

Trust in Science and Local ‘Science Culture’

Martin W Bauer

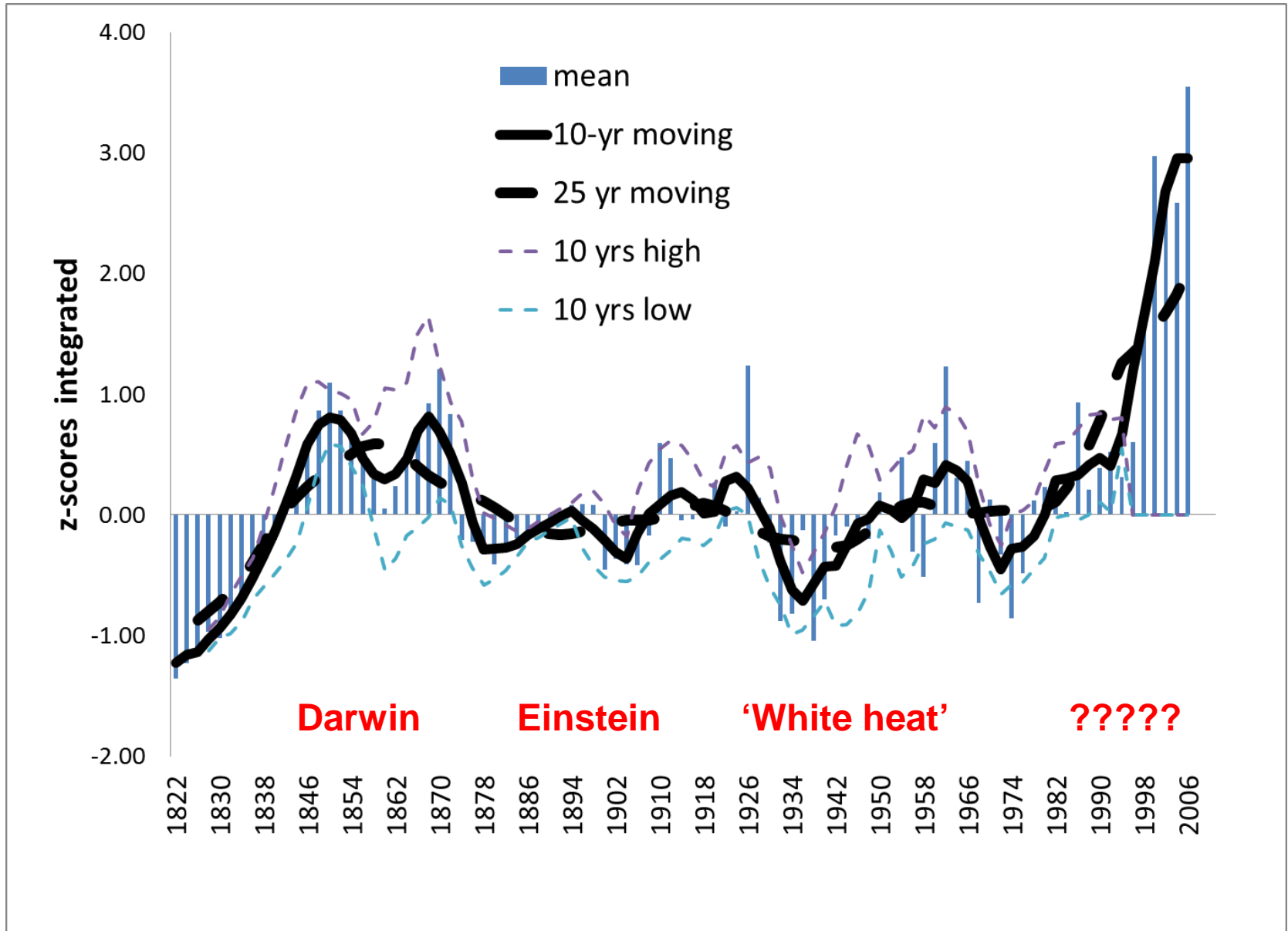
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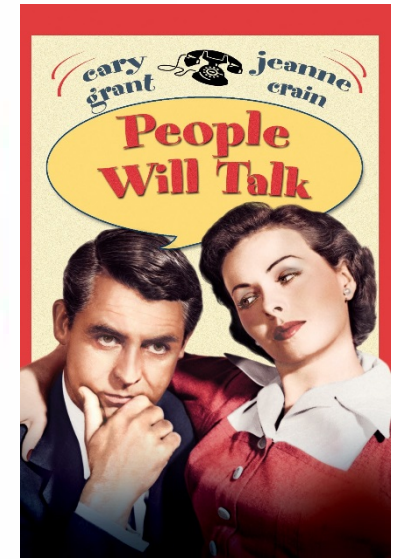
Project MACAS, www.macas-project/

Science in the Mass Media 1820-2010 [source: Bauer, 2012]



The famous London 'Roadmaster': **the ecology of driving a bus**

Bus driver =
workforce;
Working conditions;
Hardware of car;
Driver style



Street conditions
Petrol prices etc.

Passenger access = society, values
Trust in drivers
Loyalty, voice, exit

Two models of the 'authority of science'

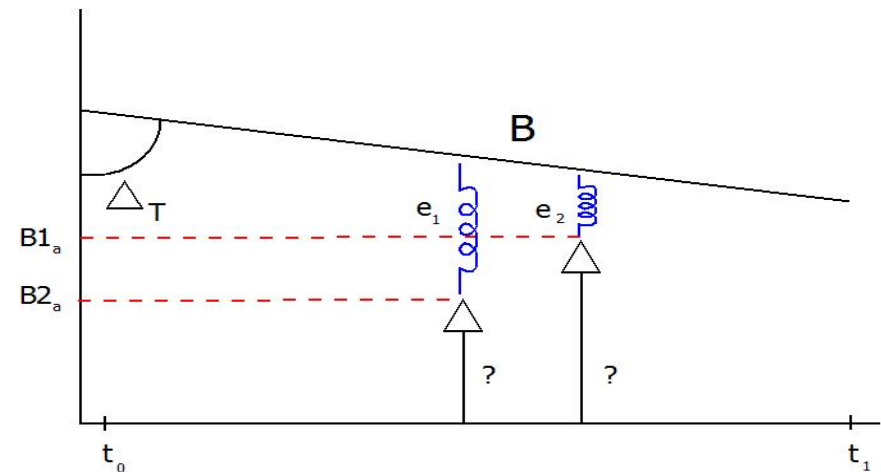
Source: Bauer, Shukla & Pansegrau (2019)



'Bungee Jump Model'



or 'Lighthouse Model'

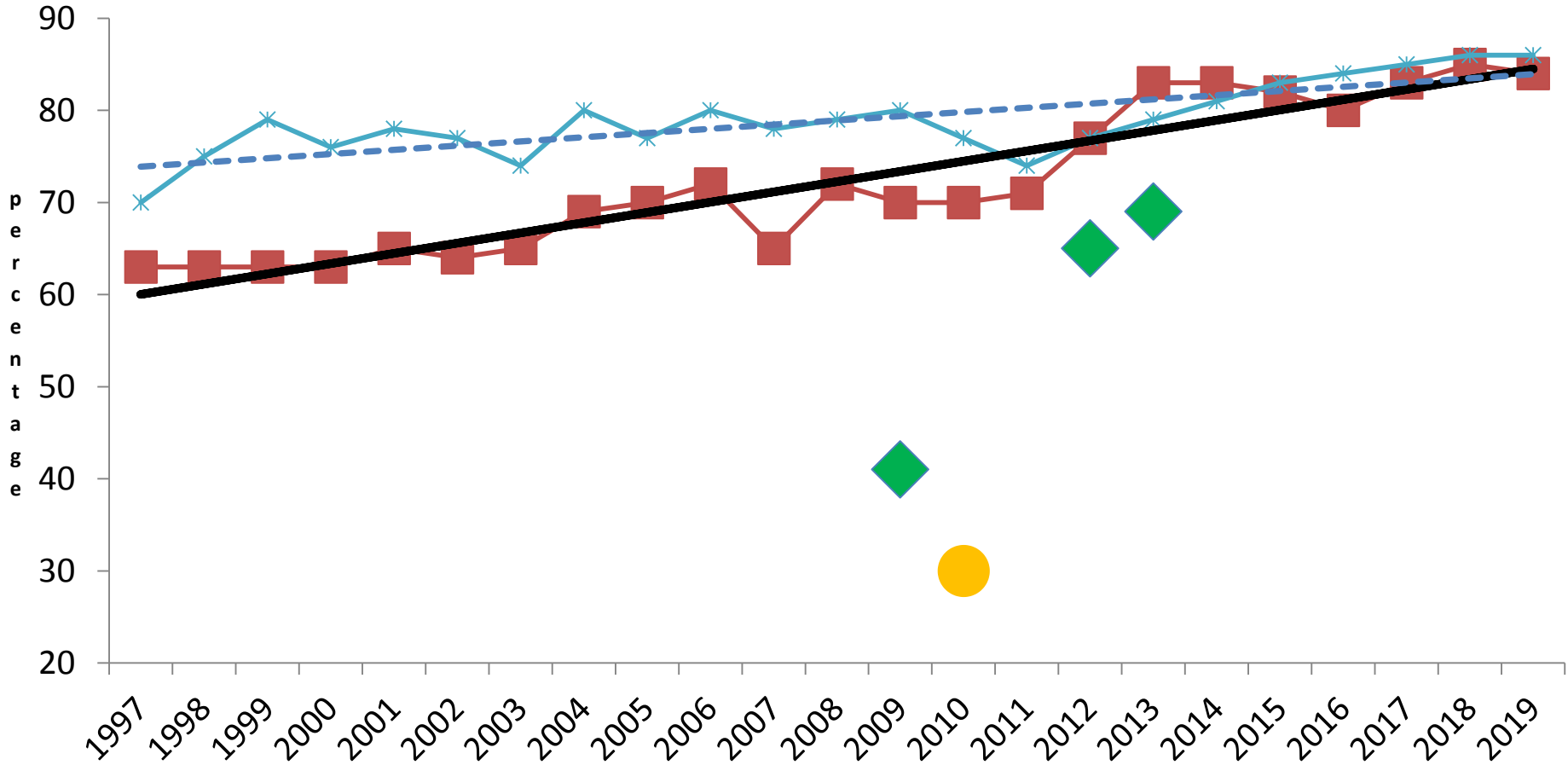




Temple of Positivism in Porto Alegre

Ipsos MORI Veracity index 'telling the truth' (Britain, n=1000 pa)

—■— Scientists —*— Professors —◆— climate scientists —●— scientists during food scare BSA



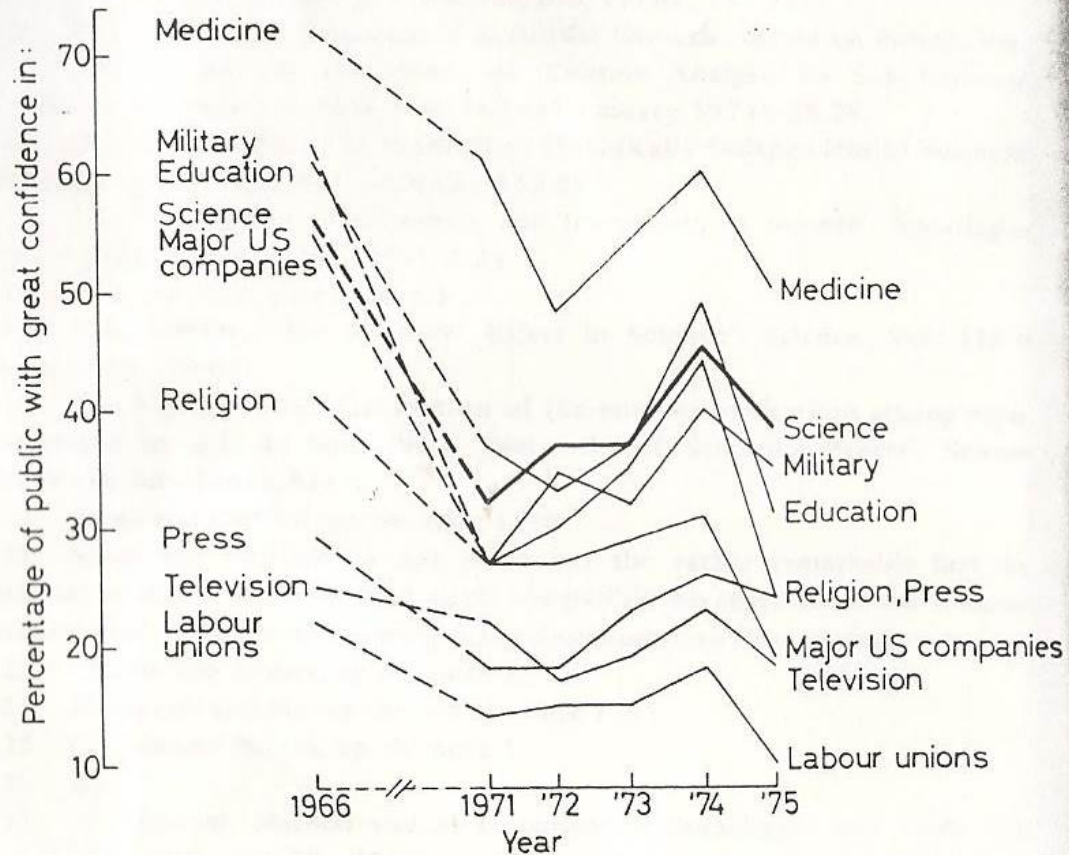
‘The people of this country have had enough of experts’

Michael Gove, June 2016, refusing to name on TV any economist who was in favour of BREXIT

The end of a line? Hypothetical trends [after Gauchat, 2012]

1. Positivist Ascendancy: scientific authority is steadily increasing
2. Declinism: scientific authority is in a secular decline
3. Groups specific tendencies: **‘social representations of science’**
4. **Any other hypothesis?**

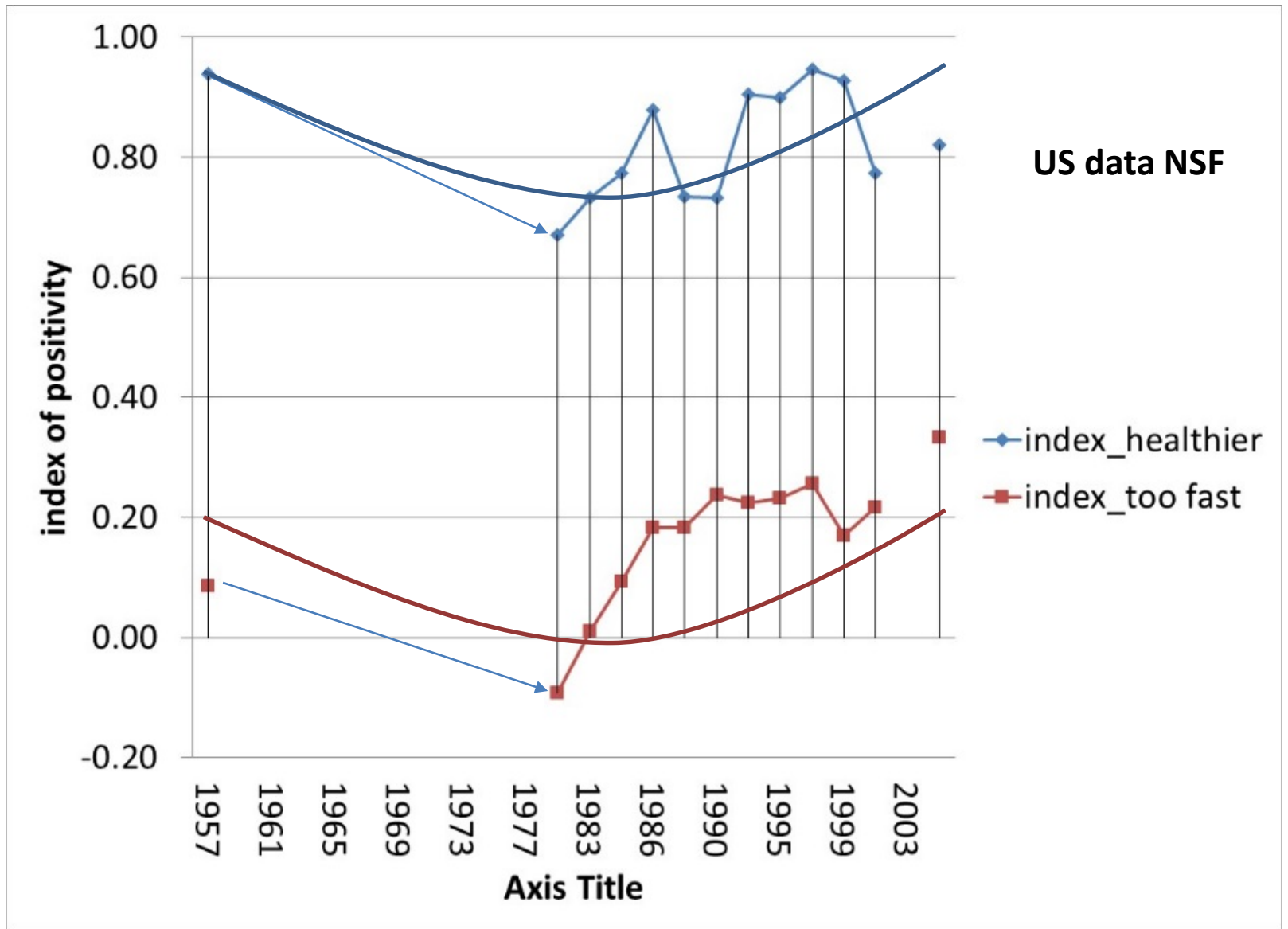
Figure 1 Percentage of Public with Great Confidence in the People Running each of Nine Institutions, by Year, 1966-75



Mazur (1977)

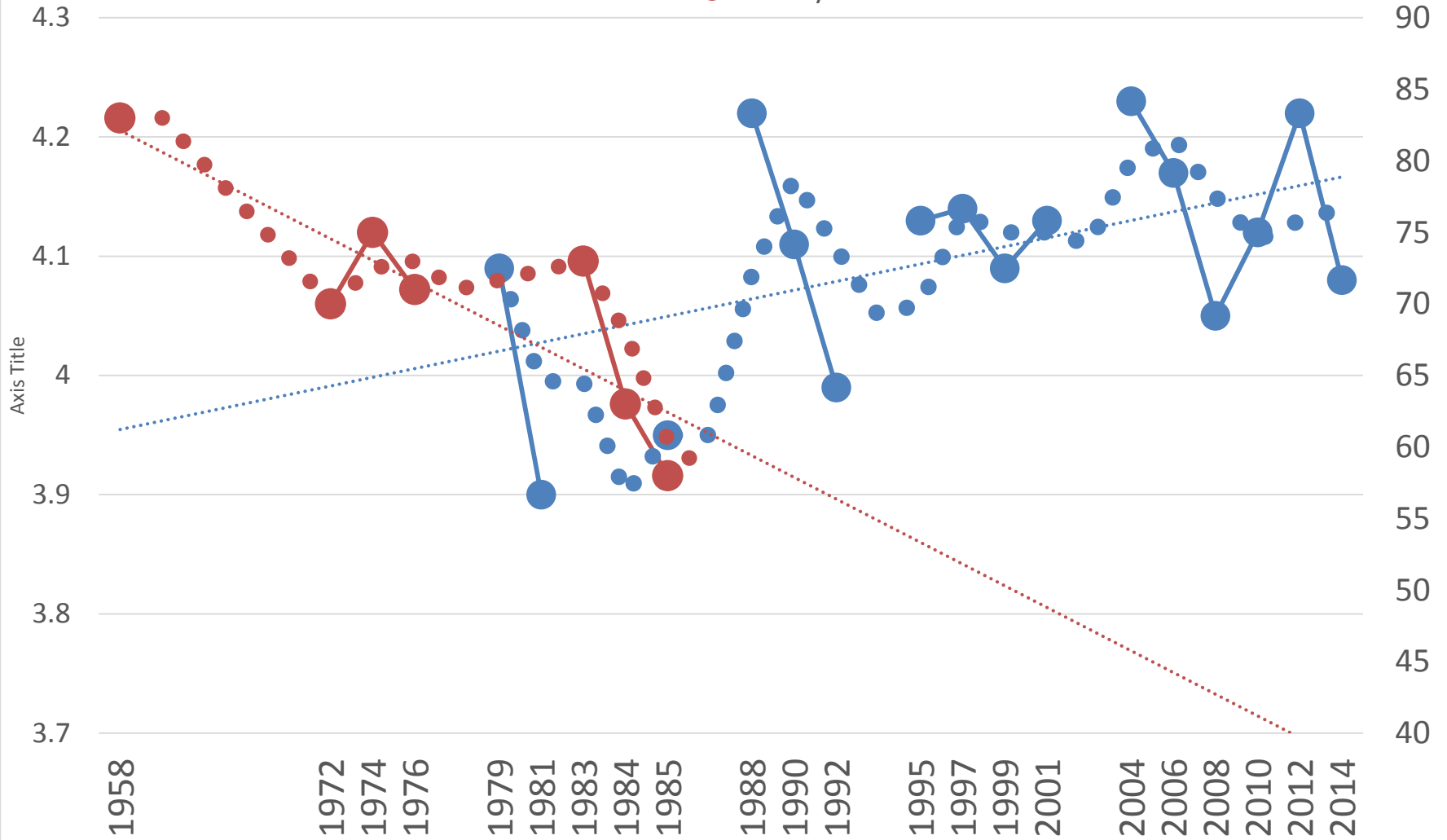
US data

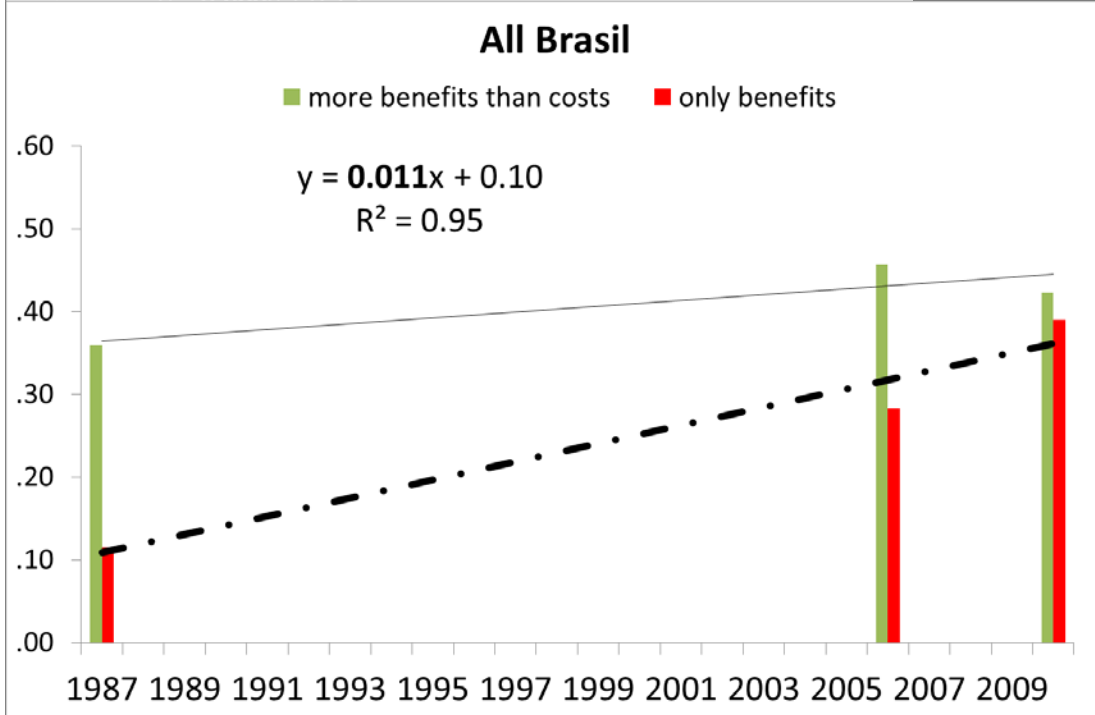
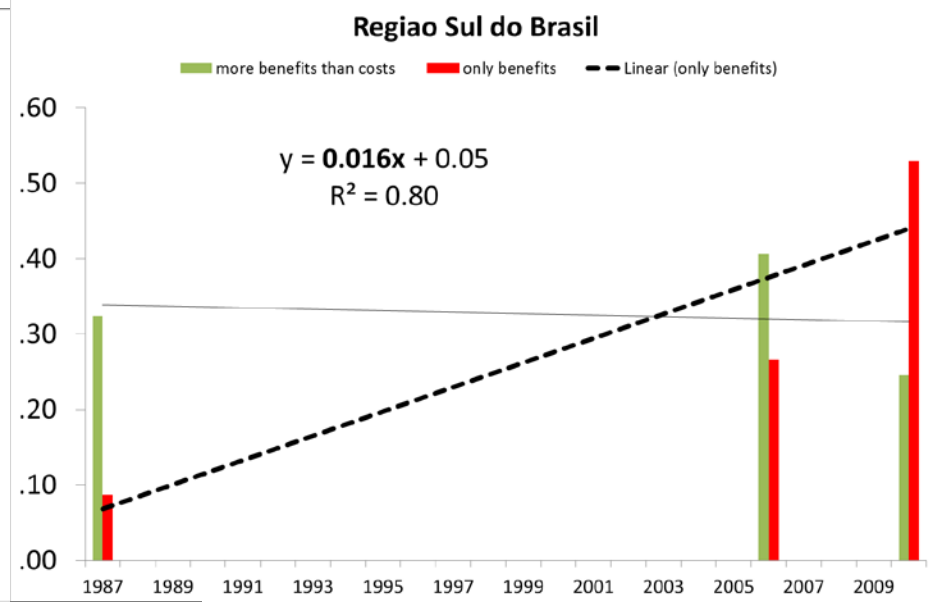
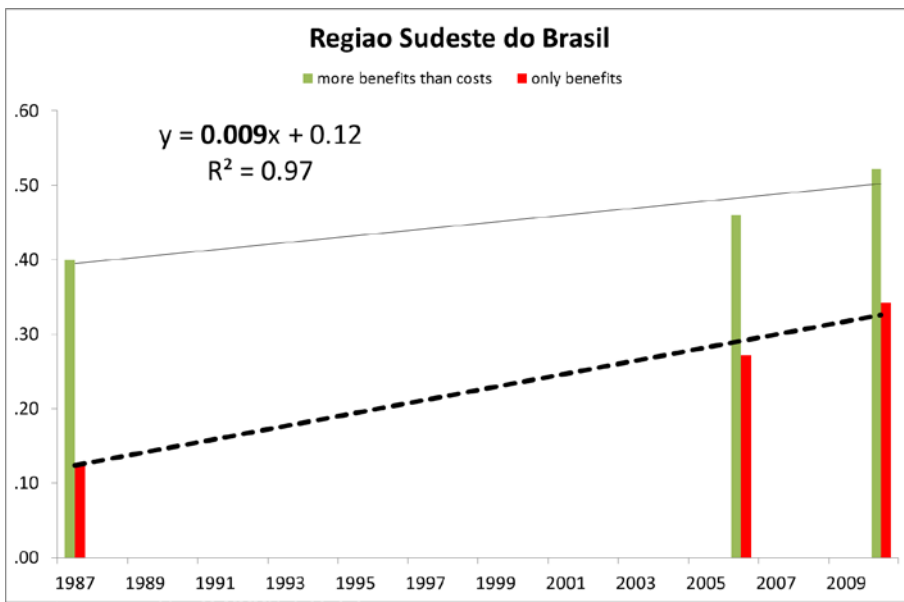
Sounding the alarm for the US in the 1970s



On balance 'science is beneficial'

● NSF Benefit > cost ● Withey series %benefits>costs





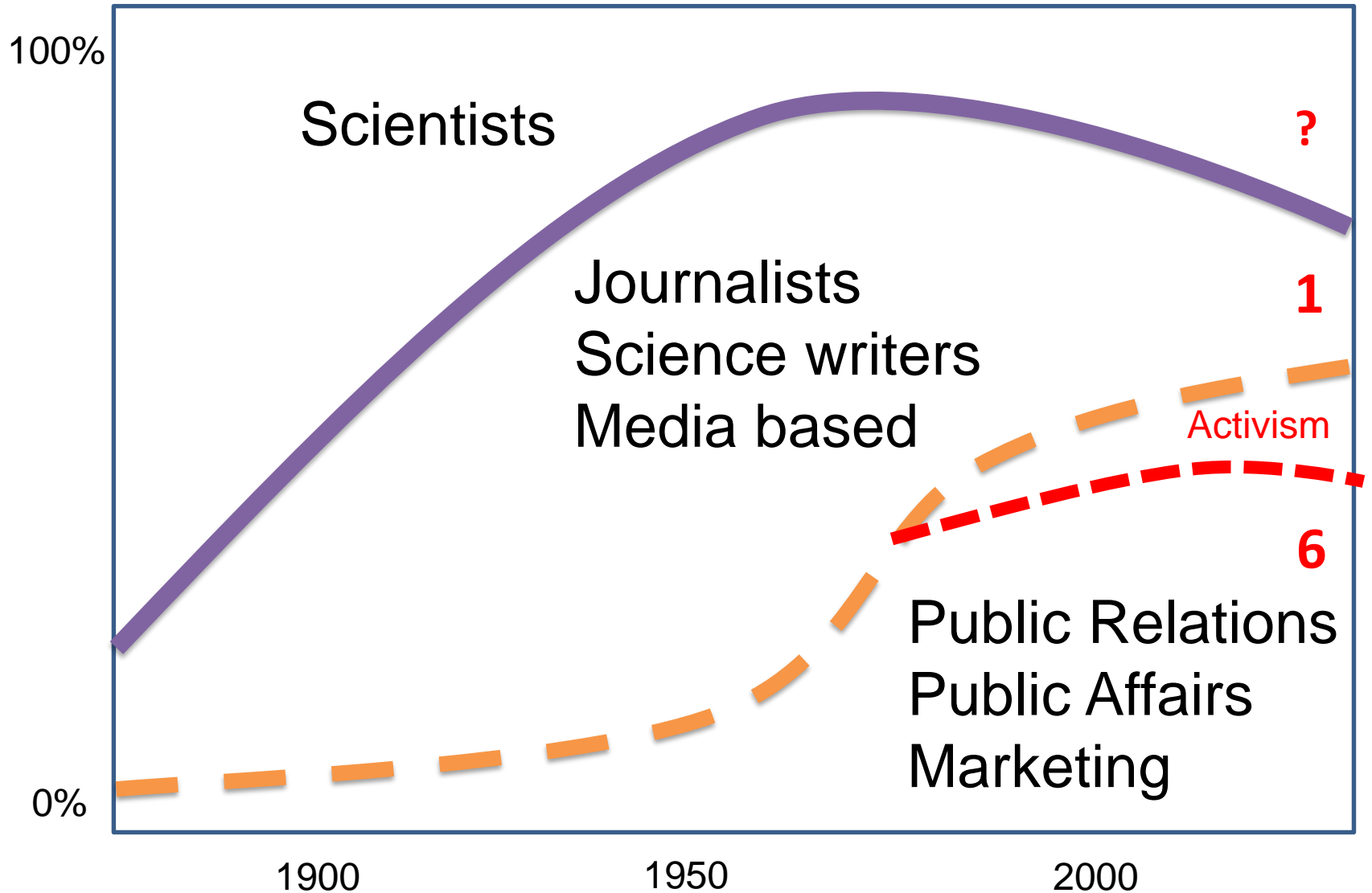
‘Science brings benefits as well as costs; what is your opinion?’

- Only benefits
- Benefits > costs
- Costs > benefits
- Neither-nor

Asked in 1987, 2005, 2010

The changing structure of science communication in society

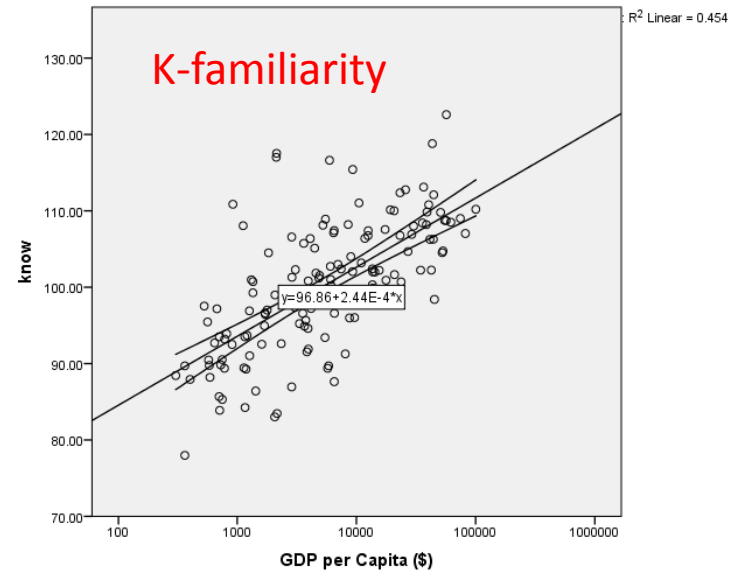
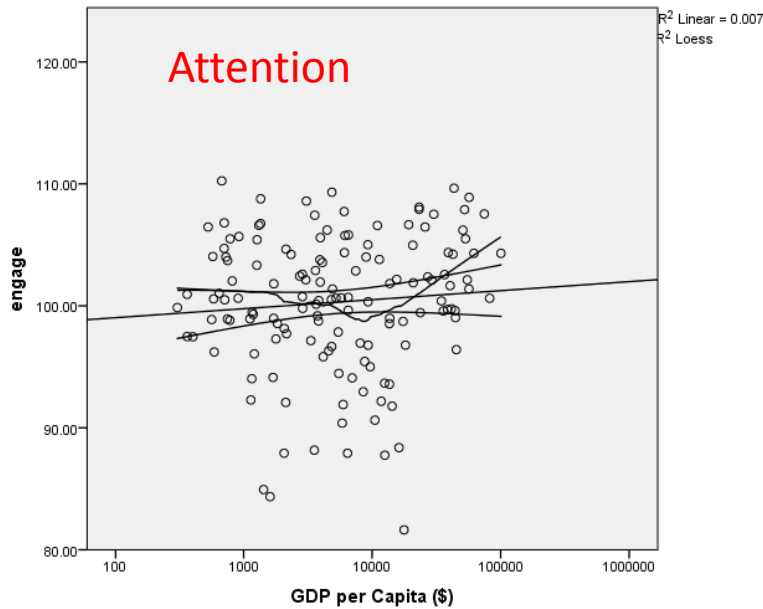
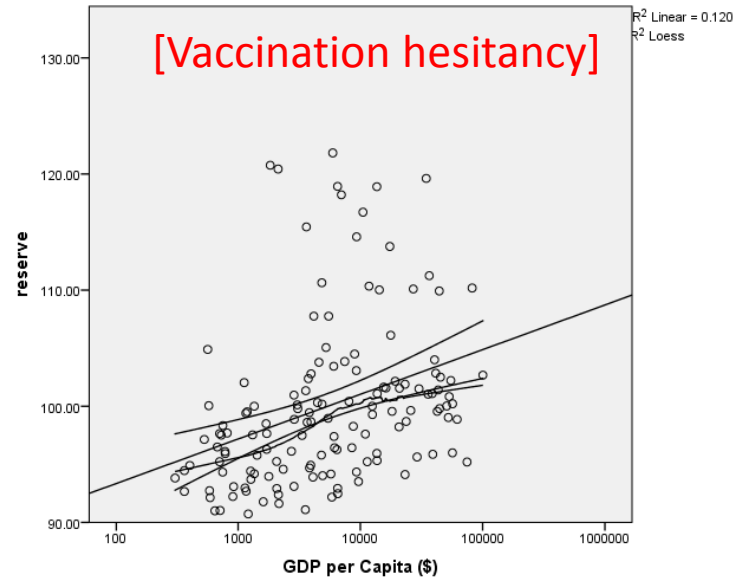
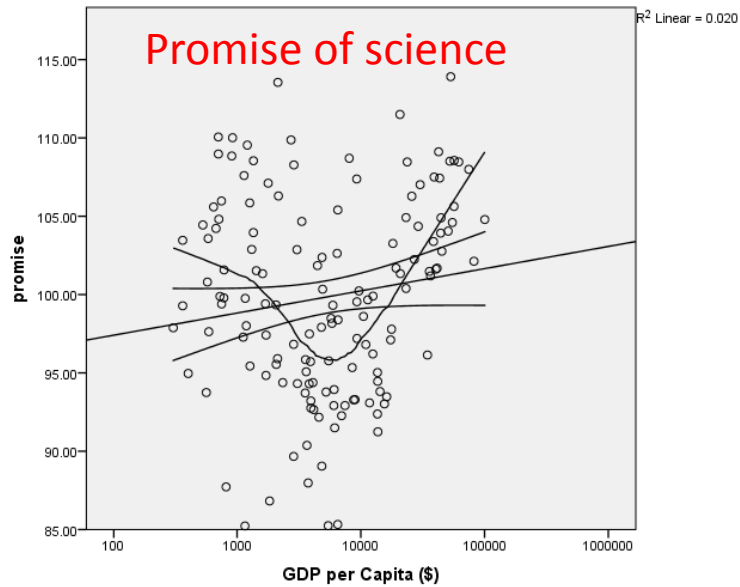
(source: adjusted from Bauer, 2013)



Global surveys of 'general attitudes to science and technology' (Bauer & Falade, 2014)

Nationally representative survey of science literacy and attitudes across the Globe																																						
compiled: Martin W BAUER and Bankole Falade [m.bauer@lse.ac.uk]																																						
	Europe										N America				Other				Asia					Latin America														
year	UK	F	G	EU	E	Italy	Iceland	CH	SW	Bulg	US	Can	Russia	SAFRICA	AUS	NZ	Jap	Korea	Malay	India	TWN	China	Brazil	Argent	Venzu	CostaR	Panama	Uruguay	Equador	Paraguay	Peru	Chile	Mexico	Trinidad	Colum			
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1987																								CNPq														
1988	ESRC	Boy/<17									NSF																											
1989	EB31	Boy									NSF	MST																										
1990											NSF																											
1991														SAASTA																								
1992	EB38.1	EB38.1									NSF			SAASTA																								
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2001	EB55.2	EB55.2									NSF			SAASTA																							SENACYT	
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2004	BIS										NSF																										Conacyt	
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2007	(EB)	Boy									(EB)																											
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2009	WELL										Observa																										Conacyt	
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2012	WELL										UN																										xxx	
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2018	BSA										Observa																											
2019											Observa																											
2020		Nancy									EU2020																											

Wellcome Global Monitor 2018 (144 countries; preliminary explorations)



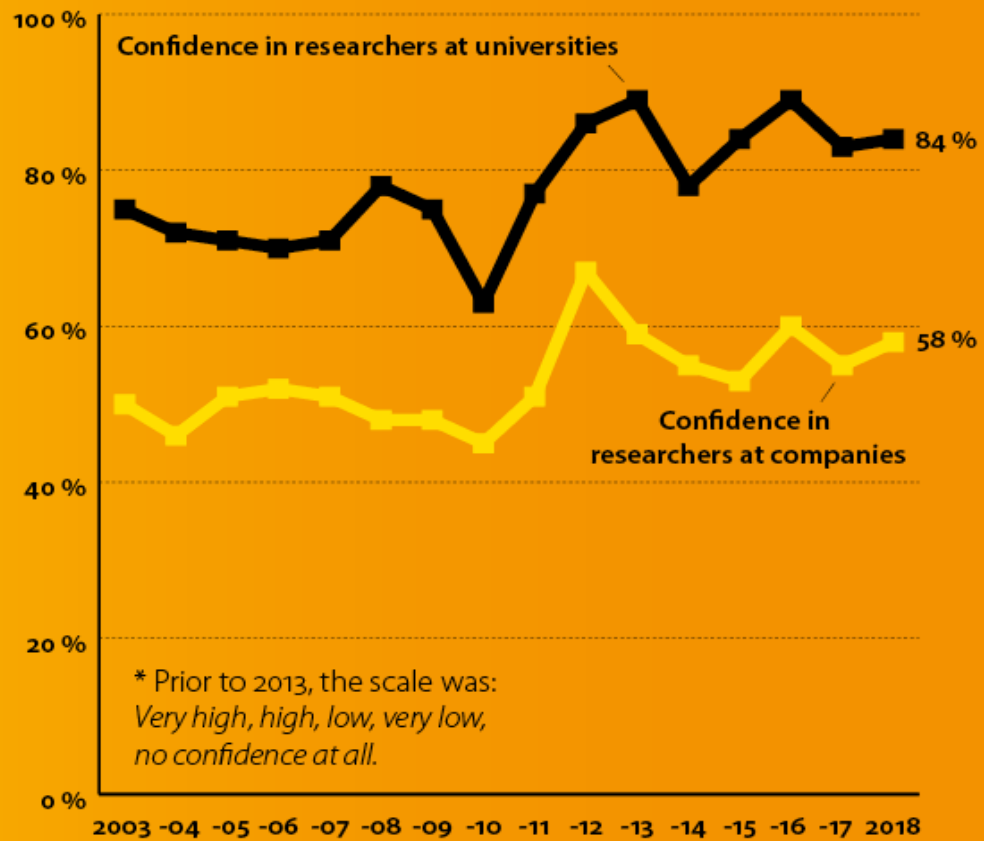
Trust in Science in Sweden, 2003-2018

<https://v-a.se/english-portal/projects/studies/the-public/va-barometer/>

HIGH CONFIDENCE IN RESEARCHERS

*The graph shows the percentages that have **very high** or **fairly high** confidence in researchers. (Four-point scale: Very high, fairly high, fairly low, very low.)**

NUMBER OF RESPONDENTS 2018: 522



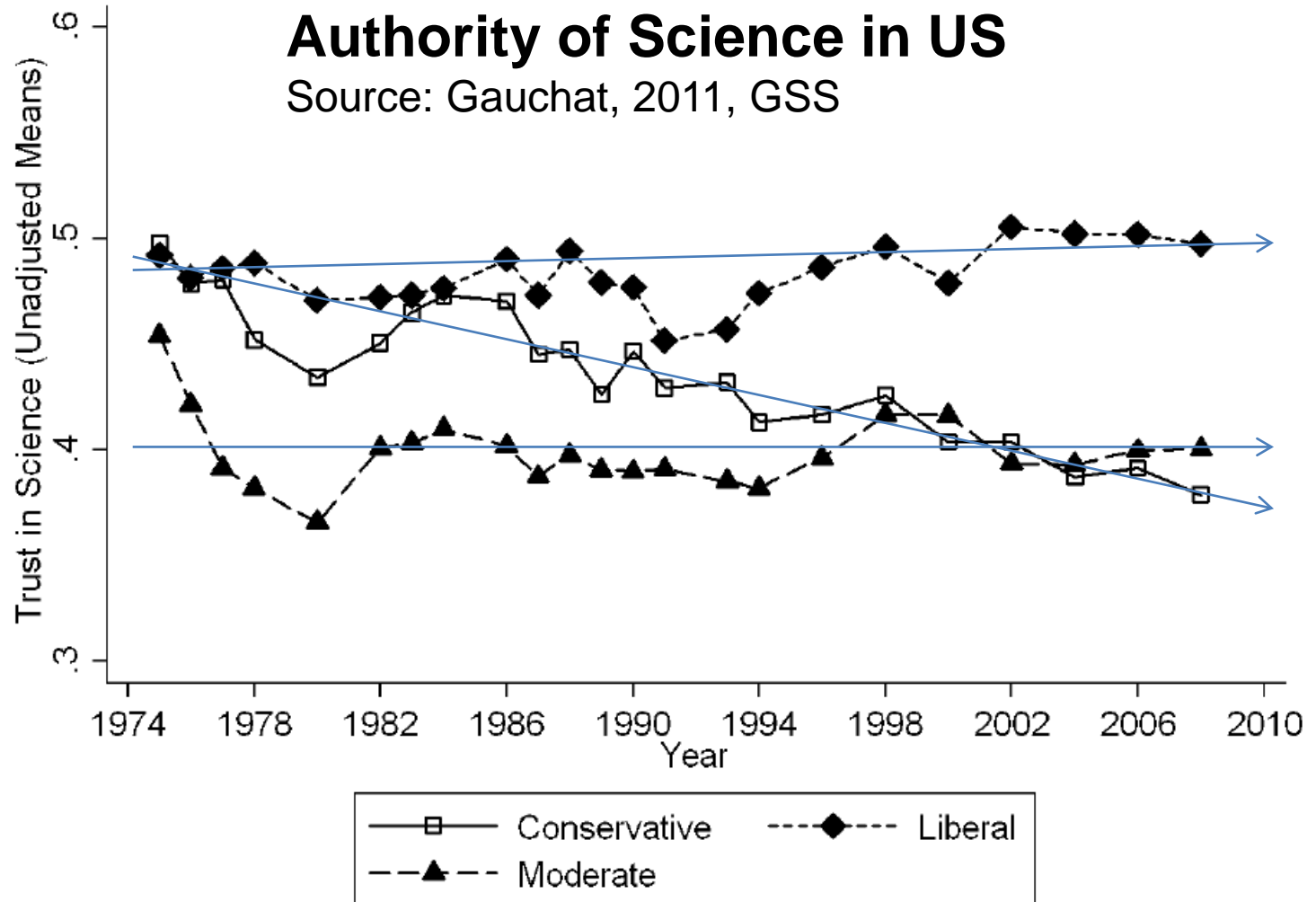
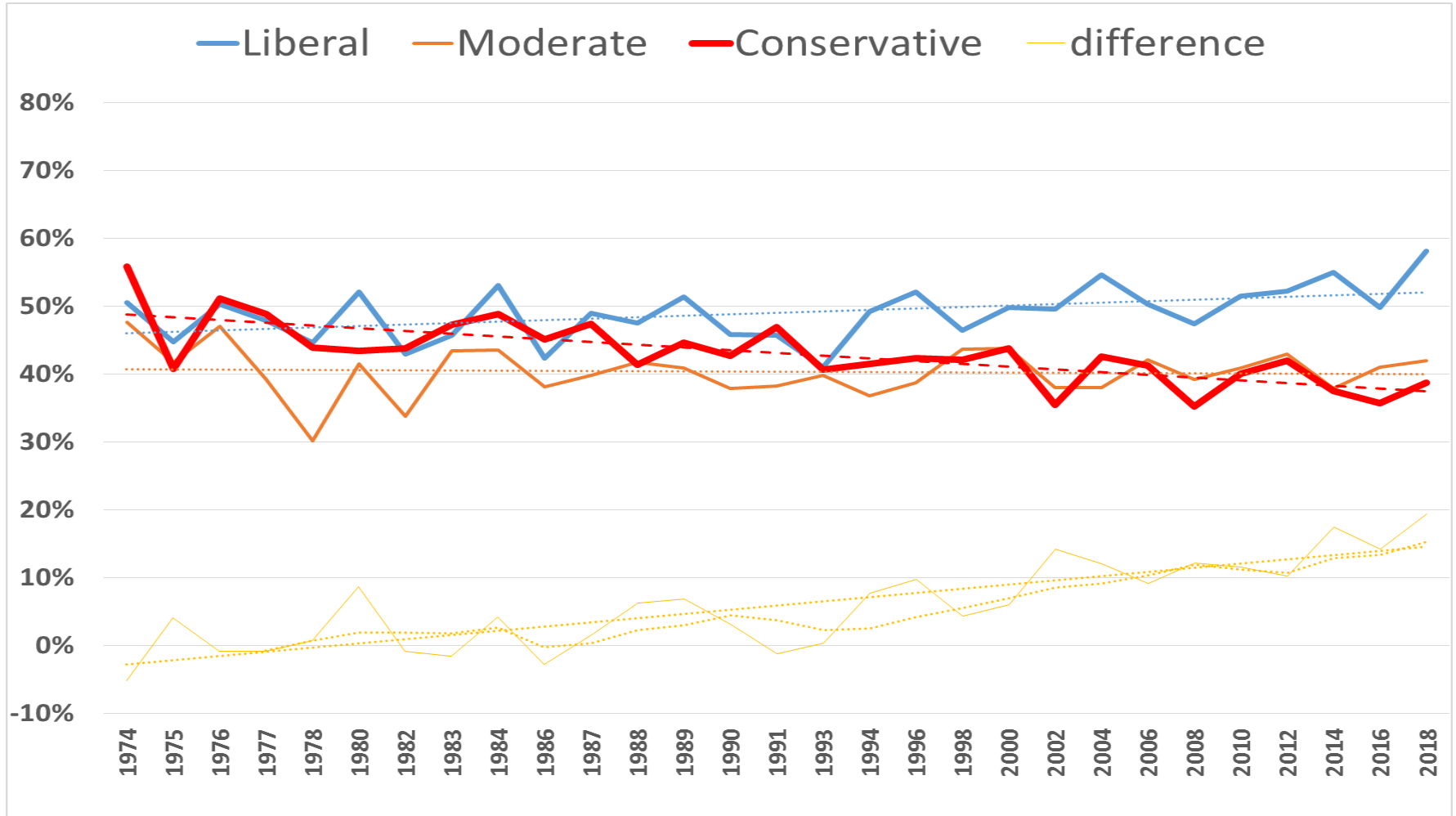


Figure 1. Unadjusted Means of Public Trust in Science for Each Survey Year by Political Ideology

Note: Figure shows three year moving averages for each group, which smooth out the patterns overtime.

US General Social Survey, 1970- 2015:

'having a great deal of confidence in people running science ...'

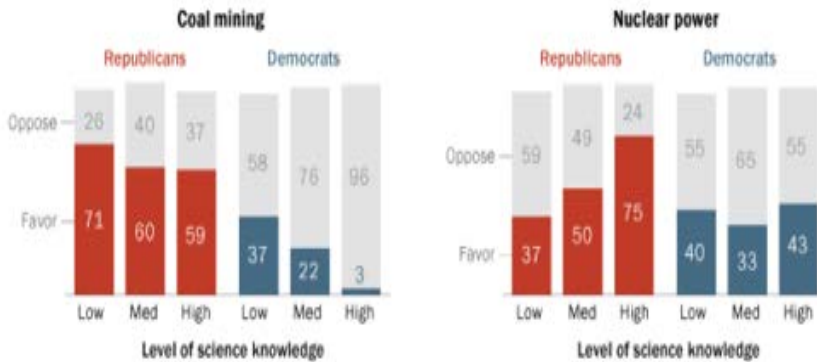


PEW data 2016

Republicans vs democrats:
Differential knowledge effects

Influence of science knowledge on energy attitudes depends on politics

% of U.S. adults who favor/oppose expanding each energy source

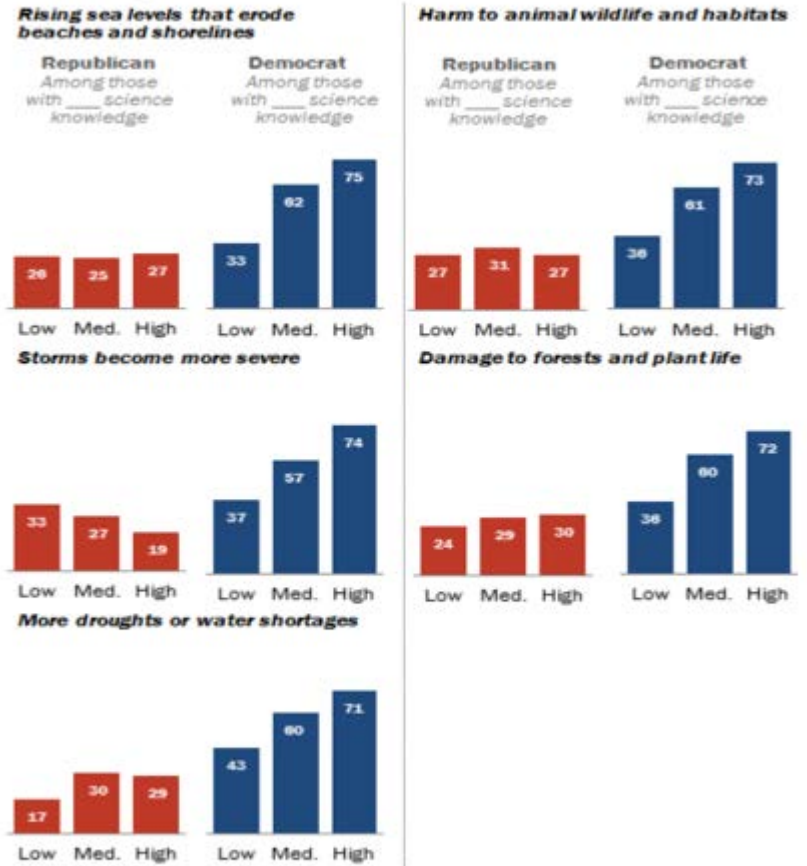


Source: Survey conducted May 10-June 6, 2016.

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Science knowledge influences Democrats', but not Republicans', expectations for climate change harm

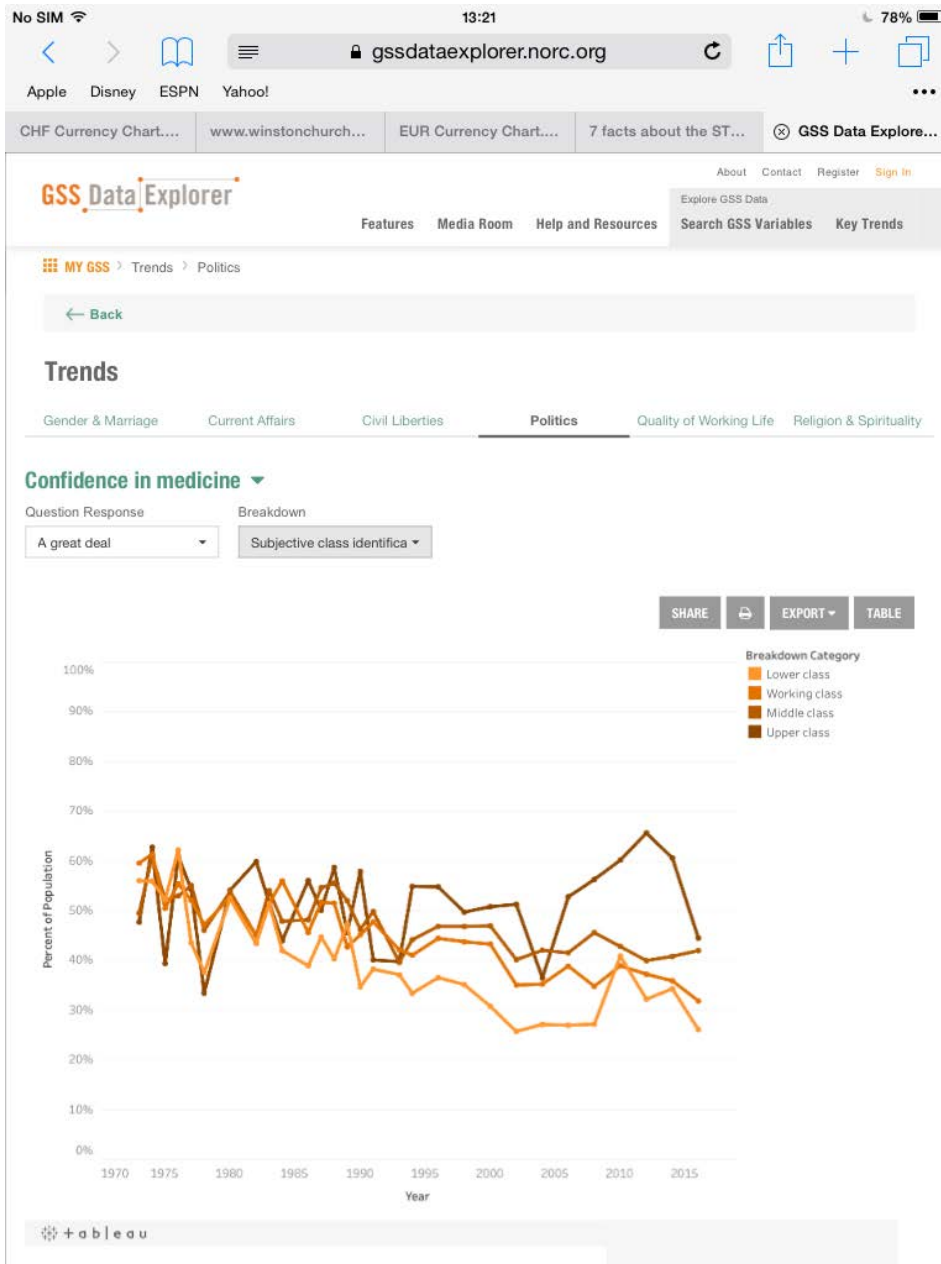
% of U.S. adults who say each of these is very likely to occur because of climate change



Note: Republicans and Democrats include independents and other nonpartisans who "lean" toward the parties. Science knowledge based on nine-item index.

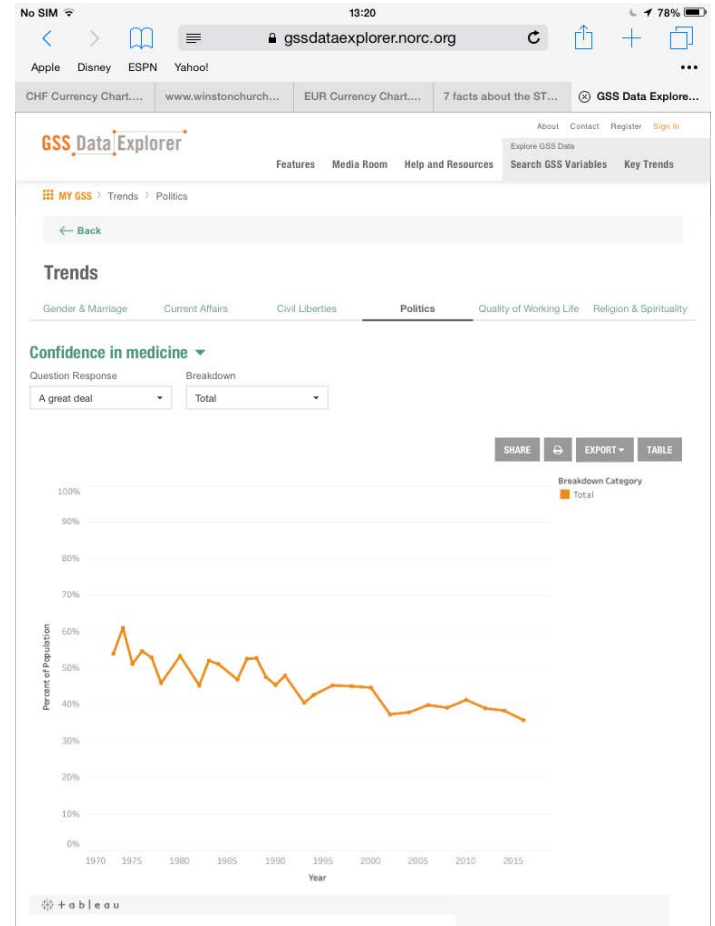
Source: Survey conducted May 10-June 6, 2016.

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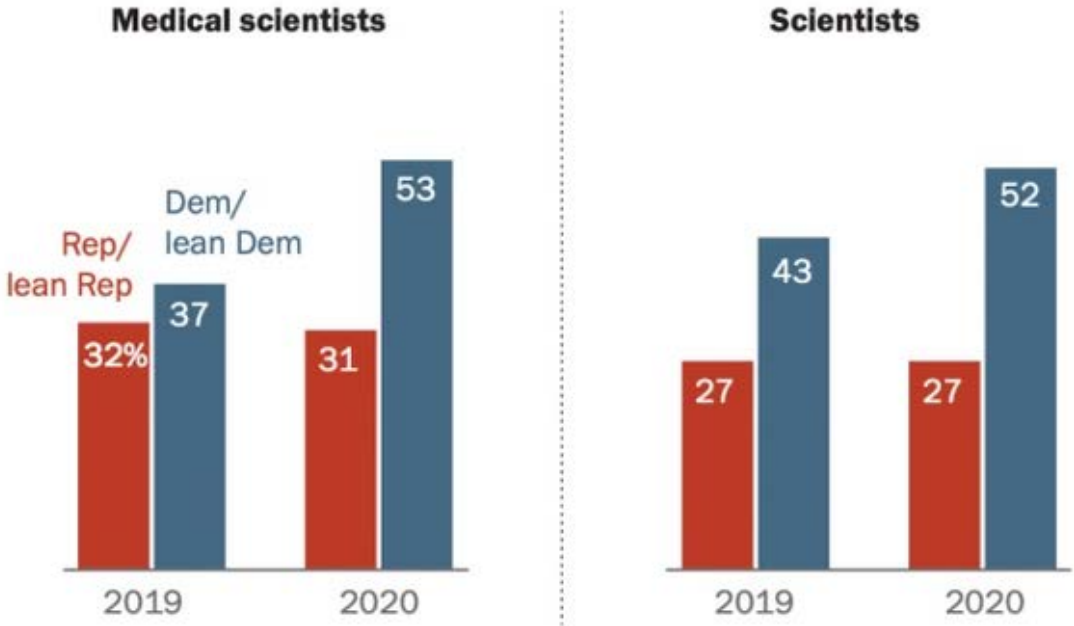
Confidence in Medicine

US GSS surveys, 1973-2015



Growing partisan differences over trust in medical scientists and scientists since the COVID-19 outbreak

% of U.S. adults who have a great deal of confidence in each group to act in the best interests of the public



Note: Respondents who gave other responses or who did not give an answer are not shown.

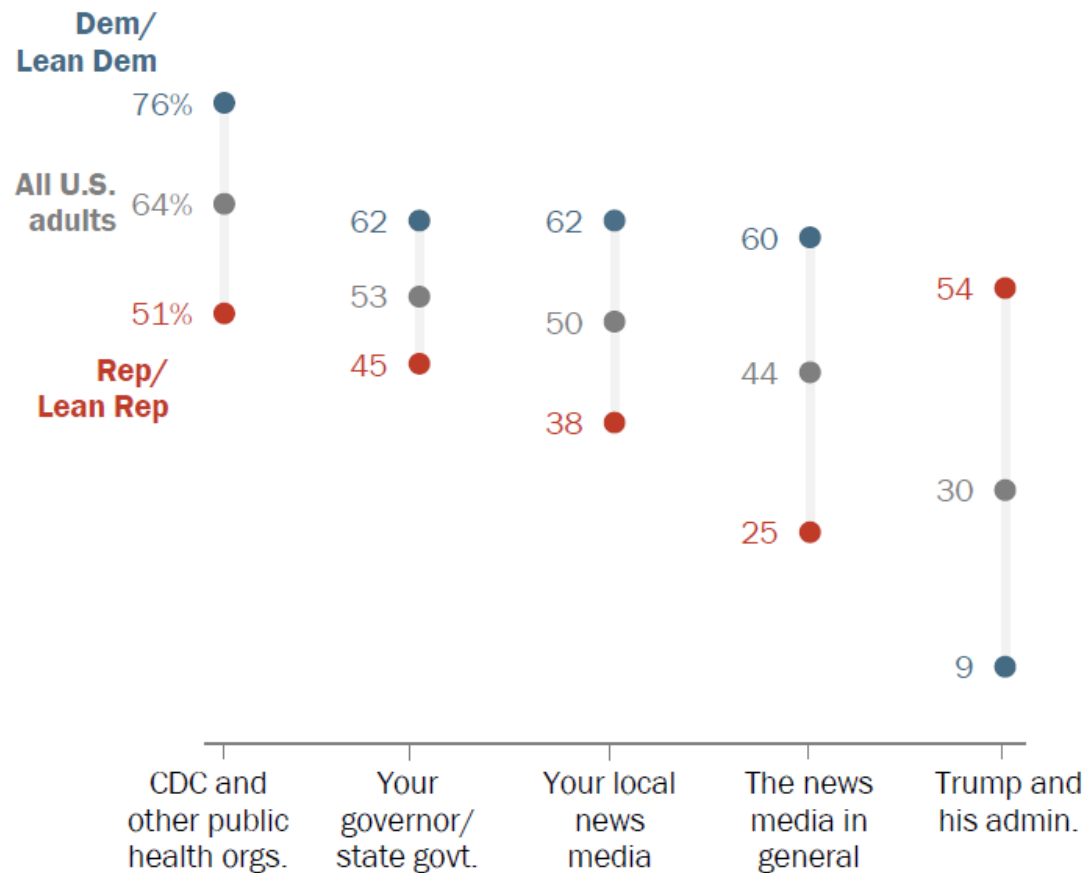
Source: Survey conducted April 20-26, 2020.

"Trust in Medical Scientists Has Grown in U.S., but Mainly Among Democrats"

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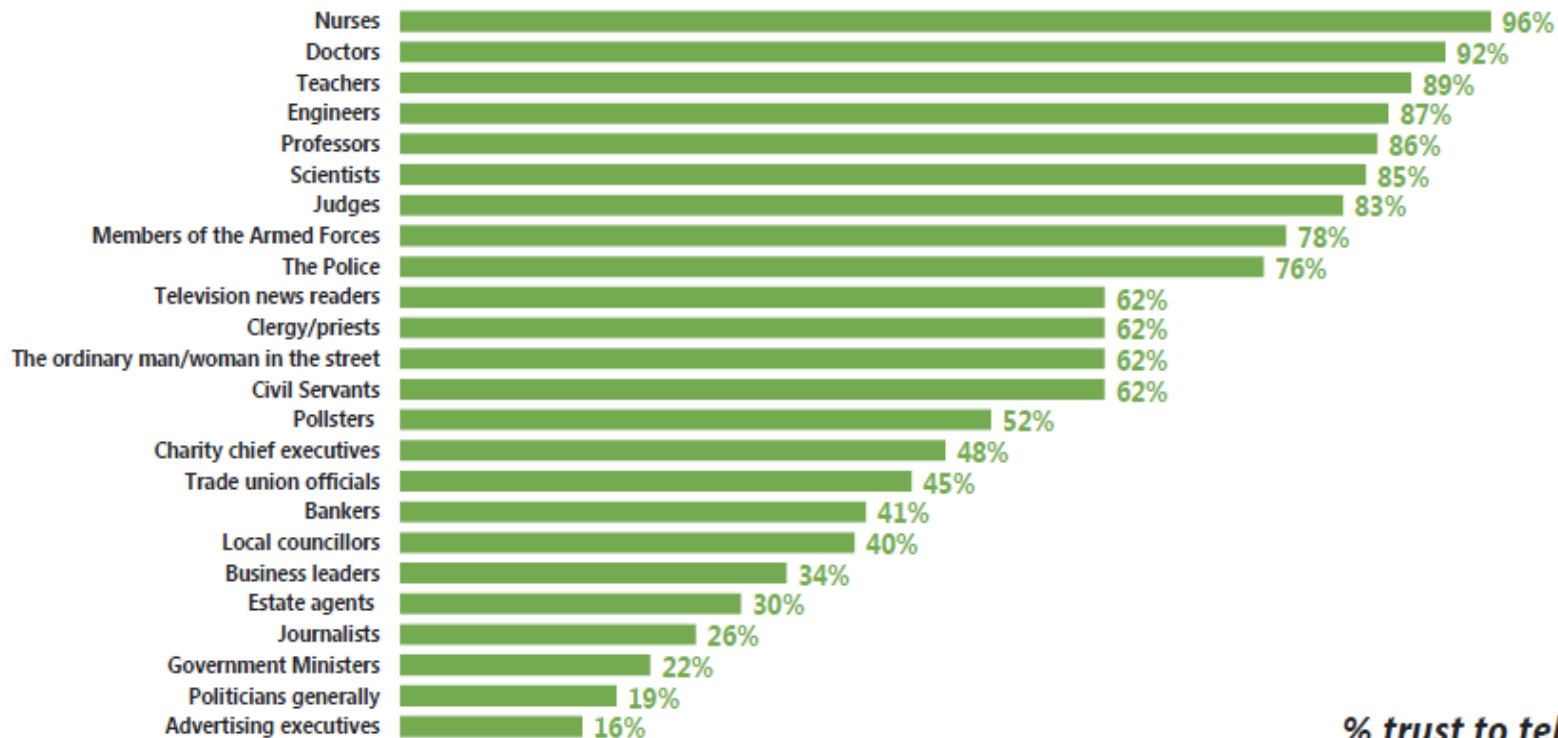
Americans give CDC highest marks, White House lowest on getting coronavirus facts right; wide partisan divides

% of U.S. adults who say each gets the facts right almost all or most of the time when it comes to the coronavirus outbreak



Veracity Index 2018 – all professions

“Now I will read you a list of different types of people. For each would you tell me if you generally trust them to tell the truth, or not?”

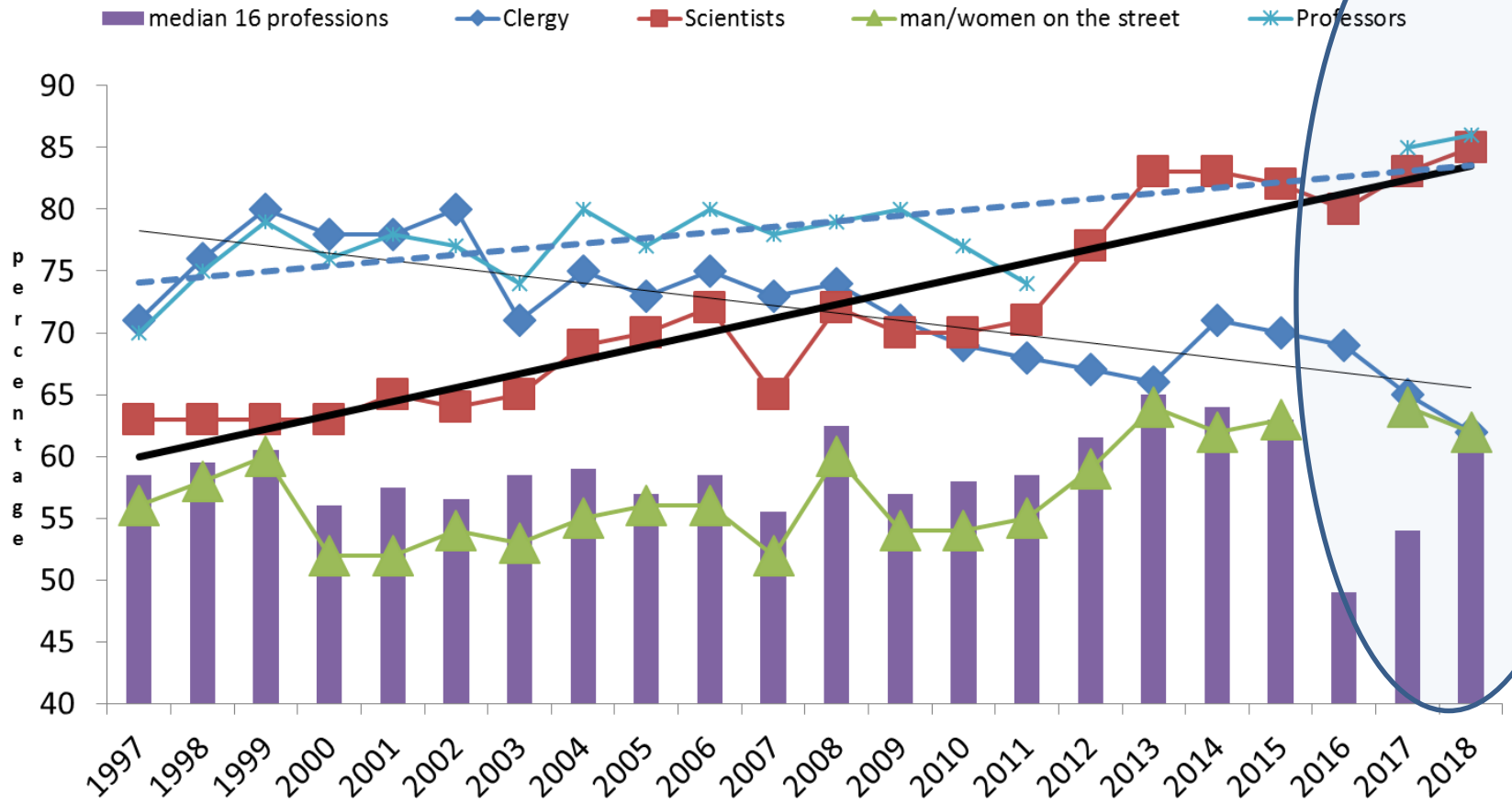


% trust to tell the truth

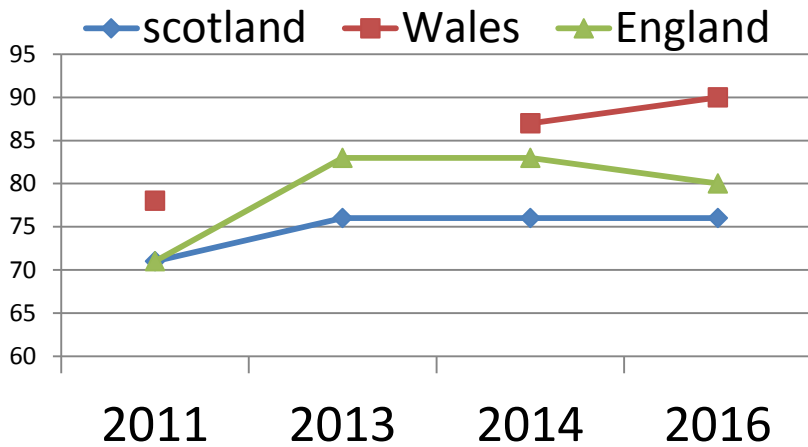
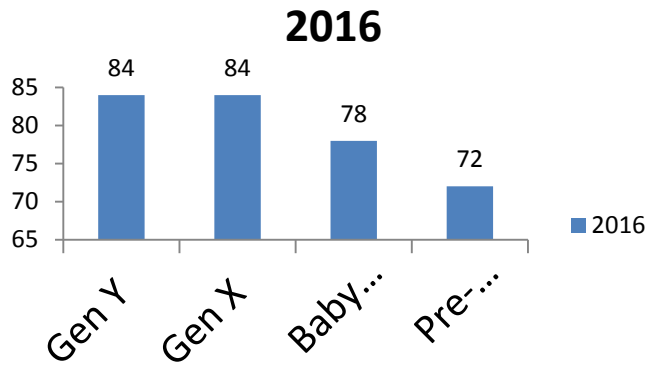


Base: 1,001 British adults aged 15+, fieldwork 12 - 21 October 2018

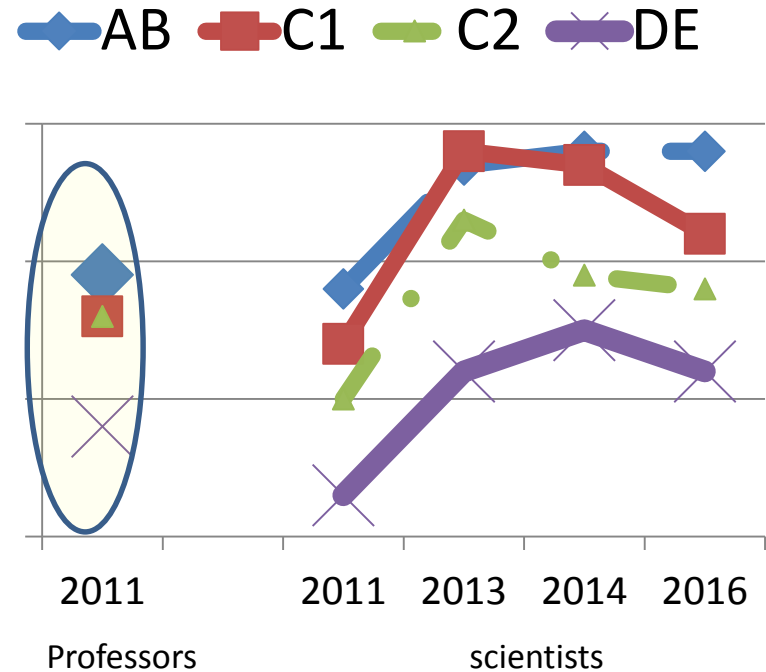
Ipsos MORI Veracity index 'telling the truth' (Britain, n=2000 or 1000)



'Scientists' in the IPSOS Mori Veracity Index



IPSOS Mori Veracity '%YES'



Interest and Participation in STEM Pipeline Over Time

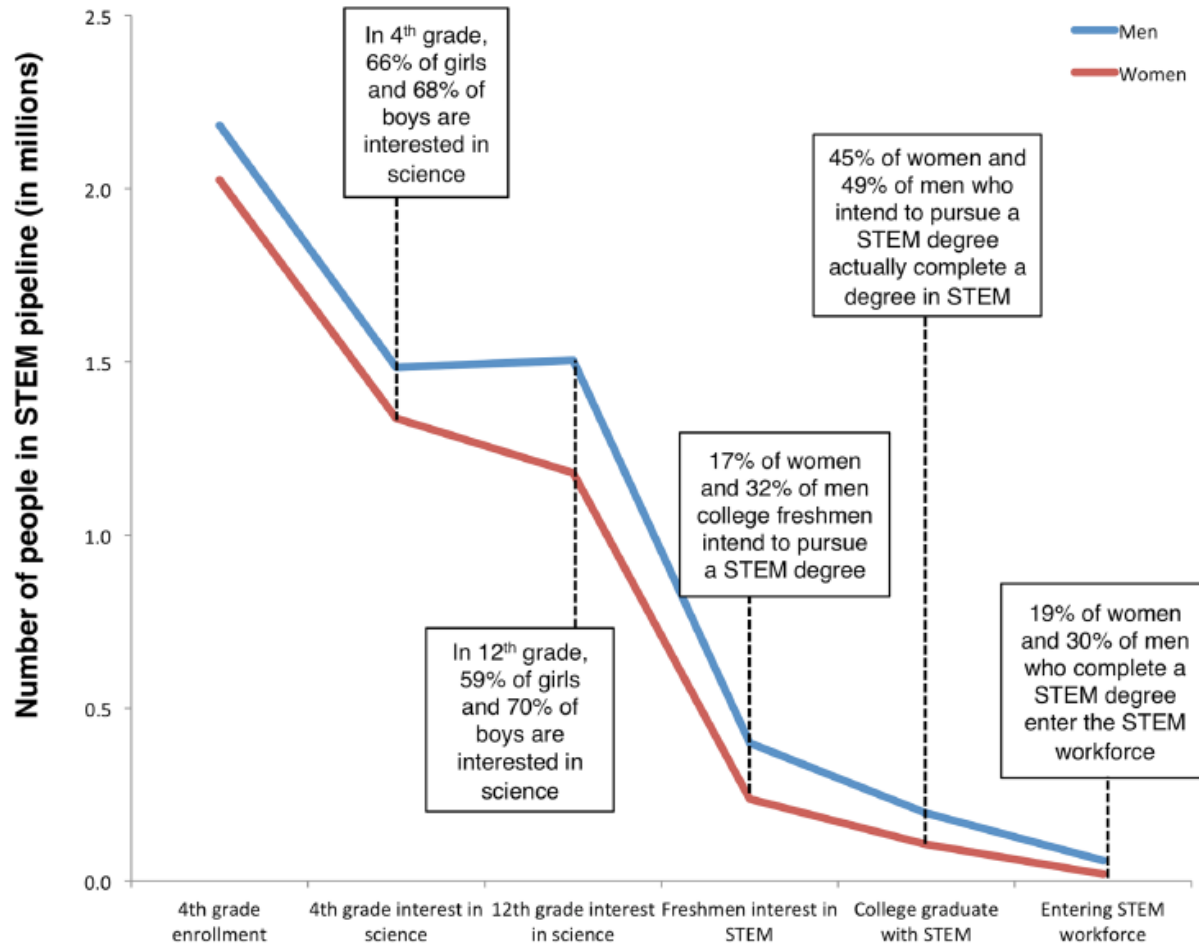


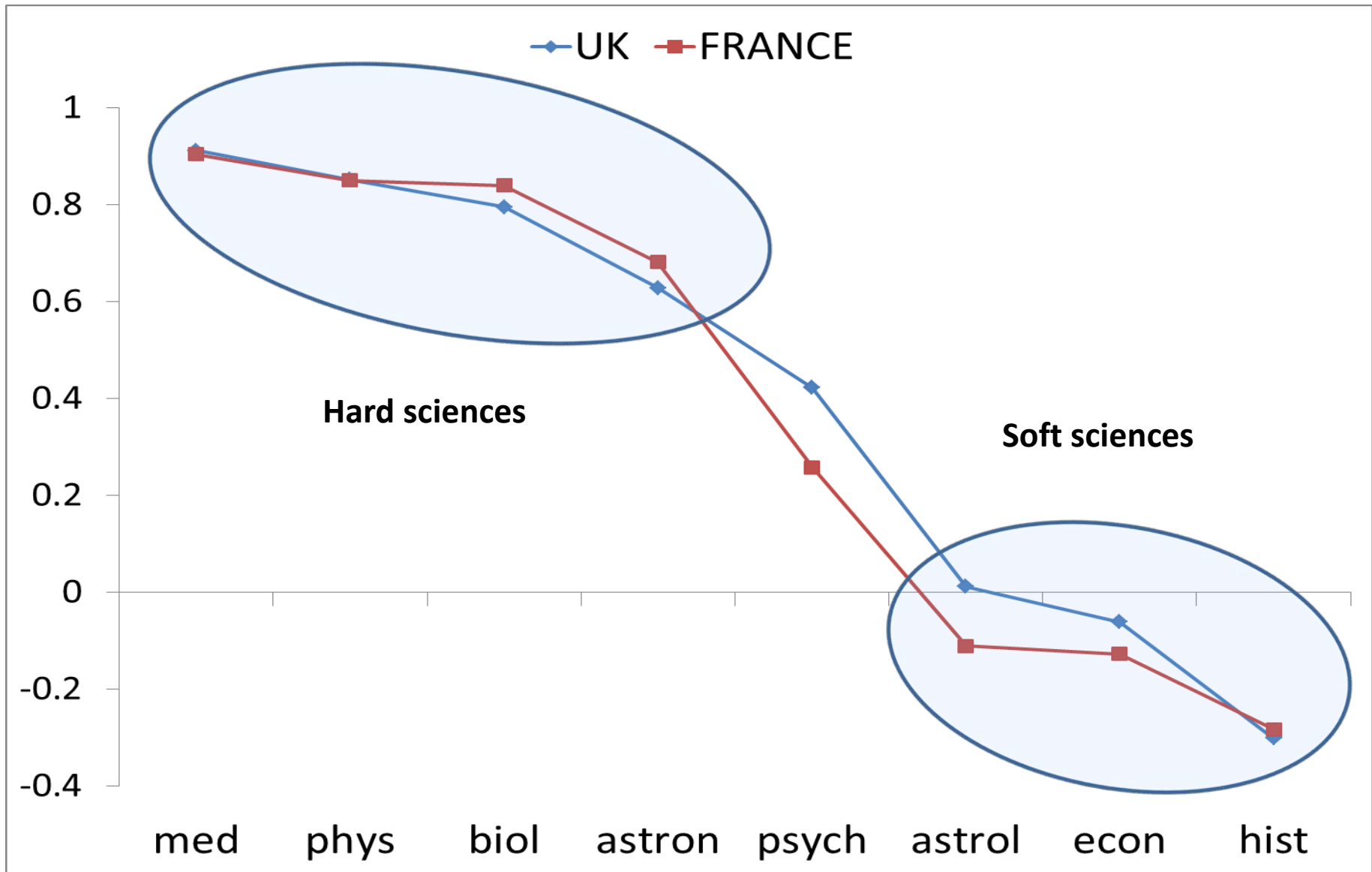
Fig 1. Participation of women in STEM.

doi:10.1371/journal.pone.0157447.g001

Ellis et al (2017) PLOS One on girls' lack of 'math confidence' [US data]

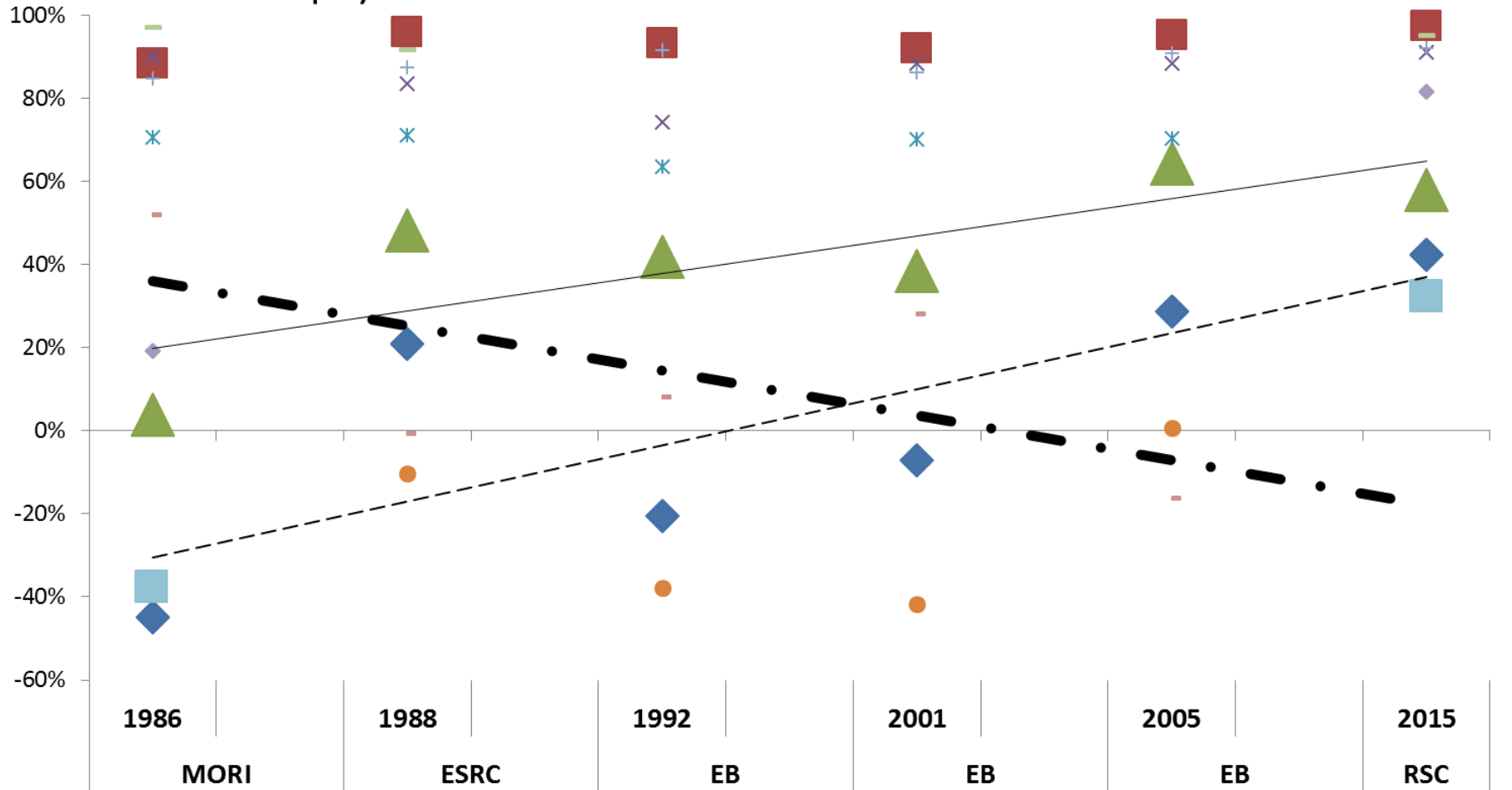
Image of Sciences: a hierarchy [EB 1992, 2001, 2005]

'how scientific is '? [degree of prototypicality]

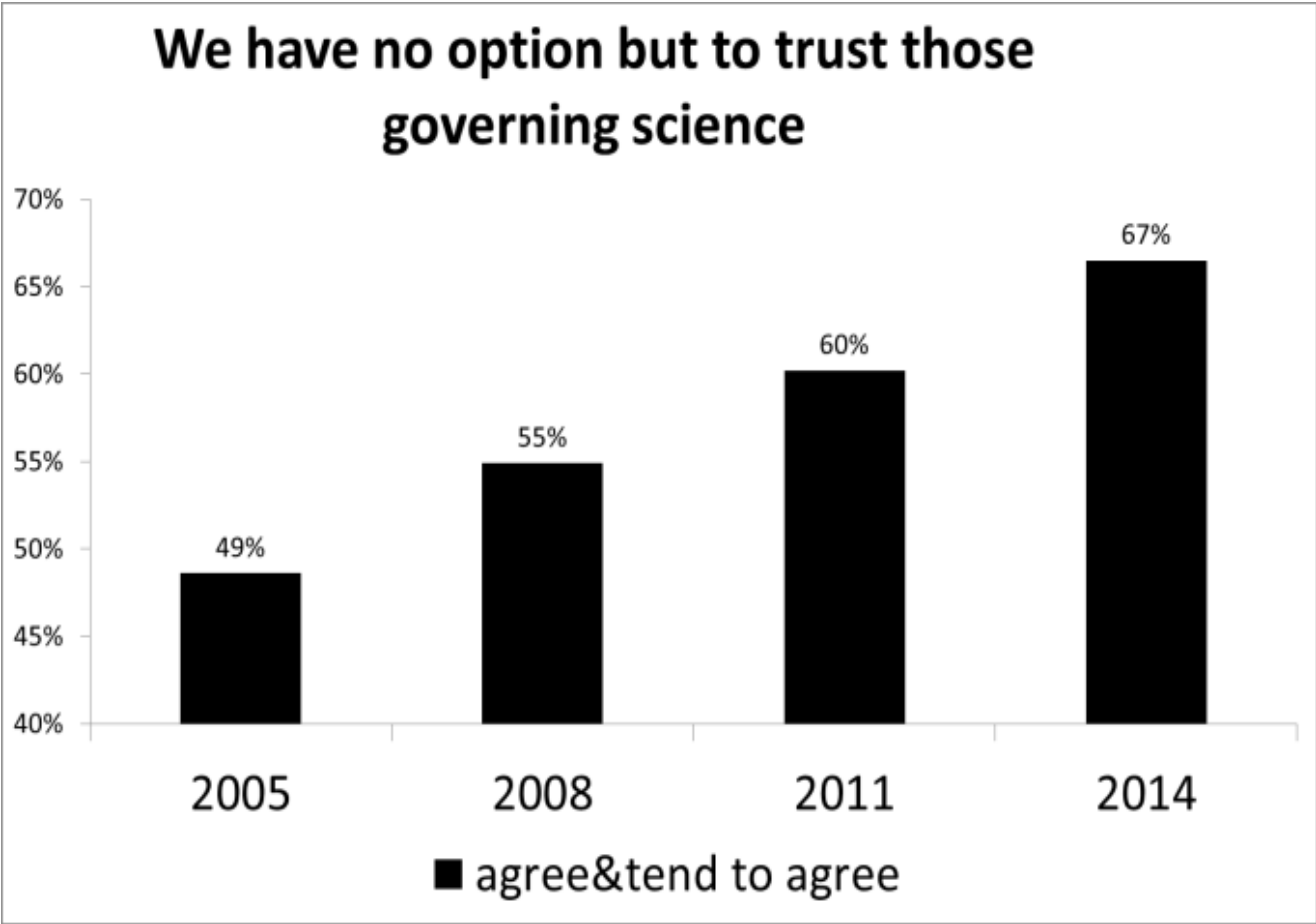


UK how scientific is X [index = %sci - %not at all]

- ◆ econ
- med
- ▲ psych
- ✖ biol
- ✖ astron
- hist
- + phys
- astrol
- chem
- ◆ maths
- socio



British Attitude to Science 2005-2014: one very interesting item



THE SCIENCE NEWS CYCLE

JORGE CHAM © 2009

Start Here



WWW.PHDCOMICS.COM

THE, 3/2011

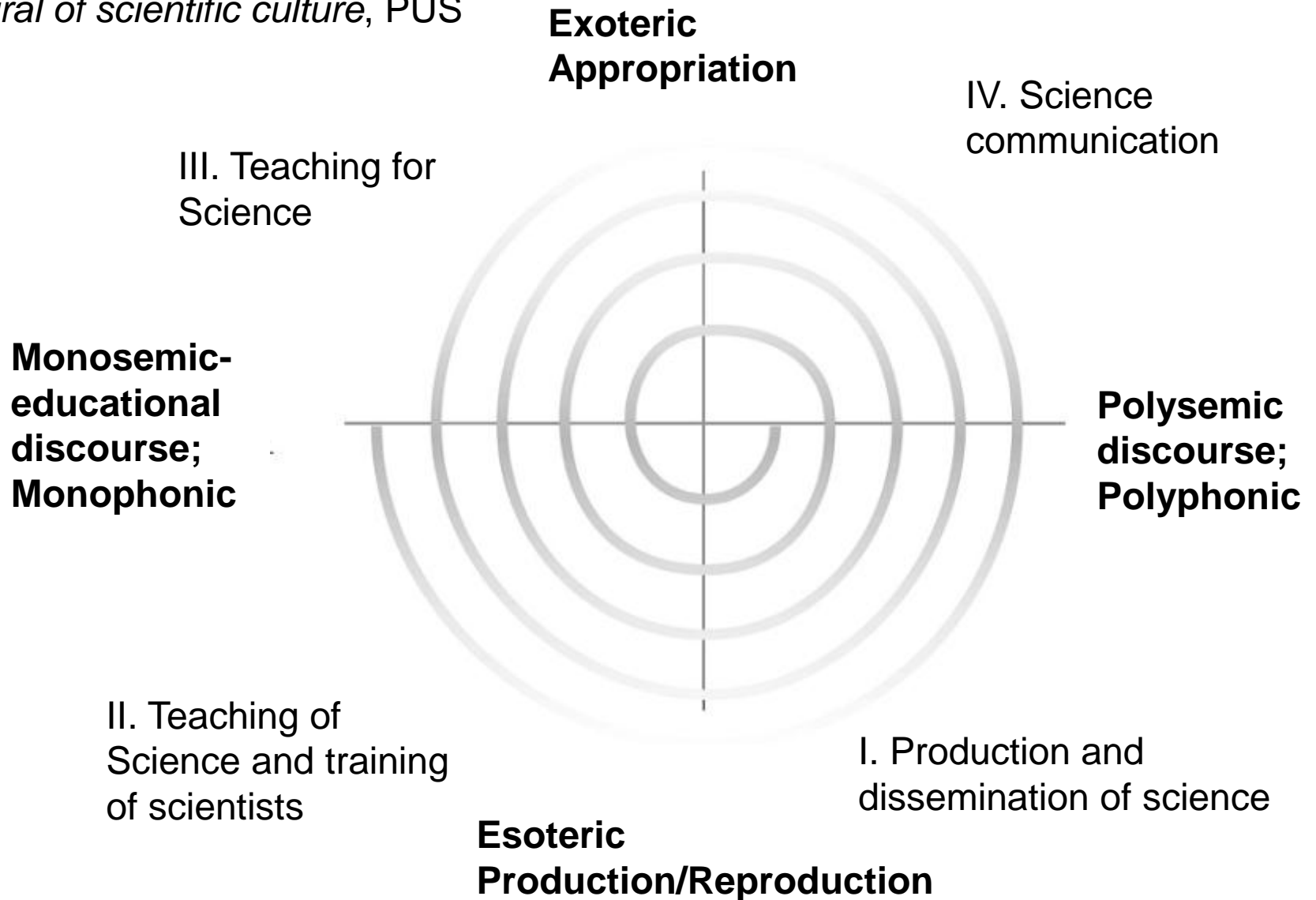
Children's play:
'Chinese whispers'
'Telephone'

Bartlett (1930s):
Serial reproduction

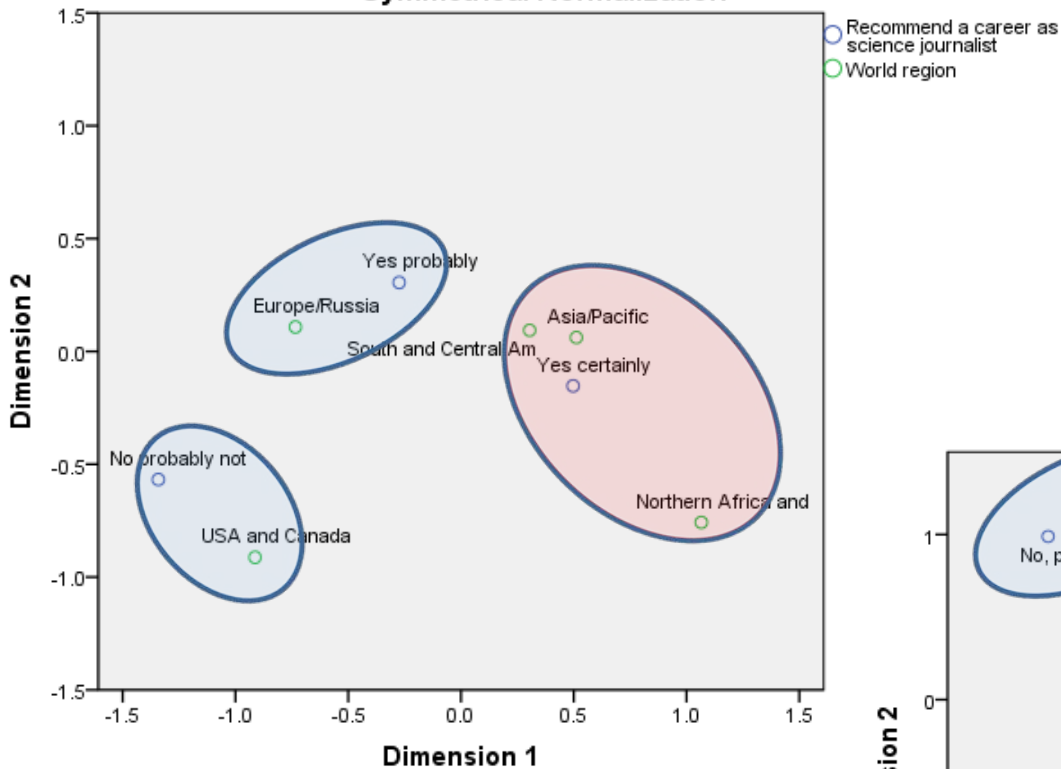
The process of remembering
by
retelling a story

Decay function or
enrichment of
meaning ?

Source: Carlos Vogt (2011) *The spiral of scientific culture*, PUS



Row and Column Points
Symmetrical Normalization

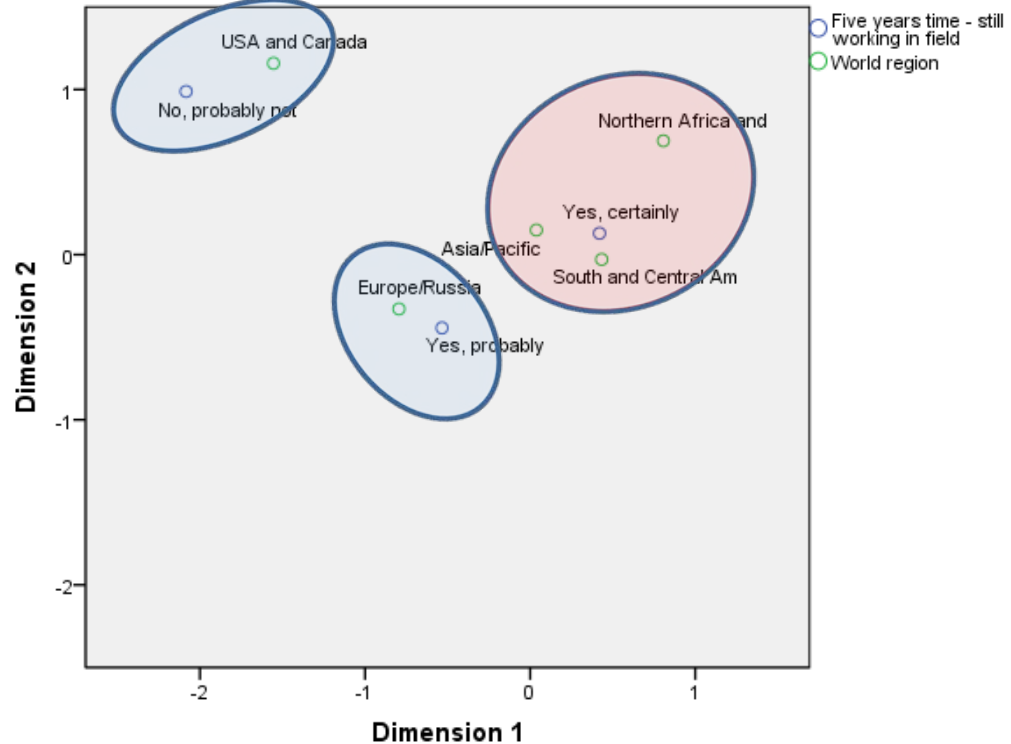


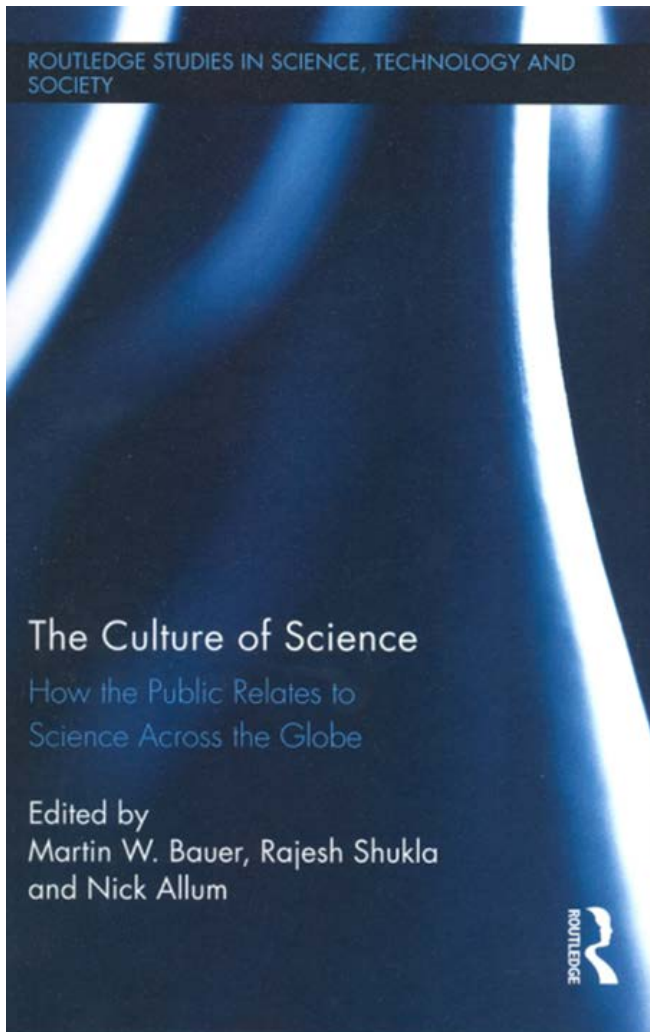
CA D1=92%
'would recommend the career'

The SciDev.Net Study
Bauer et al. 2012

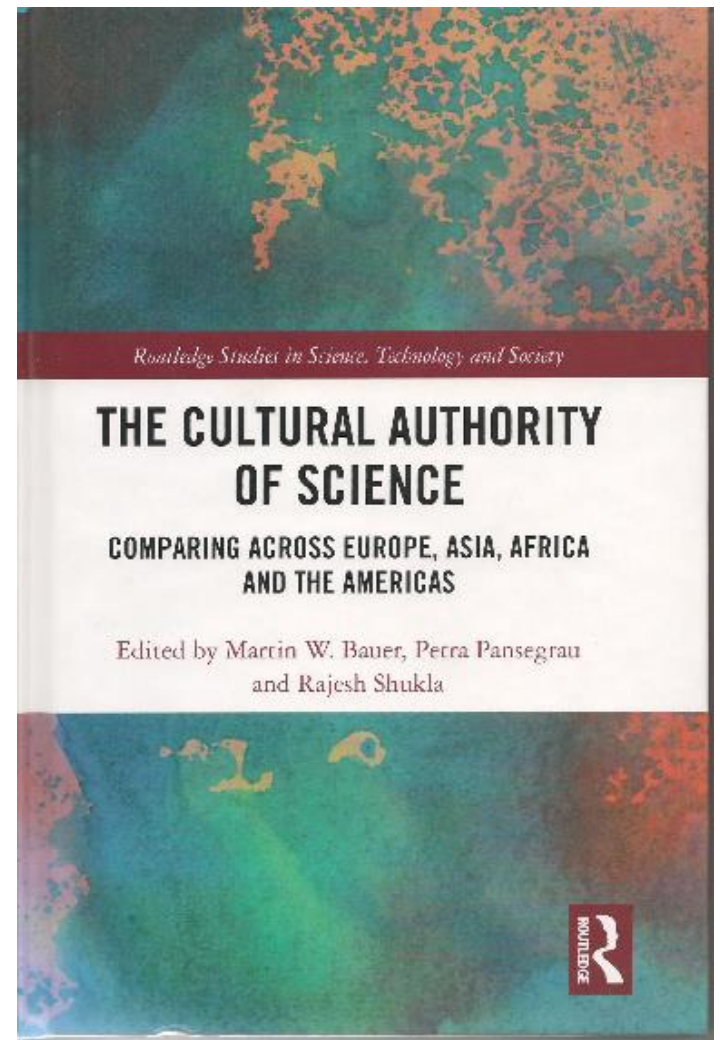
'Will be working in 5 years'
CA D1 = 87%

Row and Column Points
Symmetrical Normalization





2012



2019