Between scientific ‘truths’ and ‘debates’

How perceived scientific consensus predicts beliefs about anthropogenic climate change in four EU countries

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EPCC Project

IPSOS Mori survey June 2016
France (N = 1,010), Germany (N = 1,001)
Norway (N = 1,004), UK (N = 1,033)

Role of the « scientific consensus » argument

RESEARCH ARTICLE

The Scientific Consensus on Climate Change as a Gateway Belief: Experimental Evidence

Sander L. van der Linden[1]*, Anthony A. Leiserowitz[2], Geoffrey D. Feinberg[2], Edward W. Maibach[3]

nature climate change
ARTICLES
PUBLISHED ONLINE: 28 OCTOBER 2012 | DOI: 10.1038/NCLIMATE1720

The pivotal role of perceived scientific consensus in acceptance of science

Stephan Lewandowsky*, Gilles E. Gignac and Samuel Vaughan

Although most experts agree that CO_2 emissions are causing anthropogenic global warming (AGW), public concern has been declining. One reason for this decline is the 'manufacture of doubt' by political and vested interests, which often challenge the existence of the scientific consensus. The role of perceived consensus in shaping public opinion is therefore of considerable interest: in particular, it is unknown whether consensus determines people's beliefs causally. It is also unclear whether perception of consensus can override people's 'worldviews', which are known to foster rejection of AGW. Study 1 shows that acceptance of several scientific propositions—from HIV/AIDS to AGW—is captured by a common factor that is correlated with another factor that captures perceived scientific consensus. Study 2 reveals a causal role of perceived consensus by showing that acceptance of AGW increases when consensus is highlighted. Consensus information also neutralizes the effect of worldview.

Actual scientific consensus judged close to 99% (Cook et al., 2016)

'Increasing public perceptions of the scientific consensus is significantly and causally associated with increase in belief that climate change is happening, human-caused and a worrisome threat. In turn, changes in these key beliefs predict increased support for public action'

Perceived CC scientific consensus → Belief that CC is anthropogenic

But what it means that it is a « scientific consensus »?

Does ‘being scientifically consensual’ means that it is REAL/TRUE ?

… it depends on the model of science adopted (Rabinovitch & Morton, 2012)

Science as ‘truth’

Certain, clear-cut information about CC are more convincing

Science as ‘debate’

Complex, contextualized information about CC are more convincing

… Back to perceived consensus & CC

Perceived scientific consensus about CC is associated with **stronger** CC beliefs and support for policies (McCright, Dunlap and Xiao, 2013)

However the **interpretation** of what the perceived scientific consensus MEANS seems to vary in function of how science is understood (Rabinovich & Morton, 2012) :

- Science as a 'truth' producing activity → *less* uncertain information about CC is more convincing
- Science as 'debate' → *more* uncertain information about CC is more convincing

Perceived consensus in UK, France, Germany & Norway (EPCC Survey)

Does the adopted **model of science** moderates (conditions) the interpretation participants make of the **scientific consensus** (e.g. Rabinovitch & Morton, 2012)?

Hypothesis

Science as 'truth'

++

PERCEIVED scientific consensus (low – high)

→

Natural vs. Anthropogenic CC

+

Science as 'debate'

Method

IPSOS Mori survey in UK (N = 1,033), France (N = 1,010), Germany (N = 1,001) and Norway (N = 1,004) - June 2016

Attribution scepticism

- Which of the following causes of CC best describes your opinion
  - (1 = CC is entirely natural; 5 = CC is completely anthropogenic)

Trend scepticism

- As far as you know, do you think the world's climate is changing or not?
  - (Yes/No)

Method

Perceived scientific consensus

- What proportion of scientists agree that climate change is happening and that humans are largely causing it?
  - *1 = a small minority agrees (20% or less); 5 = the vast majority agrees (80% or more)*

Model of science

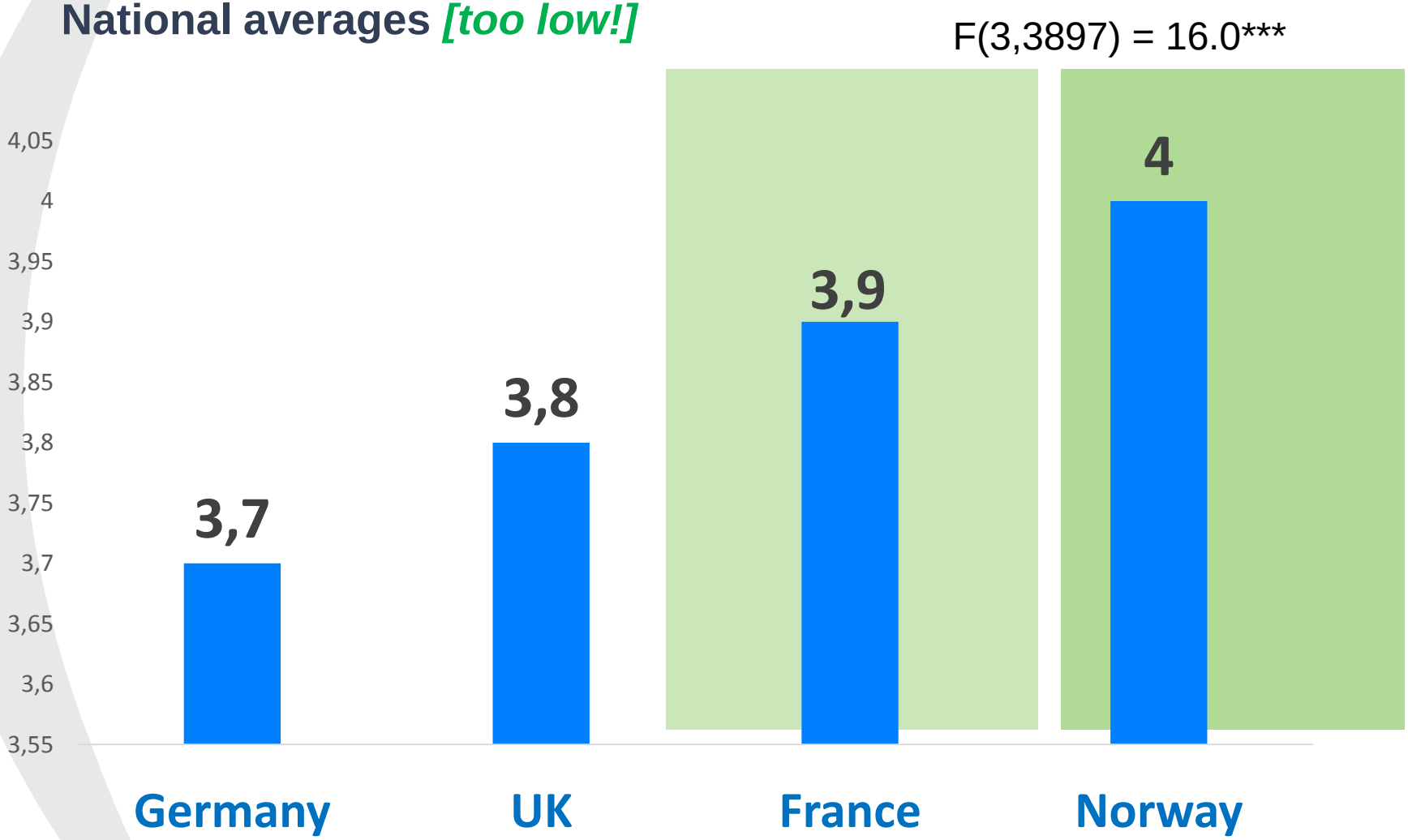
- There may be more than one correct answer to most scientific questions (Rabinovich & Morton, 2012)
  - 1 = *Strongly agree* to 5 = *Strongly disagree*

RESULTS

How strong a consensus among scientists on ACC is perceived?

1= low 5= high

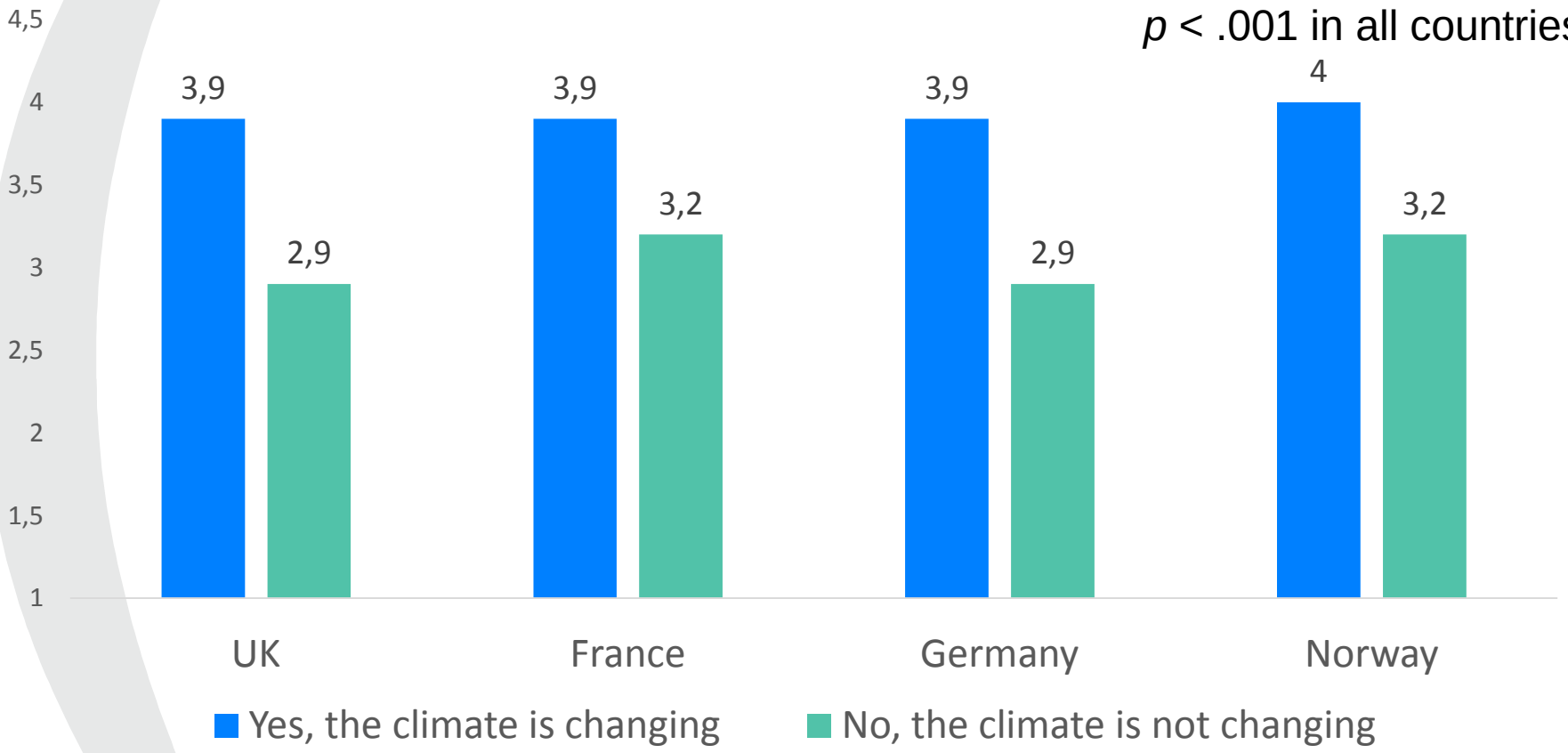
National averages *[too low!]*



Consensus judged as somewhere between 50-80%

Proportion of "scientists agree that anthropogenic CC is happening" among non sceptics vs. sceptics

p < .001 in all countries



Trend sceptics systematically **see less consensus**

Regression / moderation analysis (PROCESS)

Bloc 1

Age (-.01)**
Women (.04, ns)
University degree (.11)**
Right-wing (-.03*)**

France (.16*)**
Germany (.05 ns)
Norway (.01 ns)
Perceived Sci Cons (.37*)**
Sci model (.14)**

Bloc 2

Perceived Sci Cons*Sci model (-.03*)

R^2 = .14, F(10,2861) = 45.6***

R^2 = .14, F(10,2861) = 6.5*

Belief in anthopogenic CC

Science as 'truth'

PERCEIVED scientific consensus (low – high)

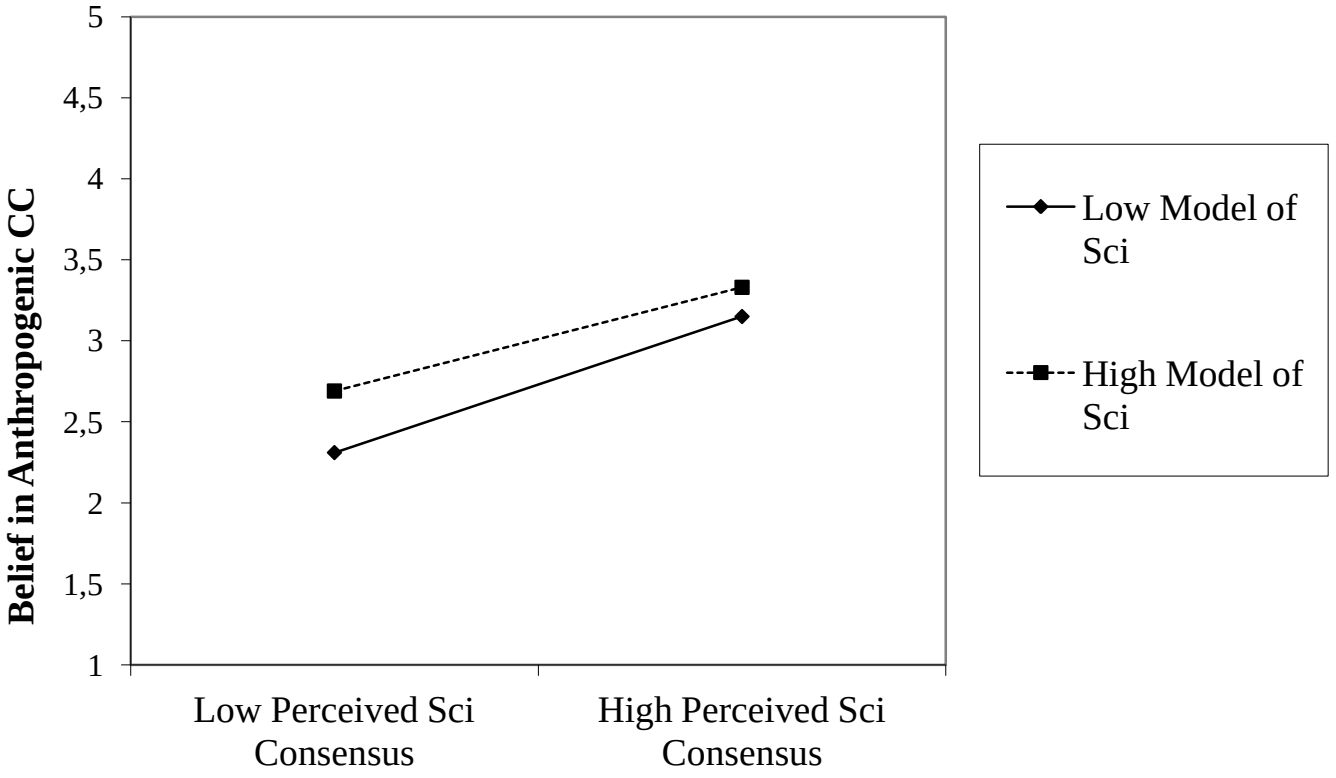
.28***

.21***

Natural vs. Anthropogenic CC

Science as 'debate'

Regression / moderation analysis (PROCESS)



Discussion

Overall, perceived scientific consensus (PSC) is largely under estimated

- Journalistic practices of or "balanced" reporting imperatives (Boykoff & Boykoff, 2007)

PSC lower among climate-sceptics

- PSC matches individuals' views on climate change – cultural cognition theory (Kahan et al., 2012)

Model of science as debate relatively buffers the potential effect of contradictory information

- People are exposed to simplified and decontextualized information through social media (e.g. fake news!)
- → **importance for addressing UNCERTAINTY and COMPLEXITY within scientific models**
- Right-wing post-truth positions (Batel & Devine-Wright, 2018)

Between scientific ‘truths’ and ‘debates’

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