

# Communicating to policy-makers

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Presentation at ALTERNet summer school, Peyresq

3 September 2007

# Outline of talk

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- Distinguishing scientific research and assessment
- Taking your audience seriously: models of decision making under uncertainty
- Dealing with uncertainty through participatory decision support
- Second best communication for real people: three strategies
- Dealing with common problems

# Distinguishing scientific research and assessment

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## ***Basic scientific research***

- answers an important question or solves an important problem
- involves analyzing a sample of data, or results from a model
- uses a data sample or model that will yield generalizable results
- gets peer reviewed and published

# Distinguishing scientific research and assessment

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## ***Scientific assessment***

- makes knowledge accessible and useful to policy and decision makers
- focuses on specific problems of specific people, with less concern for generalization
- is successful if it changes decisions, or at least the political debate
- needs to be credible, legitimate, and salient

# Distinguishing scientific research and assessment

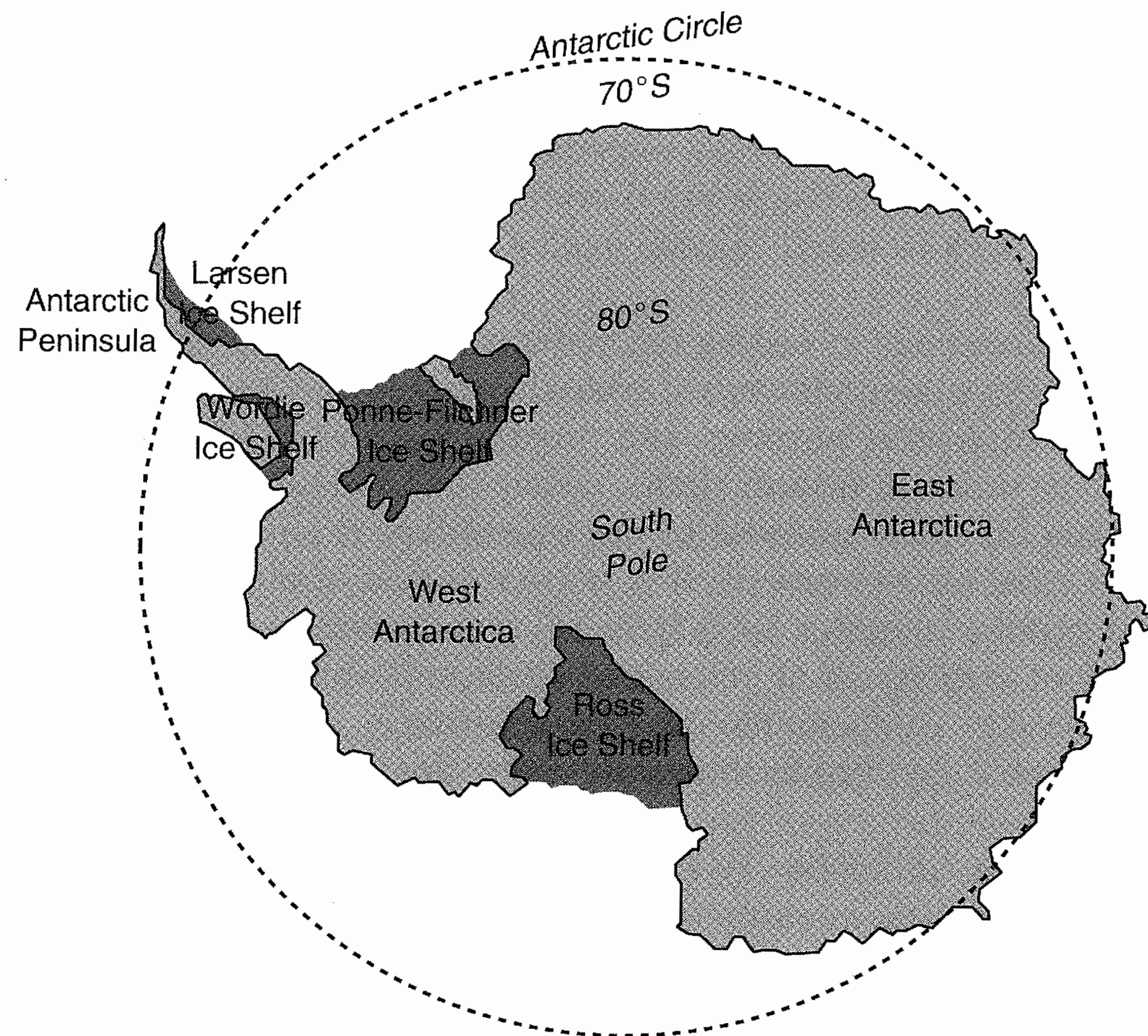
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## *Why is this important?*

- Basic research often tells what is possible, or what is very likely
- Useful assessment tells people something about how likely a phenomenon is
- Disconnect between the results of research and the inputs for assessment
- Need to rely on expert elicitation and related tools

# Distinguishing scientific research and assessment

## Example



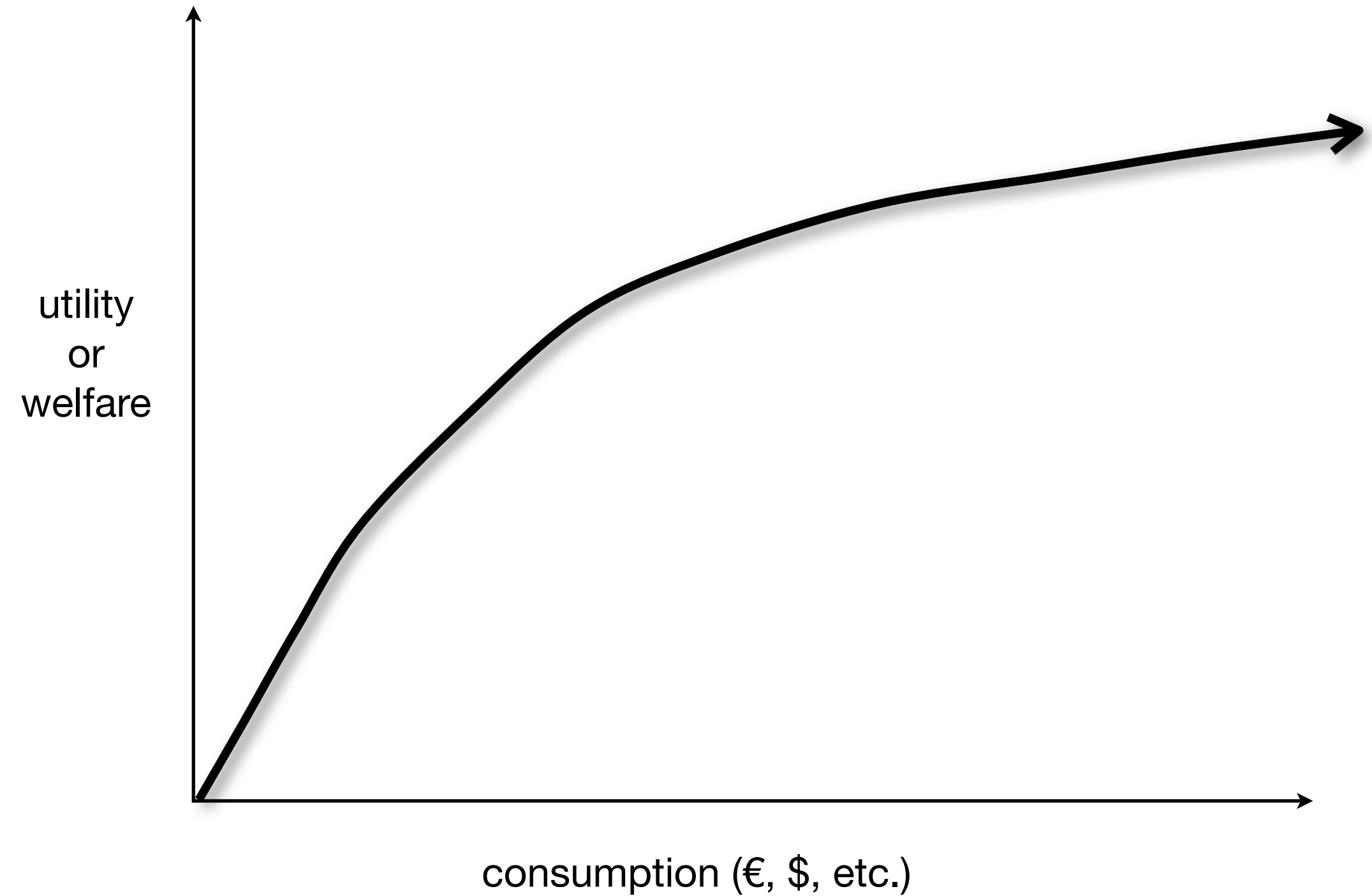
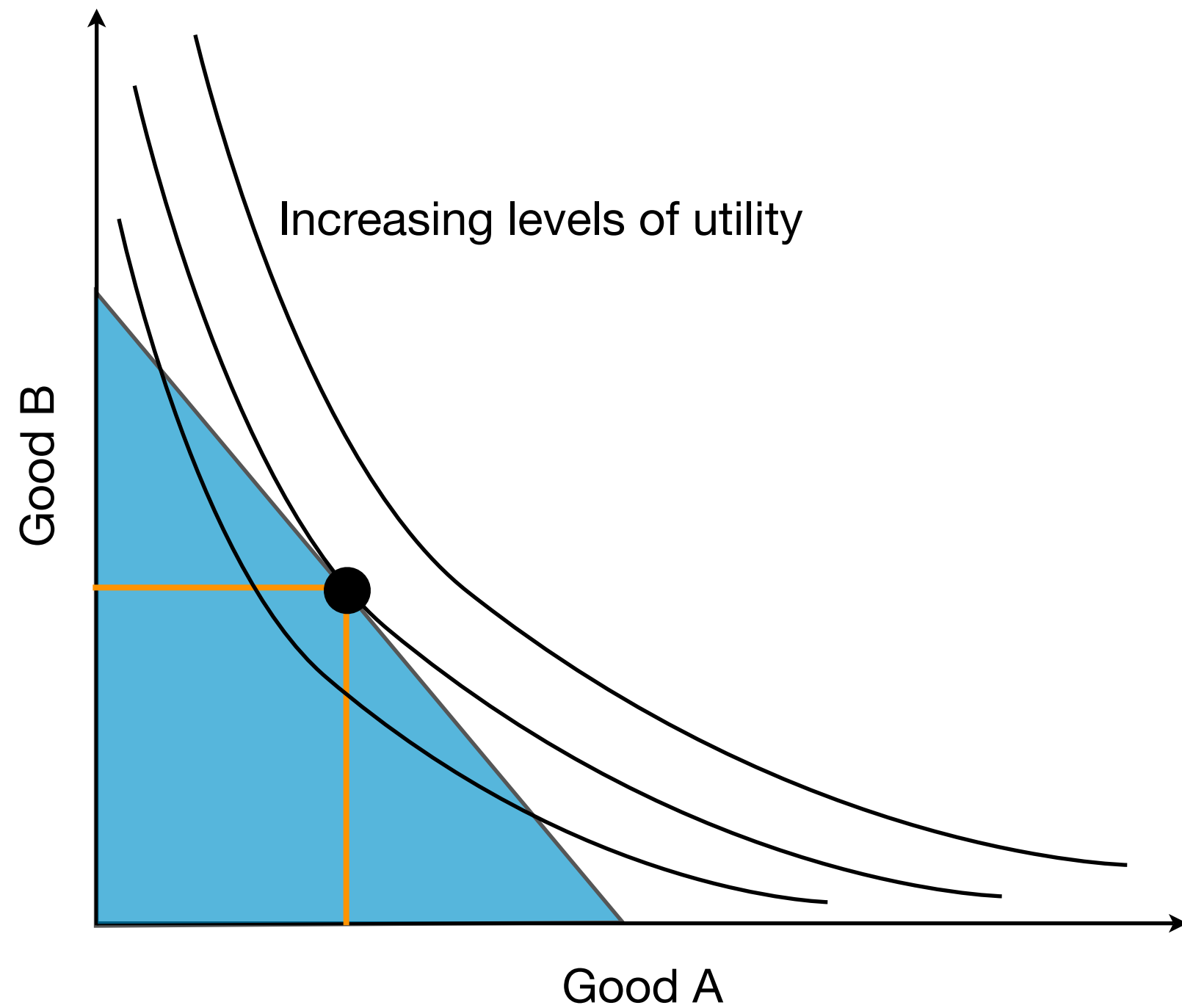
- Some leading scientists told a plausible story about how the WAIS could collapse due to climate change, if the big ice shelves were to disintegrate
- This might have further implications for Greenland
- Given the possibility of 5 – 10 meters sea level rise, it matters a lot whether the chance is 1 in a million, or 1 in a thousand
- Nobody really knew how likely it was
- Early assessments pretty much ignored it

Source: Patt, Risk Dec. & Policy (1999)

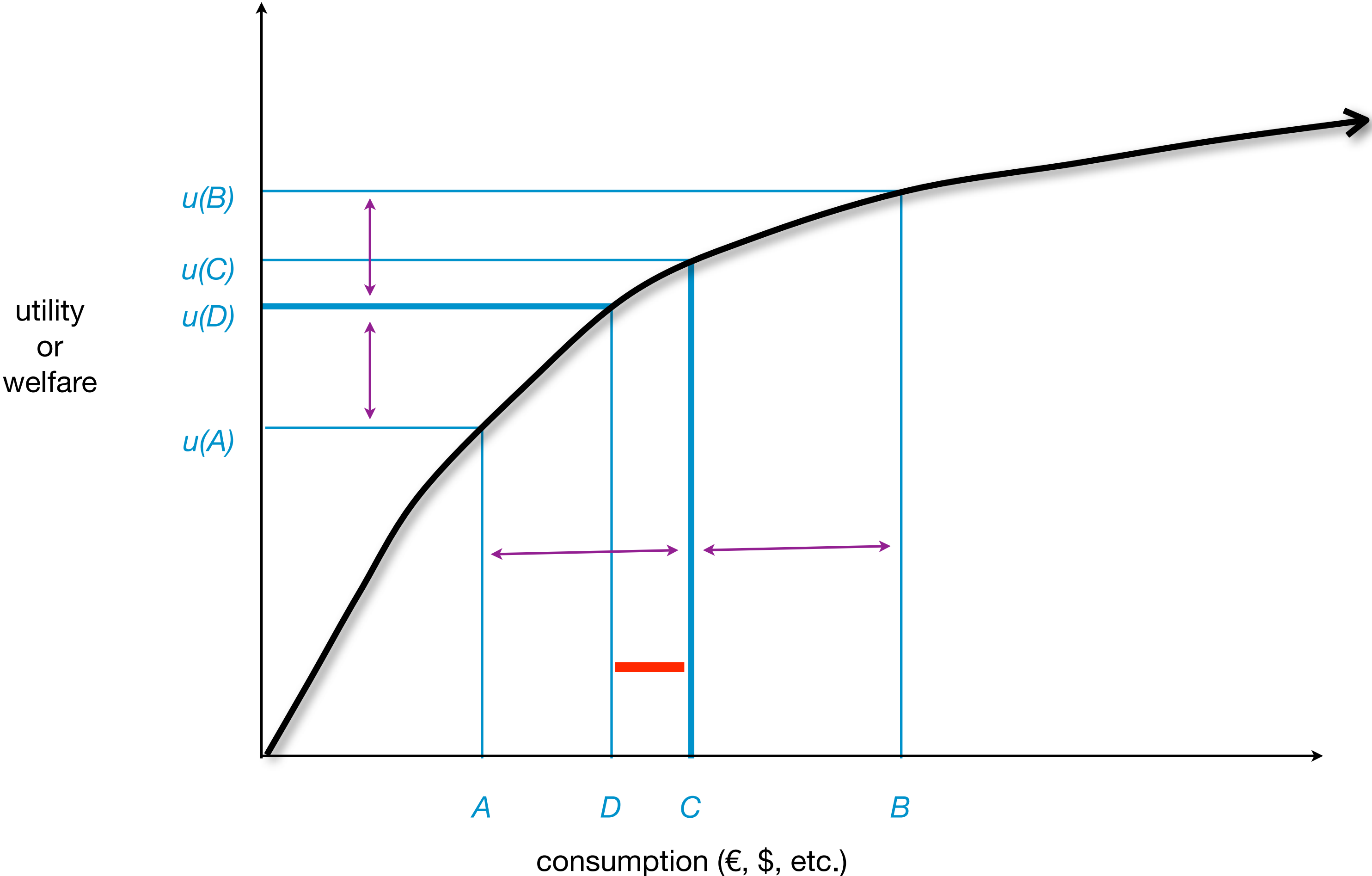
# Models of decision making

## *Economic models*

- agents are trying to maximize their utility or welfare given a budget constraint
- people get decreasing marginal utility from extra consumption



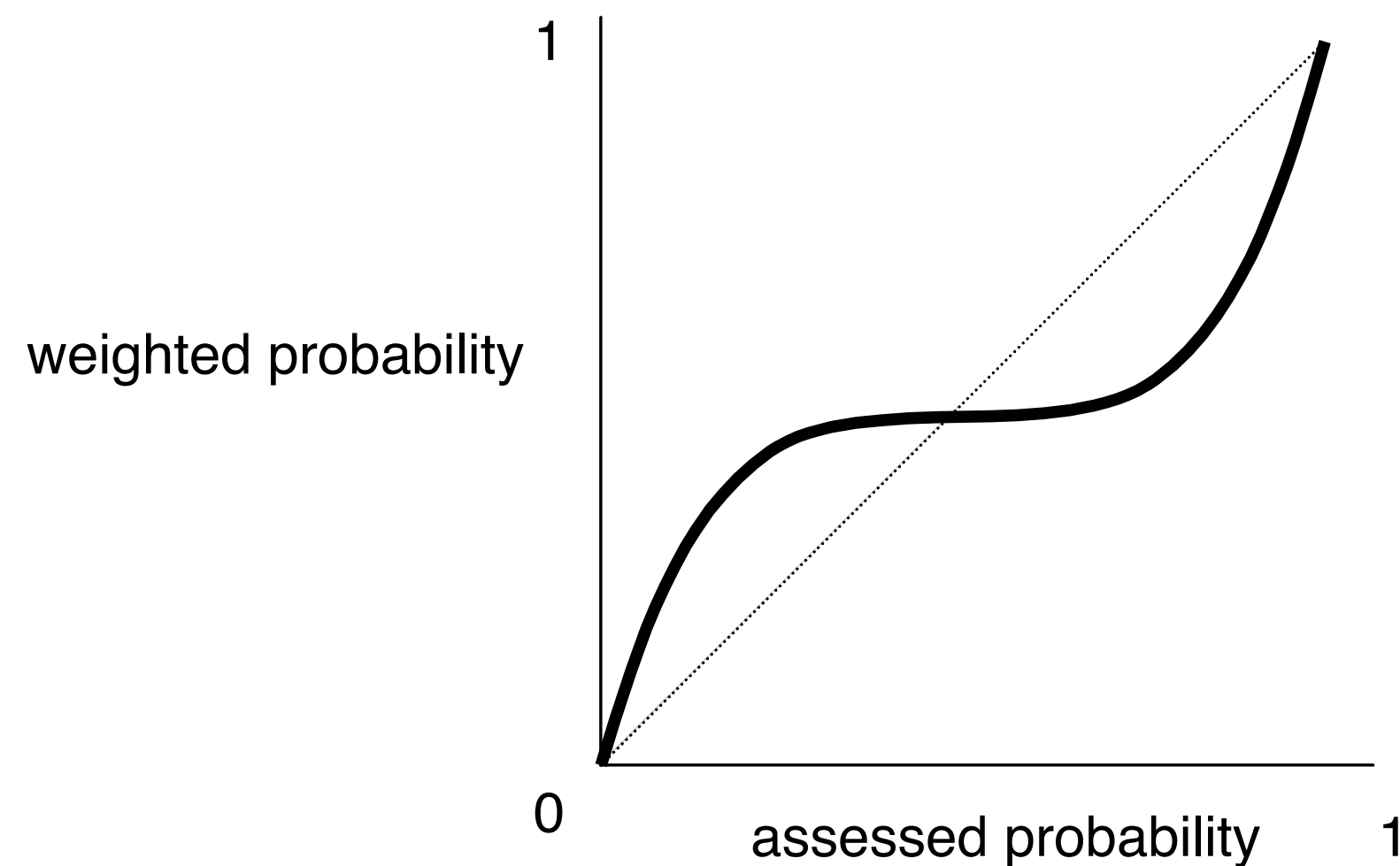
# Models of decision making



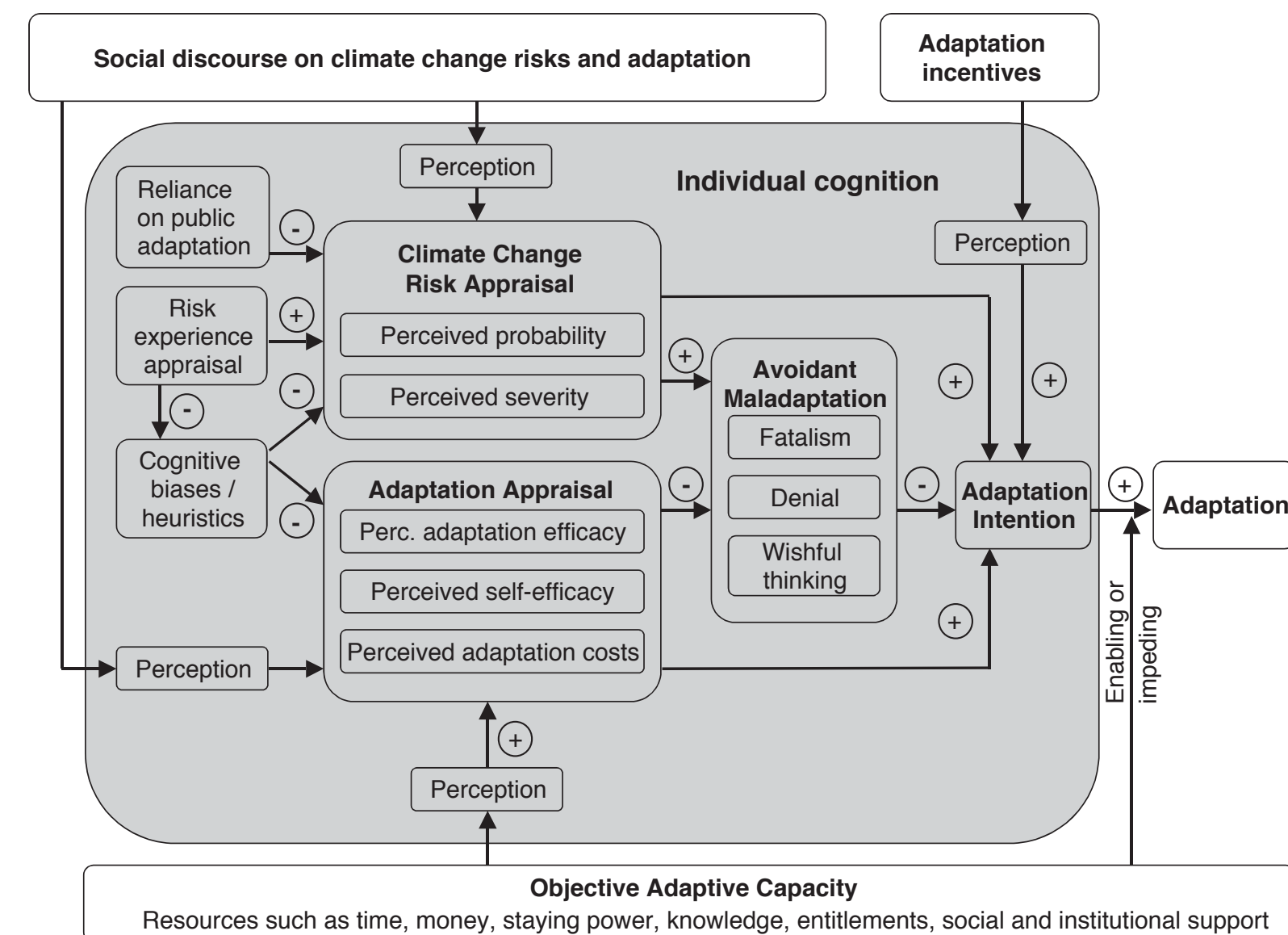
# Models of decision making under uncertainty

## Psychological models

- Heuristics and biases in probability estimation
- Value functions and framing effects (e.g. losses  $\neq$  gains)
- Process models of the decision-making problem



Source: Tversky & Kahnemann, Econometrica (1979)

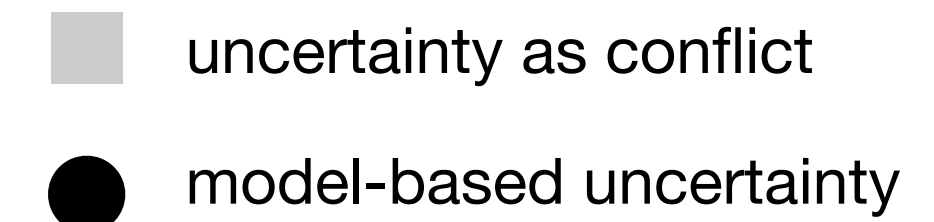
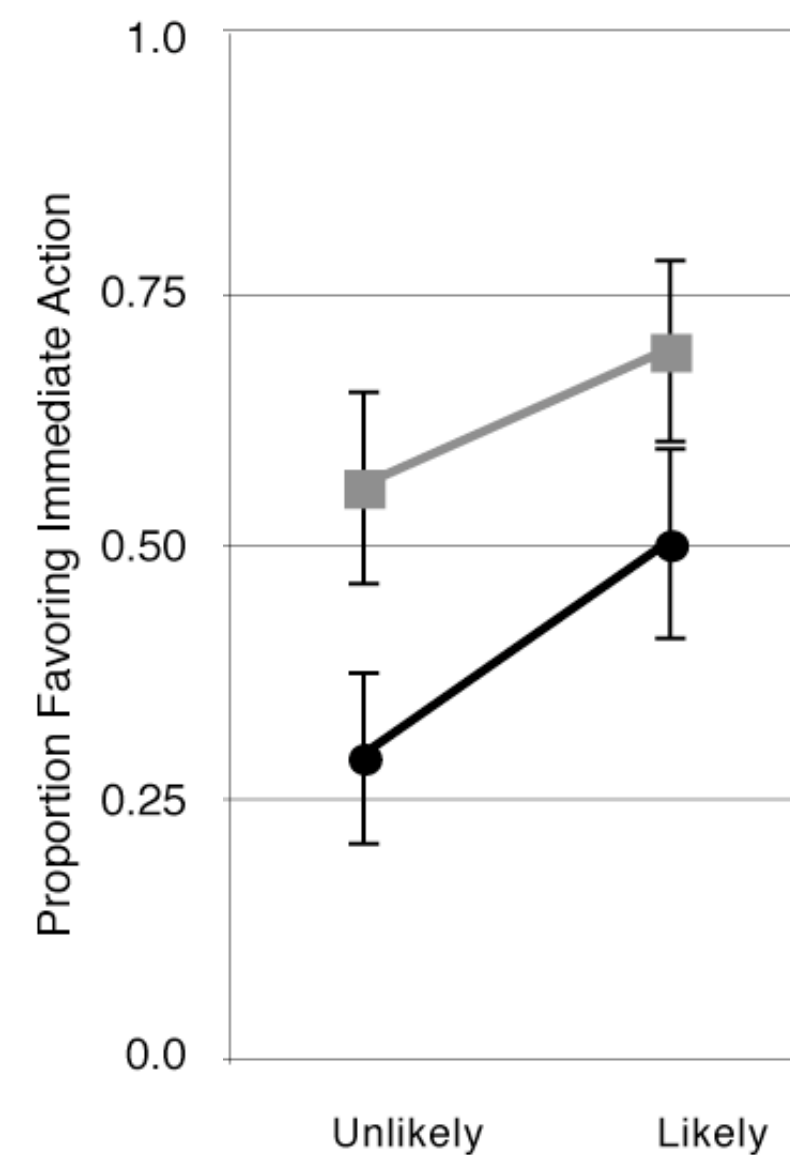
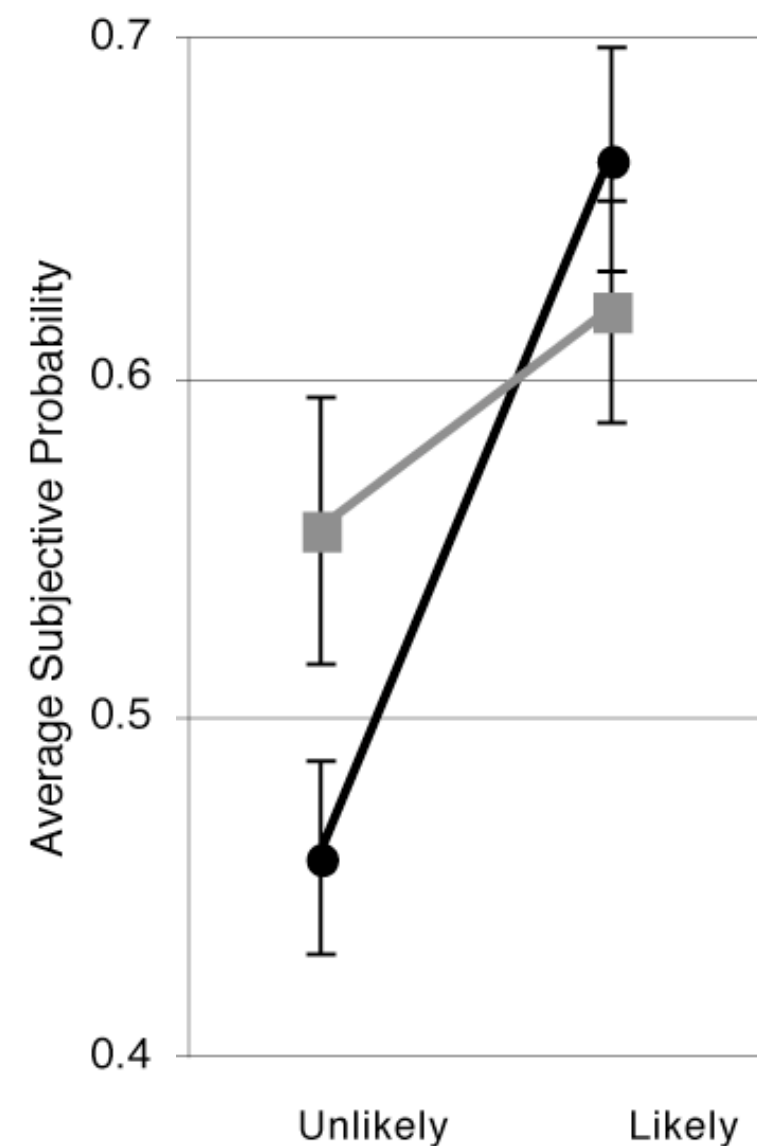


Source: Grothmann & Patt, Global Env. Change (2005)

# Models of decision making under uncertainty

## *Social and political models*

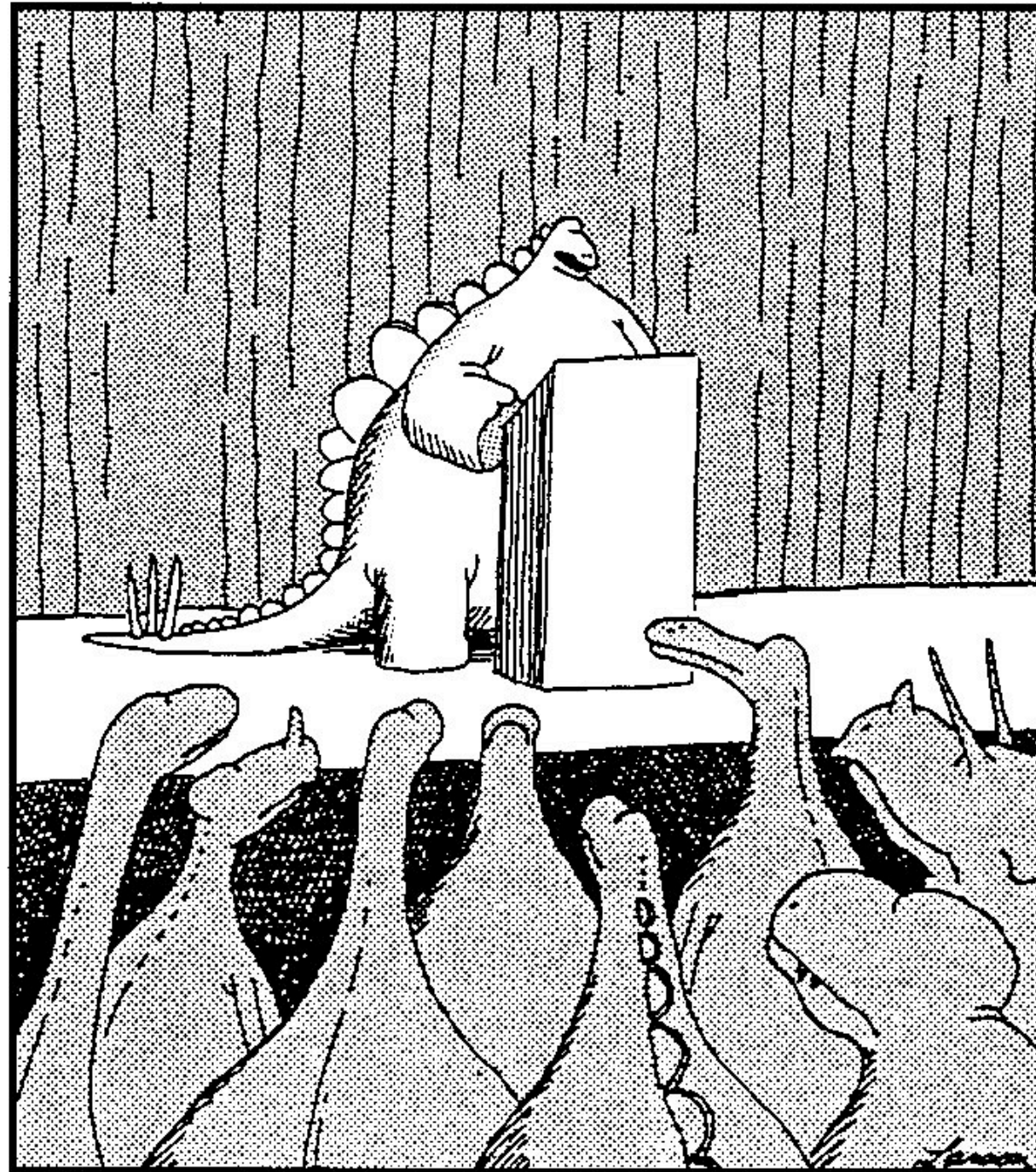
- Legitimizing role of scientific information for political decision-making
- Uncertainty becomes a reason for inaction
- Conflicting views signal contested terrain, and hence a reason for action



Source: Patt, Global Env. Change (2007)

# Models of decision making under uncertainty

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“The picture’s pretty bleak, gentlemen. ...  
The world’s climates are changing, the mammals  
are taking over, and we all have a brain  
about the size of a walnut.”

## Conclusions

- Rational actors need prices and probabilities
- Real people need something they can remember and use
- Political agents need certainty to take action, uncertainty to avoid action

# Participatory decision support

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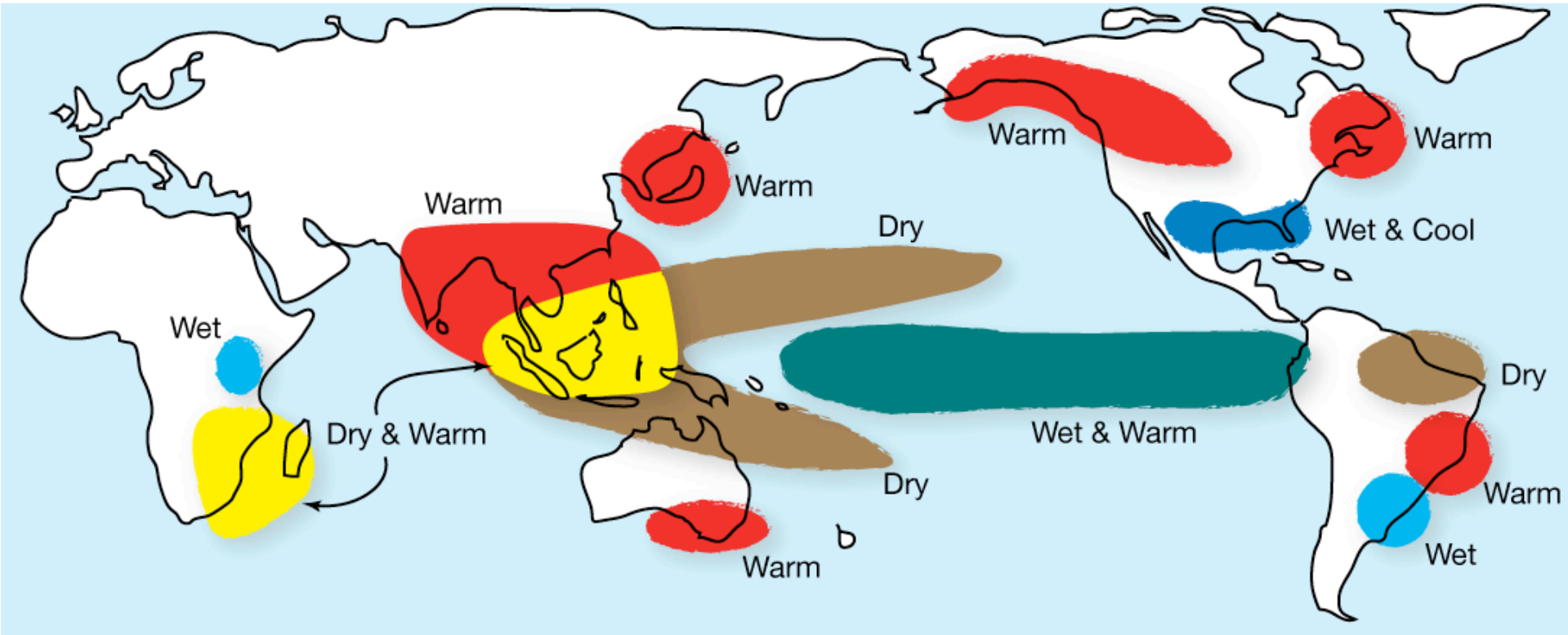
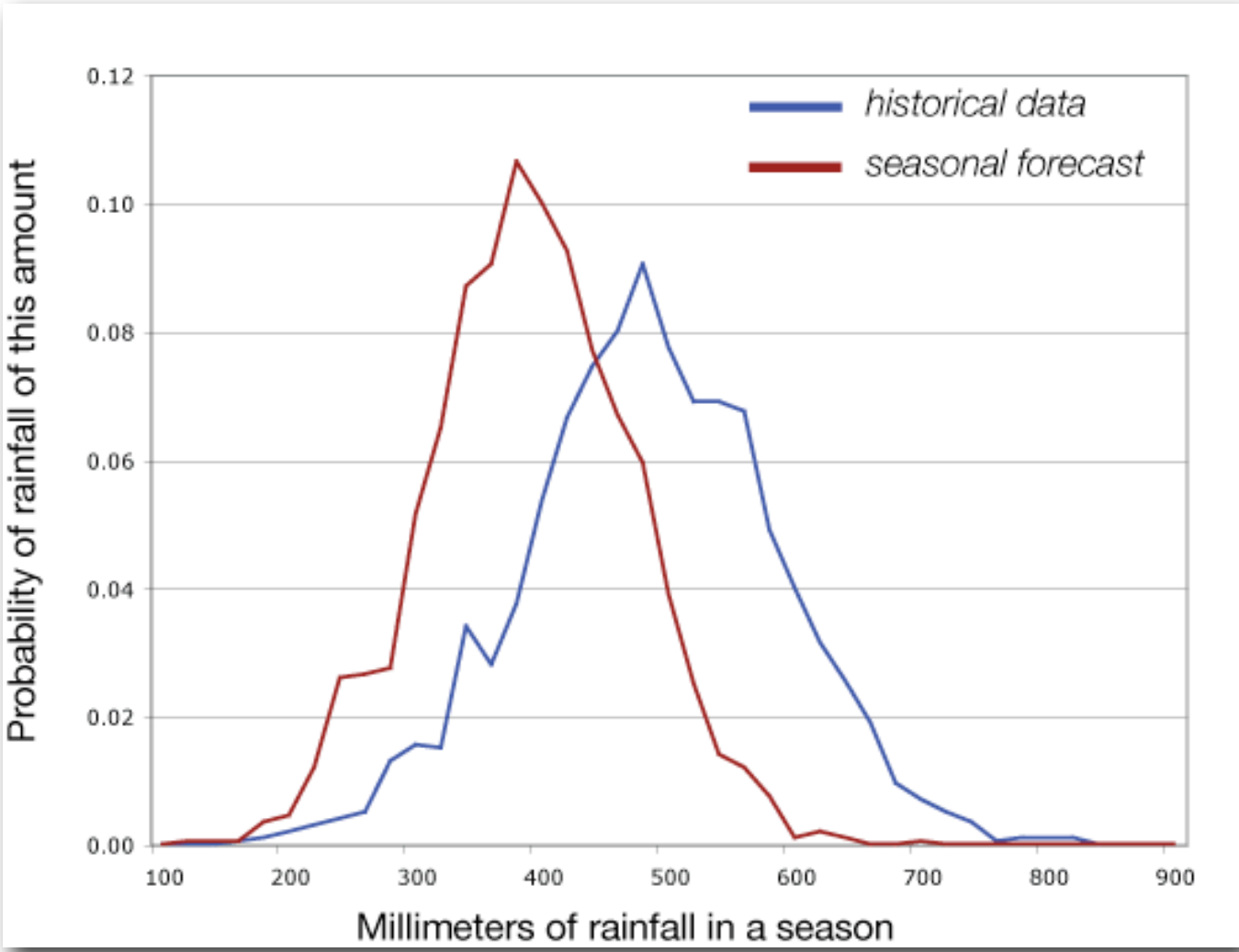
## *Why do participatory decision support?*

- to discover whether your audience is made up of rational actors, real people, or political agents, so that you can begin to relate to them
- to learn what their questions are, so that you can provide a salient answer
- to work with them as partners is applying the information to real problems, correcting mistakes



# Participatory decision support

## Experiment

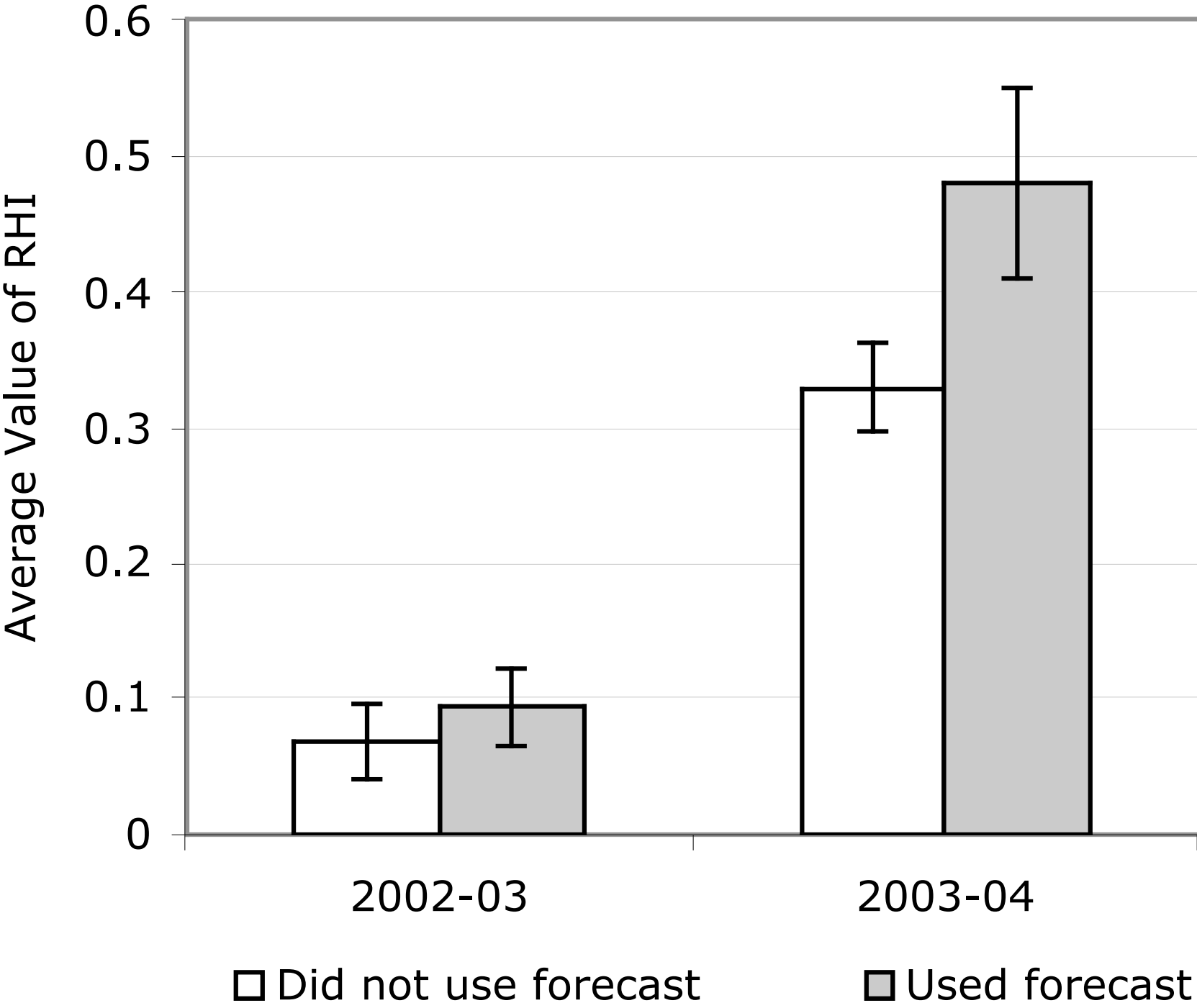
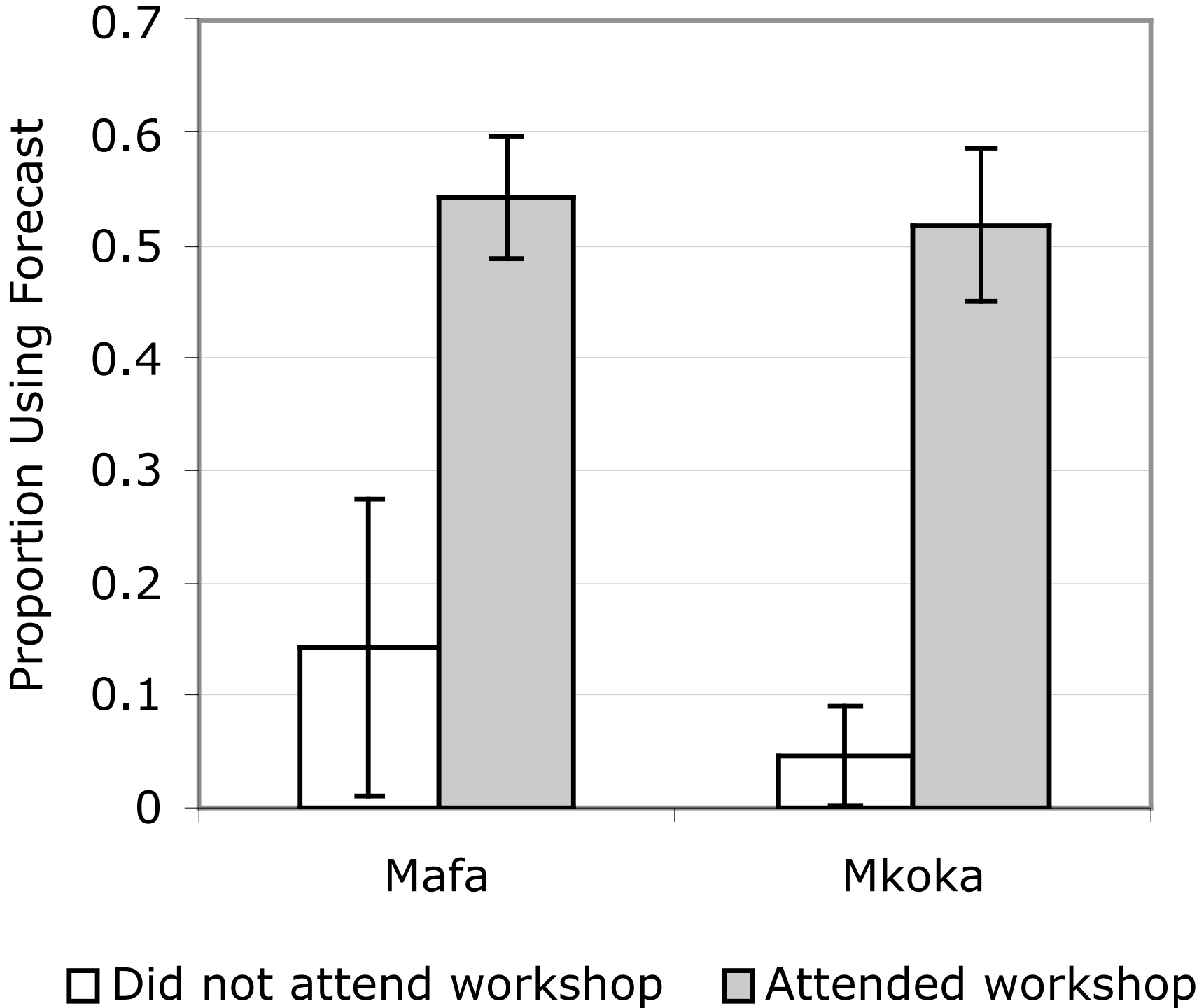


Source: IRI



# Participatory decision support

## Does it work?



Source: Patt, Suarez, & Gwata, PNAS (2005)

# 3 strategies for second best communication

## Strategy 1: Tell a good story

**LEADER PAGE**  
**World Bank warns of mother of all El Ninos**

By Adam Entous  
WASHINGTON.  
THE powerful weather phenomenon known as El Nino could this year be the mother of all El Ninos, the World Bank warned on Wednesday and urged countries to prepare for the worst.  
"This looks like it's going to

causing droughts and flooding in far-flung regions.  
Named after the Christ child because it tends to peak at Christmas, the current El Nino is already being blamed for widespread economic turmoil.  
The World Bank, the Inter-American Development Bank and other multilaterals and aid agencies have responded to the crises with offers of emergency aid.

yields in parts of Africa could drop by 30 percent, he warned.  
With more already facing bank officials strain of drought current El Nino lead to catastrophic drought-prone  
But with Nino-related

averted, Watson said.  
"We can avoid the social dis-  
tortion and a lot of the econom-

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### Fixing climate carries big costs

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By **Dan Vergano**, USA TODAY

Global warming's demands on human ingenuity, and pocketbooks, will take center stage Friday in the latest international report on climate change.

Whether humans bury greenhouse gases, blunt them with new technology or buy them off with tax incentives, banishing the emissions responsible for global warming will take quick action, experts conclude in advance of the report.

The latest International Panel on Climate Change report, "Mitigation of Climate Change," examines fixes — or "mitigation" in climate lingo — to global warming, both technological and economic. The report will underline the environmental and financial benefits of quick action to

Elizabeth Dalziel, AP

A chimney spouts a column of smoke in residential and commercial district of Beijing, China in Jan. 2007

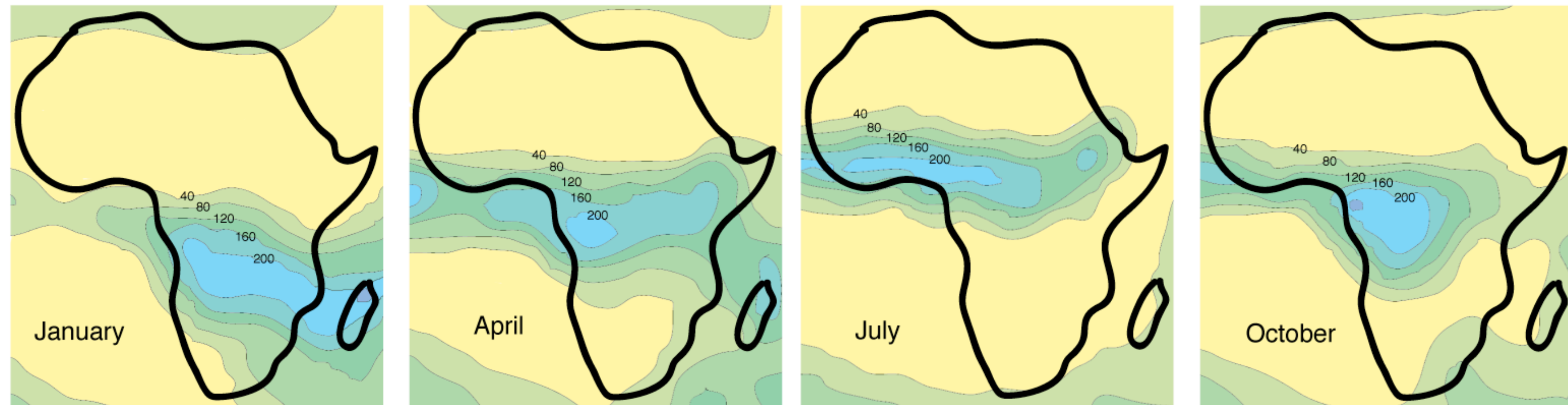
Source: Zimbabwe Herald, 10.10.1997

# 3 strategies for second best communication

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## **Strategy 2: Give people a mental models they can use**

- People remember things they think they understand
- Explain the physical process in a way that highlights the important aspects of the system

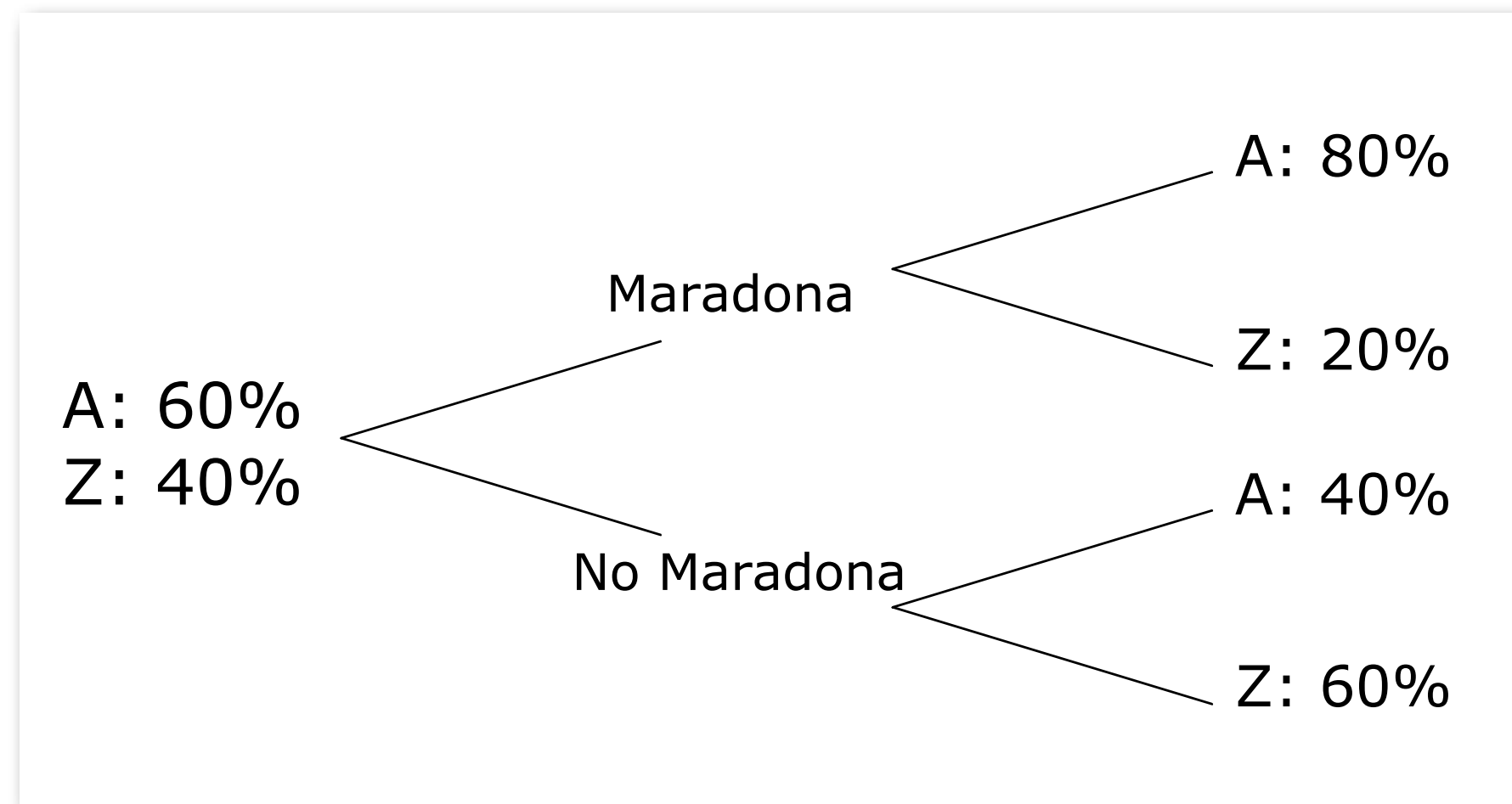


Source of data: NOAA NCEP

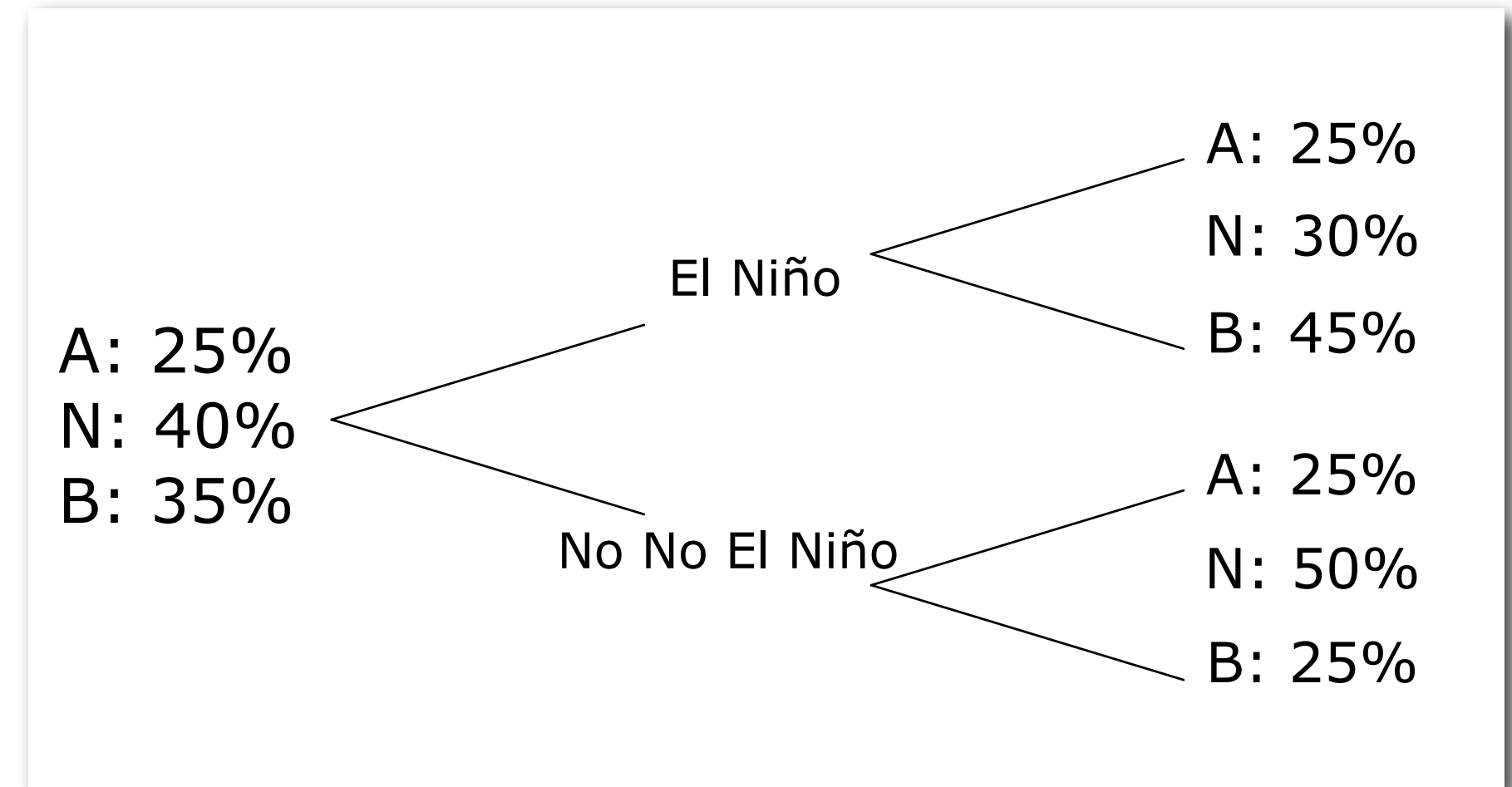
# 3 strategies for second best communication

## **Strategy 3: Use appropriate analogies that people intuitively understand**

- Everybody has experience with complicated topics in some area of their lives
- Find the right examples to highlight complicated topics



A = Argentina wins  
Z = Zimbabwe wins



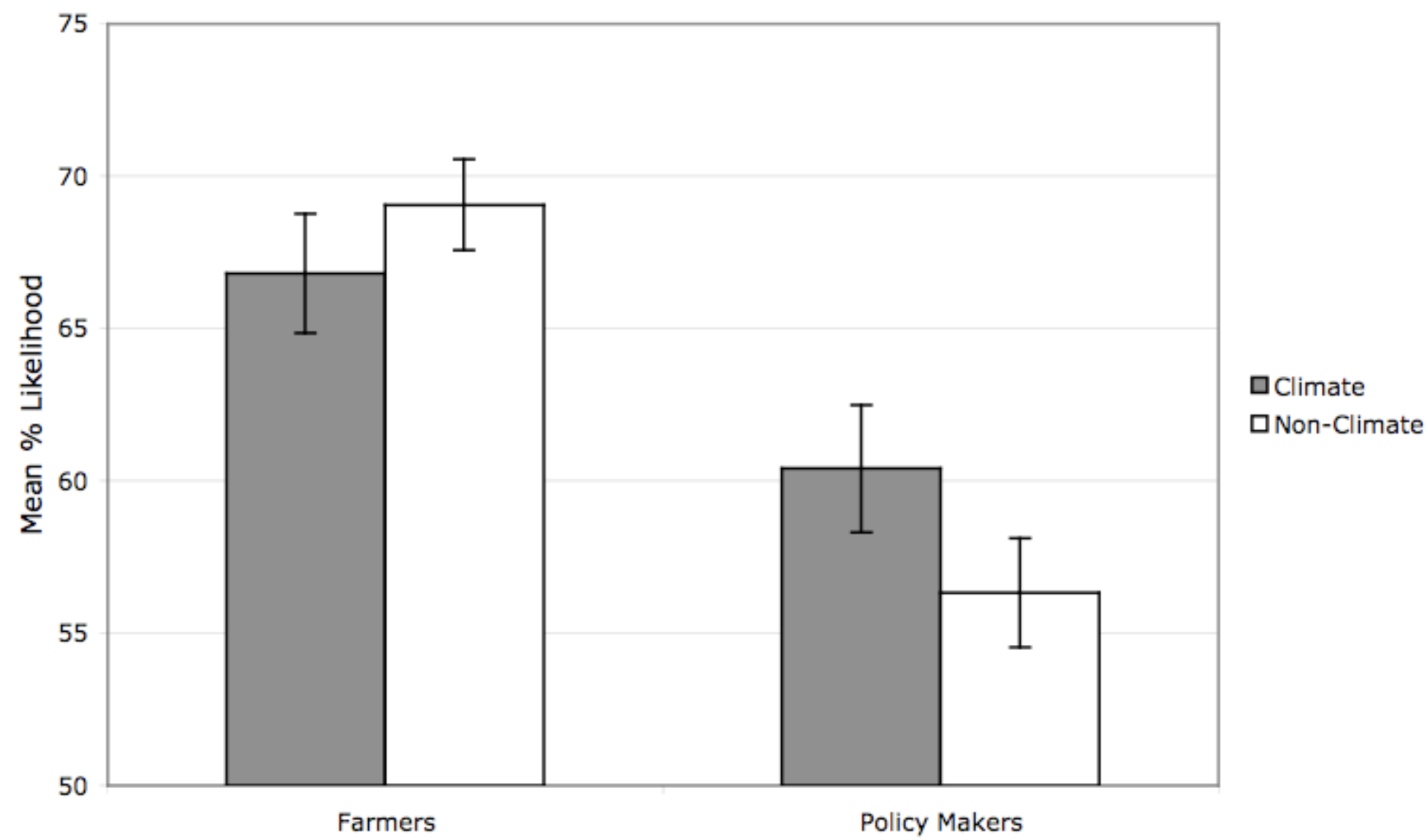
A = Above normal rainfall  
N = Normal rainfall  
B = Below normal rainfall

Source: Suarez & Patt, Risk Dec. & Policy (2004)

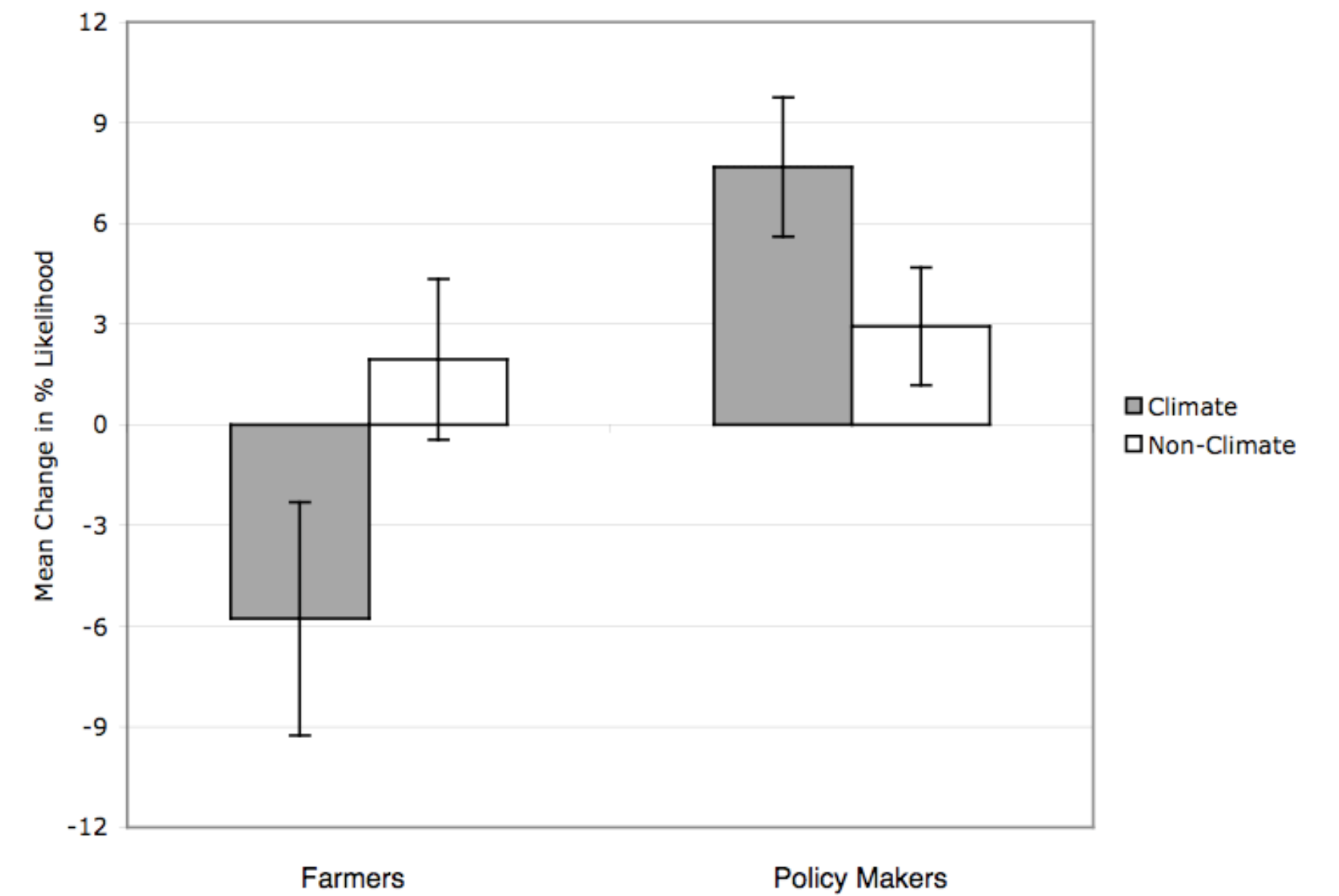
# Dealing with common problems

*People's perception might not match your own*

Perception of current risks



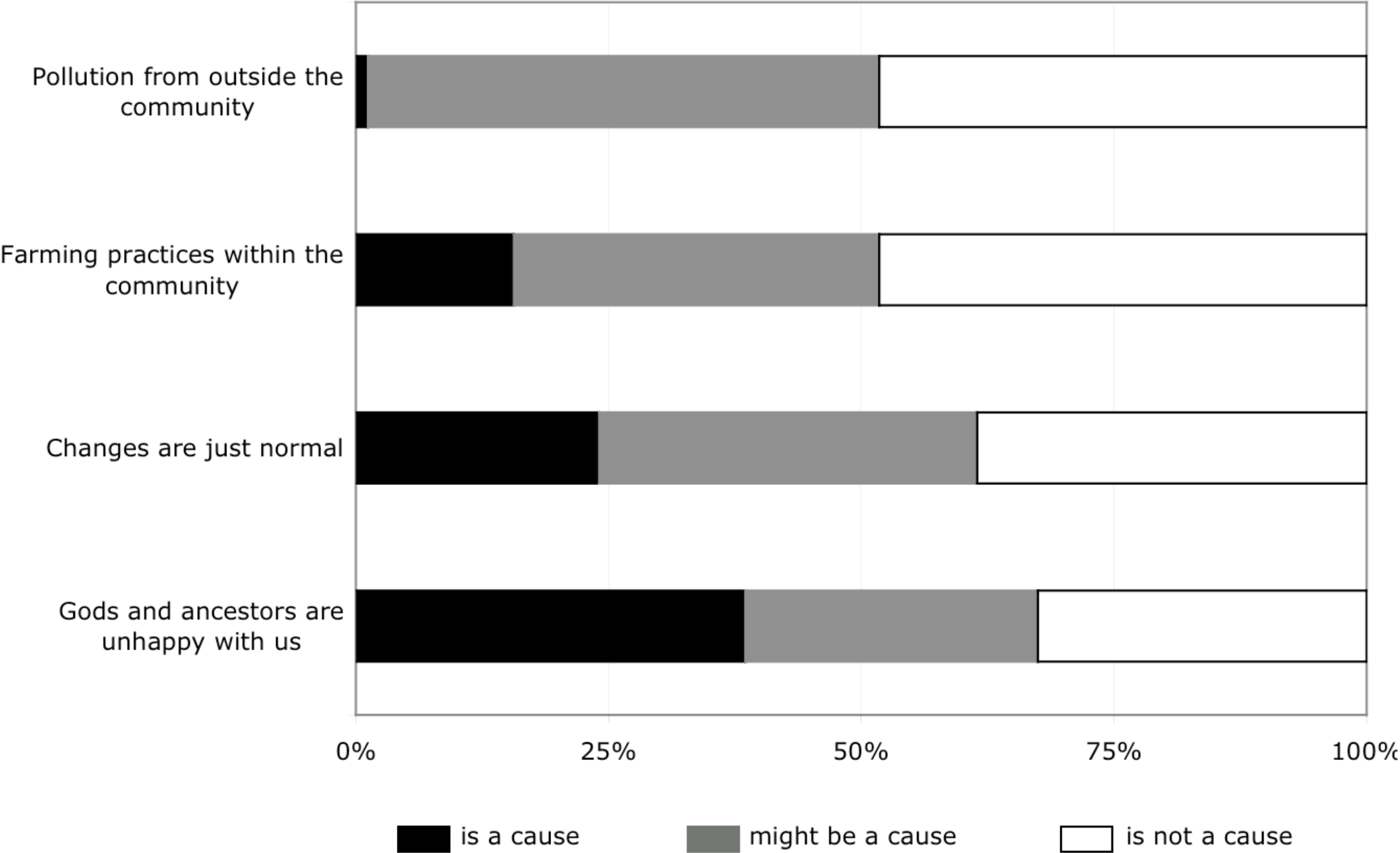
Perception of changes in risks



Source: Patt & Schröter, in prep (2007)

# Dealing with common problems

*People's perception might not match your own*

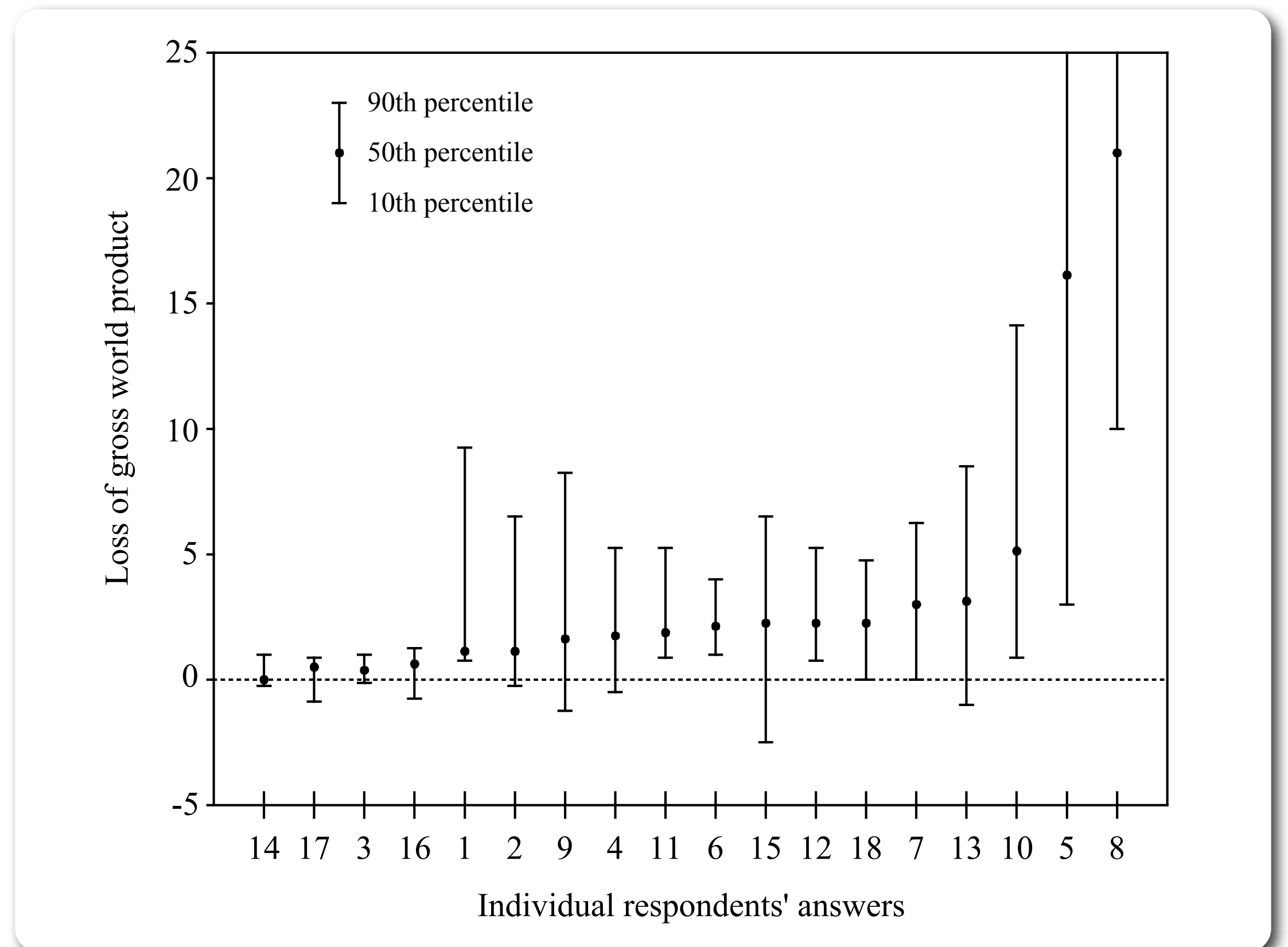


Source: Patt & Schröter, in prep (2007)

# Dealing with common problems

## Overconfidence

- People systematically underestimate the range of likely outcomes
- Providing people a little information makes them experts
- Be careful not to commit the same problem yourself



Source: Nordhaus (1994)

# Dealing with common problems

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## *People won't trust you*



# Dealing with common problems

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*People won't trust you*

**WIN!**

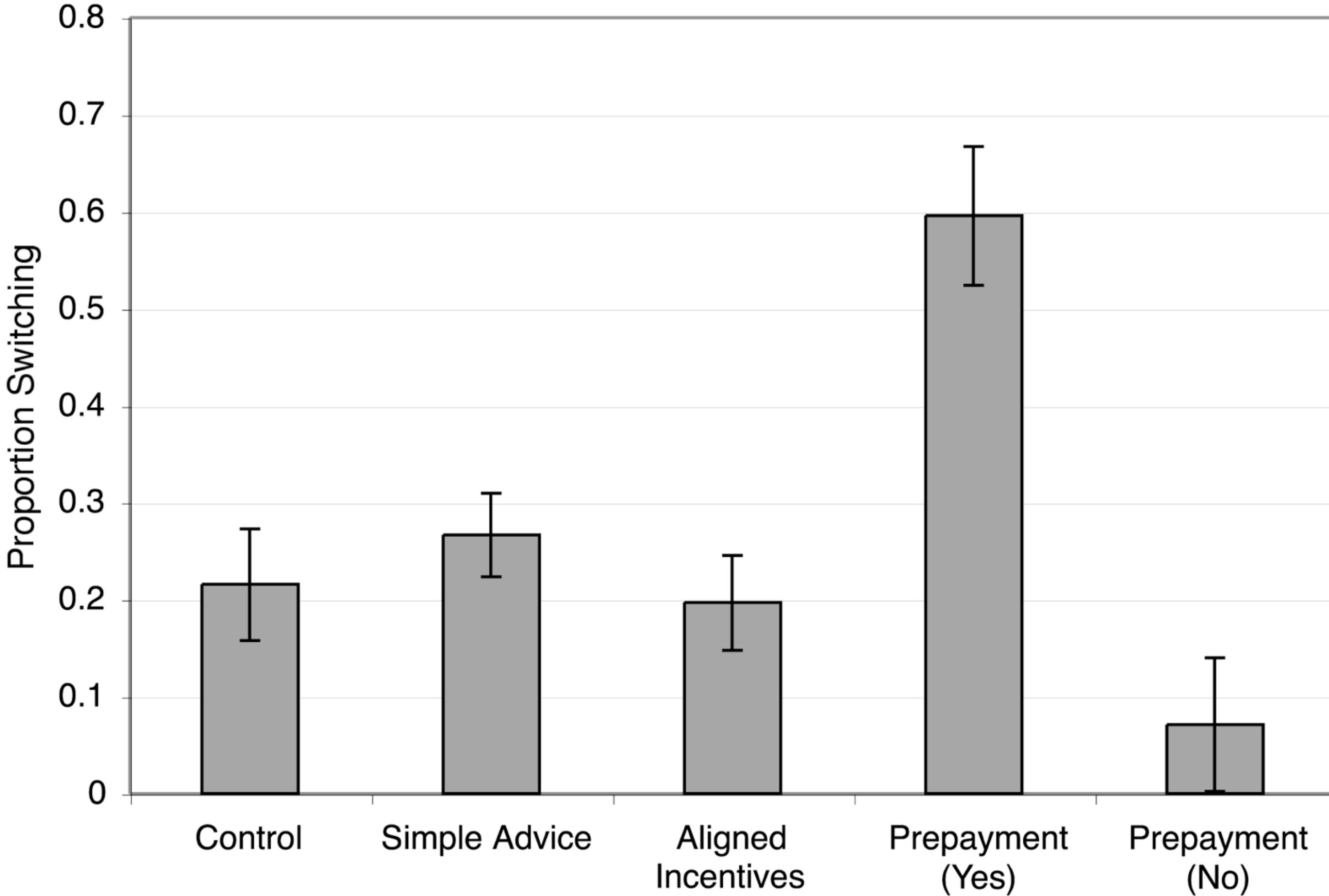
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# Dealing with common problems

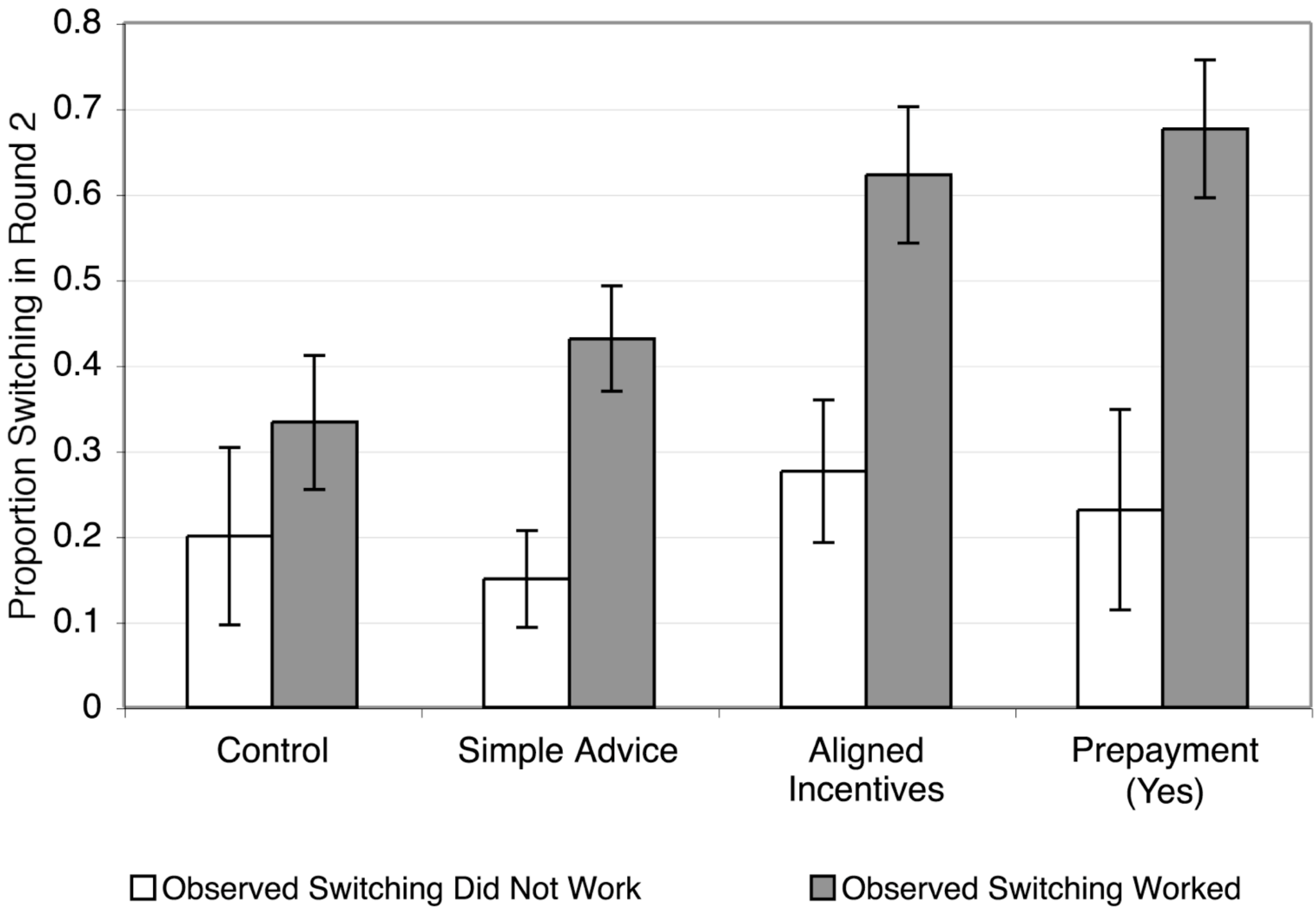
## *People won't trust you*



Source: Patt Bowles & Cash, J. Beh. Dec. Mak., 2006

# Dealing with common problems

## People won't trust you



Source: Patt Bowles & Cash, J. Beh. Dec. Mak., 2006

# Summary

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- Think about why you need to communicate science
- Try to figure out how your audience will deal with your information
- If you can, engage in participatory decision making
- If you can't, at least tell a good story
- Through appropriate pathways
- The right story