

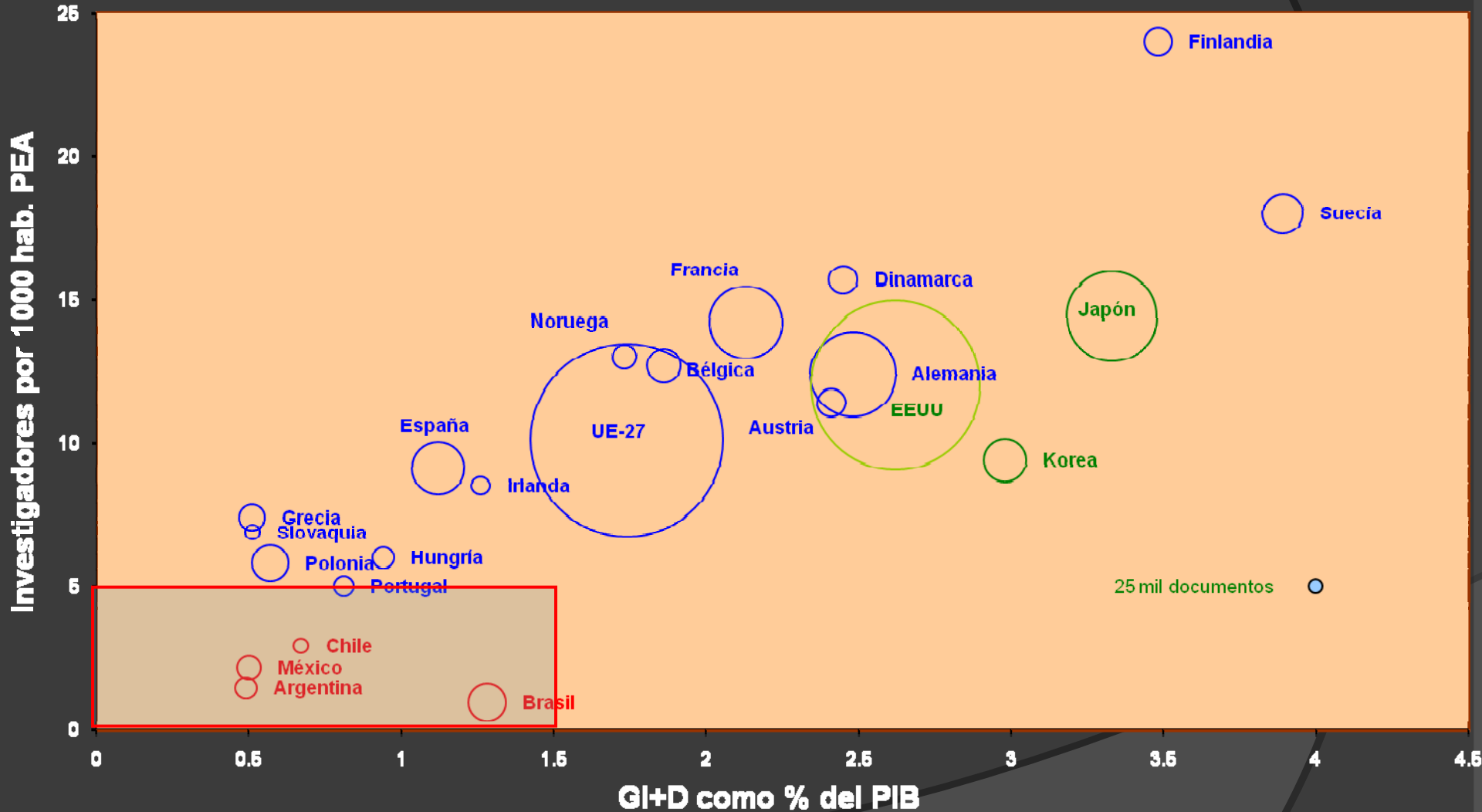
Félix de Moya Anegón CSIC, Scimago Group
CRICS 2008 Rio de Janeiro

LA PRODUCCIÓN DE CONOCIMIENTO CIENTÍFICO
LATINO AMERICANO EN EL CAMPO DE LA SALUD:
VISIÓN DE LA REGIÓN DESDE UNA PERSPECTIVA
GLOBAL

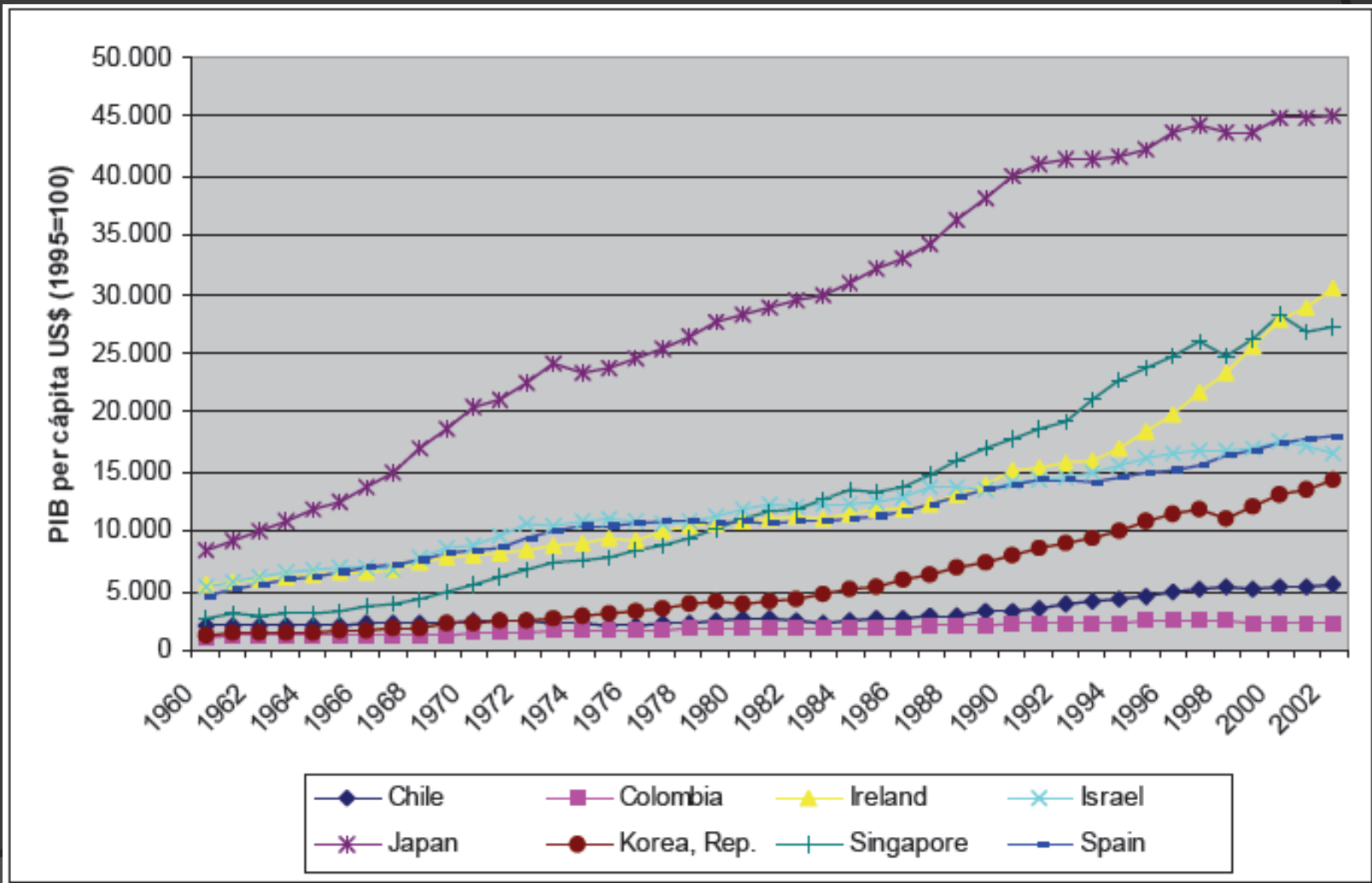
Agenda

1. Some economics concerns
2. The scientific outputs in the developing countries
3. Relative measurement of medicine scientific field (developed vs developing)
4. Strength and weakness of the scientific outputs generation in LAC

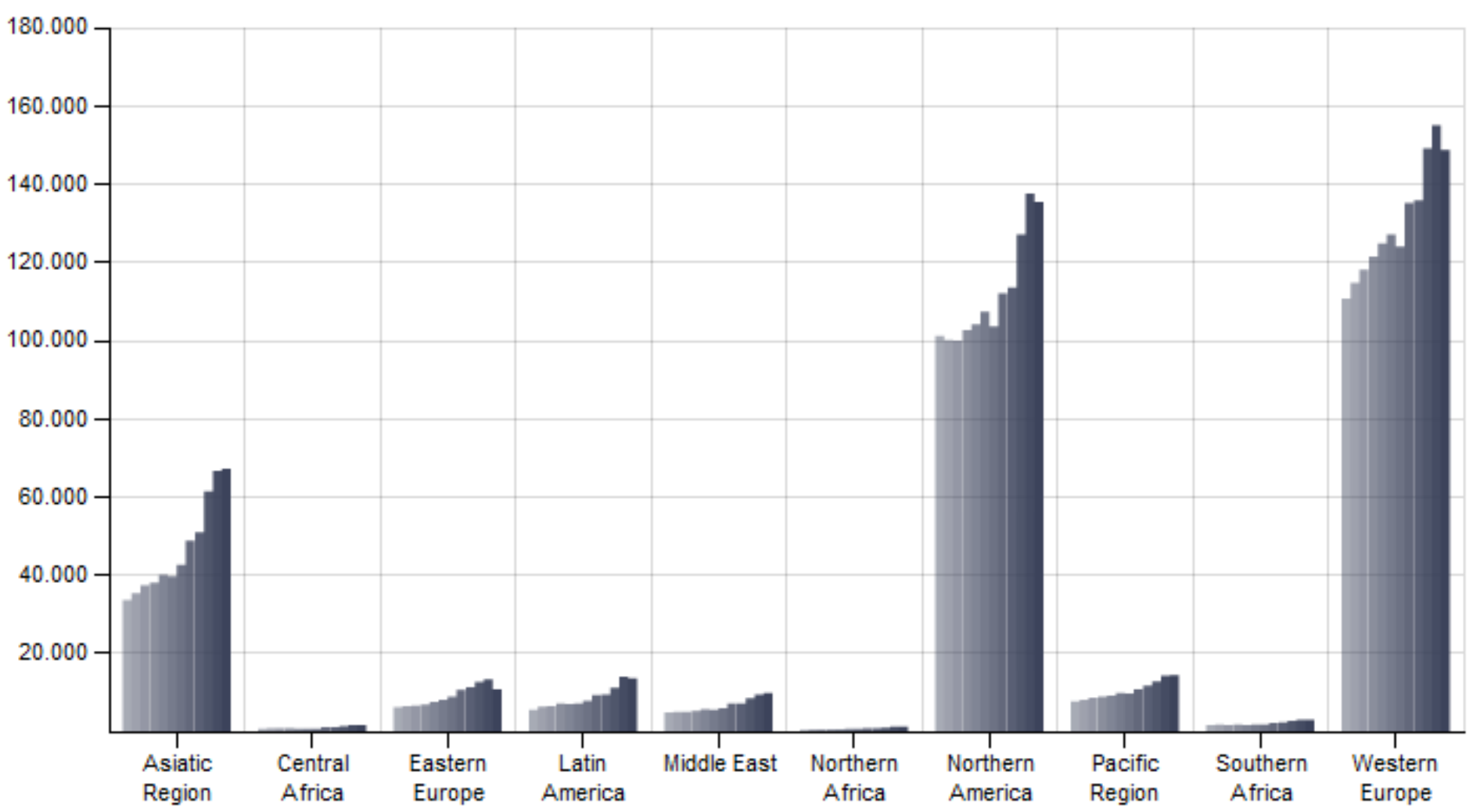
Investigadores - Gasto en I+D - Producción



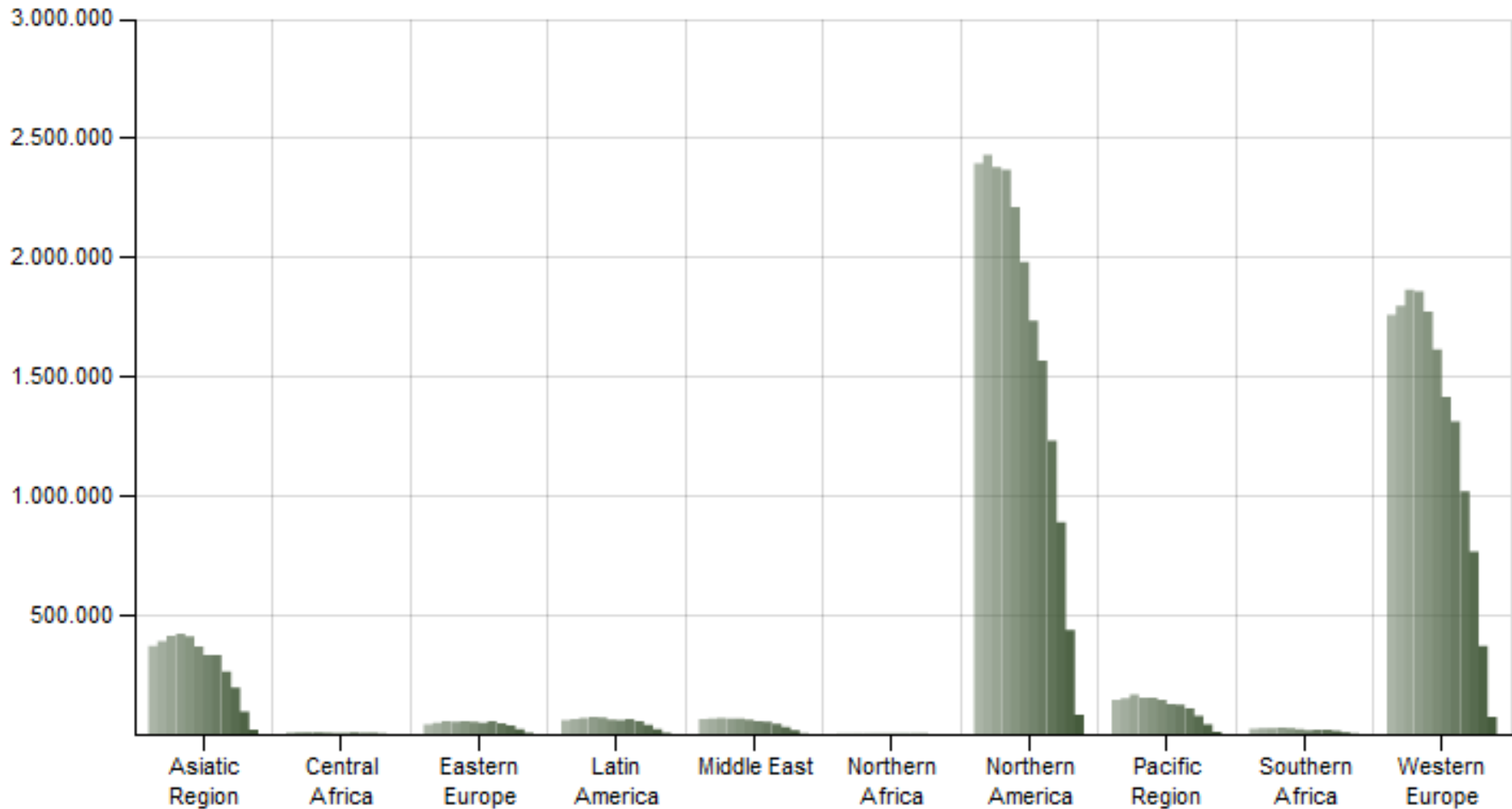
Evolution of GDP per capita



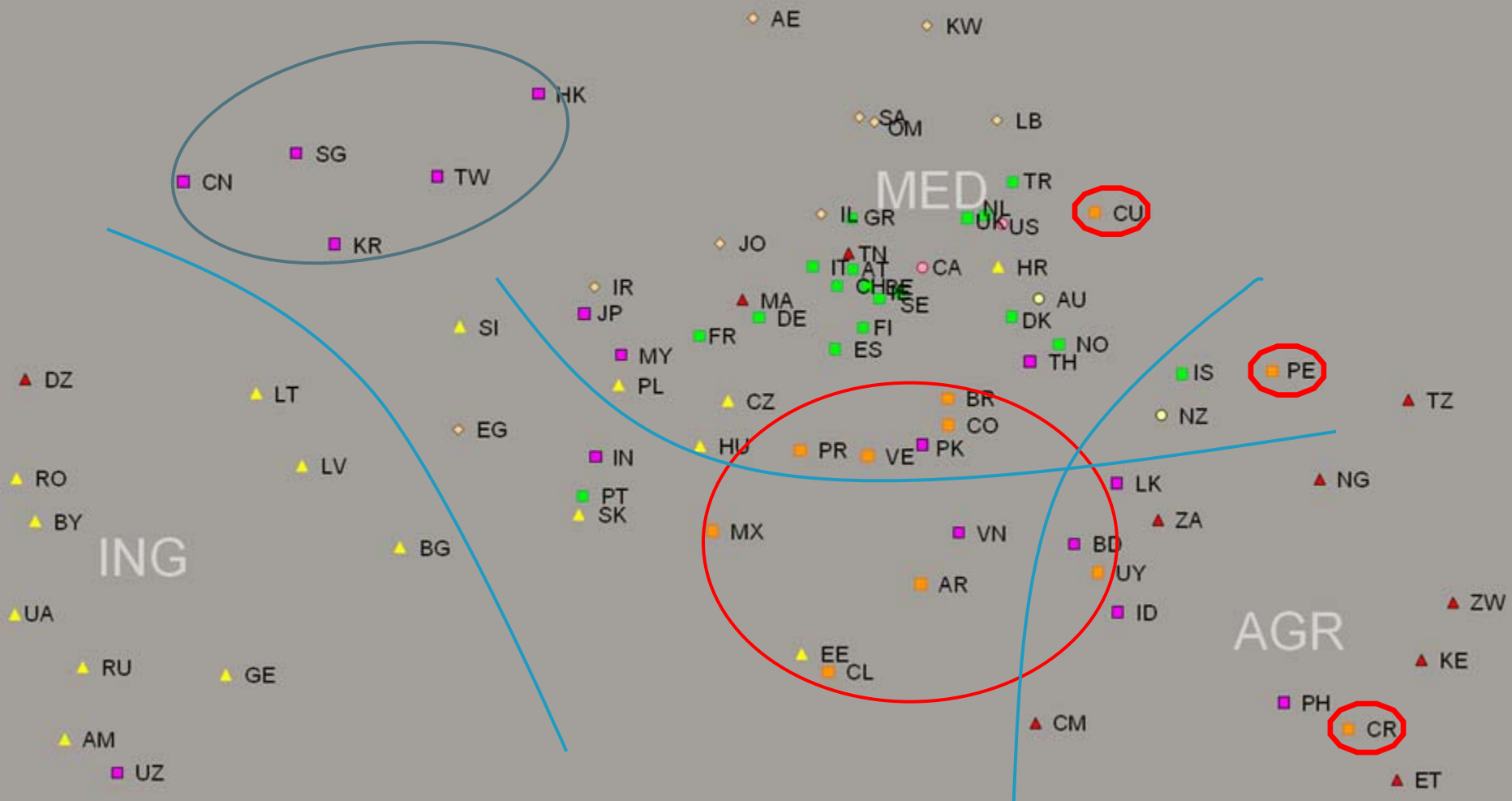
Scientific outputs per region (Medicine 1996-2007)



Total cites per region (Medicine 1996-2007)



MAP OF SCIENTIFIC SUBJECT PROFILE PER COUNTRIES (2006)



- ▲ Africa
- Asian Region
- ▲ Eastern Europe
- Latin America
- ◆ Middle East
- North America
- Pacific Region
- Western Europe

Latin American region* (Medicine 1996-2007)

	Country	Documents	Citable Documents	Cites	Self-Cites	Cites per Doc.	H index
1	Brazil	52.252	48.764	280.139	70.356	6,65	126
2	Mexico	16.362	15.289	101.990	17.214	6,70	87
3	Argentina	14.020	13.028	103.127	14.662	7,72	98
4	Chile	6.452	6.072	50.041	6.617	8,72	76
5	Cuba	3.108	2.875	11.744	2.880	5,29	42
6	Colombia	3.090	2.870	22.842	2.567	9,93	57
7	Venezuela	2.946	2.755	21.042	2.697	8,23	59
8	Peru	1.318	1.218	12.629	1.430	12,70	47
9	Uruguay	1.201	1.086	10.342	1.301	10,03	43
10	Puerto Rico	1.126	1.045	18.678	832	19,33	59
11	Jamaica	1.053	948	7.151	913	8,23	33

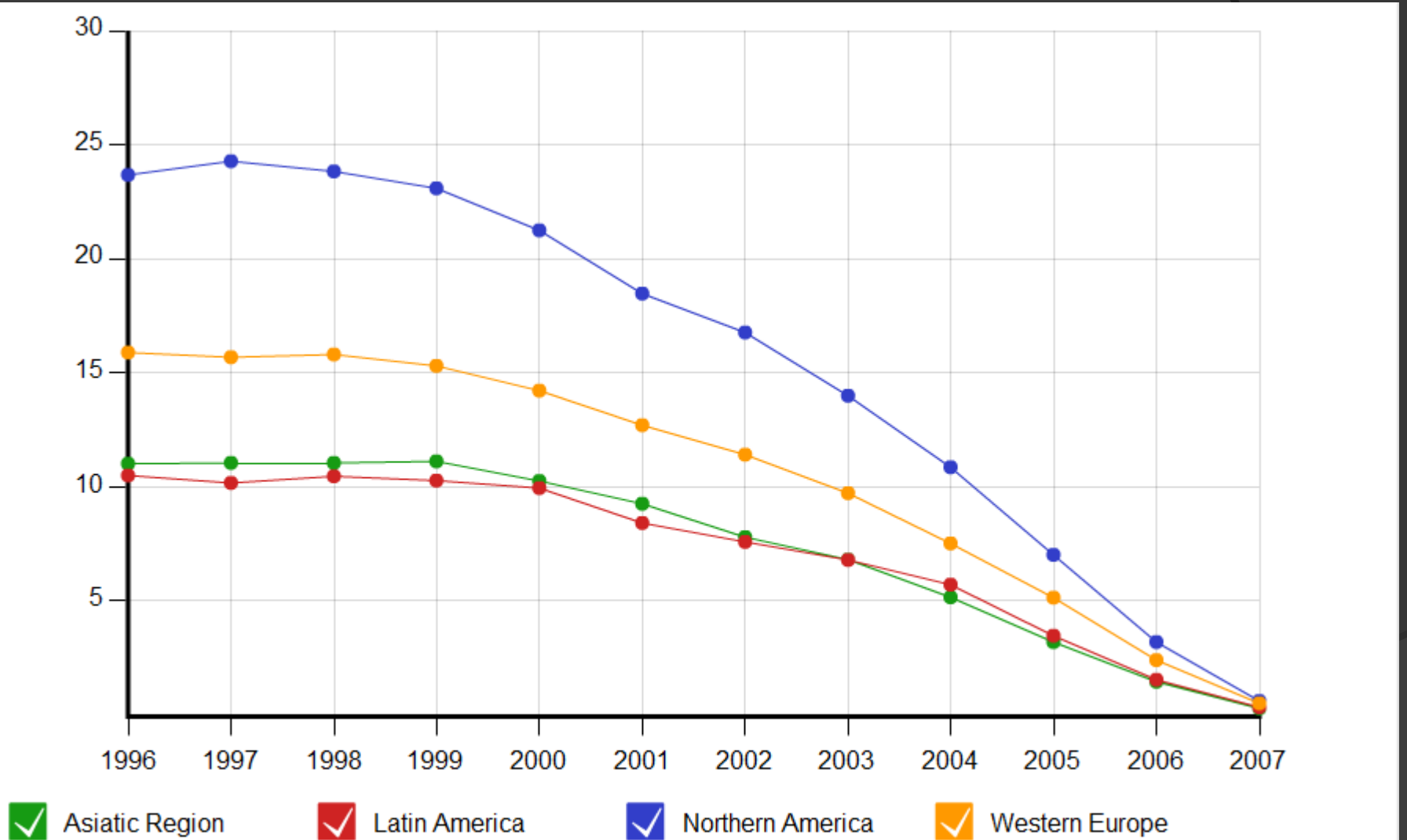
*Countries over 1000 scientific outputs in the period

Asiatic region* (Medicine 1996-2007)

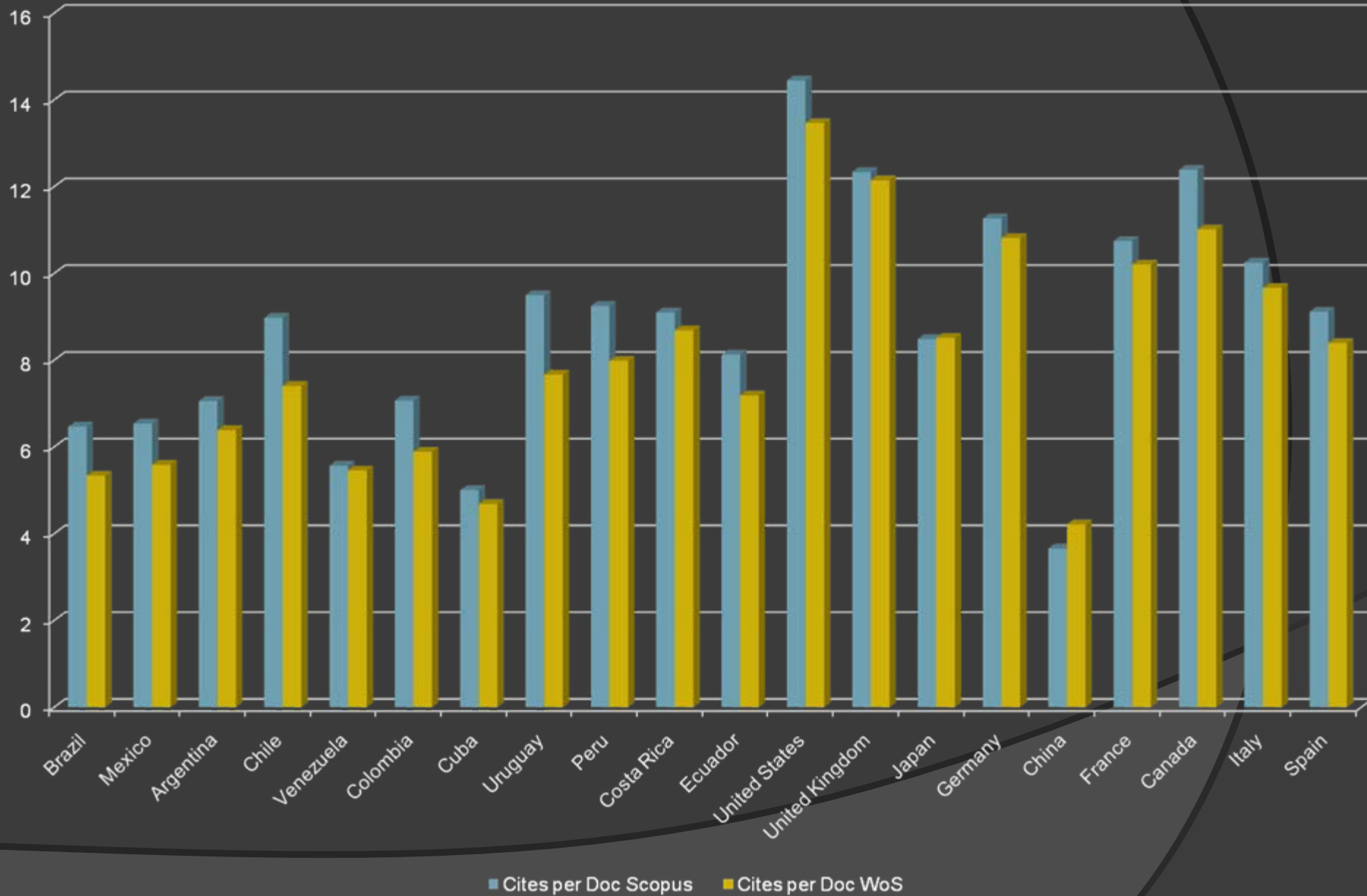
	Country	Documents	Citable Documents	Cites	Self-Cites	Cites per Doc.	H index
2	China	91.494	89.666	250.746	71.651	4,82	112
3	India	62.318	52.795	213.390	60.319	4,16	90
4	Taiwan	41.310	39.097	264.315	51.263	7,55	116
5	Korea	36.388	34.842	230.714	33.946	8,56	105
6	Hong Kong	19.680	17.450	179.232	30.509	10,47	119
7	Thailand	11.985	11.469	74.370	13.305	7,23	82
8	Singapore	11.840	10.694	88.850	10.643	8,70	89
9	Pakistan	6.448	5.723	17.100	3.902	3,21	42
10	Malaysia	4.181	3.839	17.249	1.968	5,07	44
11	Bangladesh	1.992	1.842	12.726	2.408	6,90	41
12	Indonesia	1.492	1.429	12.065	1.302	9,11	42
13	Philippines	1.317	1.244	12.532	1.096	11,17	48
14	Nepal	1.293	1.091	6.004	840	5,85	31
15	Viet Nam	1.292	1.222	14.740	1.665	14,09	47

* Excluding Japan and countries under 1000 scientific outputs in the period

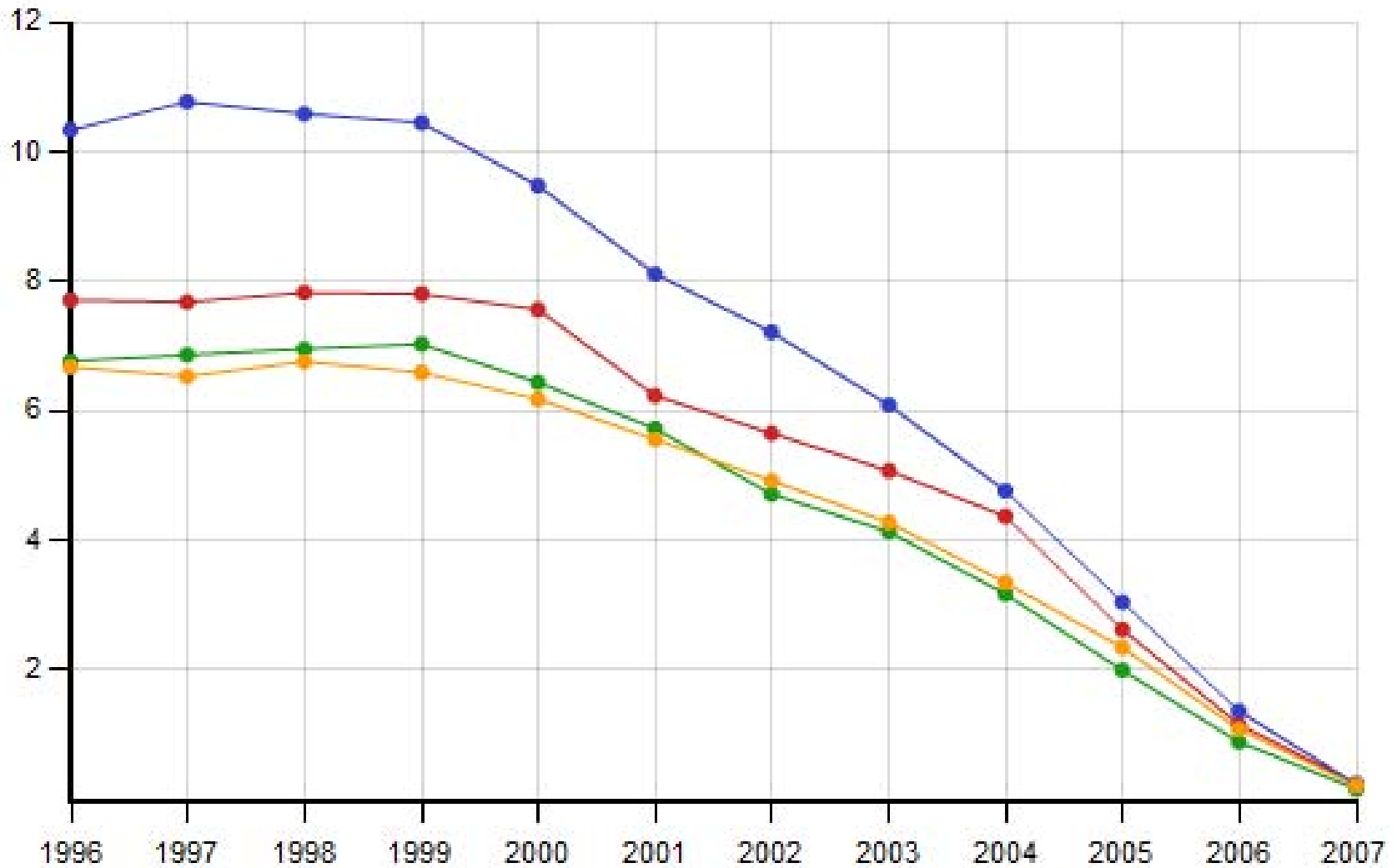
Evolution of cites per document (Medicine 1996-2007)



Cites per document by country

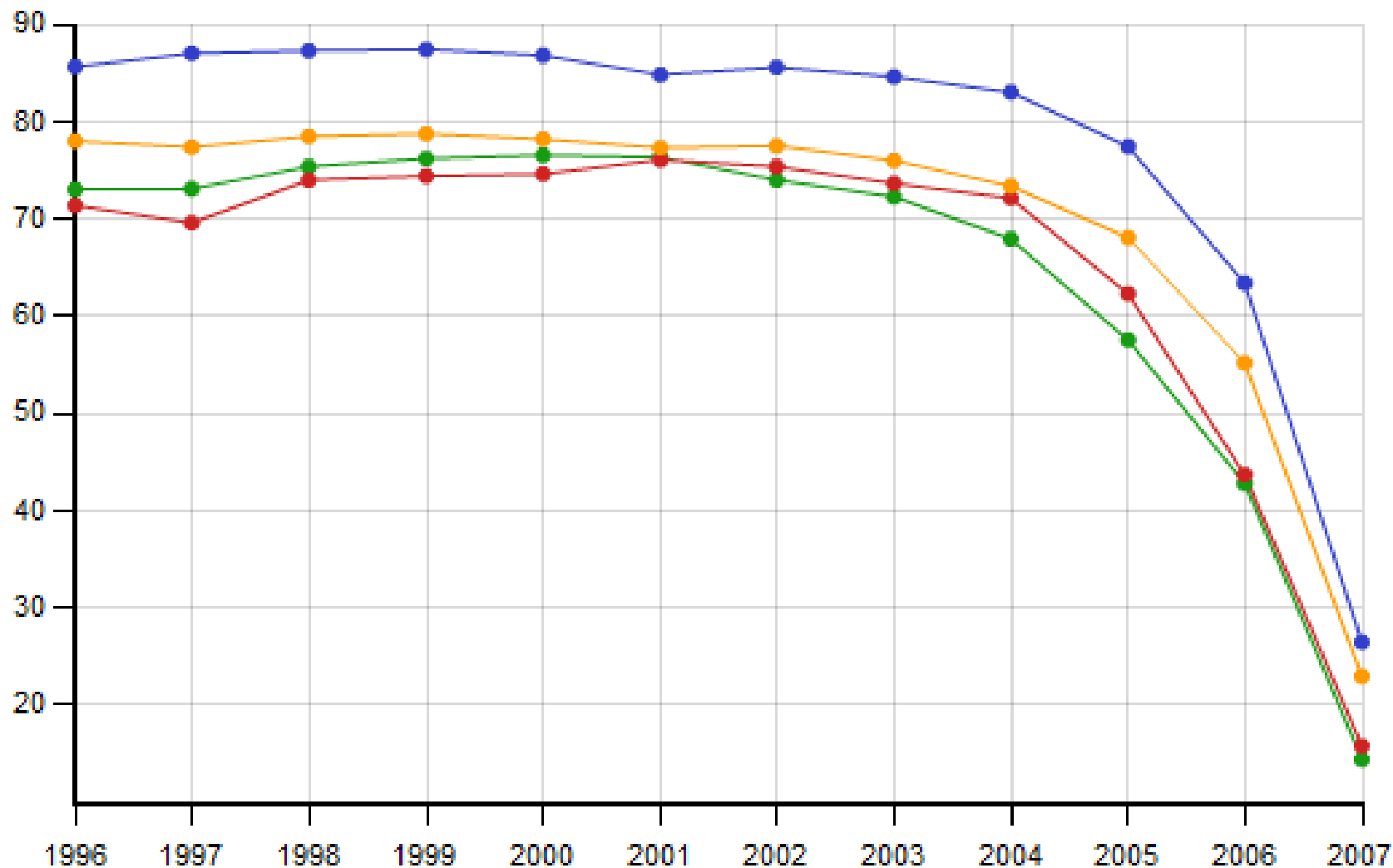


Evolution of cites-self cites per document (Medicine 1996-2007)



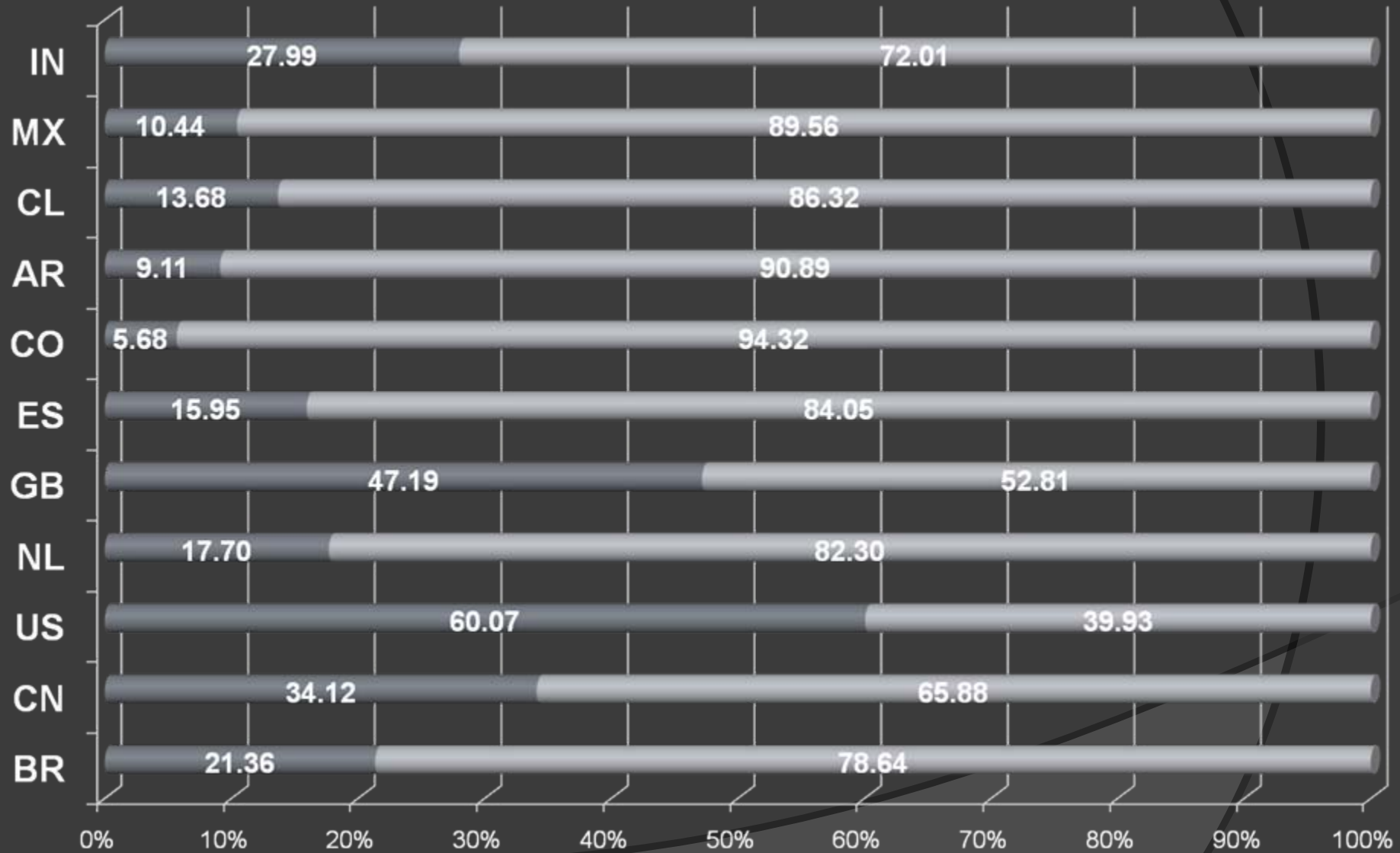
✓ Asiatic Region ✓ Latin America ✓ Northern America ✓ Western Europe

Evolution of % of cited documents (Medicine 1996-2007)



✓ Asiatic Region ✓ Latin America ✓ Northern America ✓ Western Europe

% of scientific outputs published in the same country

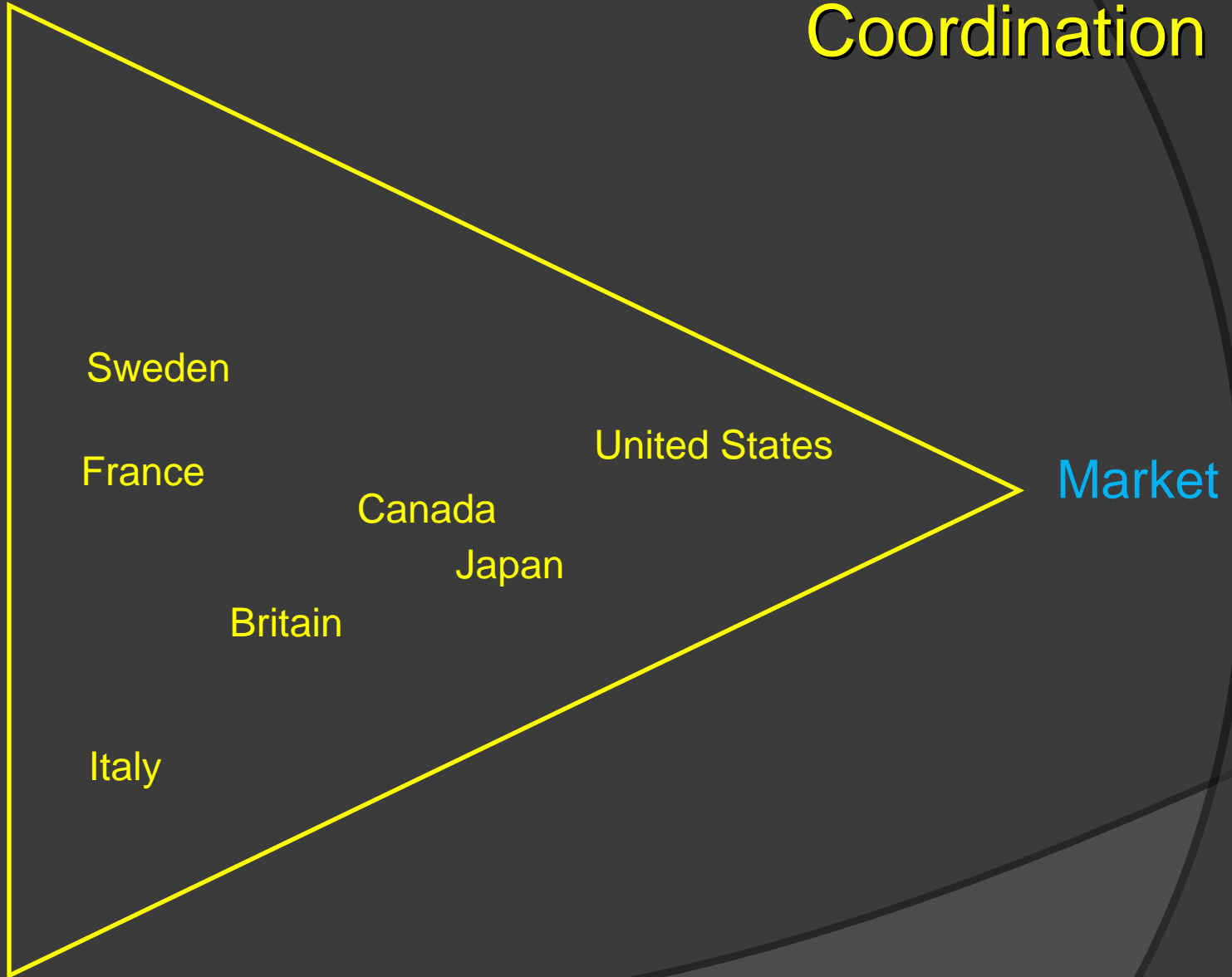


Relative weight of biggest commercial publishers by fields

	Blackwell	Elsevier	J. Wiley	Kluwer	Lipp.	Springer	T & F	All
1. Biochemistry and molecular biology	4	43	10	9	-	5	6	77
2. Cell biology	3	14	7	4	-	6	3	37
3. Chemical, multidisciplinary	ng	12	19	19	-	2	10	62
4. Chemistry, physical	-	60	8	15	-	3	3	88
5. Clinical neurology	9	23	4	3	11	20	6	76
6. Economics	10	51	3	12	-	5	4	85
7. Education and educational research	11	13	5	7	-	-	32	68
8. Engineering, chemical	-	54	9	12	-	-	9	84
9. Engineering, electrical and electronic	-	24	14	7	-	2	8	55
10. Law	2	11	5	16	-	-	-	34
11. Materials sciences, multidisciplinary	-	52	7	11	-	3	4	77
12. Mathematics, applied	-	39	15	9	-	6	10	80
13. Mathematics	-	34	6	14	-	15	6	75
14. Neuroscience	6	40	17	3	3	10	4	83
15. Pharmacy	3	37	11	2	3	5	8	69
16. Physics, applied	-	35	2	8	-	8	9	62
17. Physics, multidisciplinary	-	43	3	11	-	3	3	63
18. Plant science	12	15	24	2	-	16	7	76
19. Psychology, clinical	1	19	12	21	-	-	10	63
20. Psychology, multidisciplinary	3	19	8	5	2	-	18	55
21. Sociology	12	9	-	12	-	-	17	50
22. Surgery	4	15	10	-	13	22	4	68

The Triangle of Coordination

State authority



Scientific oligarchy

Paradoxes

- ① ***“Two paradoxes form the nucleus of the problems of scientific expertise and policy-making. The first is the simultaneous scientification of politics and the politicisation of science. This has destructive effects: the increased use of scientific expertise by policy-makers has not increased the degree of certainty, in fact it becomes de-legitimizing. This gives rise to the second paradox: despite the loss of authority of scientific expertise, policy-makers do not abandon their reliance on existing advisory arrangements, nor do the scholars adapt their ideas on science and its relation to politics. How can this stability be achieved? How can science–politics be institutionalised?”***

Final remarks

- Latin American is far yet from the horizon of 10% of R&D funds dedicated to scientific information and from the horizon of 1% of GDP dedicated to R&D
- But his outputs are growing up more quickly than the developed countries
- We need expand the concept of *national scientific information infrastructure* at the political level
- In general terms is accepted the link between the internationalization of science and the increase of his quality. This is one of the strength in LAC
- Internationalization to insure quality but without renounce to the specificities of social concerns in the region
- In this sense the international visibilización of regional publications is one started process that will increase in the near future and is essential to insure the generation of quality scientific knowledge