Valuing Nature Network Business Impact School, Hands on Session, 3 March 2016

Tim Sunderland & Ece Ozdemiroglu

Who are we?

Tim

▸ Principal Specialist in Economics at Natural England

▸ Some publications:

  ▸ Environmental tools for Local Enterprise Partnerships

  ▸ Accessible literature review for non-experts

  ▸ Health benefits of urban greenspace

  ▸ Green Infrastructure Handbook book chapter on valuation

  ▸ Contribution of green infrastructure to economic growth

  ▸ Review of Green Infrastructure valuation tools

▸ Previous roles in policy, lobbying and fundraising

Ece

‣ Another environmental economist

‣ Founding Director of economics for the environment consultancy (www.eftec.co.uk) (since 1992)

‣ Founder of UK Network for Environmental Economists (www.uknee.org.uk) (since 2004)

‣ Economics Lead of the VNN programme coordination team (since 2014)

Why two environmental economists?

▸ A bridge between different disciplines

▸ A funnel through which all evidence (including economics) gets channelled to decision makers

▸ We ask awkward questions like 'WHY?'

▸ We focus on everyone's core ideas or key messages AND how they link to each other

Outline

Understanding the Need for Evidence
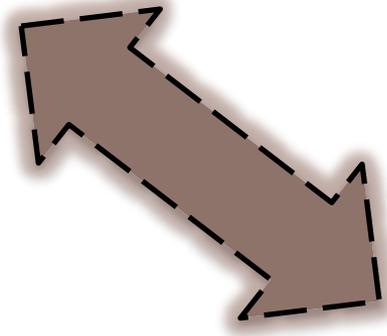
Communicating the Evidence

Understanding the Need for Evidence

▸ Your audience and their priorities

▸ Scope your research and stick to it

▸ Principles for (economic) valuation research

Communicating the Evidence

▸ How to structure a report or a presentation?

# Understanding your audience and their priorities

Research World
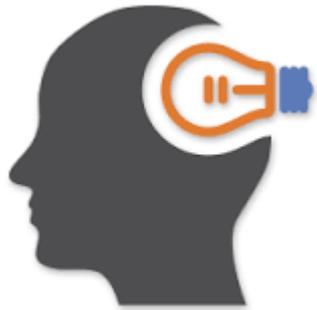
Business People

Government People

Consultants
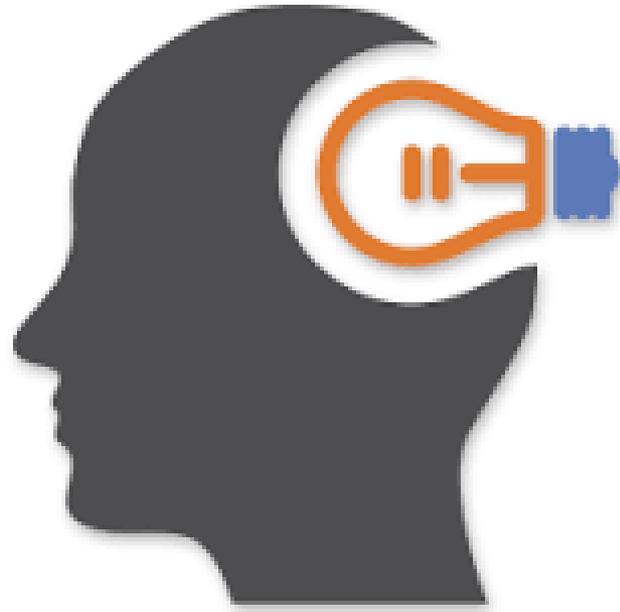
Academics

Are you the expert they need?

Art as well as science…

- **Put yourself in their position**
  - What do they want and why?
- **Be specific about:**
  - Scope
  - Scale (of effort)
  - Don't disagree --- offer options
- **Build trust**
  - Write clearly, avoid jargon
  - Use key words / terms from the specification

Many questions to ask…

▸ Is your research necessary to meet the objectives of your 'client'?

▸ Is it sufficient?

▸ Is the 'client' right for you?

▸ What evidence do <u>they</u> think they need?

▸ What evidence do <u>you</u> think they need?

Rumi says…

however you put it,

what you know

is

what the other person

understands

Client and tender

- Do you know
  - the client (organisation AND individual)?
  - the background to the project?
  - the budget?
  - the evaluation criteria?

- Are you formally eligible to bid in terms of the criteria identified?

The Competition

▸ Do you know who your main competitors are likely to be?

▸ Do you have an edge compared to them (or do they have an edge compared to us)?

▸ Was there an earlier project leading to this one, and if so who carried it out and how well did they do?

▸

Your capacity

- Is this a field where you already have a strong track record?
- If not, who can you team up with?
- And how will you divide the work and the budget?

Structure is key…for example:

- Introduction
- Background
- Objectives
- Methodology
- Work plan and deliverables
- Team and experience
- Budget
- Risks

Scope

"the extent of the area or subject matter that something deals with or to which it is relevant."

▸ Not the entirety of what needs to be done but what needs to be done in that project

# Scope

- Agree at the start
  - Don't over or under sell what you can achieve
- Clarify gaps and assumptions // uncertainties and risks
- Monitor through progress reports and meetings

Principles for economic valuation research

Relevance
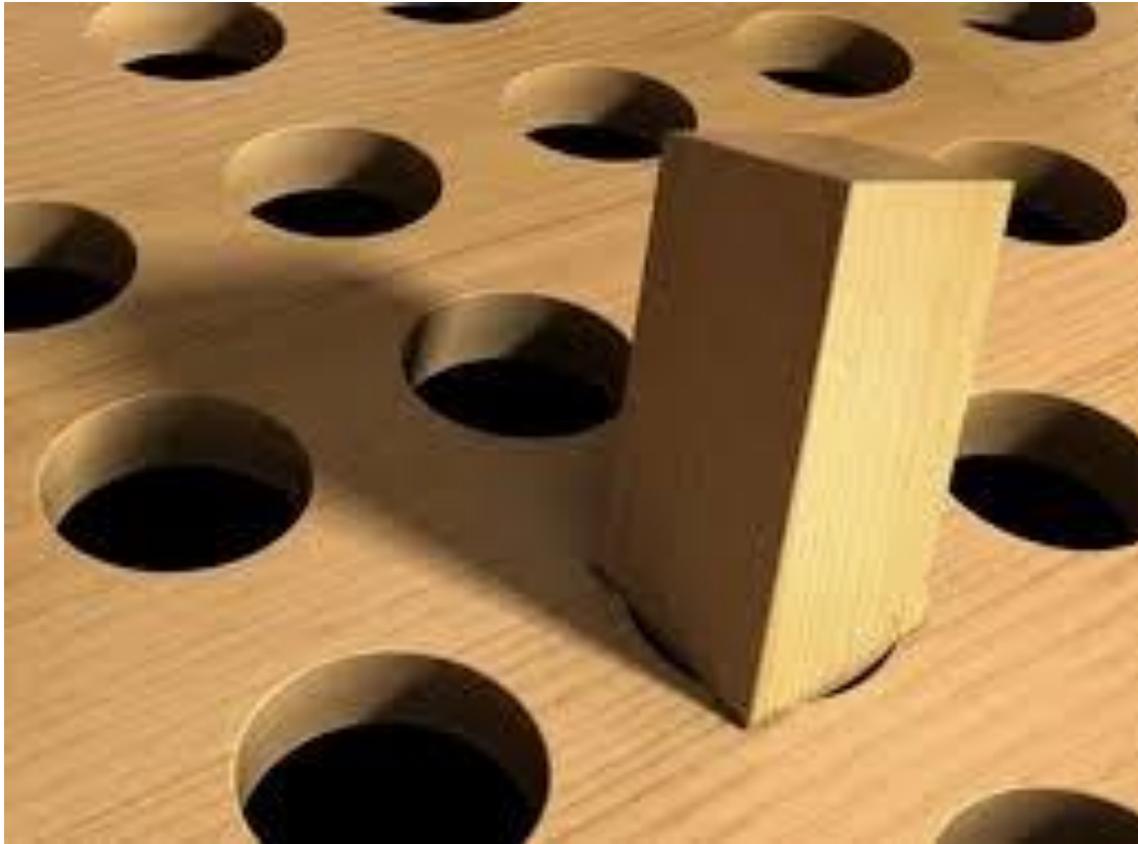
Evidence Gaps

Subjectivity
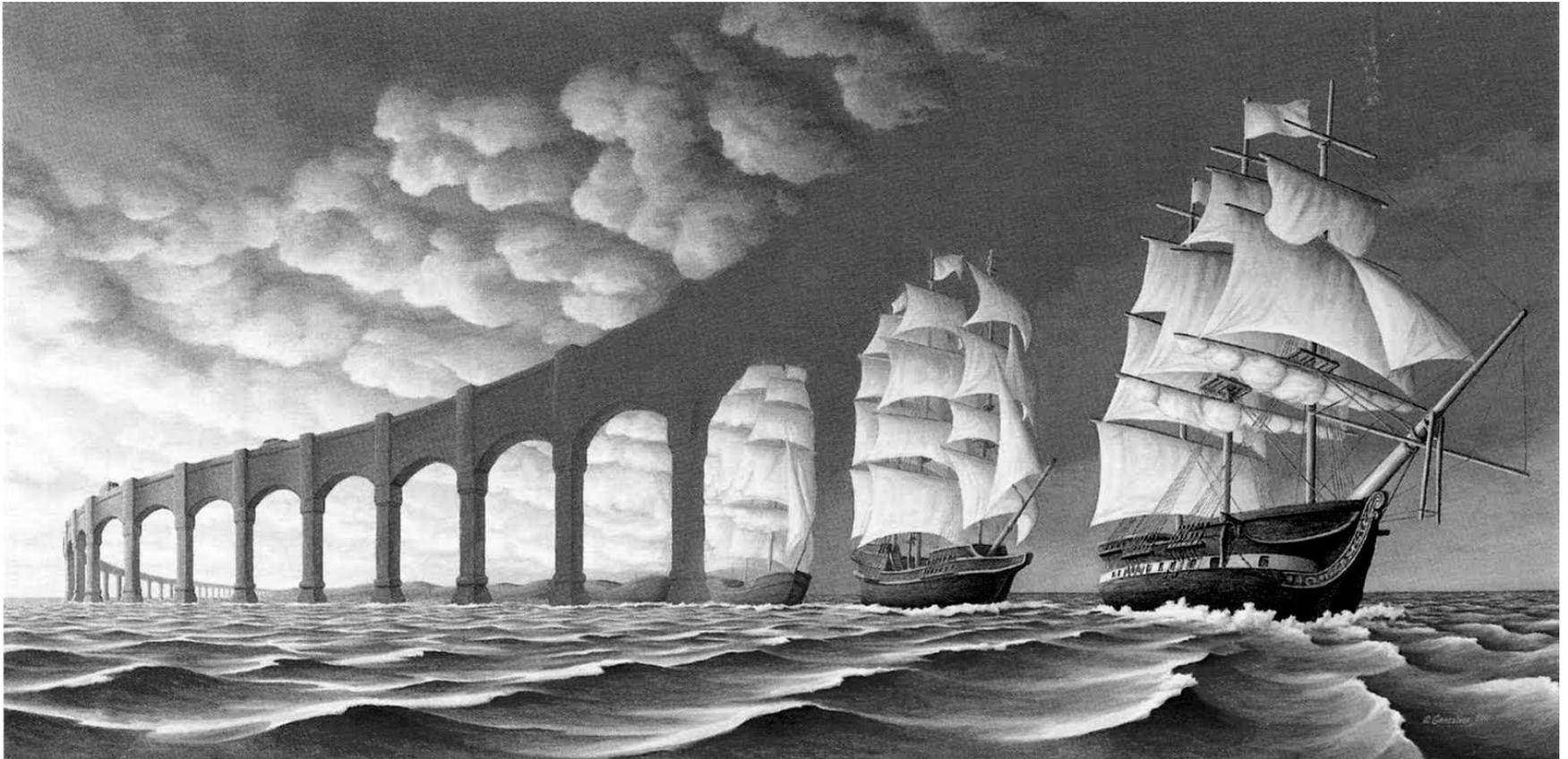
Quality

Accessibility

Interpretability
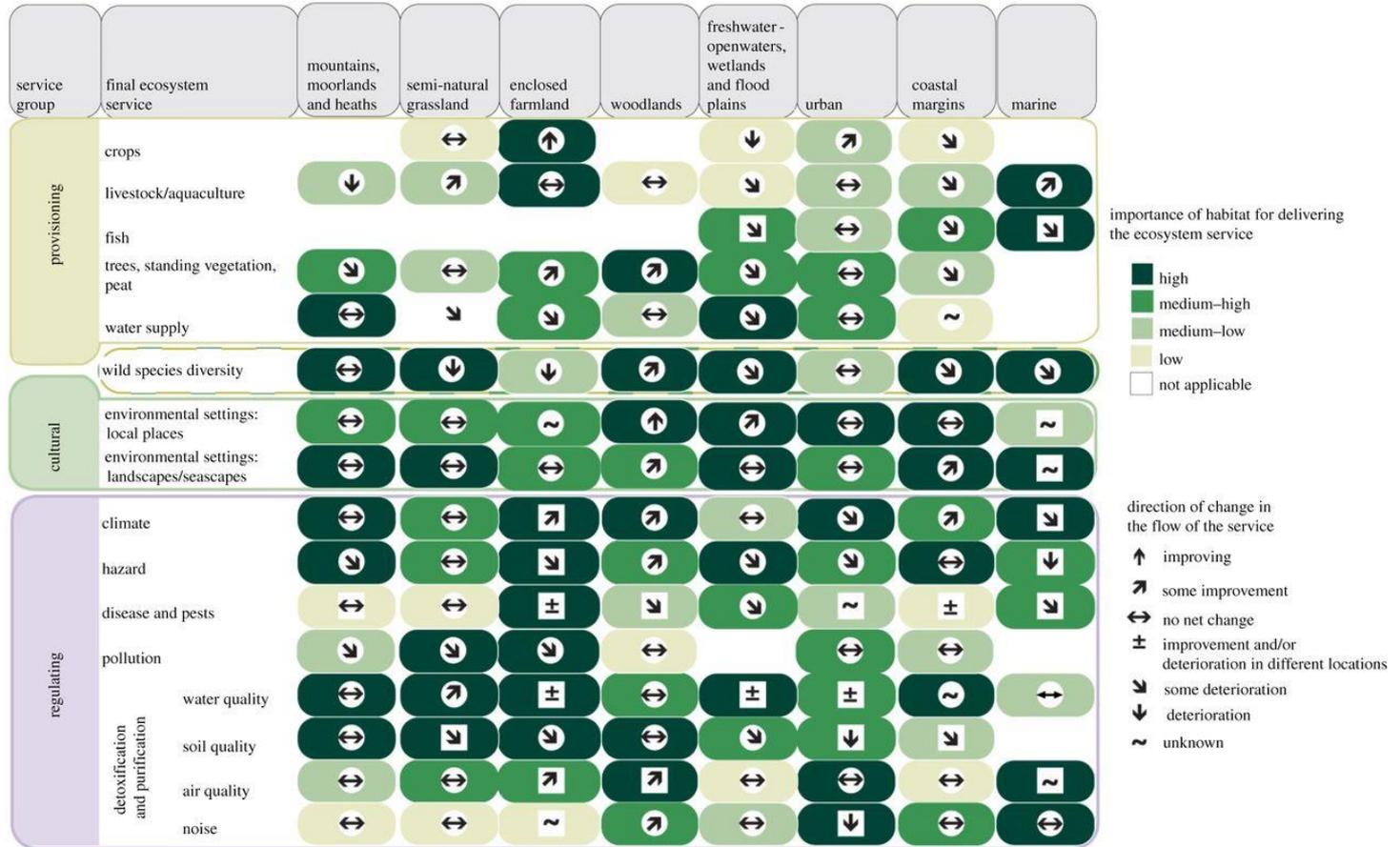
Transparency

Quality Control

Affordability

9 big issues

1. Evidence gaps
2. Subjectivity
3. Assessing quality
4. Accessibility
5. Interpretability
6. Relevance
7. Transparency
8. Quality Control
9. Affordability

A little game
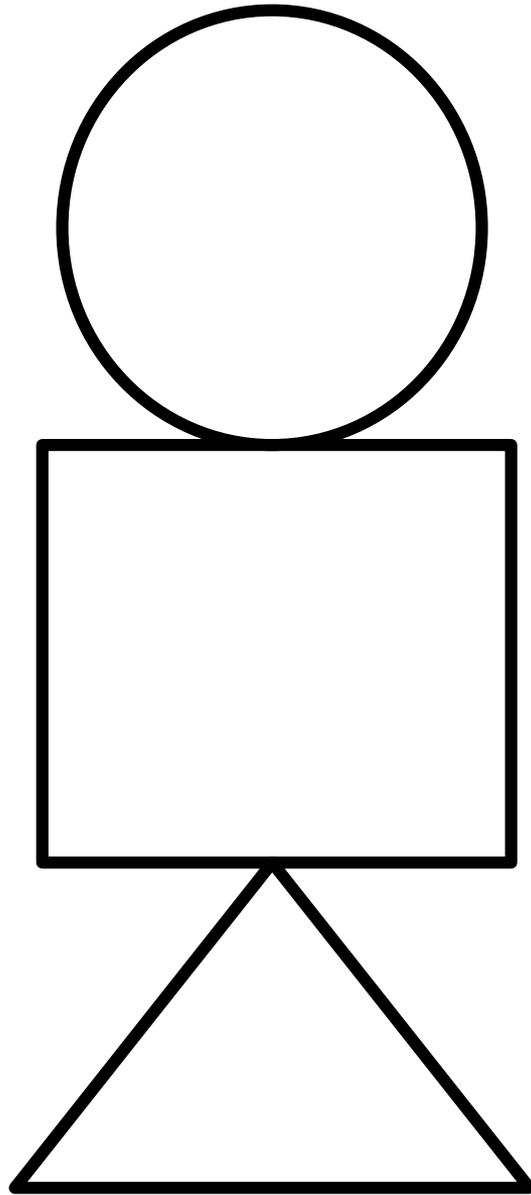
Spot the difference

$$a + b = c$$

$$c = a + b$$

How to structure a presentation or report

Steps for presenting powerfully

1) Understand your audience
2) Make friends with your audience
3) Tell them a story
4) Have a clear outcome

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THE SHAPE of STORIES

@cwodtke

a character
a setting
inciting incident
STRUGGLES
DANGER
RISKS
PROBLES
CONFLICTS
is all Lost?
BLACK MOMENT
CRISES
CLIMAX
AGENCY or RESCUE
RESOLUTION
assuage curiosity
close open ends
RETURN HOME CHANGED

with a GOAL
because MOTIVATION ←→ regonized by AUDIENCE
and traits
a place in a situation
DETAILS create TRANSPORTATION

http://eleganthack.com/the-shape-of-story/

Good slide
bad slide

Introduction

- Transport is unbearable in Istanbul – with a review for The Independent revealing it as "the most congested city in the world". One's daily commute could be up to four hours or more – and the romantic notion of crossing continents during the commute wanes quickly.

- One would expect a large, comprehensive study that investigates all alternatives to this problem, including expanding public transport and other social and security related policies to make public transport a more viable option, and even migration and housing policies to tackle larger contextual issues. Instead, pretty much the only solution is presented as the 3rd bridge connecting Asia and Europe over the Bosporus. In fact, the bridge seems to be a part of an even larger development vision that includes a new six lane motorway going through the forests in the north of the city, a 3rd airport, and even a canal to the west that will be more or less parallel to the Bosporus. All of these are likely to contribute to enlarging the city even further, postponing the current problem rather than solving it. The bridge was considered, on its own, to be of major public interest and, as such, was exempt from the Environmental Impact Assessment (EIA). Although doing so without sufficient evidence should be against the EIA legislation, this has been overridden by the political will.

- This is not surprising, political will tends to win the day, even in countries like the UK proud of its culture of 'evidence based policy'. But there should be a greater transparency about the analysis of evidence, consultation of people and consideration of wider, longer term impacts of and mitigation

- http://www.independent.co.uk/news/world/americas/istanbul-revealed-as-the-most-congested-city-in-the-world-10149543.html

PREPARING TO FAIL

RENA
MONROVIA

Photo: Blair Harkness

Method

Statistical willingness-to-pay model
assuming the Weibull distribution

$$\log L = \sum_i \log\left[F\left(WTP_i{}^U;\theta;\sigma\right) - F\left(WTP_i{}^L;\theta;\sigma\right)\right]$$

- (WTP^L) and (WTP^U) are the lower and upper bounds of the interval around the respondent's true willingness-to-pay value

- $F(WTP; \vartheta; \sigma)$ cumulative density function of the Weibull distribution with shape parameter (ϑ) and scale parameter (σ):

$$F(z;\theta;\sigma) = 1 - \exp\left(-\left(\frac{z}{\sigma}\right)^\theta\right)$$

agile vs Agile

Release   **Listen & learn**   Fix & iterate   Increase load

Method

ARDL model

$$E_t = a_0 + a_1 P_t + a_2 Y_t + a_3 TE_t + a_4 E_{t-1} + a_5 Y_{t-1} + a_6 P_{t-1} + a_7 TE_{t-1} + \varepsilon_t$$

Reparametrisation – EC model

$$\Delta E_t = b_0 + b_1 \Delta P_t + b_2 \Delta Y_t + b_3 \Delta TE_t + b_4(E_{t-1} - b_5 P_{t-1} - b_6 Y_{t-1} - b_7 TE_{t-1}) + \varepsilon_t$$

ECM distinguishes between long-term and adjustment parameters

MONITORING

Results

Variable	1998	1999	2000	2001	2002	Estimate	t-value
PD1	0	0.125	0.5	0.88	1	-0.12897	-6.7718
PD2	0	0.2	0.6	0.92	1	-0.12584	-6.6618
PD3	0	0.149	0.42	0.8	1	-0.13333	-6.7188
PD4	0	0.1	0.35	0.7	1	-0.13712	-6.5942
PD5	0	0.1	0.32	0.66	1	-0.1374	-6.4742
PD6	0	1	1	1	1	-0.08212	-3.7966

Transitory Dummy never statically significant

Results

	Manchester	Lyon	Bucharest
Crime	3.89(9.1)	3.71(16.8)	0.85(6.8)
School Pass Rate	0.56(5.5)	0.56(16.3)	0.07(4.1)
Traffic	1.49(8.2)	1.31(16.9)	-
Sport Facilities	10.23(2.2)	-	-
Shop Facilities	11.23(2.4)	2.50(6.7)	-
GP	17.80(3.8)	-	-
Library	-	1.62(6.5)	-
Air Noise: Very Noisy	Base	Base	Base
Air Noise: Mod. Noisy	6.79(2.6)	9.17(5.5)	Base
Air Noise: Slightly Noisy	13.02(5.4)	17.74(10.5)	0.26(2.1)
Air Noise: Not at all	24.04(7.5)	22.88(12.1)	0.57(3.1)
Air Movements: Current situation	Base	Base	Base
Air Movements Second Best	2.72(1.9)	10.61(11.3)	-
Air Movements Best	10.22(6.3)	14.22(12.7)	0.63(4.4)
Streets: Dirty/Untidy	Base	Base	Base
Streets: Neither	Base	6.83(2.6)	Base
Streets: Clean	9.06(7.1)	13.56(6.1)	0.41(4.9)
Streets: Very Clean	19.86(9.0)	19.96(8.7)	1.51(7.1)
Traffic Noise: Extremely Noisy	Base	Base	Base
Traffic Noise: Very Noisy	Base	5.01(1.9)	Base
Traffic Noise: Moderately	Base	10.06(2.4)	Base
Traffic Noise: Slightly	8.94(5.6)	18.26(4.0)	0.32(2.4)
Traffic Noise: Not at all	17.30(7.8)	24.31(5.5)	0.96(5.4)
Air Quality: Very Poor and Poor	Base	Base	Base
Air Quality: Neither	5.84(4.4)	7.77(3.1)	Base
Air Quality: Good	11.19(6.7)	17.23(6.5)	0.28(2.5)
Air Quality: Very Good	19.93(8.1)	23.82(9.0)	1.64(5.4)
Road Conditions: Very Poor	Base	Base	Base
Road Conditions: Poor	Base	3.72(1.8)	Base
Road Conditions: Neither	Base	7.55(2.8)	Base
Road Conditions: Good	8.26(7.0)	13.98(5.3)	0.17(2.1)
Road Conditions: Very Good	18.78(9.3)	18.81(7.1)	1.24(7.0)

Second, the effect of a production shortfall on world will depend on the availability of stocks. When stocks are adequate, a production effect will raise prices but the existence of stocks cushions that effect. When stocks are low, stocks cannot play this role; in this context, price rises due to production shortfalls are considerably greater in this case. Specifically, and to make the point in more technical terms, the demand function is non-linear such that when stocks are low, the more inelastic range of the demand curve serves to exacerbate the effect of a production shock on price changes.

How many users do I need?
(Usability problem frequency: 30%)

"You can definitely visit new.ted.com - just make sure not to hover over any of the talk modules"

@twahlin

- Thank you
- Questions?

Group discussion

Principles of good communication