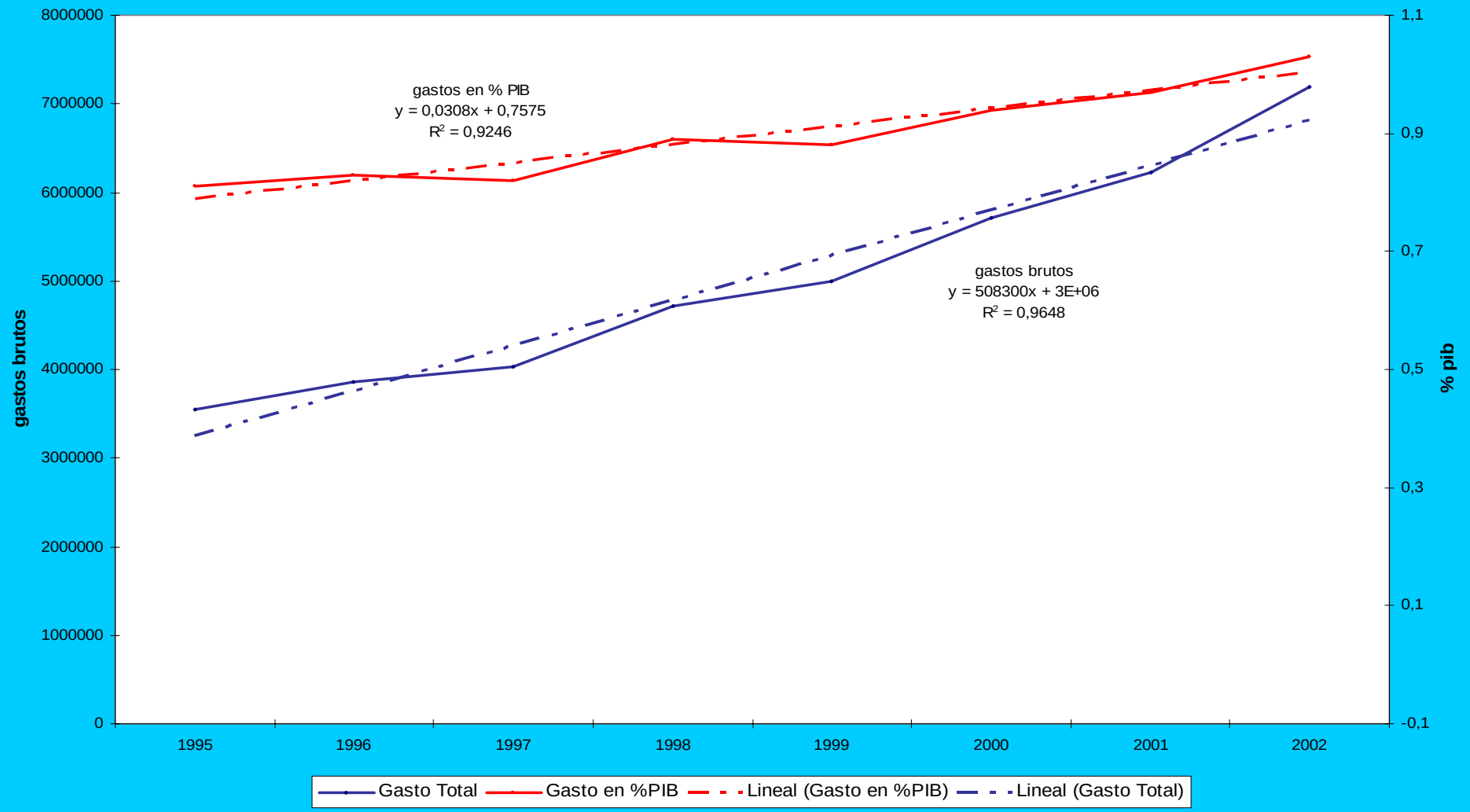


Mapas

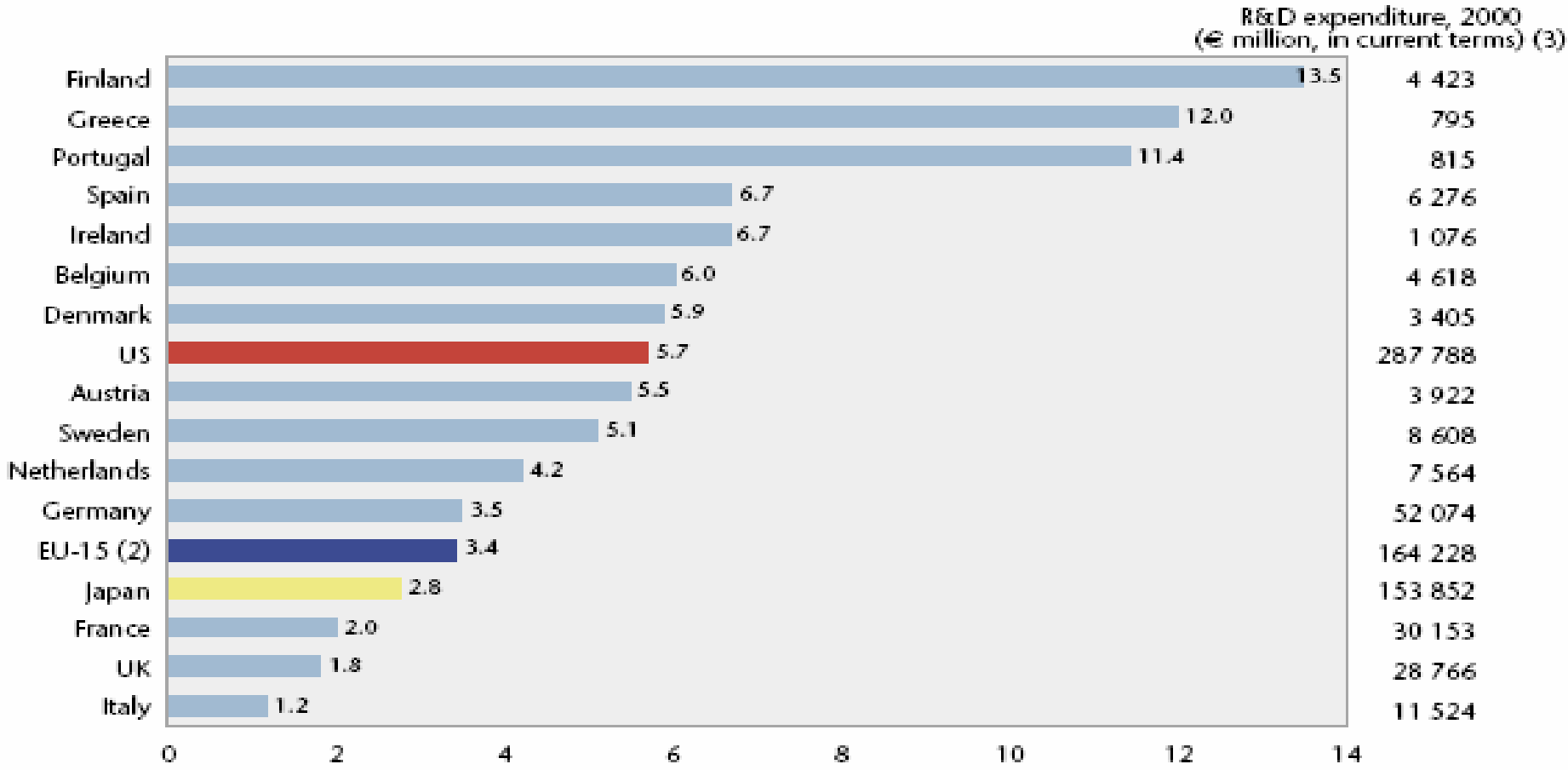
- Fuente: ISI-WOS
  - Alternativa SCOPUS
- Unidades de Medida: Cocitación y colaboración
  - Trabajos, Autores, Revistas, Instituciones, Categorías
- Generación de Matrices:
  - Algoritmos de poda: MST, PFNET
- Mapa:
  - Spring Embedding: Kamada Kawai

Evolución del gasto en I+D (España)



Crecimiento del gasto en I+D por países desde 1995

Figure 2.1.4 R&D expenditure – average annual real growth (%), 1995 to latest available year (1)

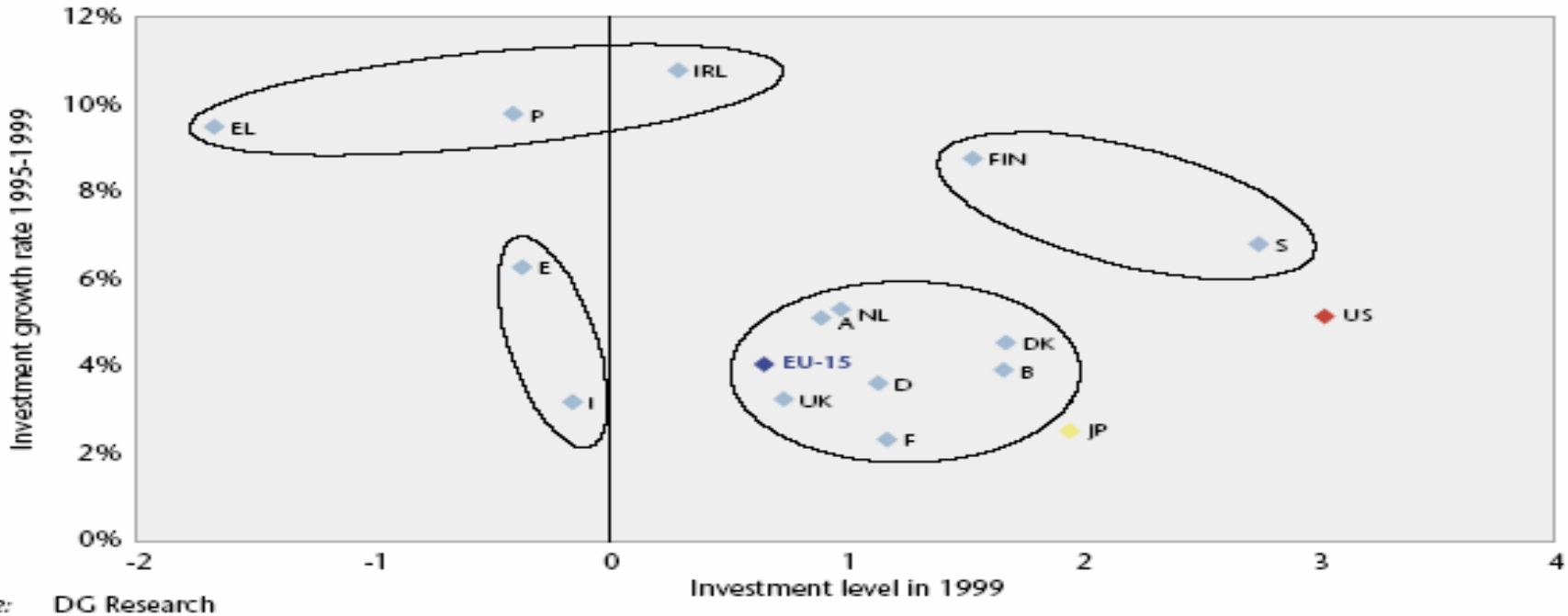


Source: DG Research
Data: OECD – MSTI database (STI, EAS Division) with DG Research provisional estimates
Notes: (1) FIN, UK, US, EU-15: 1995–2000; JP: 1996–2000; D, E, A: 1995–2001; I: 1997–1999; F: 1997–2000; all other countries: 1995–1999. (2) L data are not included in EU-15 average. (3) B, DK, EL, IRL, I, NL, P, S: 1999; D, E, A: 2001.

Third European Report on S&T Indicators, 2003

Países por inversiones en SC (EU-15)

Figure 1.13 Provisional composite indicator of investment in the knowledge-based economy for comparison between the EU-15, Japan and US. Relative country positions in 1999 and annual growth rate 1995-1999



Source: DG Research
Data: Eurostat
Note: Only 4 sub-indicators were included for both the investment level in 1999 (horizontal axis) and the growth rates: R&D expenditure (GERD per capita), PhDs (number of new S&T PhDs per capita), Researchers (number of researchers per capita) and gross fixed capital formation (GFCF (excluding building) per capita). The three other sub-indicators (e-government, educational spending and life-long-learning) are not available for the US and JP. L is not included (no data for most of indicators). For more details about the calculations and methodology, see the methodological annex to Chapter 1.

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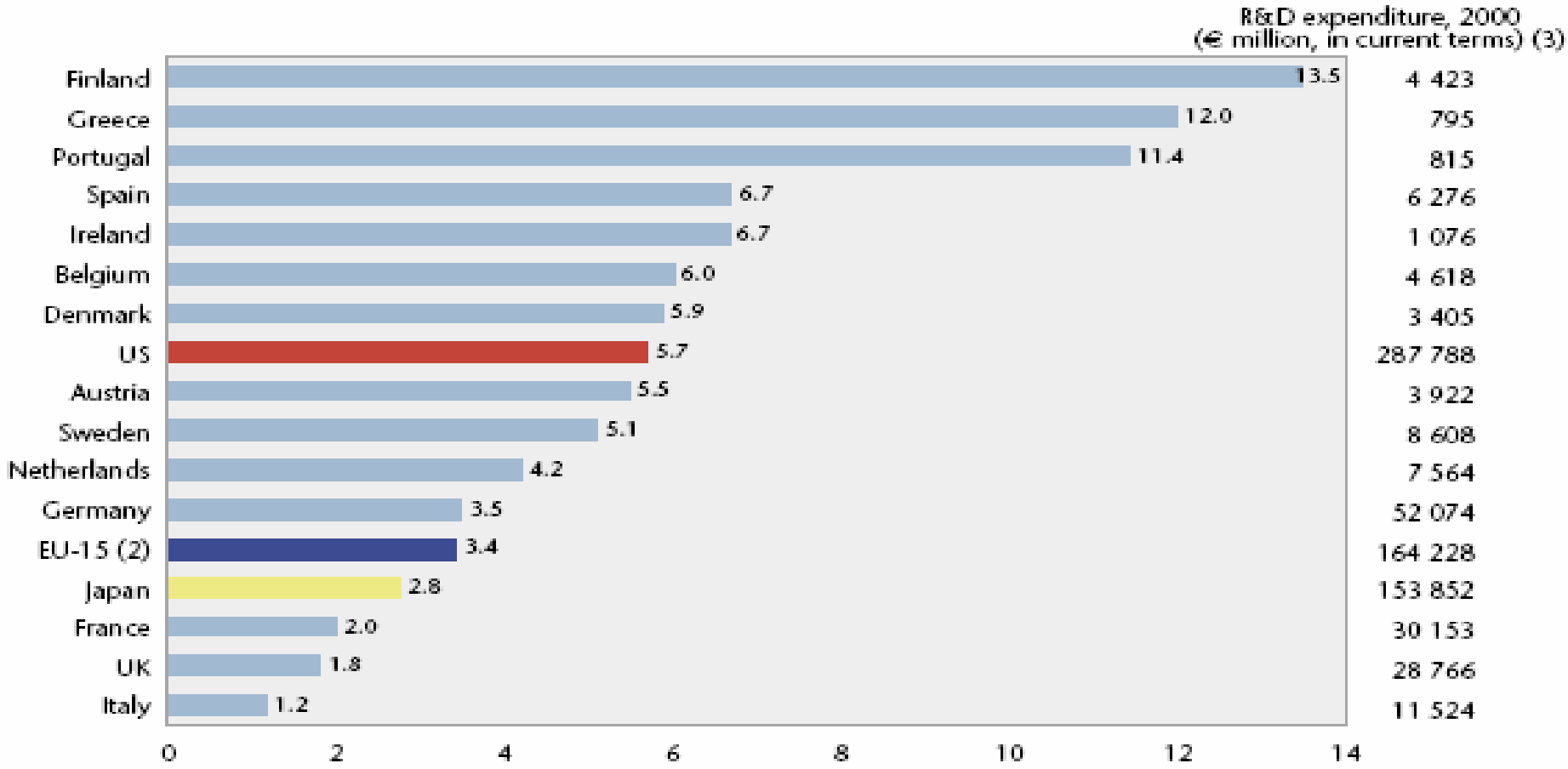
Crecimiento medio anual del gasto en I+D por países

Figure 2.1.4 R&D expenditure – average annual real growth (%), 1995 to latest available year (1)



Source: DG Research
Data: OECD – MSTI database (STI, EAS Division) with DG Research provisional estimates
Notes: (1) FIN, UK, US, EU-15: 1995–2000; JP: 1996–2000; D, E, A: 1995–2001; I: 1997–1999; F: 1997–2000; all other countries: 1995–1999. (2) L data are not included in EU-15 average. (3) B, DK, EL, IRL, I, NL, P, S: 1999; D, E, A: 2001.

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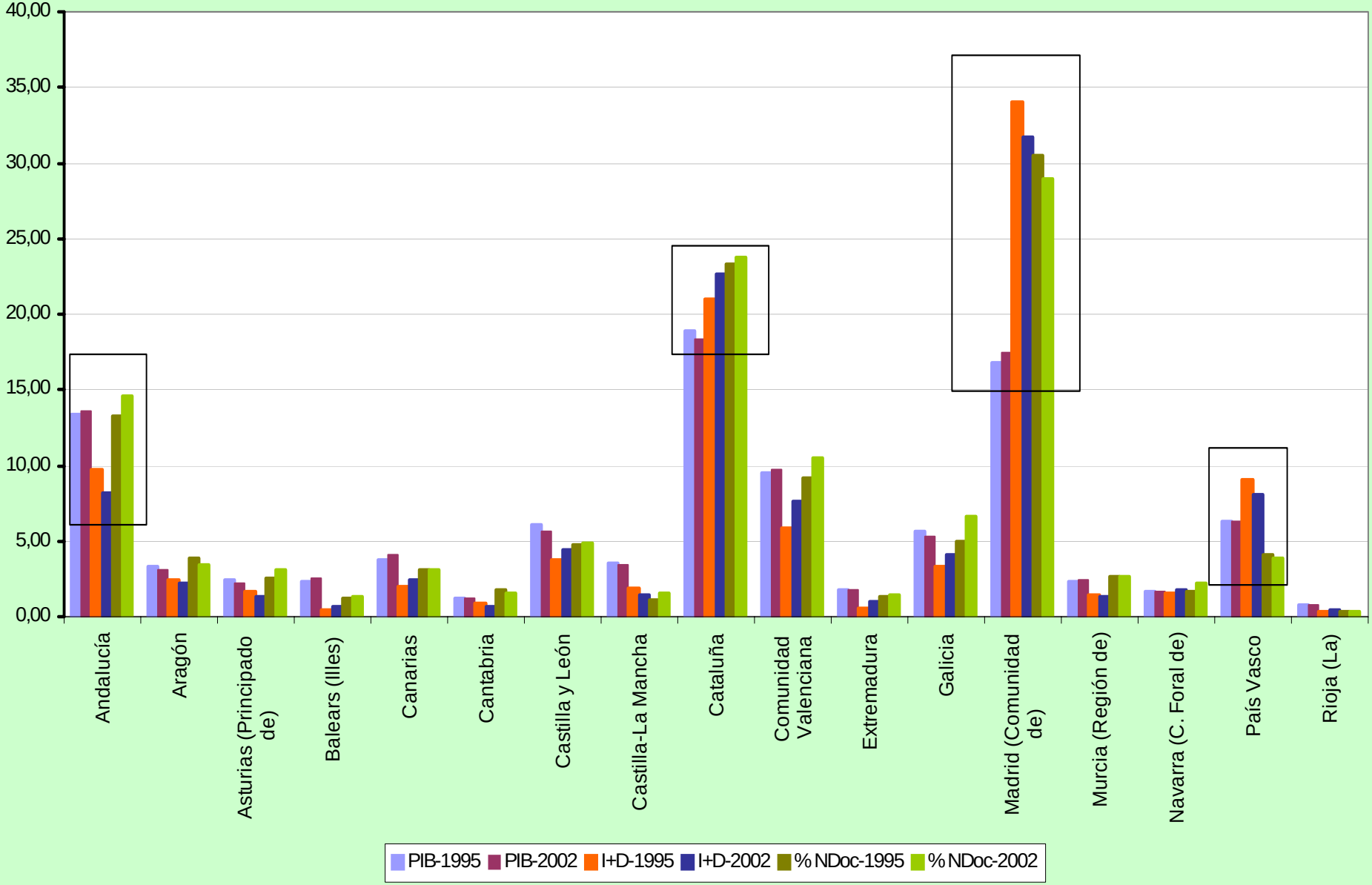
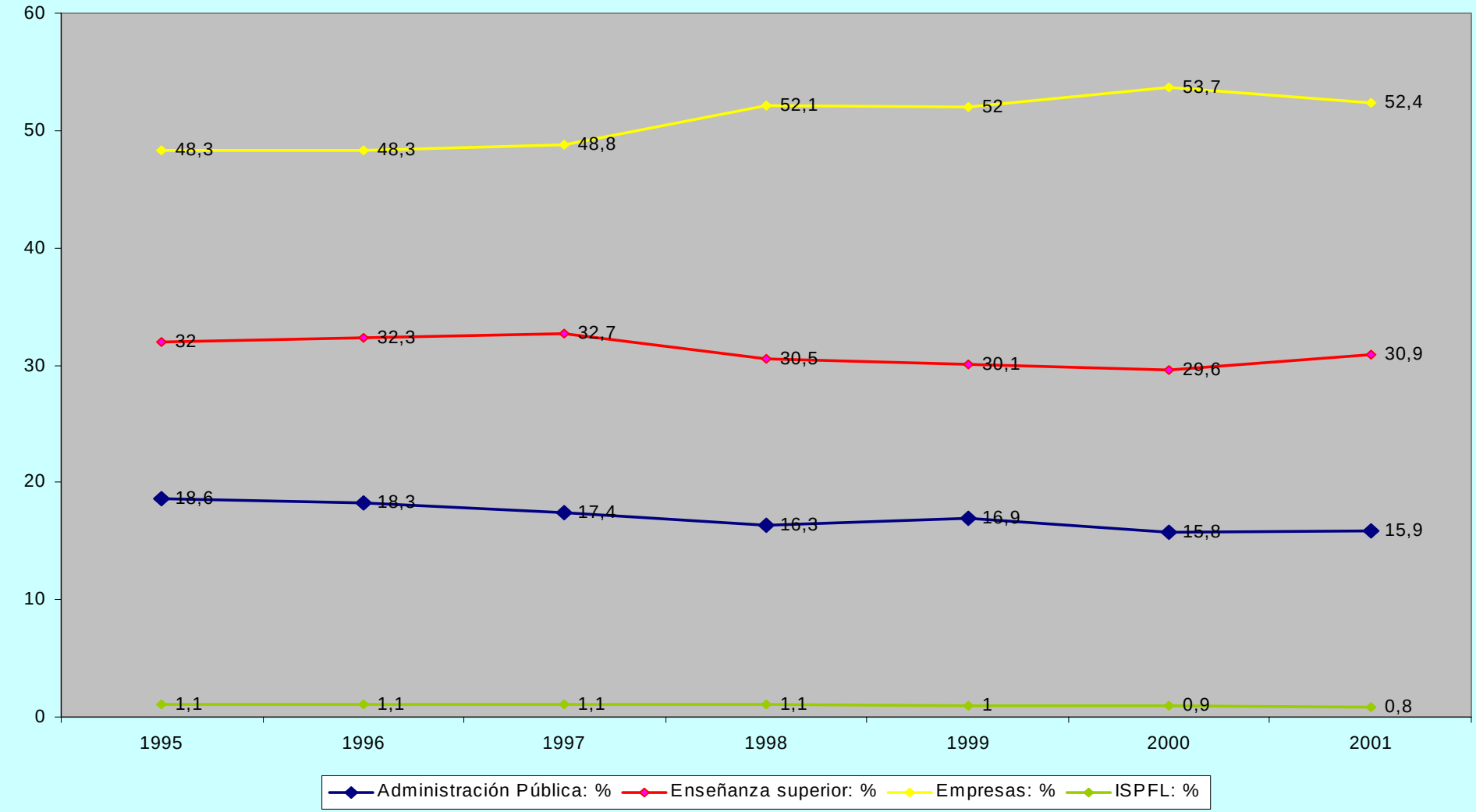
Indicadores económicos por CCAA en España

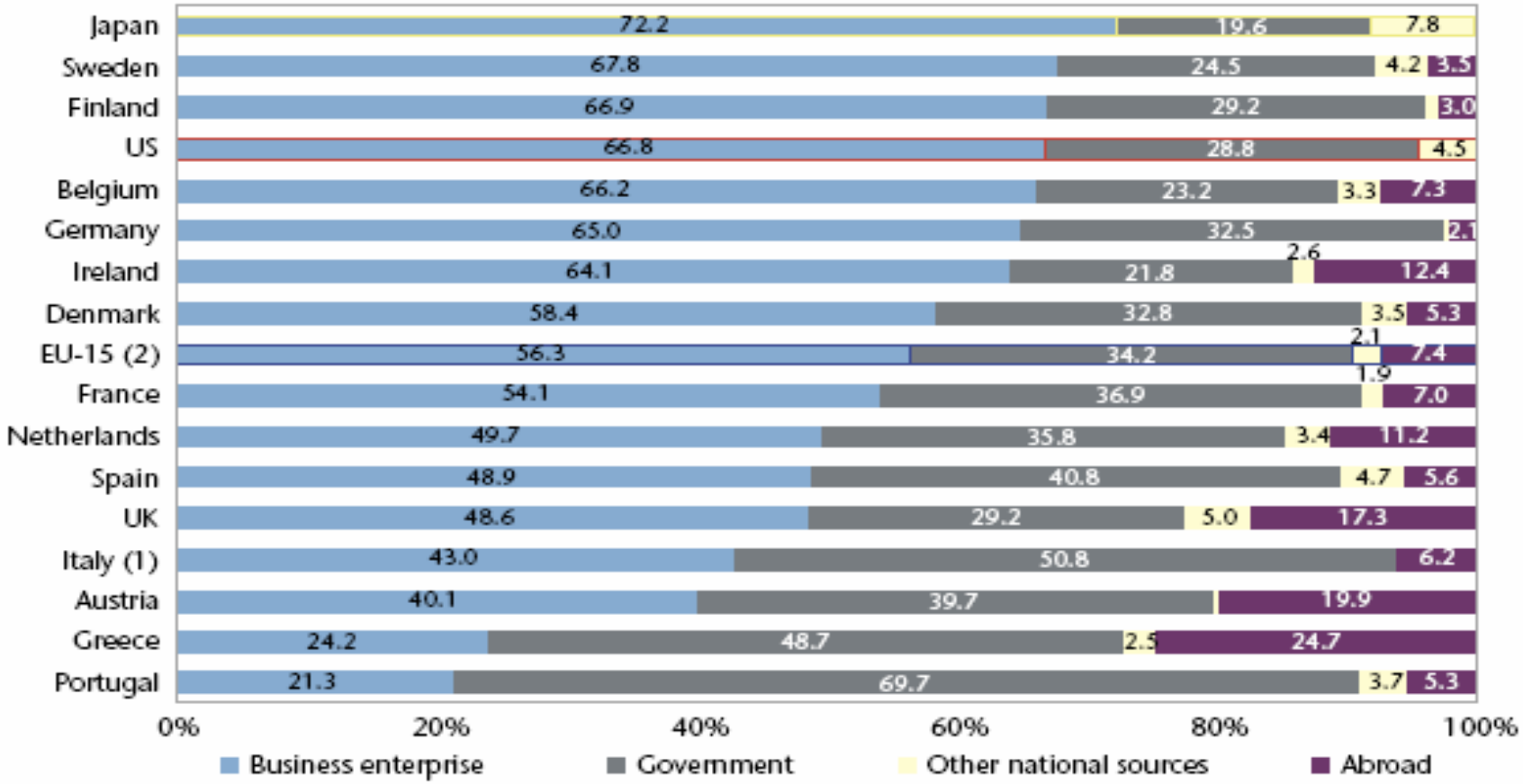


Evolución del gasto en I+D por sectores de ejecución



Distribución de la procedencia de los fondos I+D por países

Figure 2.1.12 Financing of R&D – share (%) of each source of total financing, 1999
Countries in decreasing order according to the share of business financing



Source: DG Research
Data: OECD – MSTI database (STI, EAS Division) with DG Research provisional estimates
Notes: (1) Data for Italy refer to 1996. (2) L data are not included in EU-15 average.

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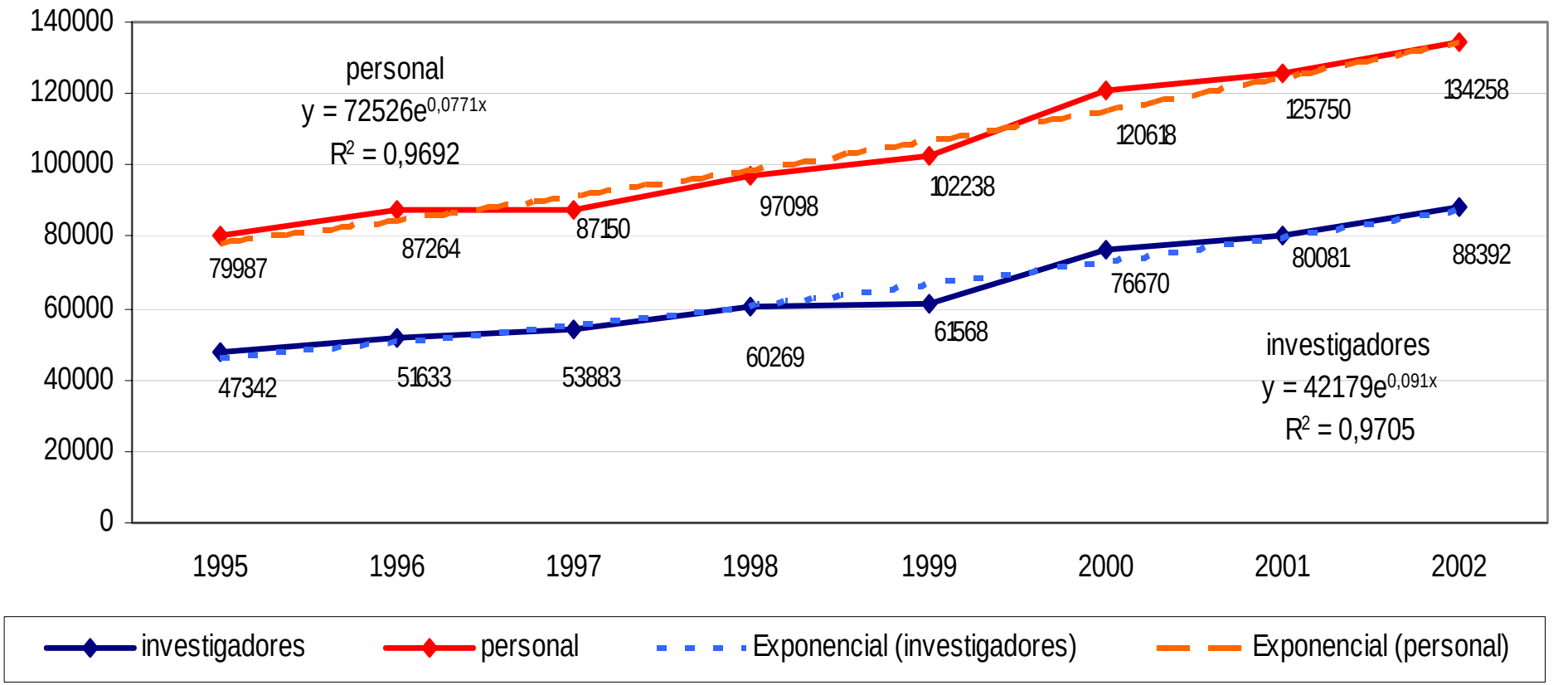
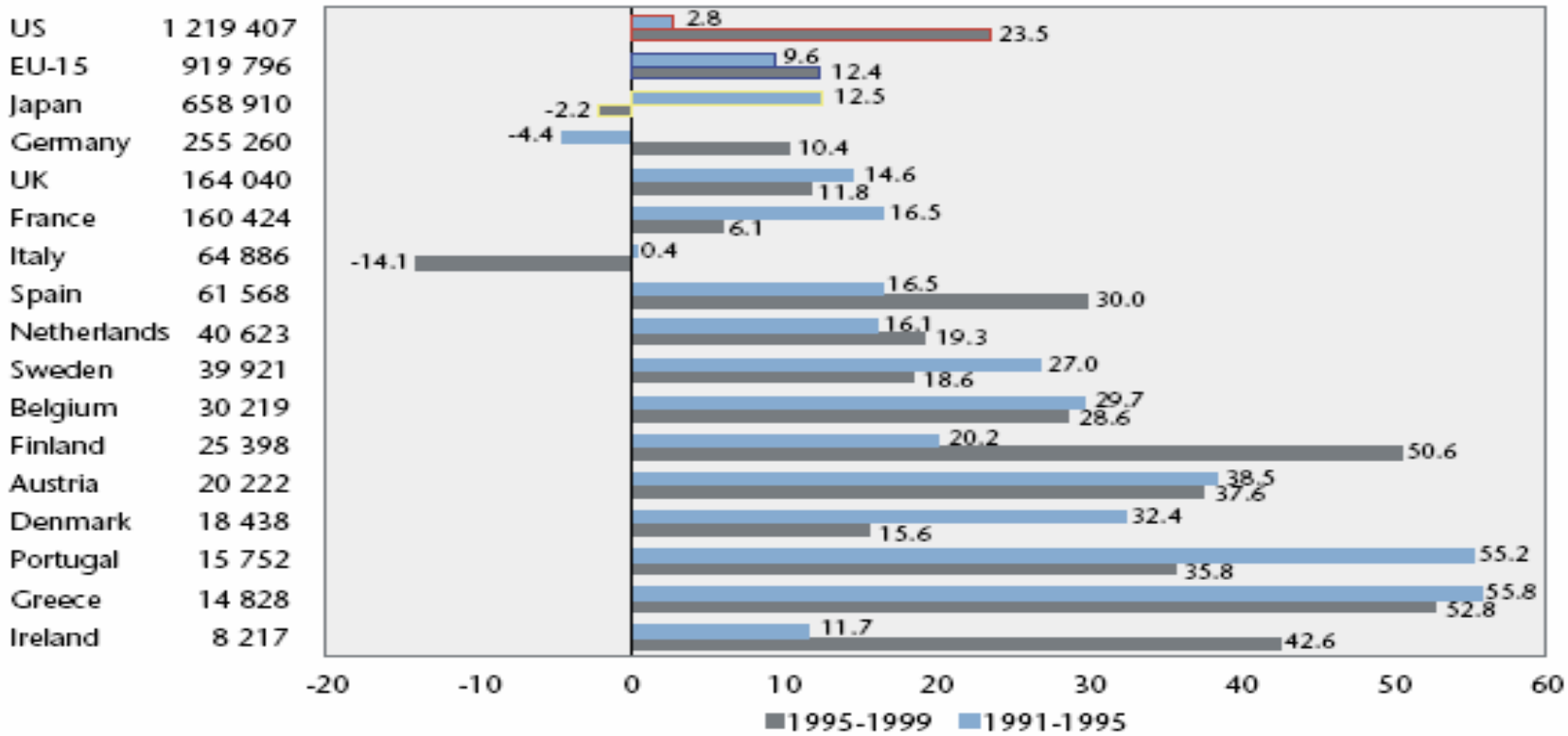
Evolución del personal I+D (España)



Crecimiento del número de investigadores por países

Figure 4.1.1 Total number of researchers 1999 and total growth in % (1991-1999)



Source: DG Research
Data: OECD, MSTI database
Note: Number of researchers are given in field-time equivalent (FTE). No data for L, which is not included in the EU average. 1999: data for IRL, I, UK, US are estimated; 1991: data for NL and P are estimated. Estimates: DG Research.

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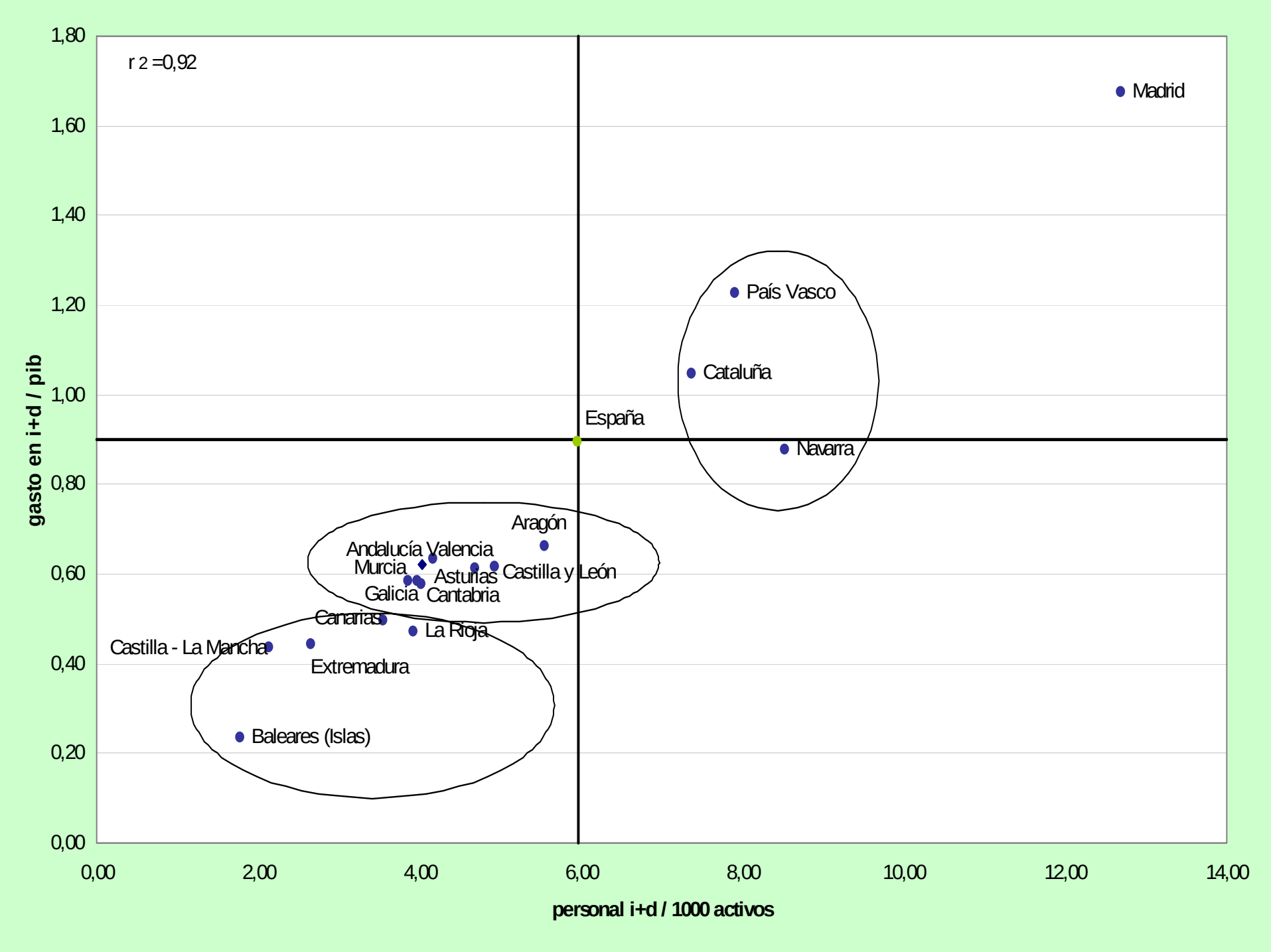
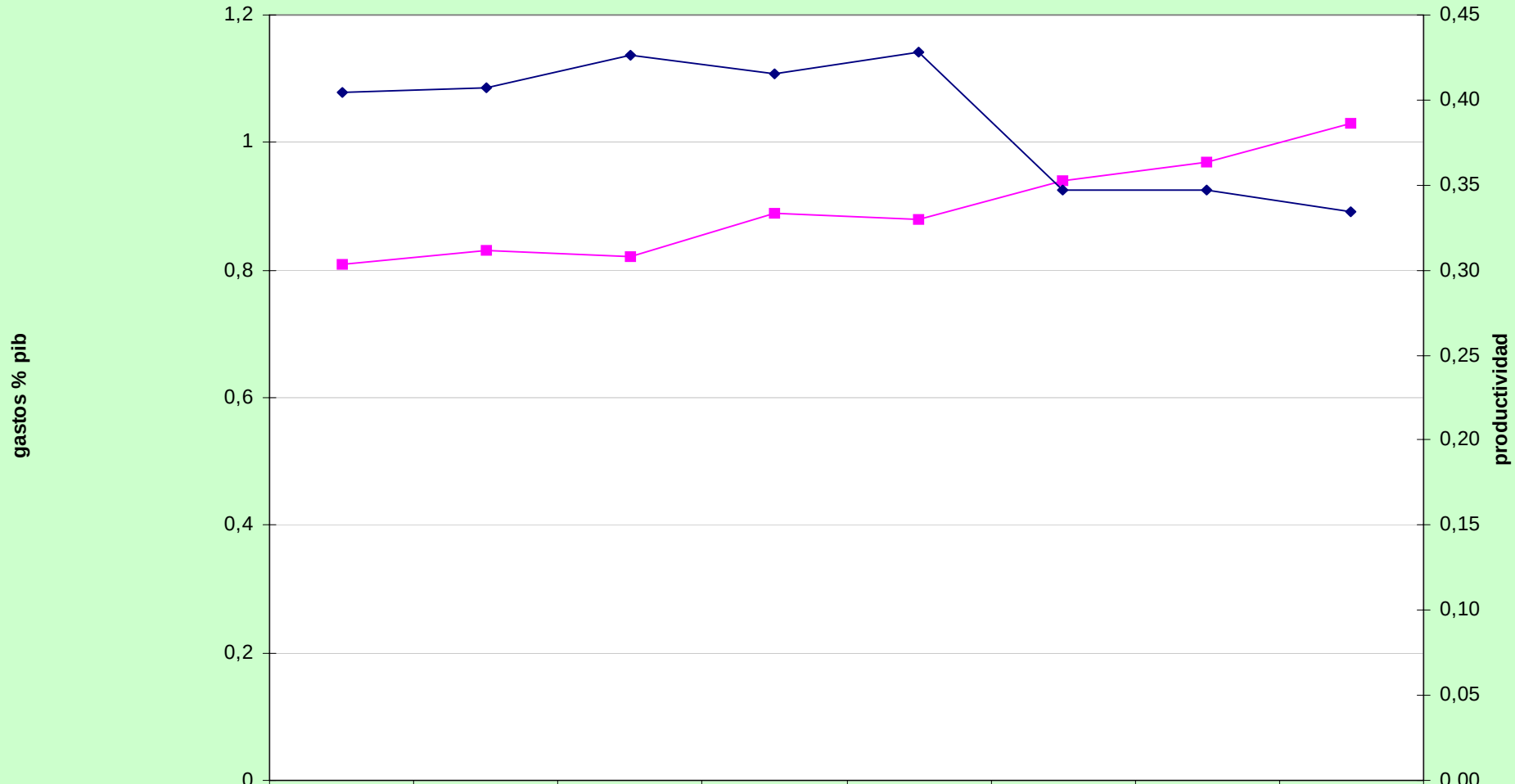
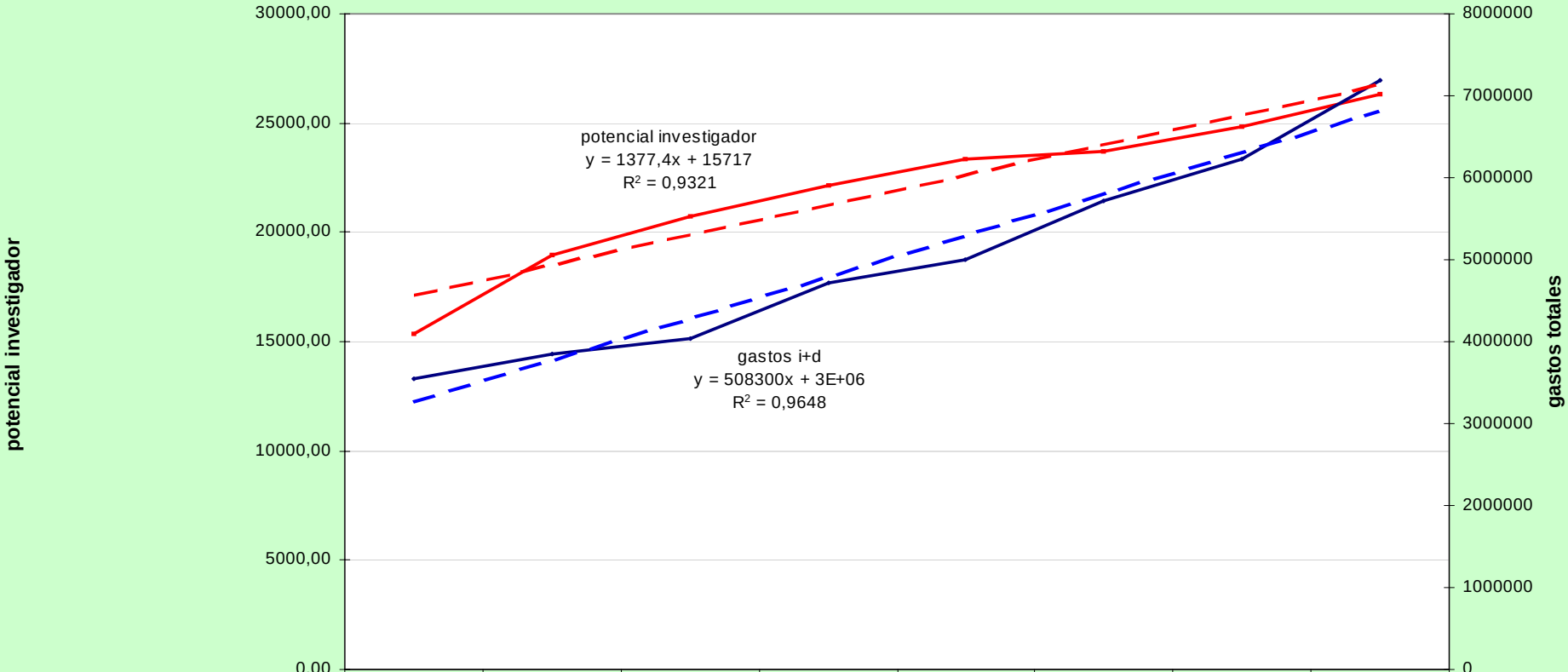

r 2 =0,92
Madrid
País Vasco
Cataluña
España
Navarra
Aragón
Andalucía
Valencia
Murcia
Asturias
Castilla y León
Galicia
Cantabria
Canarias
La Rioja
Castilla - La Mancha
Extremadura
Baleares (Islas)
1,80
1,60
1,40
1,20
1,00
0,80
0,60
0,40
0,20
0,00
gasto en i+d / pib
0,00
2,00
4,00
6,00
8,00
10,00
12,00
14,00
personal i+d / 1000 activos

Relación gasto/productividad (España)



	1995	1996	1997	1998	1999	2000	2001	2002
gastos % PIB	0,81	0,83	0,82	0,89	0,88	0,94	0,97	1,03
productividad (inv)	0,40	0,41	0,43	0,42	0,43	0,35	0,35	0,33

Evolución del PI y del gasto total (España)



	1995	1996	1997	1998	1999	2000	2001	2002
pi	15381,77	18995,40	20701,60	22121,63	23313,81	23680,47	24831,29	26295,46
gastos totales (miles de euros)	3550106	3852632	4038904	4715018	4995360	5718988	6227157	7193537

Relación entre riqueza económica y científica por países (D. King, Nature)

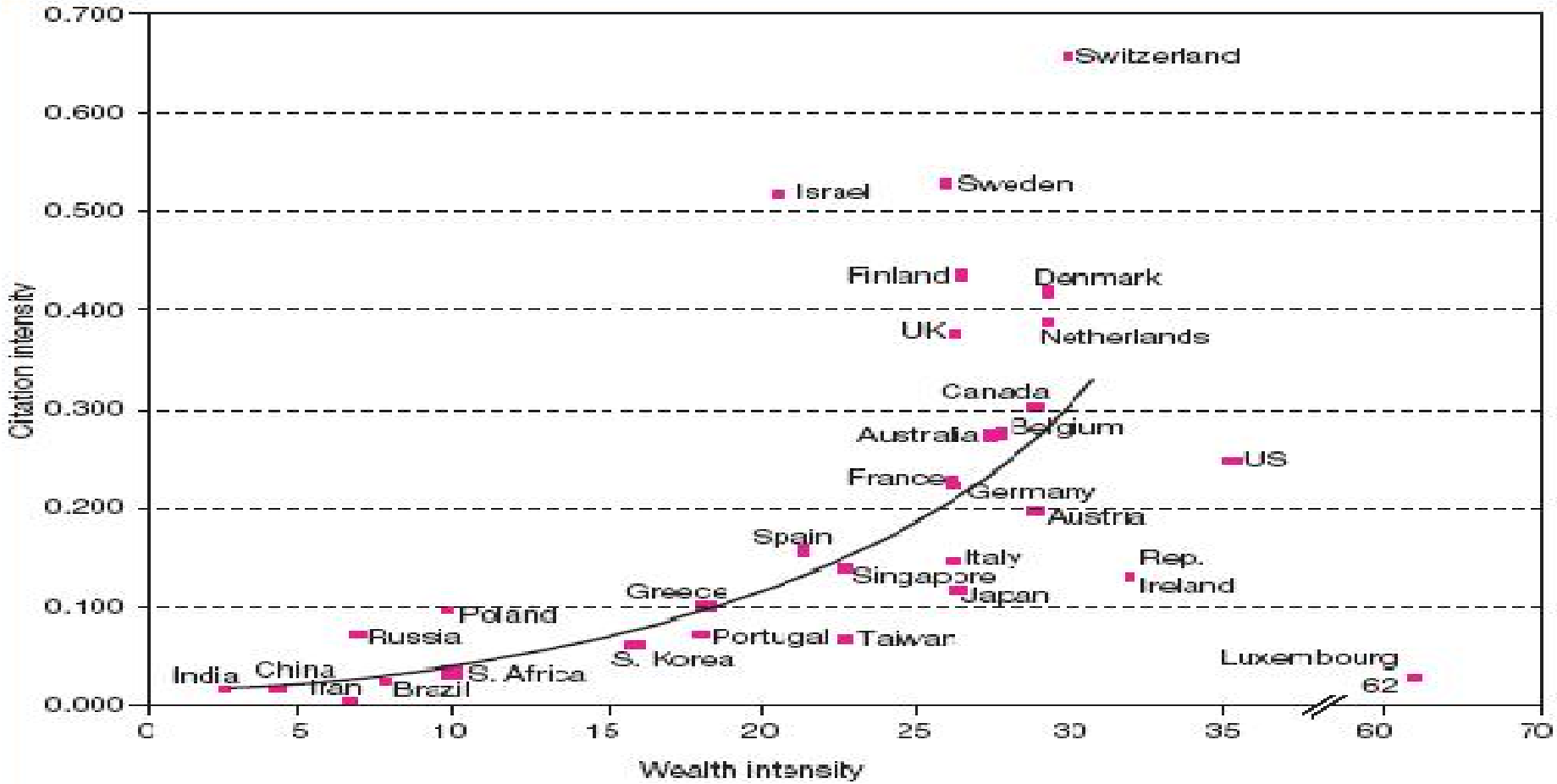
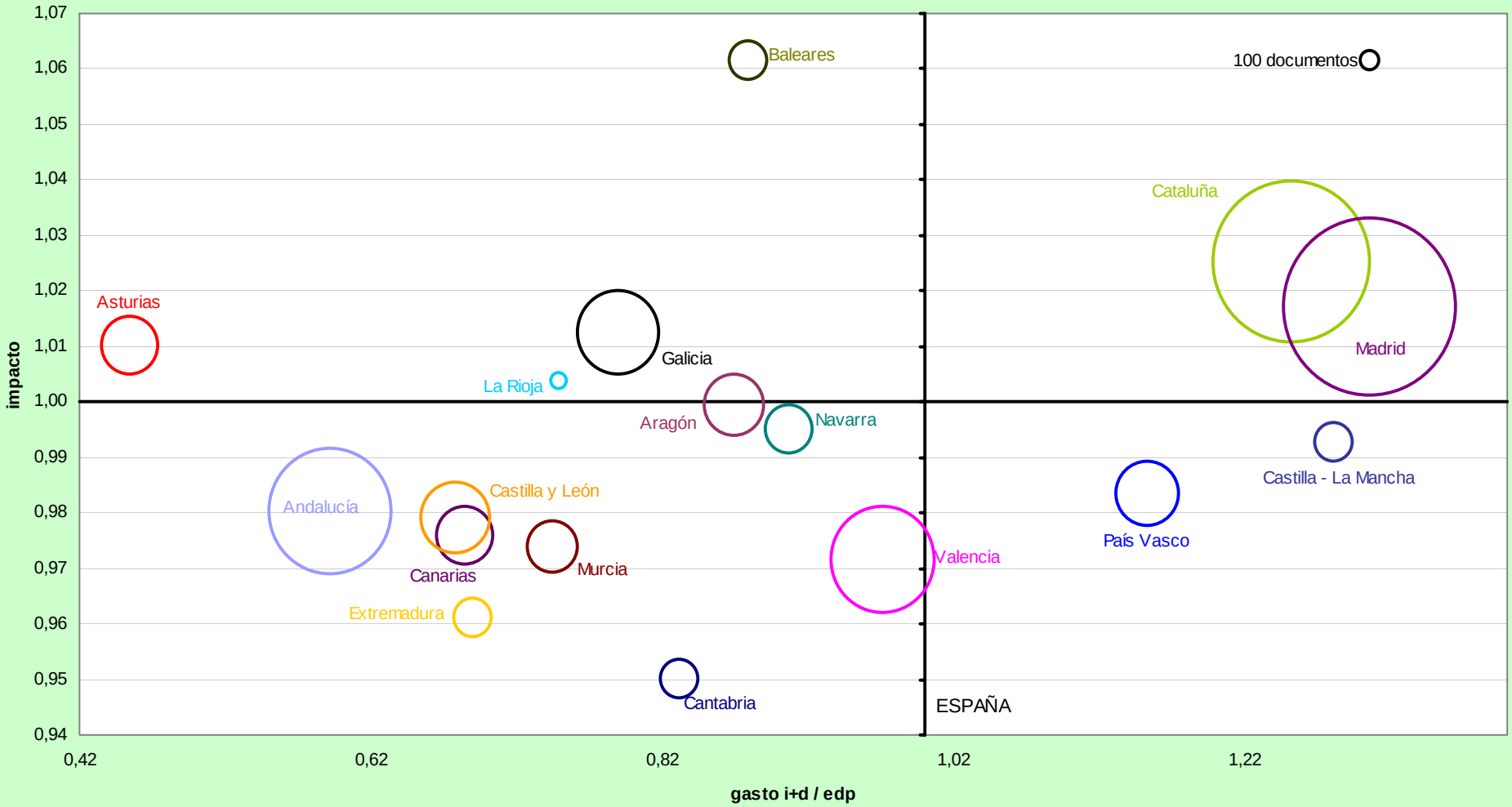
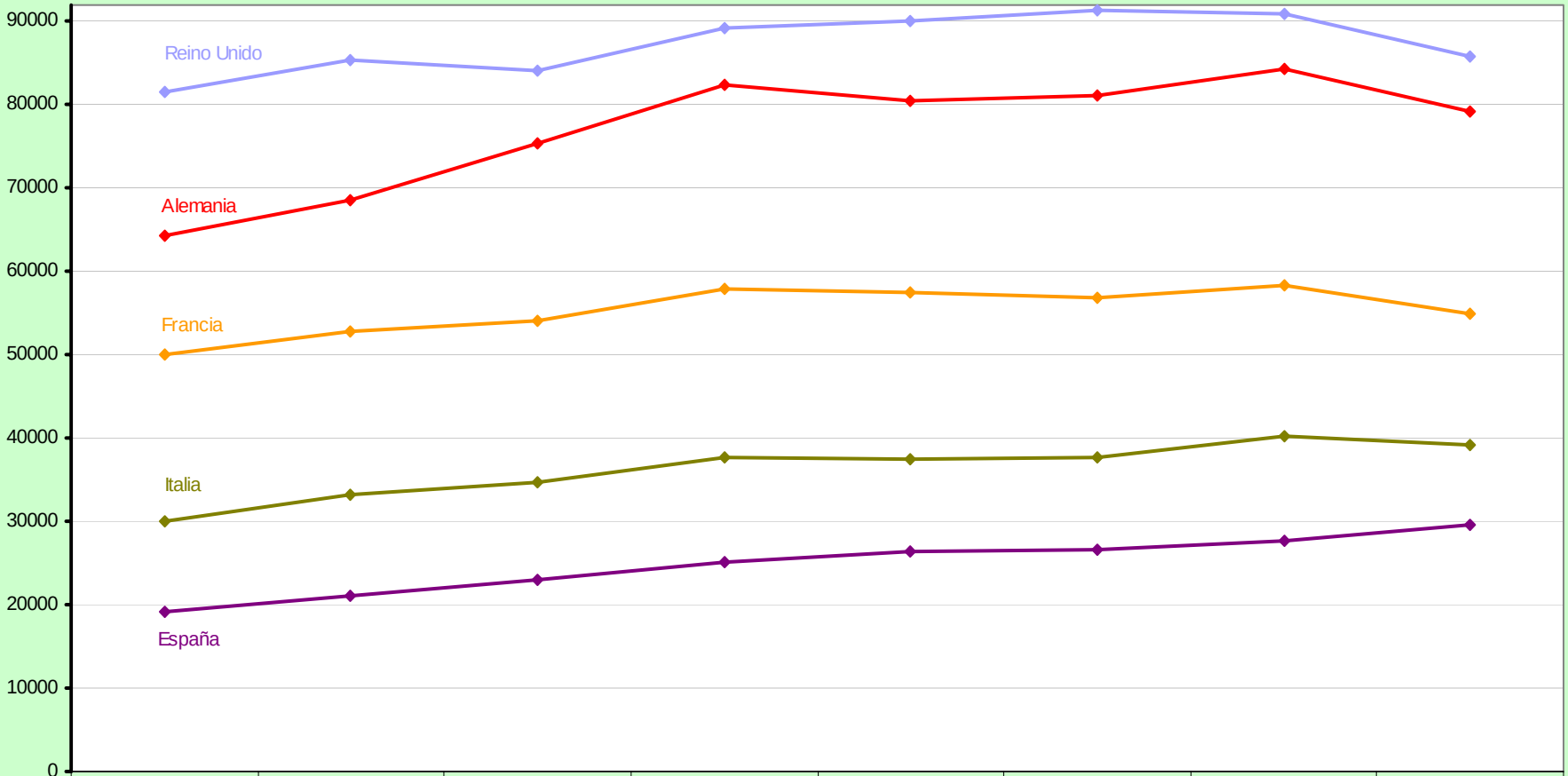


Figure 2 Comparing economic and scientific wealth. National science citation intensity, measured as the ratio of the citations to all papers to the national GDP, shown as a function of the national wealth intensity, or GDP per person, for the 31 nations in the comparator group. GDP and wealth intensity are given in thousands of US dollars at 1995 purchasing-power parity. Sources: Thomson ISI, OECD and the World Bank.

Relación impacto-gasto/edp por CCAA (España)

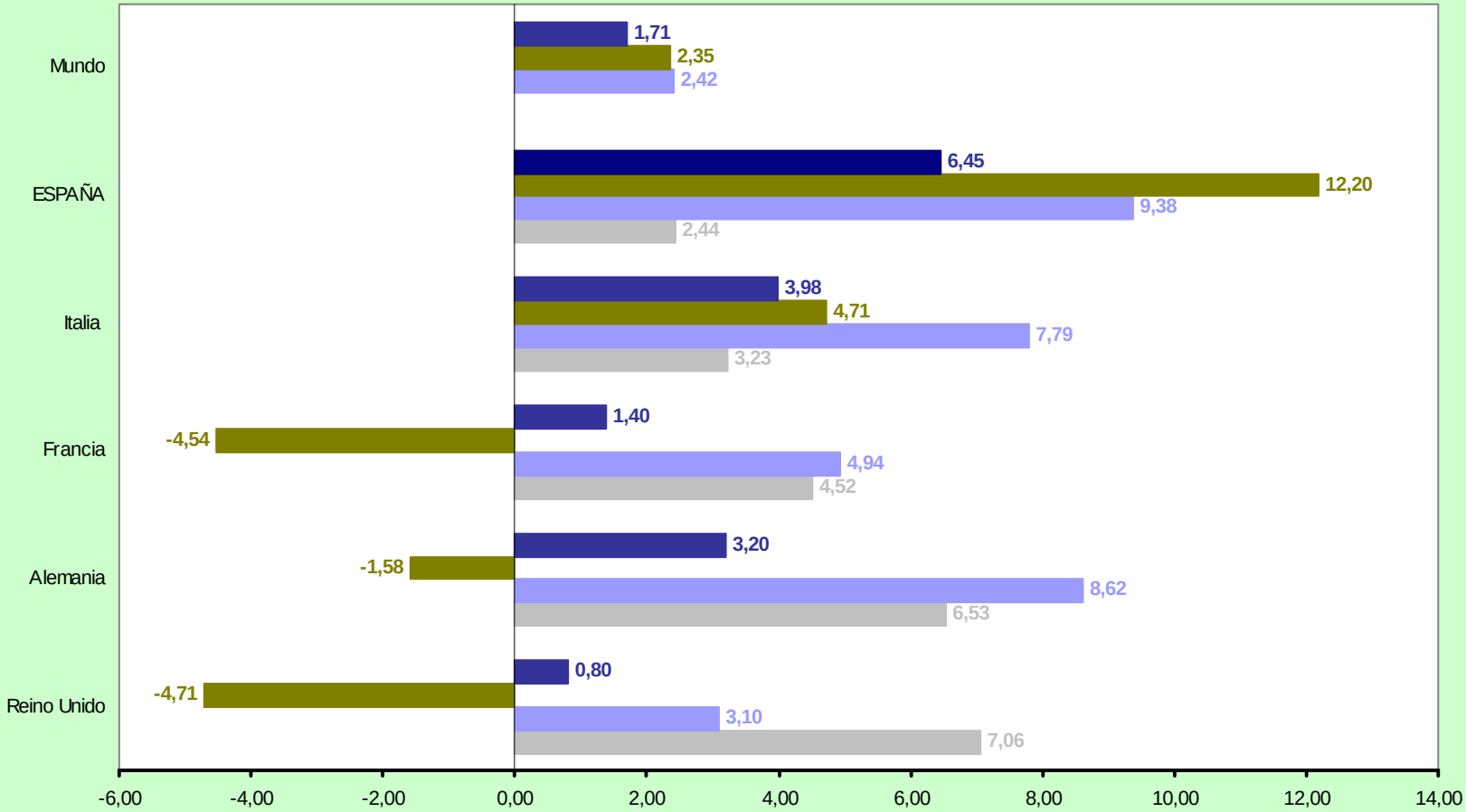


Evolución de la producción por países



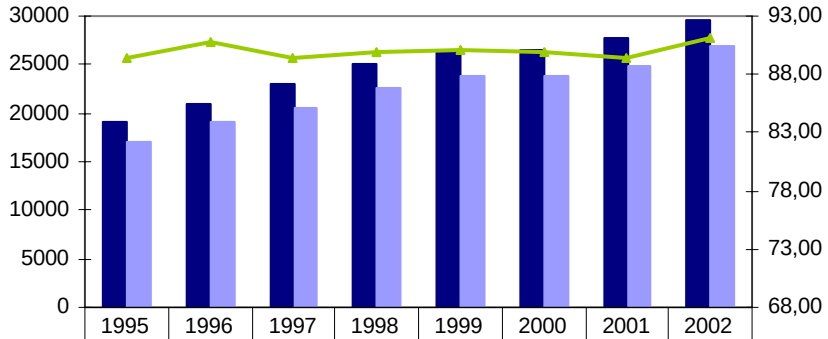
	1995	1996	1997	1998	1999	2000	2001	2002
Reino Unido	81487	85346	84030	89163	90001	91362	90967	85759
Alemania	64253	68560	75379	82321	80557	81119	84295	79283
Francia	50107	52887	54197	57887	57523	56942	58272	54914
Italia	30043	33125	34683	37596	37438	37609	40341	39202
España	19138	21010	22972	25046	26354	26593	27770	29569

Tasa de crecimiento medio anual por países

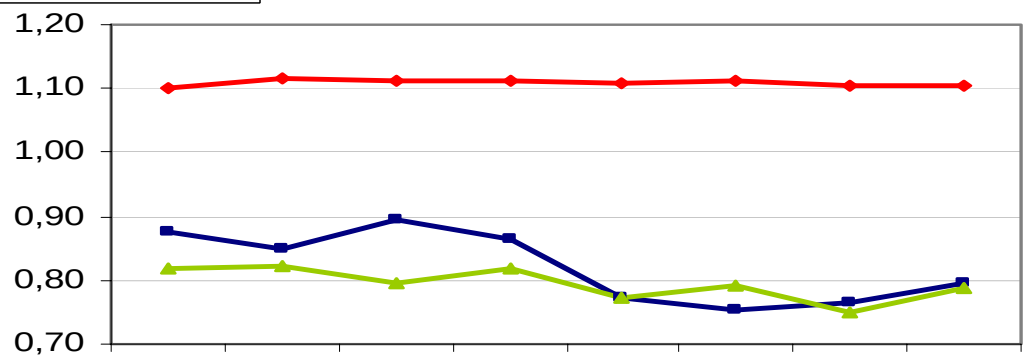


	Reino Unido	Alemania	Francia	Italia	ESPAÑA	Mundo
Crecimiento Medio Anual 1995-2002	0,80	3,20	1,40	3,98	6,45	1,71
Crecimiento Medio Anual 1999-2002	-4,71	-1,58	-4,54	4,71	12,20	2,35
Crecimiento Medio Anual 1995-1998	3,10	8,62	4,94	7,79	9,38	2,42
% mundial 2002	7,06	6,53	4,52	3,23	2,44	

Lenguas de publicación (España)

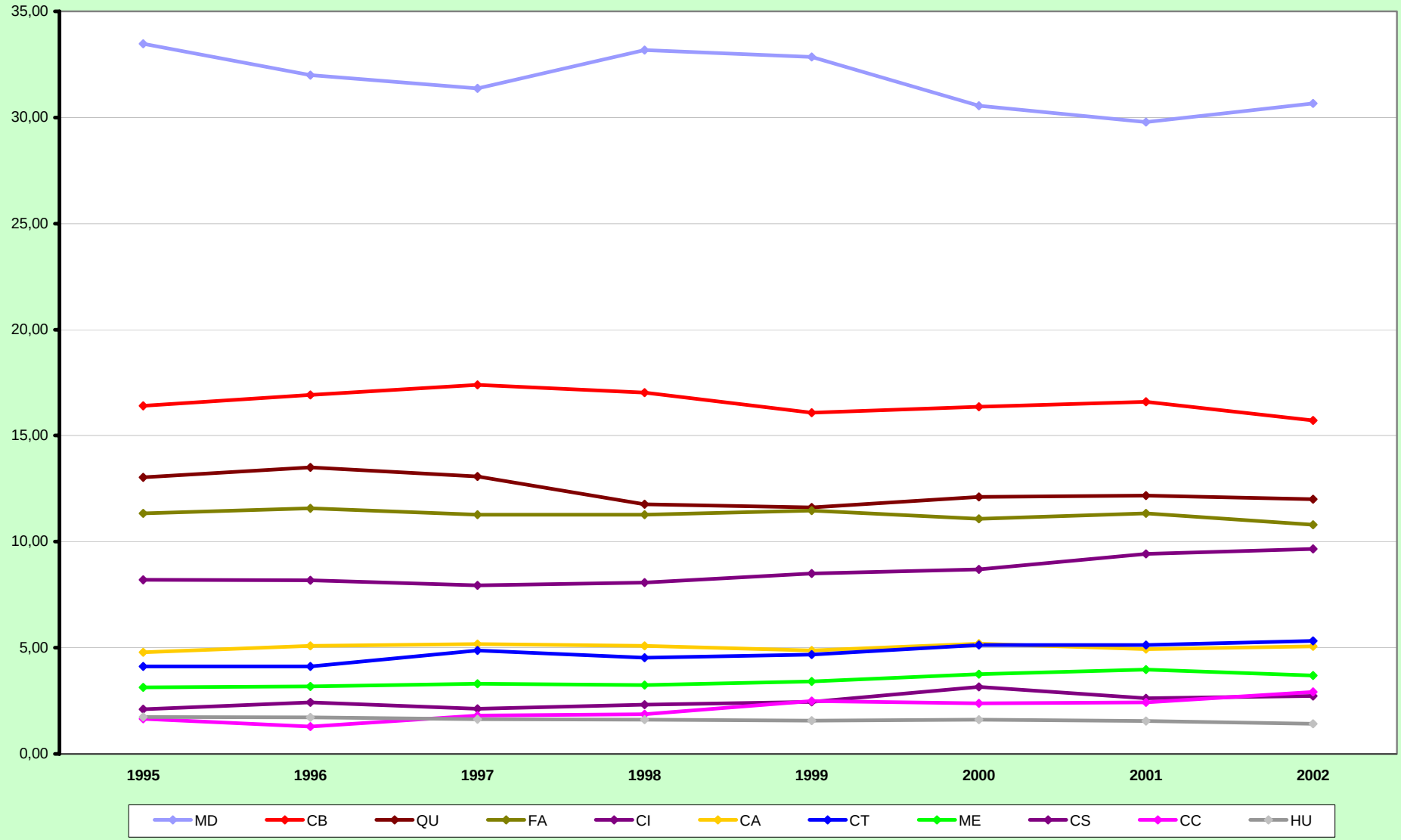


	1995	1996	1997	1998	1999	2000	2001	2002
ndoc - todas las lenguas	19138	21010	22972	25046	26354	26593	27770	29569
ndoc - inglés	17096	19085	20543	22539	23757	23909	24835	26920
%ndoc ingles/ndoc total	89,33	90,84	89,43	89,99	90,15	89,91	89,43	91,04



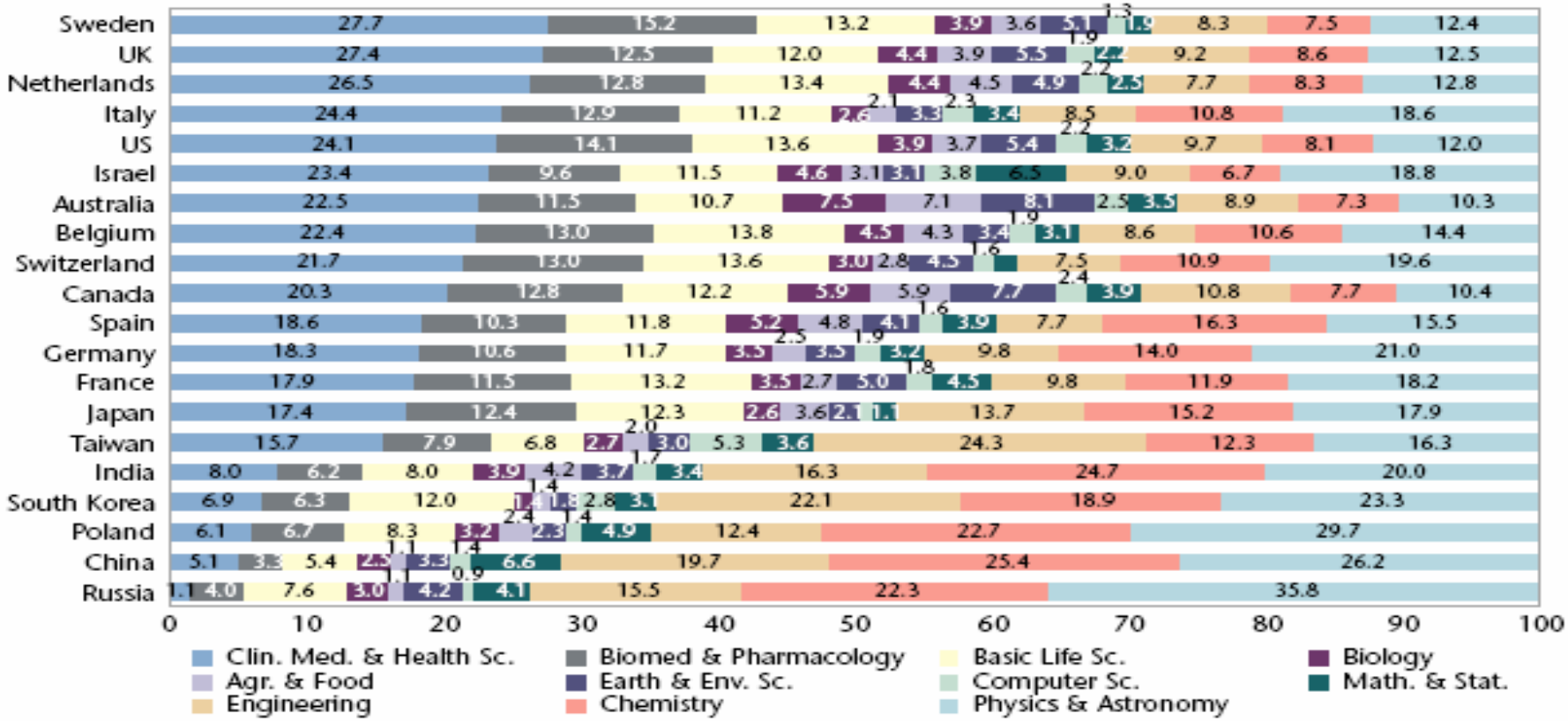
sólo inglés	1,10	1,12	1,11	1,11	1,11	1,11	1,11	1,10
sólo español	0,88	0,85	0,90	0,87	0,77	0,75	0,77	0,80
otras lenguas	0,82	0,82	0,80	0,82	0,77	0,79	0,75	0,79

Evolución de la producción por áreas científicas (España)



Distribución por campos de la producción por países

Figure 5.2.9 The 20 largest scientific producers: publications (%) by main fields (1995-1999)



Source: DG Research
Data: ISI, CWTS (treatments)
Note: Countries are listed according to decreasing share in the life sciences, especially clinical medicine and health sciences. The field "Multidisciplinary" has been omitted.

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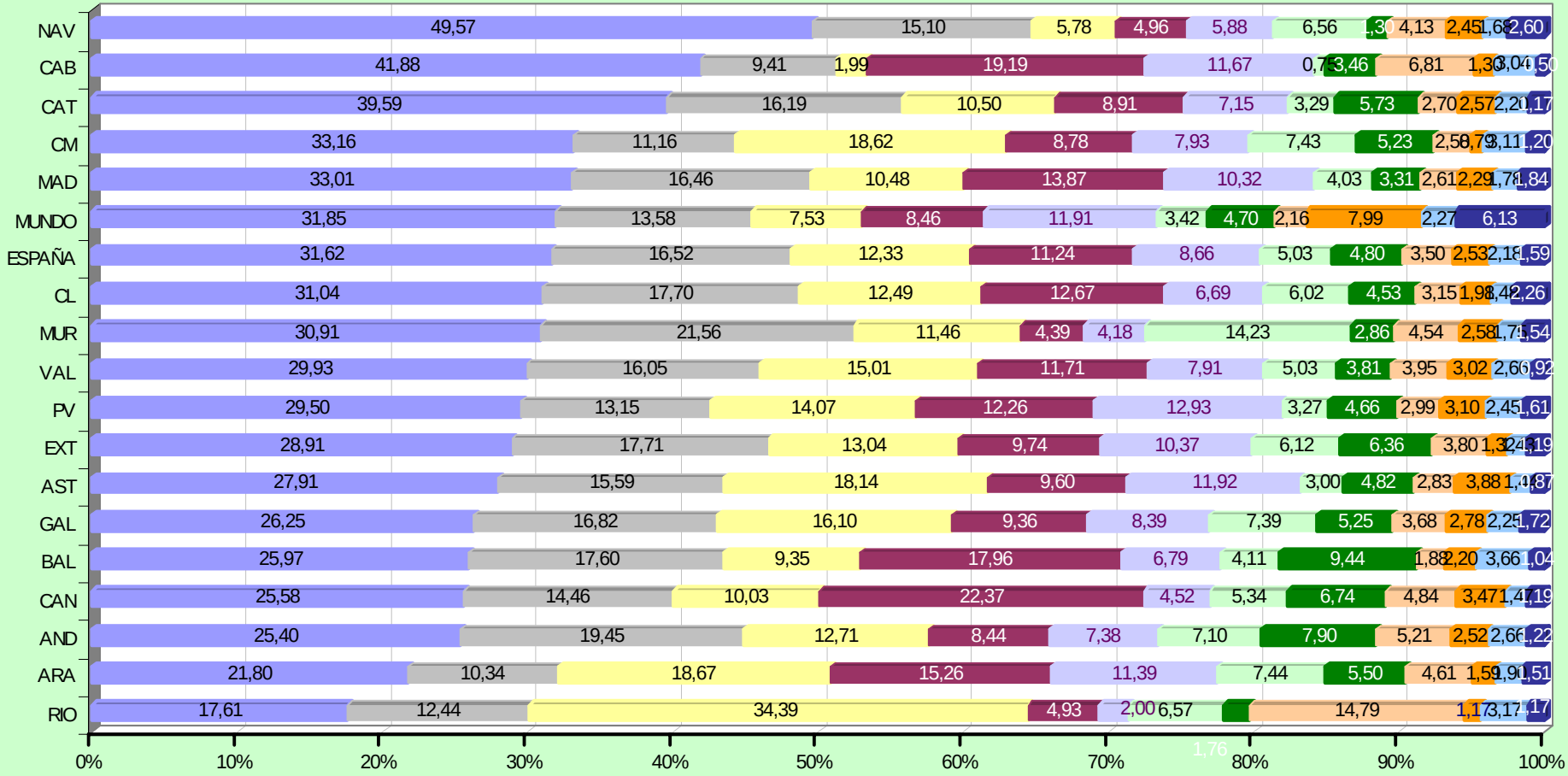
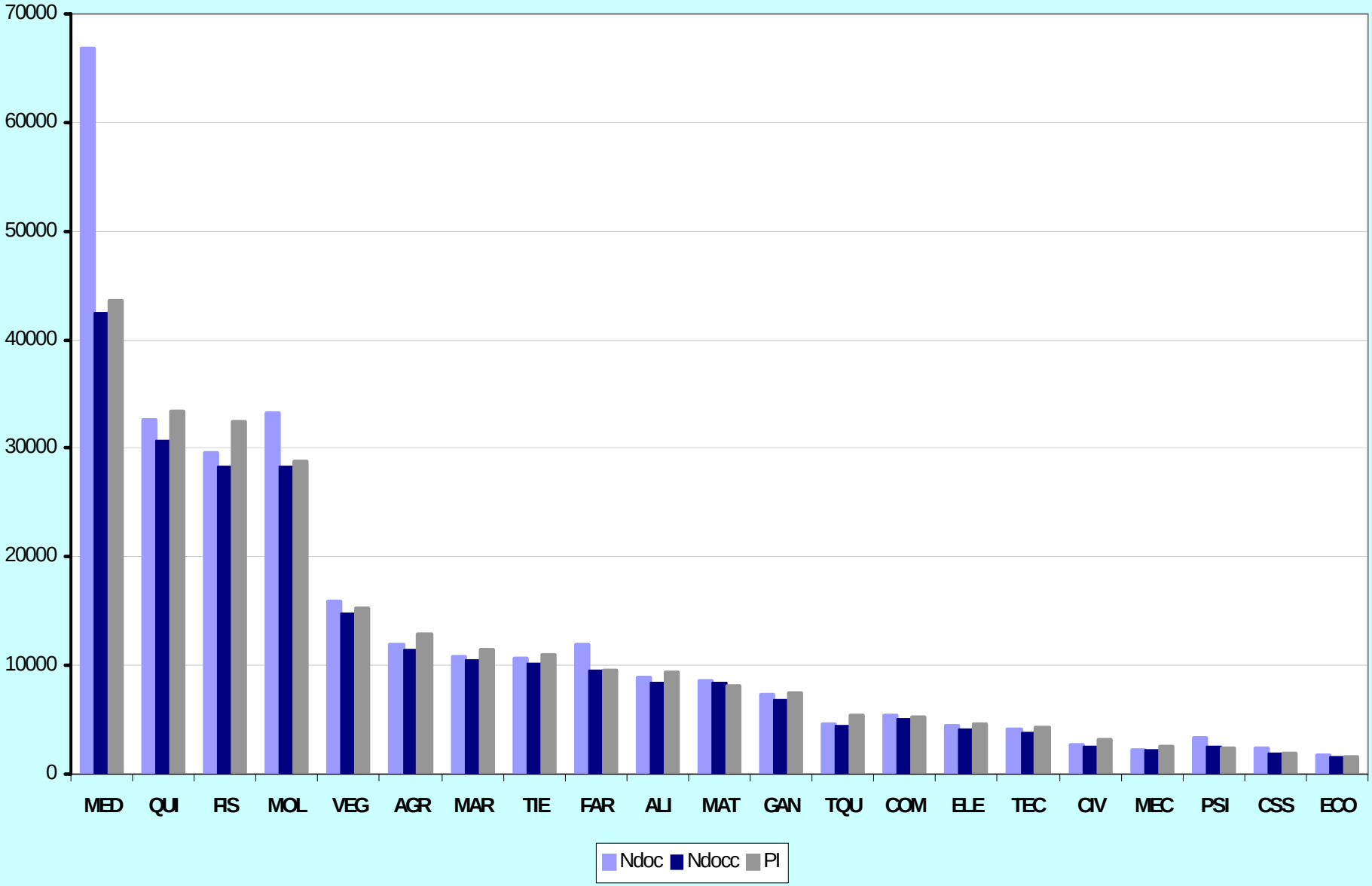
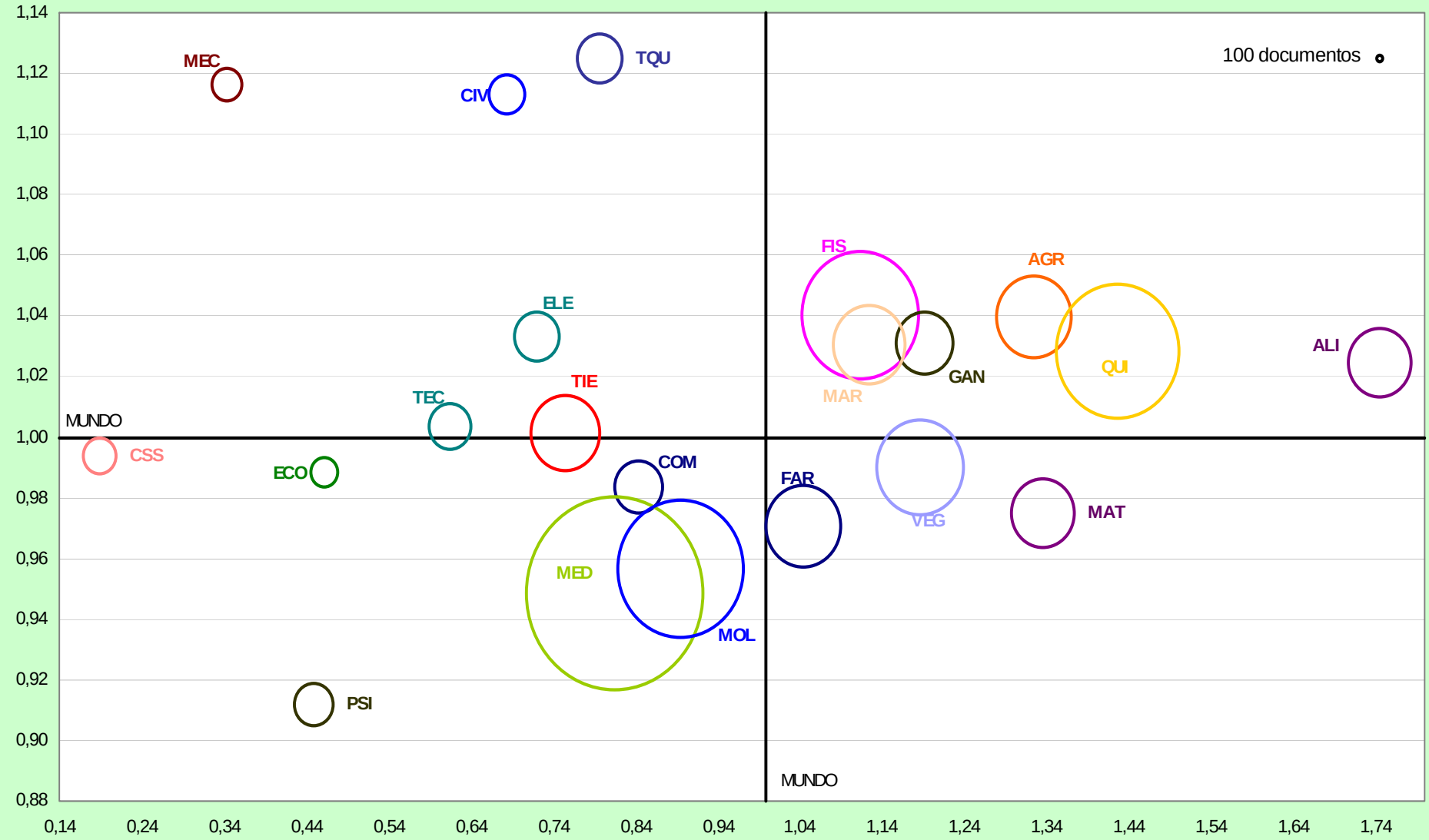
Producción por campos y CCAA (España)



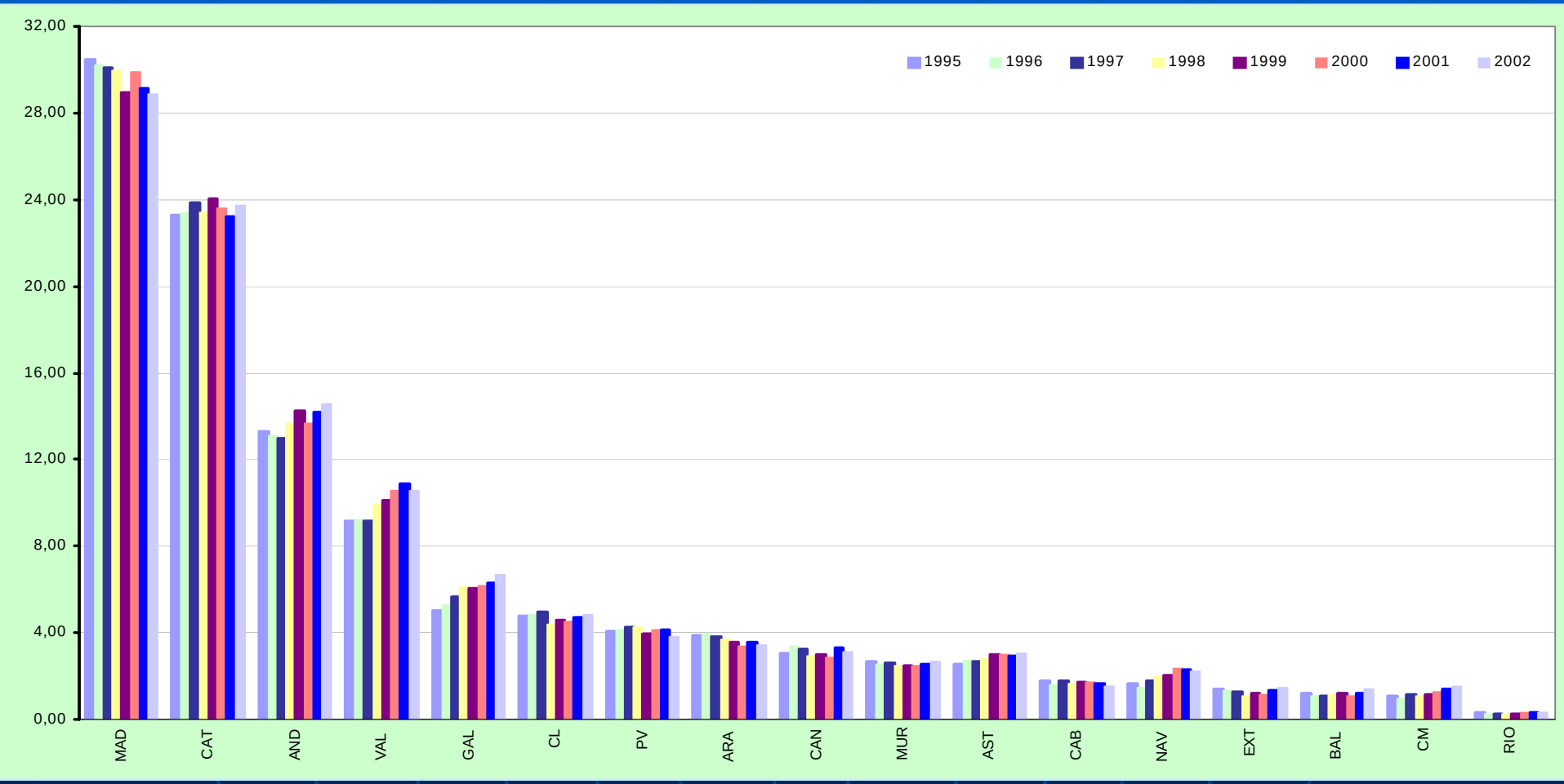
Producción por áreas ANEP (España)



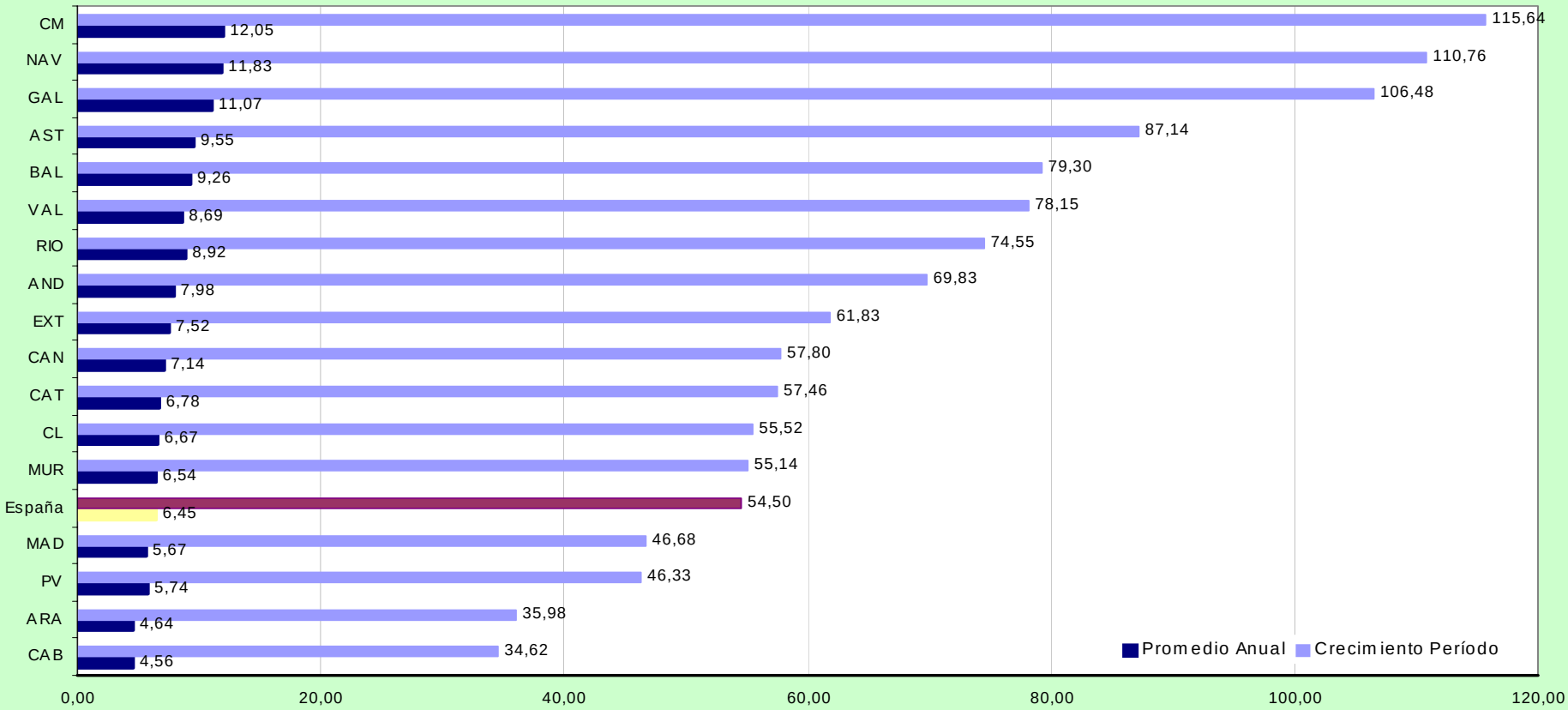
Relación Impacto/esfuerzo por áreas ANEP (España)



Distribución de la producción por CCAA (España)



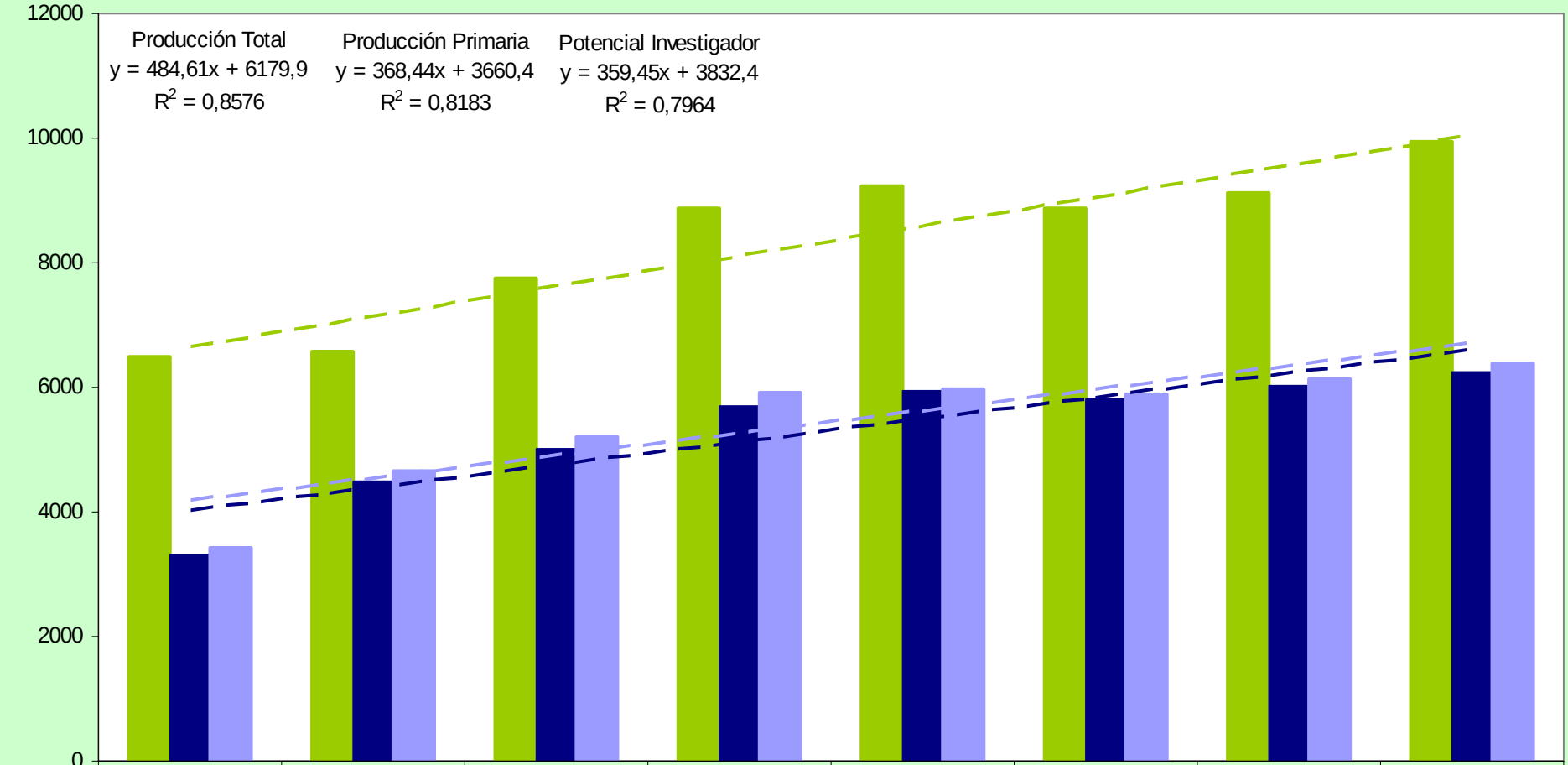
Tasa de crecimiento de la producción por CCAA (España)



Excelencia científica por CCAA y áreas ANEP (España)

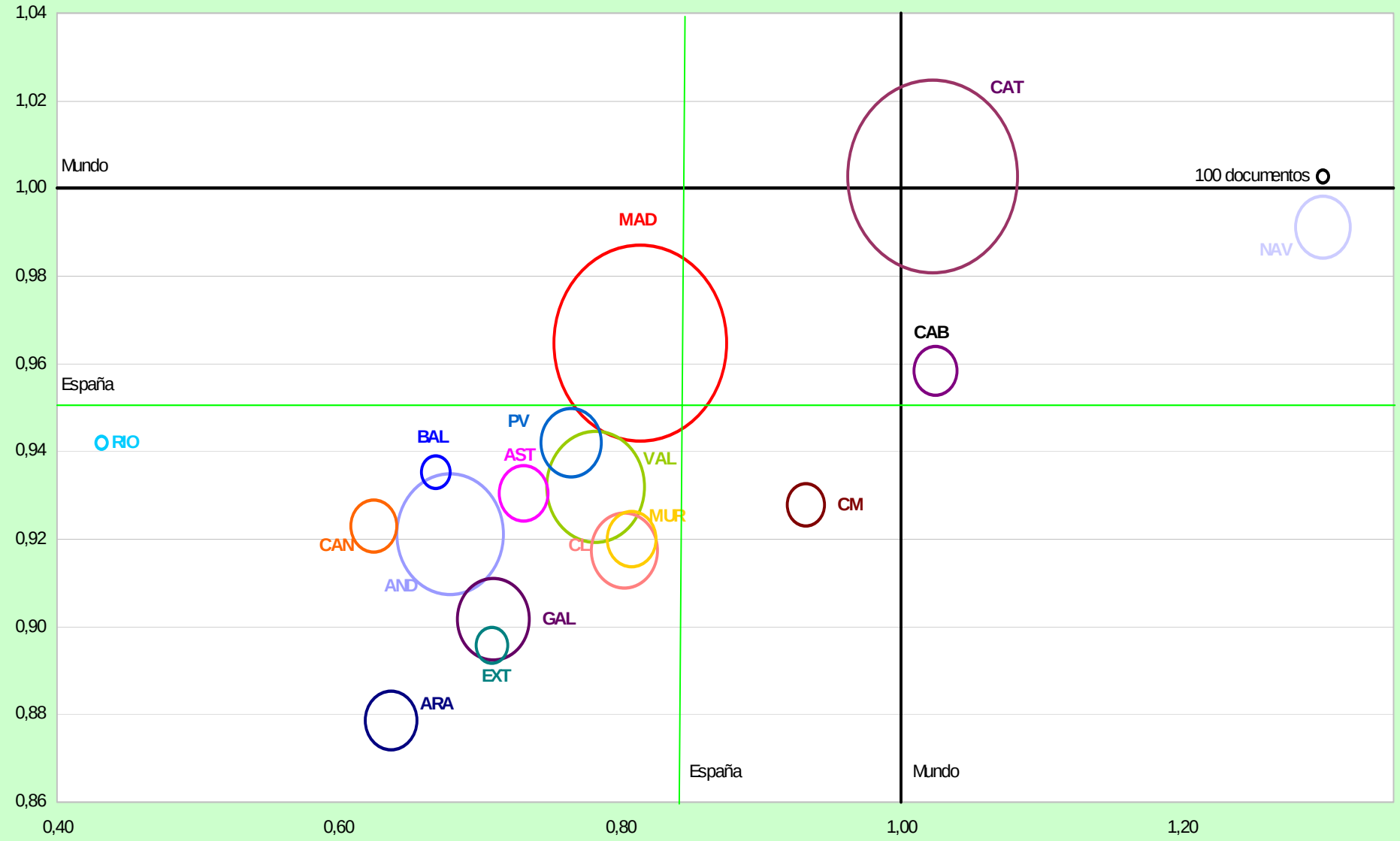
Clase	AND	ARA	AST	BAL	CAB	CAN	CAT	CL	CM	EXT	GAL	MAD	MUR	NAV	PV	RIO	VAL
AGR	2464	489	294	52	66	228	2184	653	167	236	1047	2783	604	217	352	40	1227
ALI	1635	260	232	82	20	169	1424	502	134	163	720	2374	517	296	281	38	1001
CIV	337	113	70	29	80	43	635	106	33	25	165	812	32	21	99	8	282
COM	912	162	101	109	126	103	1306	160	92	47	327	1263	119	88	249	20	639
CSS	265	96	71	25	37	63	648	101	14	25	100	797	37	69	136	5	238
ECO	92	87	62	6	13	45	541	47	6	9	61	517	30	66	86	4	267
ELE	681	133	78	78	170	81	955	159	76	39	382	1204	69	114	173	2	423
FAR	1766	212	218	125	91	461	2955	660	95	228	624	3379	340	380	448	29	1314
FIS	3031	1369	714	507	883	1809	5589	1497	278	333	1474	10849	317	277	1288	44	3104
GAN	1230	353	220	50	39	283	1384	501	58	151	739	1794	356	114	171	24	593
MAR	1056	477	371	81	75	95	2033	402	64	83	450	4563	62	92	1074	8	998
MAT	1777	438	202	50	278	329	1589	405	78	115	550	1911	293	188	306	112	961
MEC	320	128	94	5	67	38	459	61	38	31	101	657	52	36	120	5	167
MED	7666	1904	1711	649	1406	1586	19750	3091	941	736	3480	19780	1690	2133	2571	106	6427
MOL	4768	684	883	320	432	672	7863	1713	278	472	1783	11264	1142	708	1190	87	2814
PSI	627	38	221	56	22	139	615	120	17	33	270	787	123	33	146	2	443
QUI	5243	1605	1280	315	137	782	6719	1593	567	547	2810	7407	863	287	1299	230	3961
TEC	654	109	67	85	170	74	907	142	64	37	373	1092	65	107	157	0	405
TIE	2329	634	418	193	116	407	2767	470	122	165	741	2221	160	47	486	16	827
TQU	514	332	265	40	60	113	723	187	60	95	391	1388	60	40	297	2	423
VEG	3479	502	346	308	74	719	3421	676	128	216	1392	3619	726	244	428	21	1373

Evolución de la producción en Medicina (España)

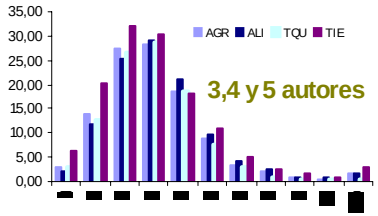


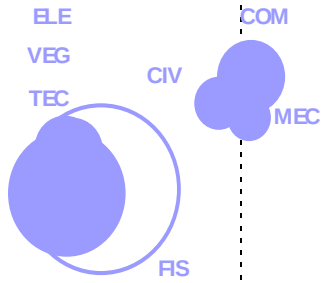
	1995	1996	1997	1998	1999	2000	2001	2002
NDoc	6485	6577	7751	8890	9240	8865	9122	9955
NDocc	3312	4494	5003	5693	5950	5807	6041	6247
PI	3425,79	4658,06	5210,64	5916,33	5977,12	5897,15	6129,13	6385,55

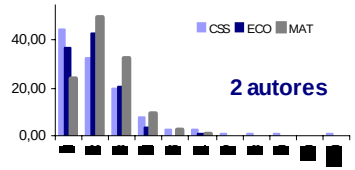
Relación impacto/esfuerzo en Medicina (España)

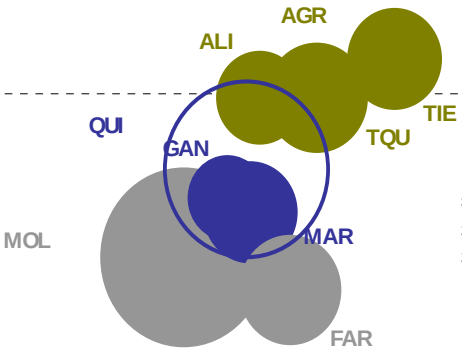


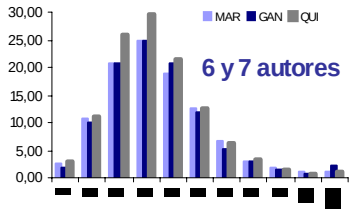
Patrones de coautoría por áreas ANEP (España)

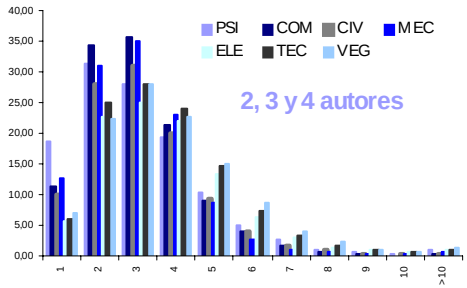


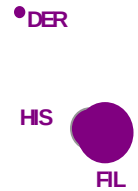


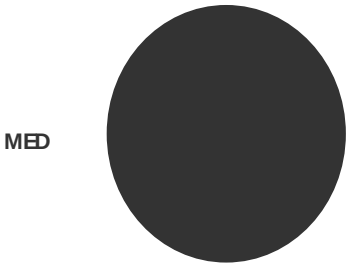


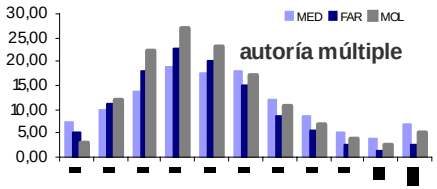


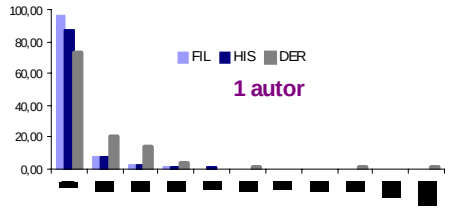




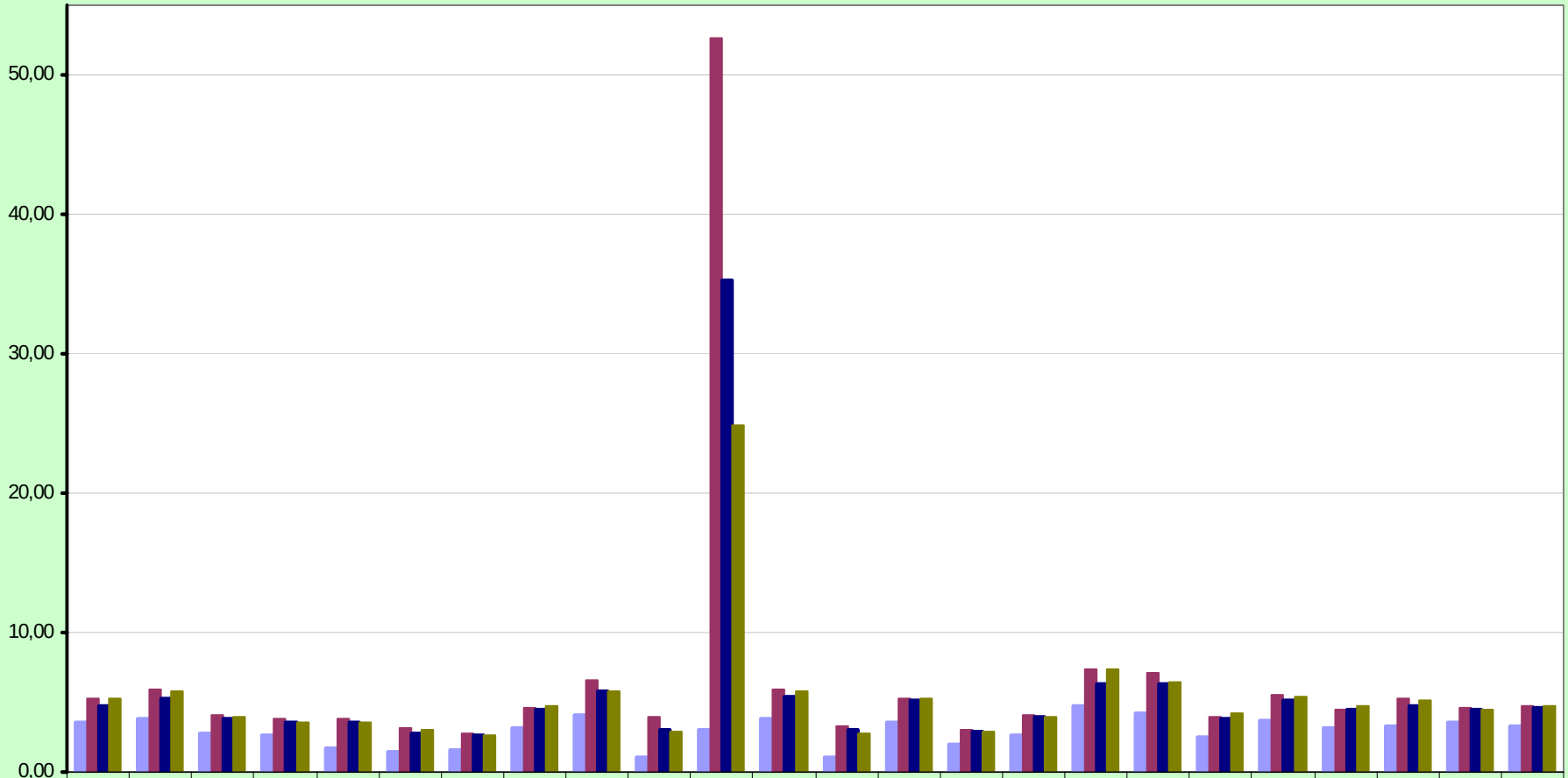






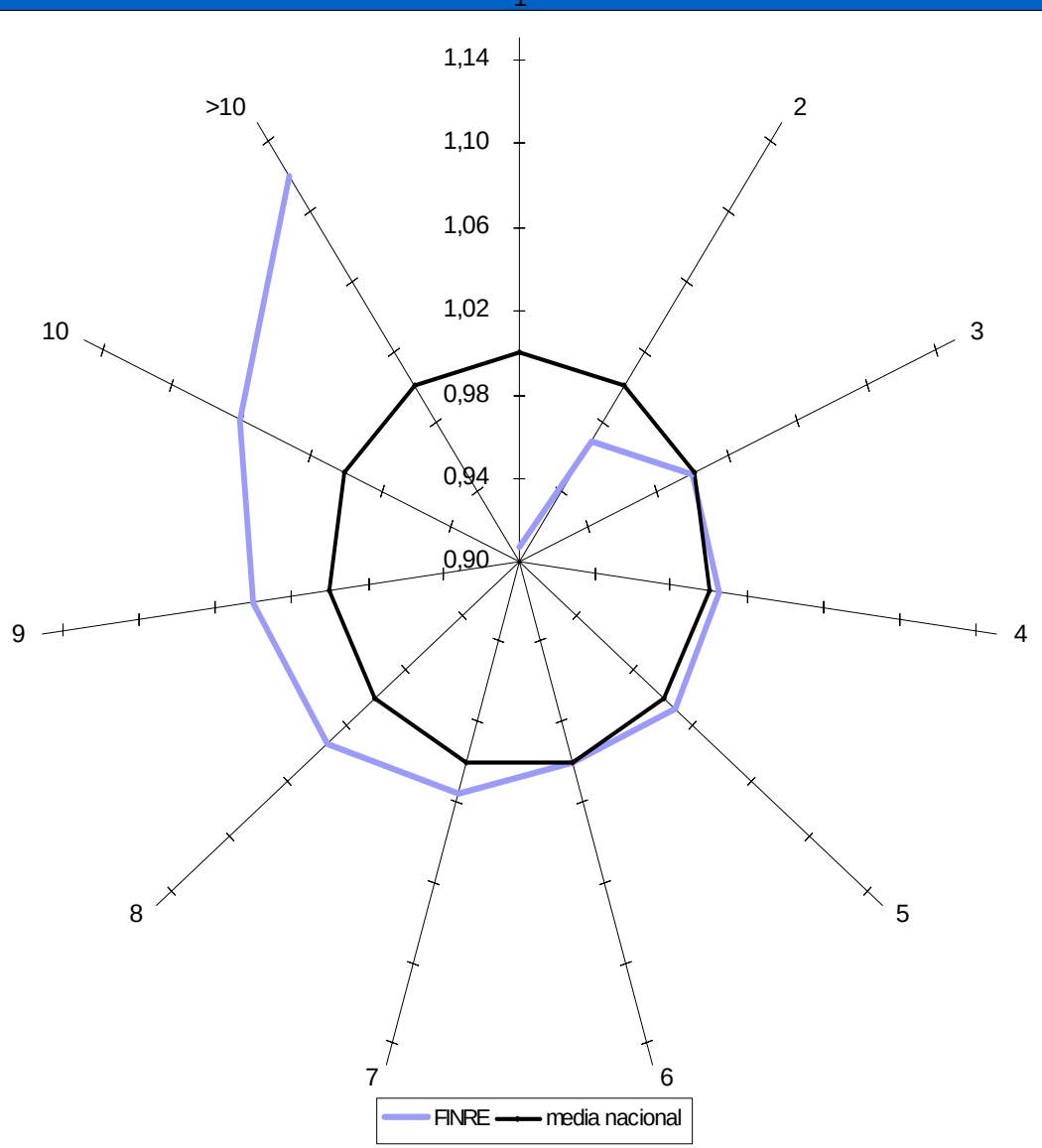


Coautoría por áreas ANEP (España)

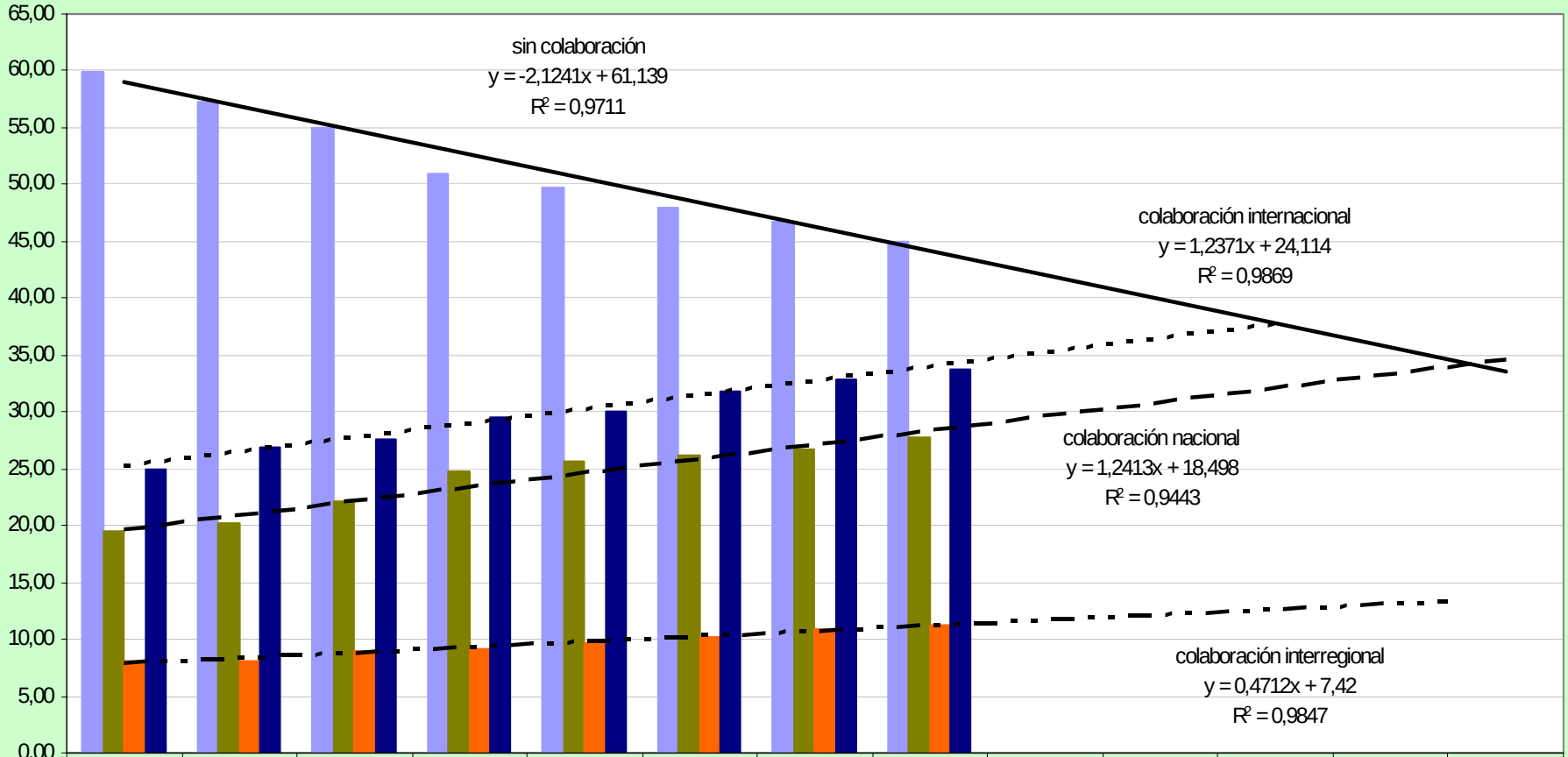


	AGR	ALI	CIV	COM	CSS	DER	ECO	ELE	FAR	FIL	FIS	GAN	HIS	MAR	MAT	MEC	MED	MOL	PSI	QUI	TEC	TIE	TQU	VEG
sin	3,59	3,78	2,77	2,69	1,71	1,41	1,52	3,13	4,04	1,09	2,96	3,88	1,10	3,52	1,94	2,65	4,77	4,25	2,55	3,68	3,16	3,24	3,51	3,23
interregional	5,27	5,98	4,11	3,79	3,83	3,20	2,77	4,54	6,53	3,94	52,60	5,90	3,33	5,33	2,98	4,03	7,33	7,05	3,99	5,53	4,53	5,23	4,54	4,73
nacional	4,80	5,30	3,83	3,61	3,55	2,79	2,62	4,44	5,82	3,05	35,22	5,37	3,01	5,16	2,92	3,93	6,31	6,26	3,82	5,18	4,44	4,80	4,45	4,55
internacional	5,28	5,74	3,90	3,57	3,49	3,07	2,57	4,69	5,85	2,94	24,87	5,84	2,82	5,27	2,86	3,89	7,35	6,42	4,15	5,33	4,75	5,17	4,49	4,71

Relación impacto/coautoría (España)

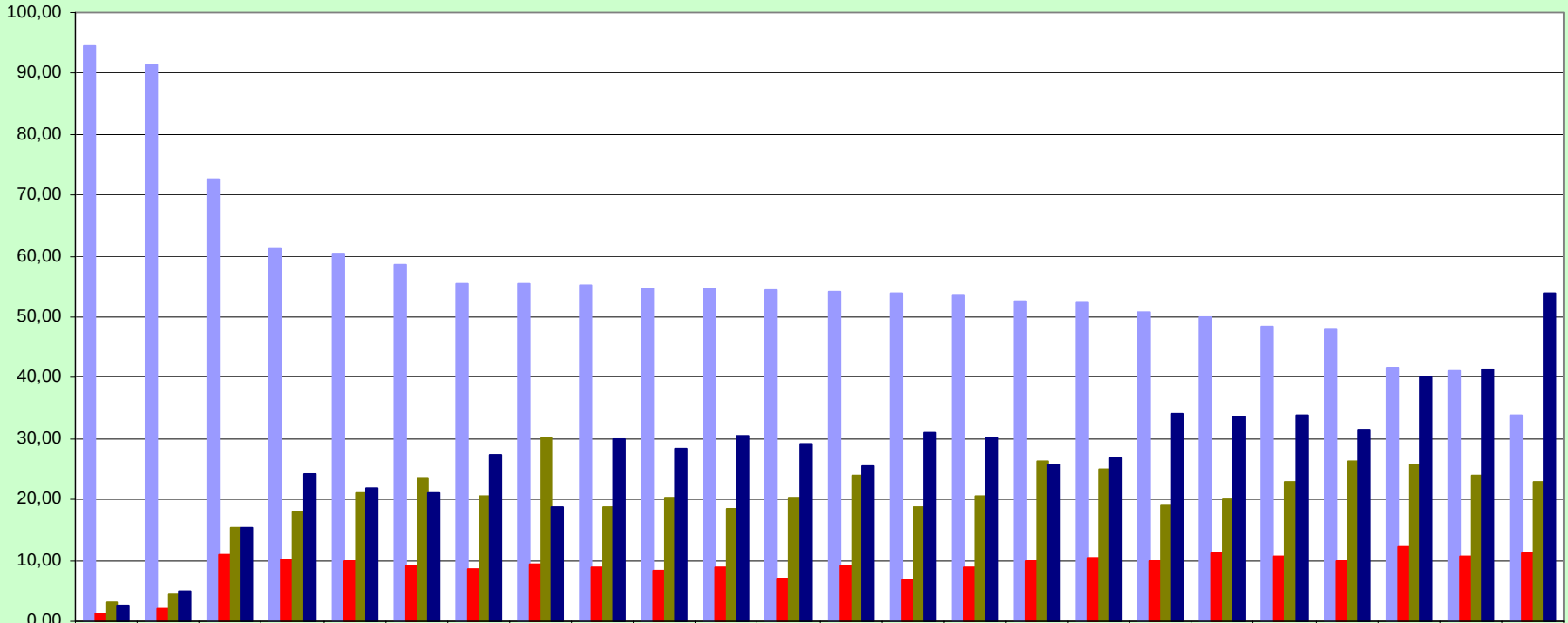


Evolución de los patrones de colaboración (España)



	1	13											
sin	59,84	57,25	55,06	50,95	49,73	47,99	46,77	45,05					
nacional	19,45	20,19	22,06	24,73	25,57	26,19	26,64	27,84					
interregional	8,04	8,13	9,03	9,19	9,73	10,17	10,84	11,19					
internacional	24,98	26,96	27,51	29,57	30,08	31,77	32,90	33,68					

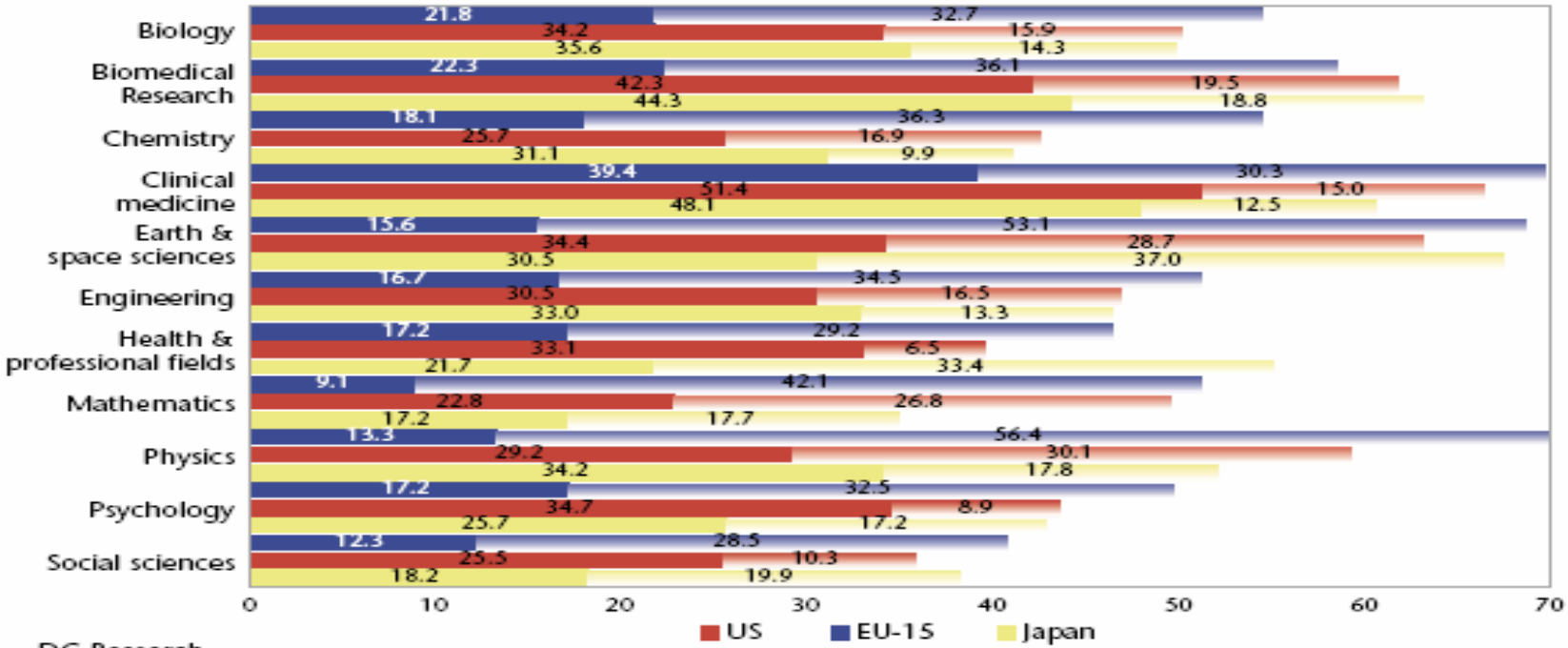
Patrones de colaboración por áreas ANEP (España)



	FIL	HIS	DER	CSS	PSI	ALI	COM	MED	ELE	TQU	TEC	CIV	AGR	MEC	QUI	FAR	GAN	MAT	ECO	VEG	MOL	TIE	MAR	FIS
sin	94,60	91,49	72,53	61,31	60,47	58,53	55,46	55,45	55,09	54,80	54,79	54,32	54,22	53,88	53,69	52,49	52,40	50,74	50,12	48,56	47,95	41,64	41,13	33,75
interregional	1,38	1,96	10,99	10,29	9,77	9,06	8,59	9,48	8,87	8,36	8,87	7,15	9,21	6,76	8,80	9,89	10,49	9,81	11,23	10,56	9,90	12,35	10,68	11,19
nacional	3,10	4,33	15,38	18,08	21,12	23,54	20,57	30,11	18,62	20,32	18,39	20,44	24,03	18,71	20,66	26,38	25,04	18,97	20,05	22,86	26,23	25,67	24,06	23,02
internacional	2,67	4,89	15,38	24,12	21,78	21,03	27,43	18,68	30,03	28,27	30,55	29,23	25,42	30,97	30,20	25,82	26,84	34,13	33,70	33,72	31,59	40,16	41,29	54,01

Colaboración por países y campos científicos

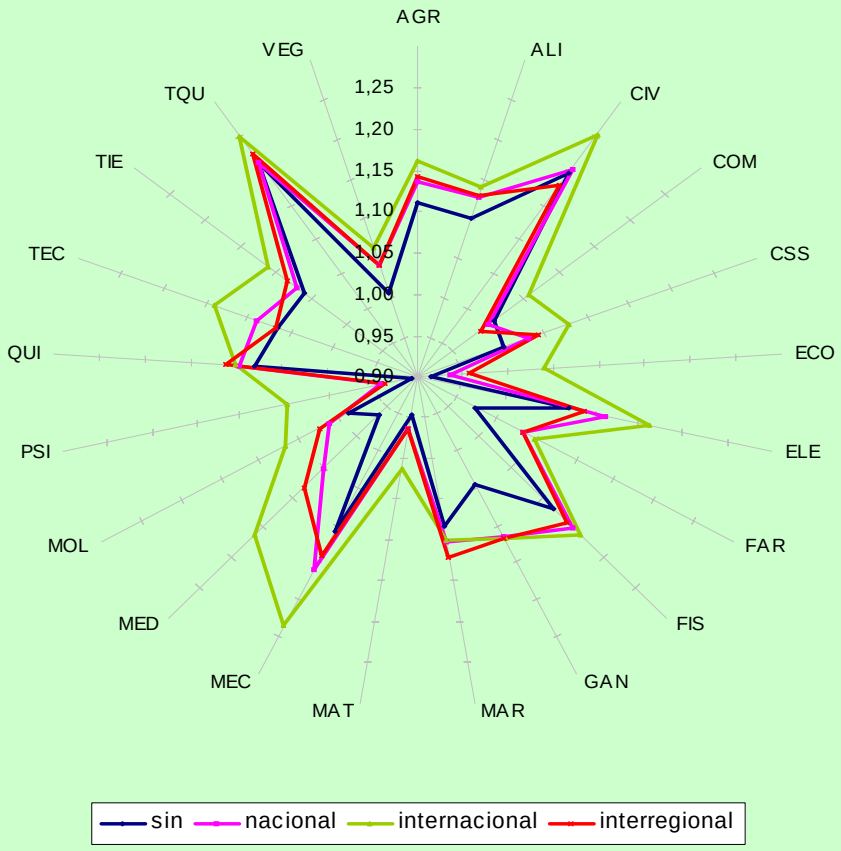
Figure 5.4.3 Domestic and international co-publication shares (%) by EU-15, US and Japan (1995-1999)



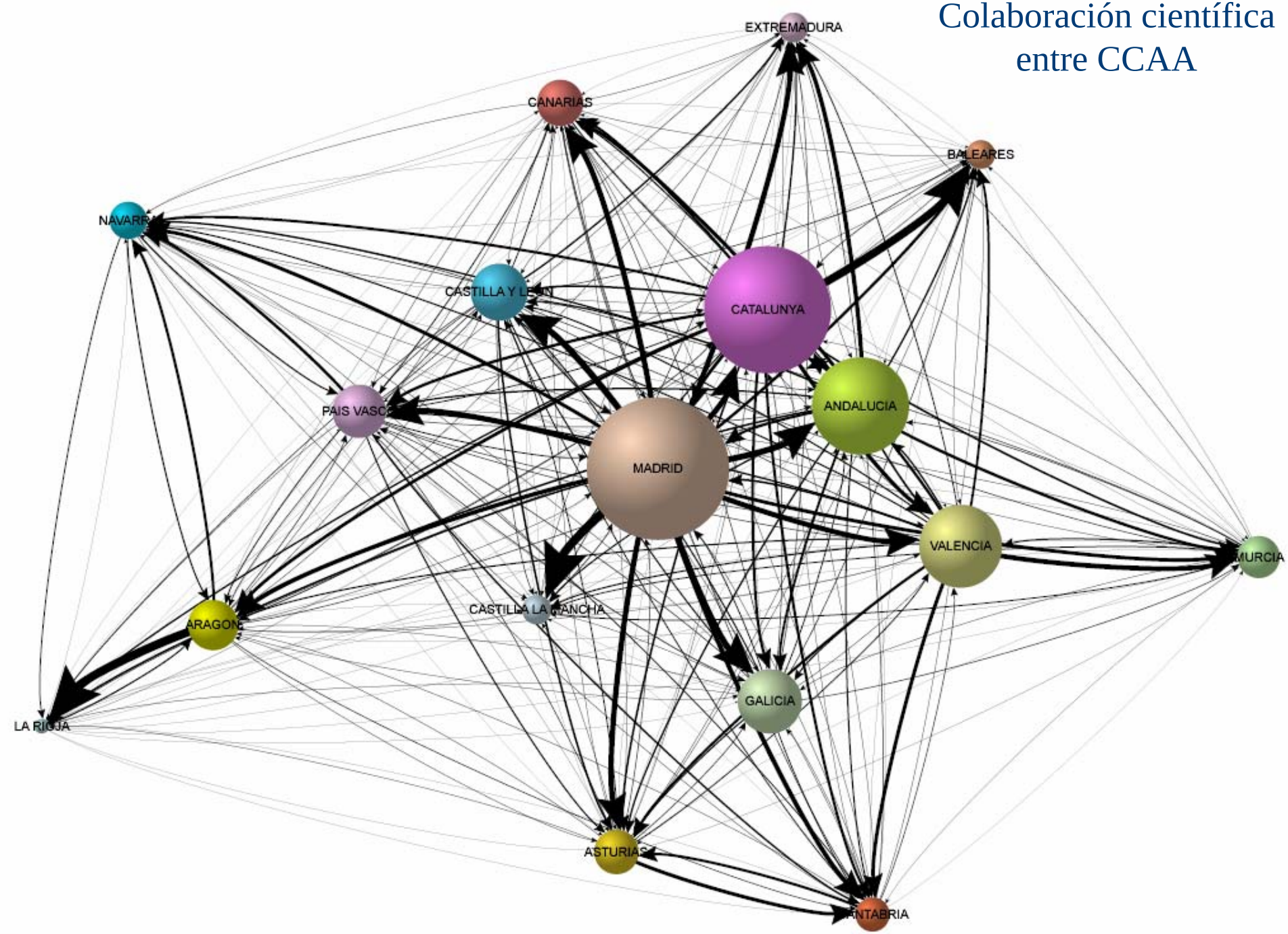
Source: DG Research
Data: ISI, NSB 2000
Note: share of domestic co-publications, the internationally co-authored publications by EU-15 (blue), US (red), and Japan (yellow). It should be read as follows: In the field of biology, Europe co-authors 21.8% domestically, i.e., within Europe. 32.7% of publications have a non-European partner involved.

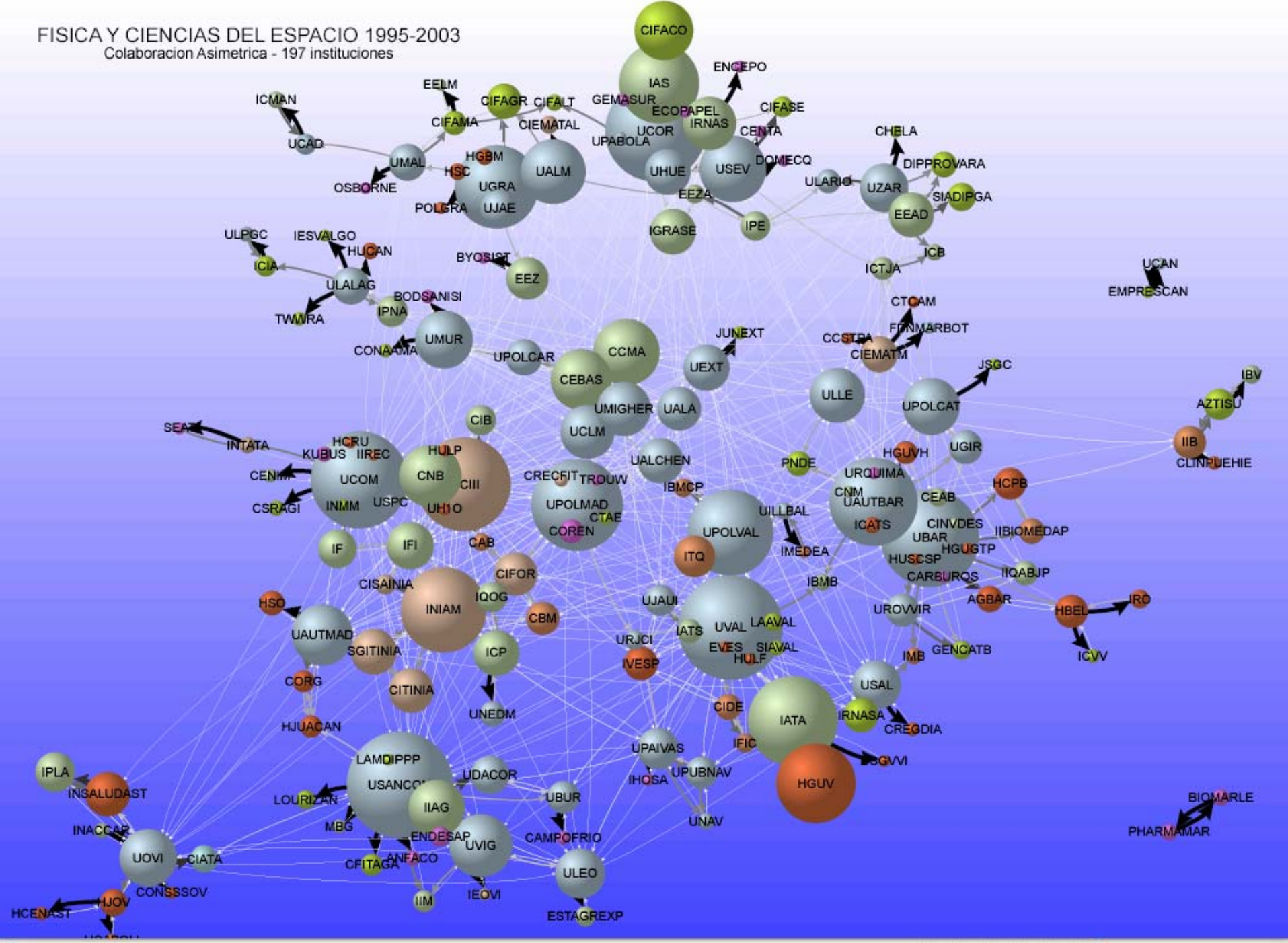
Third European Report on S&T Indicators, 2003

Relación impacto/colaboración (España)



Colaboración científica entre CCAA




FISICA Y CIENCIAS DEL ESPACIO 1995-2003
Colaboracion Asimetrica - 197 instituciones
CIFACO
IAS
ENCEPO
GEMASUR
ECOPAPEL
CIFASE
IRNAS
UCOR
CENTA
UPABOLA
CHELA
DIPPROVARA
DOMECQ
USEV
UHUE
ULARIO
UZAR
SIADIPGA
EEAD
EEZA
IPE
IGRASE
ICB
ICTJA
EEEM
CIFAGR
CIFALT
CIFAMA
CIEMATAL
ICMAN
UCAD
UMAL
HGBM
HSC
UALM
UGRA
UJAE
OSBORNE
POLGRA
ULPGC
IESVALGO
HUCAN
ICIA
ULALAG
BYOSIST
EEZ
TWWRA
BODSANISI
IPNA
UMUR
CONAMA
UPOLCAR
CCMA
CEBAS
UMIGHER
UALA
UCLM
UEXT
JUNEXT
CCSTPA
CIEMATM
CTCAM
FPNMARBOT
UCAN
EMPRESCAN
ULLE
JSGC
UPOLCAT
IBV
AZTISU
IIB
CLINPUEHIE
UGIR
HGUVH
PNDE
URQUIMA
CNM
UAUTBAR
CEAB
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ICATS
CINVDES
IIBIOMEDAP
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IRNASA
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IHOSA
UPUBNAV
UNAV
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CRECFIT
TROUW
UPOLMAD
CTAE
COREN
UALCHEN
IBMCP
UILLBAL
UPOLVAL
ITQ
IMEDEA
IBMB
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CIFOR
CISAINIA
IQOG
INIAM
CBM
HSO
UAUTMAD
SGITINIA
ICP
CORG
CITINIA
UNEDM
HJUACAN
UJAUI
IATS
UVAL
LAAVAL
EVES
SIAVAL
HULF
URJCI
IVESP
LAMDIPPP
USANCO
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LOURIZAN
IIAG
UBUR
MBG
ENDESAP
UVIG
CAMPOFRIO
CFITAGA
ANFACO
ULEO
IIM
IEOVI
ESTAGREXP
IPLA
INSALUDAST
INACCAR
UOVI
CIATA
CONSSSOV
HJOV
HCENAST

Producción Chilena por Campo Científico

	VIEW	FIELD	PAPERS	CITATIONS	CITATIONS PER PAPER
1		CLINICAL MEDICINE	3,697	21,376	5.78
2		CHEMISTRY	2,580	10,068	3.90
3		SPACE SCIENCE	2,146	30,689	14.30
4		PLANT & ANIMAL SCIENCE	1,914	6,915	3.61
5		BIOLOGY & BIOCHEMISTRY	1,385	10,568	7.63
6		PHYSICS	1,285	7,663	5.96
7		ENVIRONMENT/ECOLOGY	1,064	4,954	4.66
8		ENGINEERING	822	2,007	2.44
9		MATHEMATICS	739	1,847	2.50
10		GEOSCIENCES	672	3,683	5.48
11		MOLECULAR BIOLOGY & GENETICS	511	4,967	9.72
12		AGRICULTURAL SCIENCES	451	1,464	3.25
13		NEUROSCIENCE & BEHAVIOR	414	4,023	9.72
14		MATERIALS SCIENCE	324	731	2.26
15		PHARMACOLOGY & TOXICOLOGY	324	2,076	6.41
16		COMPUTER SCIENCE	289	453	1.57
17		SOCIAL SCIENCES, GENERAL	288	482	1.67
18		MICROBIOLOGY	267	1,824	6.83
19		ECONOMICS & BUSINESS	203	727	3.58
20		IMMUNOLOGY	126	731	5.80
21		PSYCHIATRY/PSYCHOLOGY	104	320	3.08
22		MULTIDISCIPLINARY	18	188	10.44

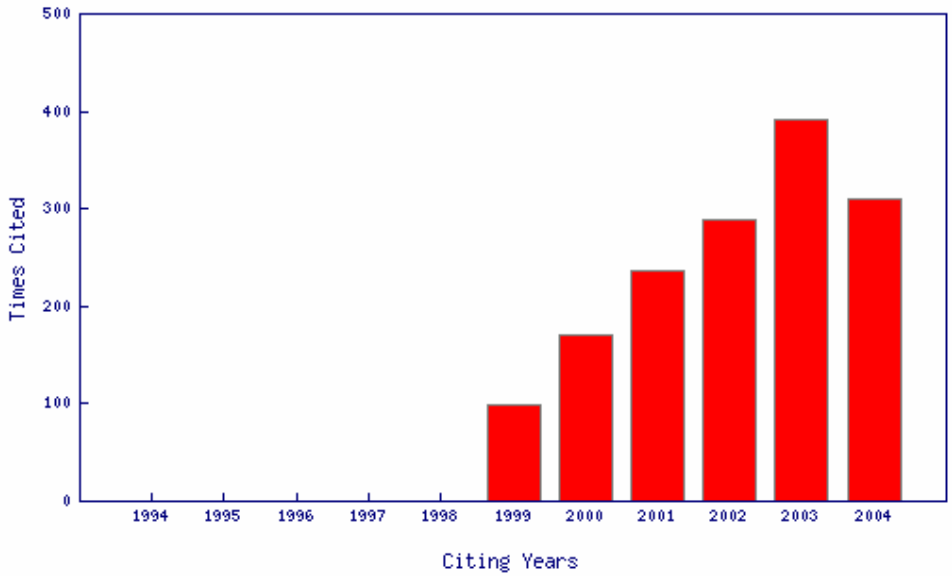
HIGHLY CITED PAPERS FOR CHILE

Title: OBSERVATIONAL EVIDENCE FROM SUPERNOVAE FOR AN ACCELERATING UNIVERSE AND A COSMOLOGICAL CONSTANT

Source: ASTRON J 116: (3) 1009-1038 SEP 1998

Number of Citations (by year):

How to read this data



HOT PAPERS FOR CHILE

Title: A VERY ENERGETIC SUPERNOVA ASSOCIATED WITH THE GAMMA-RAY BURST OF 29 MARCH 2003

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