

Science and Nations 2

Summary of the previous discussion:

Economic ie wealth and leisure.	USA,UK,Switz/Spain,India,China,Rome,Russia
Political/ Religious	All Christian nats, mostly Protestant
Educational/Cultural.	Universities?/ Mostly not responsible
Technology driven	/China
Highly Competitive nat of science.	Need to be in leading group to get recognition
Networking(eg academies,crit mass)	Italy, France, UK.
Migration	Switz, Italy, China/Rome
Language and writing	China, Latin
Vibrant Cities	Anc. Greece, London, Amsterdam, Edinburgh
	/ Venice, Rome, Cairo
Free Trade and Exchange	Ditto the above. All maritime.
Tolerance and Diversity	eg towards Jews; Spain, Holland, USA
National Competition	City States of Anc Greece, Europe
Democracy	/ Italy, Germany, France
Culture of honesty	Dissenters

Division of the world

World	Europe
USA	UK
Canada	Germany
Russia and Central Asia	France
China	Switzerland
India	Netherlands
Australia	Sweden
Africa	Austria
Israel	Denmark
Japan	Italy
South East Asia	Norway
(excluding Japan)	
West Asia / Middle East	Belgium
(excluding Israel)	
South and Central America	Rest of Western Europe
(including Mexico)	(Faroe Islands, Finland, Ireland, Portugal, Spain)
	Eastern Europe
	(Hungary, Poland, Czech Rep., Latvia)

Nobel prizes & economy (World)

Region	NP	GDP	NP/GDP	pop.	NP/mil	GDP p.c.	NP/Gdp p.c.
Europe	277	30.89%	897	592	0.468	17,588	0.265
USA	275	19.86%	1385	305	0.900	21,918	0.410
Russia	12	7.71%	156	247	0.048	10,490	0.046
Japan	11	4.67%	235	127	0.086	12,343	0.069
Australia	7	1.08%	646	32	0.218	11,380	0.191
Canada	8	1.62%	493	33	0.239	16,392	0.146
Israel	4	0.07%	5466	7	0.545	3,364	1.620
China	2	9.35%	21	1327	0.002	2,376	0.006
India	2	6.42%	31	1140	0.002	1,899	0.009
SCA	2	5.19%	39	562	0.004	3,108	0.011
Africa	1	3.27%	31	999	0.001	1,105	0.009
SEA	0	7.40%	0	775	0.000	3,219	0.000
WA	0	2.98%	0	399	0.000	2,517	0.000

- ▷ *GDP: average of rel. GDPs from years 1870, 1913, 1950, 1973 and 1998*
- ▷ *population: recent pop. in millions*
- ▷ *GDP per capita: relative average recomputed to nowadays dollars*
- ▷ *last col.: Nobel prizes / (\$10,000 GDP p. cap. * mil inhabitants)*

Nobel prizes & economy (Europe)

Country	NP	GDP	NP/GDP	pop.	NP/mil	GDP p.c.	NP/GDP p.c.
UK	81	6.31%	1284	61	1.324	34,768	0.380
Germany	67	6.09%	1100	82	0.815	24,992	0.326
France	31	4.71%	658	64	0.481	24,655	0.195
Switzerland	20	0.62%	3204	7	2.615	27,529	0.950
Netherlands	15	1.00%	1500	16	0.911	20,479	0.444
Sweden	15	0.67%	2251	9	1.624	24,341	0.667
Austria	9	0.62%	1453	8	1.079	25,042	0.430
Denmark	9	0.42%	2128	5	1.640	25,984	0.631
Italy	8	3.42%	234	59	0.134	19,323	0.069
Norway	6	0.27%	2183	4	1.252	19,351	0.647
EE	6	3.50%	172	184	0.033	6,388	0.050
Belgium	5	0.93%	537	10	0.469	29,430	0.159
RWE	5	2.33%	215	77	0.064	10,109	0.063

Discoveries & economy (World 1500 - 1900)

Region	NP	GDP	NP/GDP	pop.	NP/mil	GDP p.c.	NP/Gdp p.c.
Europe	64	31.9	200	408	0.157	2114	0.742
USA	5	2.3	221	87	0.057	701	0.819
Russia	1	4.9	21	150	0.007	875	0.076
Japan	0	3.1	0	40	0.000	2079	0.000
Canada	0	0.2	0	5	0.000	835	0.000
Australia	0	0.2	0	4	0.000	1148	0.000
China	0	25.3	0	350	0.000	1953	0.000
India	0	19.9	0	300	0.000	1795	0.000
SCA	0	3.8	0	74	0.000	1379	0.000
Africa	0	4.3	0	133	0.000	869	0.000
SEA	0	6.7	0	50	0.000	3629	0.000
WA	0	3.2	0	42	0.000	2057	0.000

- ▷ *GDP: average of rel. GDPs from years 1500, 1600, 1700, 1800, 1870*
- ▷ *population: rough estimates from year 1900*

Discoveries & economy (Europe 1500-1900)

Country	NP	GDP	NP/GDP	pop.	NP/mil	GDP p.c.	NP/GDP p.c.
UK	25	4.0	622	40	0.625	2713	2.303
Germany	11	4.2	262	62	0.177	1829	0.970
France	13	5.4	243	38	0.342	3808	0.898
Switzerland	0	0.3	0	3	0.000	2469	0.000
Netherlands	2	3.5	71	5	0.455	17182	0.265
Sweden	0	1.7	29	5	0.091	8345	0.109
Austria	3	0.7	455	40	0.075	446	1.684
Denmark	3	0.2	1364	2	1.500	2970	5.051
Italy	5	4.0	125	33	0.149	3224	0.463
Norway	0	0.1	0	2	0.000	1890	0.000
EE	1	4.6	22	35	0.029	3533	0.081
Belgium	0	0.7	0	6	0.000	3150	0.000
RWE	0	2.5	0	125	0.000	549	0.000

Education, Econ. free., Religion, Pol. sys. (World)

Region	NP	pop.	Univ.	EconFree	Religion	imp./not	Pol.sys.
Europe	277	592	63	50-80%	Catholic	10-40%/ 0-80%	Various
USA	275	305	67	80%	Protestant	50%/10%	Full Pres. Rep.
Russia	12	247	2	40%	Orthodox	10%/10%	Semi Pres. Rep.
Japan	12	247	8	70%	Shinto/Buddhism	10%/50%	Parl. CM
Australia	7	32	13	70%	Protestant	-/10%	Parl. CM
Canada	8	33	14	80%	Protestant	20%/10%	Parl. CM
Israel	4	7	4	60%	Judaism	-/-	Semi Pres. Rep.
China	2	1327	15	30%	Chinese Rel.	-/70%	Single Party Rep.
India	2	1140	2	50%	Hinduism	90%/0%	Parl. Rep.
SCA	2	562	2	40-70%	Catholic	30-80%/ 0-30%	Mostly Full Pres. Rep.
Africa	1	999	0	~10-70%	Islam/Christian	80-90%/ 0-10%	Mostly Full Pres. Rep.
SEA	0	775	8	~10-60%	Buddhism/Islam	20-90%/ 10-40%	Various (incl. Military Dict.)
WA	0	399	0	~20-60%	Islam	60%/ 0%	Various (incl. Abs. Mon.)



Education, Econ. free., Religion, Pol. sys. (Europe)

Region	NP	pop.	Univ.	EconFree	Religion	imp./not	Pol.sys.
UK	81	61	19	80%	Protestant	30%/10%	Parl. CM
Germany	67	82	9	70%	Protestant/Catholic	20%/30%	Parl. Rep.
France	31	64	5	60%	Catholic	10%/20%	Semi Pres. Rep.
Switzerland	20	7	4	80%	Catholic/Protestant	-/-	Parl. Pres. Rep.
Netherlands	15	16	7	70%	Protestant	-/40%	Parl. CM
Sweden	15	9	6	70%	Protestant	-/80%	Parl. CM
Austria	9	8	2	70%	Catholic	-/10%	Parl. Rep.
Denmark	9	5	3	70%	Protestant	-/10%	Parl. CM
Italy	8	59	1	70%	Catholic	20%/10%	Parl. Rep.
Norway	6	4	-	70%	Protestant	-/-	Parl. CM
EE	6	184	-	50-70%	Catholic/Orthodox	10-30%/0-70%	Mostly Parl. Rep.s
Belgium	5	10	2	70%	Catholic	-/30%	Parl. CM
RWE	5	77	5	70-80%	Catholic/Protestant	-/0-10%	Mostly Parl. Rep.s

Evolution during middle period

Country	1500	GDP	1600	1700	1820	1870	Univs by 1500s
UK	0	1.1	6 1.8	10 2.9	6 5.2	3 9.1	7
Germany	0	3.3	0 3.8	1 3.6	7 3.8	3 6.5	11
France	1	4.4	1 4.7	5 5.7	3 5.5	3 6.5	9
Netherlands	0	0.3	1 0.6	2.5 1.1	0 0.6	0 0.9	1
Sweden	0	0.2	0 0.2	0.5 0.3	0 0.4	0 0.6	1
Austria	0	0.6	1 0.6	0 0.7	1 0.6	1 0.8	1
Denmark	1	0.2	2 0.2	0 0.2	0 0.2	0 0.3	1
Italy	1	4.7	3 4.4	1 3.9	0 3.2	0 3.8	17
Poland	1	7.4	0 <2.7	0 <2.9	0 <3.3	0 <4.1	1
USA	0	0.3	0 0.2	1 0.1	1 1.8	3 8.9	-
Russia	0	<3.4	0 <3.5	0 <4.4	0 5.4	1 7.6	-
Norway	0	0.1	0 0.1	0 0.1	0 0.2	0 0.2	0
Belgium	0	0.5	0 0.5	0 0.6	0 0.7	0 1.2	1
Switzerland	0	0.2	0 0.3	0 0.3	0 0.3	0 0.5	1
RWE	0	2.3	0 2.5	0 2.8	0 2.5	0 2.6	~20

Early period GDP

Region	rel. GDP 0 AD	rel. GDP 1000 A.D.
Russia	1.5	2.4
Japan	1.2	2.7
USA	0.33	0.23
Canada	0.33	0.23
Australia	0.33	0.23
China	26.2	22.7
India	32.9	28.9
SCA	2.2	3.9
Africa	6.8	11.8
SEA	6.8	6.8
WA	9.3	?
Europe	34.2	21.5

Reasons for the scientific revolution

- Why it does not occur in Greece, Islamic world, China?
- Greece:
 - ▷ *overdose of generalization at the expense of careful scrutiny*
 - ▷ *slave society (no need for machine work)*
 - ▷ *organistic rather than machinelike picture of the world*
 - ▷ *not enough social recognition for specialized scientists*
 - ▷ *decline: too much effort to maintain the accumulated knowledge*
- Islamic world
 - ▷ *foreign incursions resulting in loss of buildings and knowledge*
 - ▷ *loss of trade status with the discovery of the new world*
 - ▷ *rise of fundamentalism, intolerance, primacy of scripture*
- China
 - ▷ *self sufficient uniform empire*
 - ▷ *organic theory of Universe*

References

H. F. Cohen; *The Scientific Revolution: A Historiographical Inquiry*
University of Chicago Press, 1994

