



EUROPE

Security, at what cost?
***Quantifying people's trade-offs across
privacy, liberty and security***

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Why is the privacy/security trade-off an issue for CIP?

- **People are a key part of the CIP picture:**
 - **Users**
 - **Operators**
- **Policy makers need more robust tools to determine expected impacts of CIP measures upon individuals and wider society**
- **Need to value non-market impacts**

Currently done in a manner difficult to incorporate into formal CBA

The debate on security policy is highly polarised

- Security measures can potentially have adverse effects on individual privacy or liberty

**Security
professionals**



**Civil liberties
advocates**

**Policymakers often have to make decisions
as to which takes priority**

It is important for people's actual preferences about security policies to be heard

- **Citizens are the ones who are subject to the security infrastructure**
- **Decisions about that infrastructure may be useful from a security perspective**
- **But they may have other unintended consequences**
 - **Behavioural**
 - **Economic**
 - **Social**
- **Those consequences can call into question whether certain measures are a good use of public money**

Little is known about how individuals view security in relation to their rights to privacy and liberty

- **To date, the issue of privacy and liberty vs. security has been examined only through opinion surveys**
- **Opinion surveys cannot quantify the trade-offs people will make to obtain greater security**
- **Nor can they estimate how willing people would be to pay for certain security benefits**

We used stated-preference methods to gain deeper insights into the trade-offs people are willing to make

RAND Europe uses “stated preference” methods to identify the views of individuals

- This is not an opinion survey
- ***Stated preference*** methods elicit what respondents prefer when presented with a set of scenarios for a good or service
 - Scenarios are hypothetical, but drawn directly from real life
- Such methods let us understand what sacrifices people are prepared to make in realistic contexts
- The use of *stated preference* methods is novel in the domain of security policy

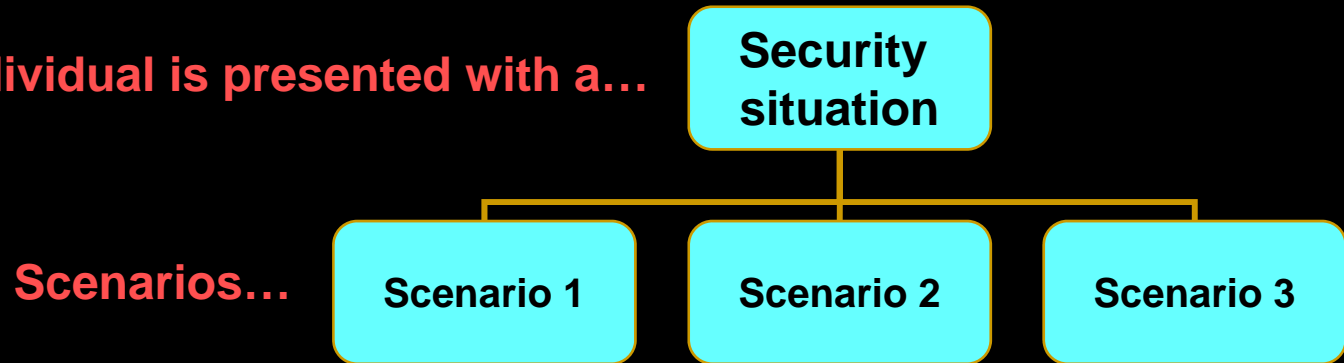
We take situations involving security infrastructure...for example, rail or air travel

The individual is presented with a...

**Security
situation**

For each security situation, we create a set of scenarios

The individual is presented with a...



Every scenario includes certain standard features

The individual is presented with a...

Security situation

Scenarios...

Scenario 1

Scenario 2

Scenario 3

Attributes...

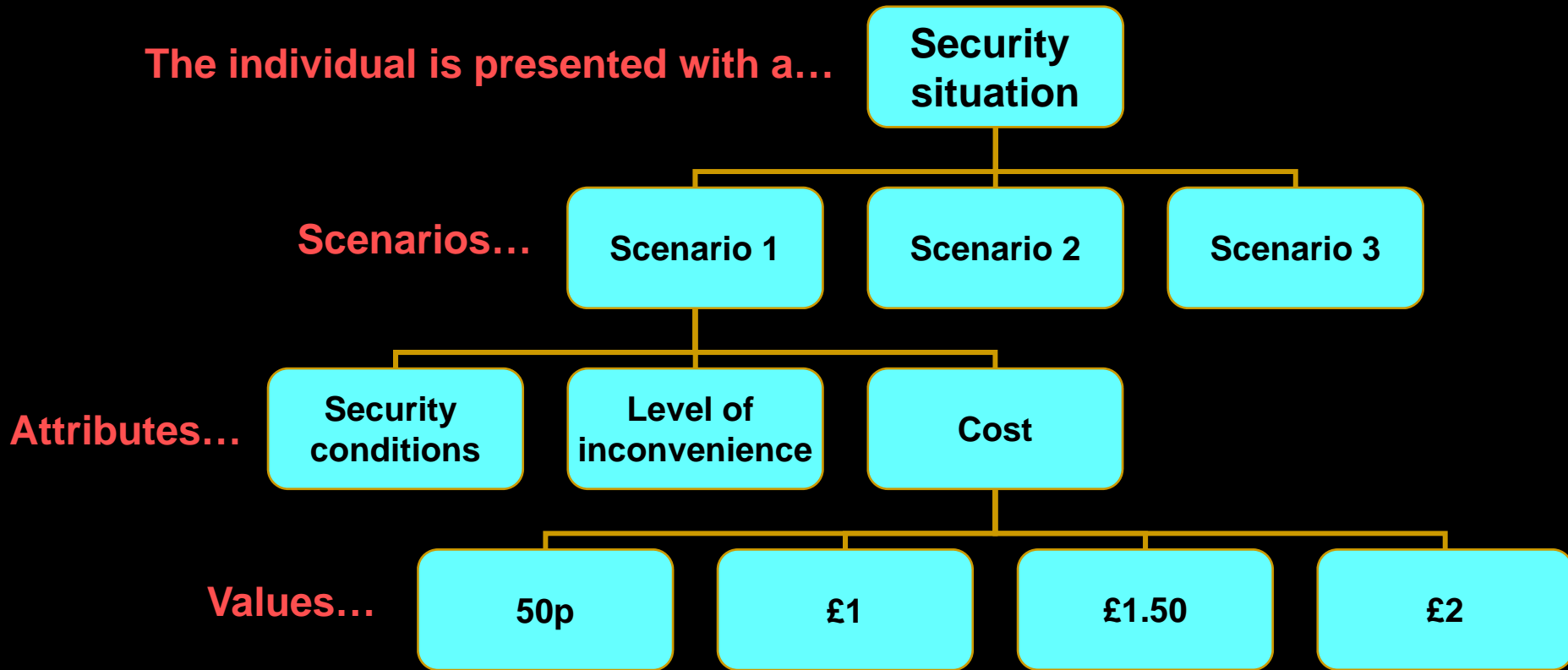
Security conditions

Level of inconvenience

Cost

Each feature has several possible values

The individual is presented with a...



We create alternative scenarios by building different combinations of values

We then gather data from respondents

- Respondents receive up to a total of 16 scenarios
 - Each scenario highlights different values of the attributes included in scenarios
- Each card presents two or more scenarios
- We ask respondents to choose the scenario on each card that they would most prefer

...	Scenario 1	Scenario 2	Scenario 3
CARD 3	Scenario 1	Scenario 2	Scenario 3
CARD 2	Scenario 1	Scenario 2	Scenario 3
CARD 1	Scenario 1	Scenario 2	Scenario 3
Security conditions	X1	X2	X3
Inconvenience	Y1	Y2	Y3
Cost	£2.00	£1.00	£0.50
Please, indicate your preferred scenario:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

An example of the survey instrument includes two attributes involving personal data

	Option 1	Option 2	Option 3	
<u>Total Price (£)</u>	£72	£100	£100	
<u>Processing Time</u>	Two weeks	Two weeks	Same Day	
<u>Type of Personal Information Required</u>	Photograph & DNA Sample	Photograph & DNA Sample	Photograph & Iris Scan	<p>I would opt not to have a passport under any of these conditions</p>
<u>Level of sharing of passport data</u>	Within the private sector	Across government generally	Within other EU countries	
<u>Additional uses of passport</u>	As a personal identification document & to speed up the processing time for official forms & documents	As a personal identification document & to speed up the processing time for official forms & documents	As a personal identification document	
<u>Number of illegal immigrants that may be identified</u>	300,000	800,000	800,000	
<u>Number of terrorists that may be identified</u>	Less than 750	2,400	2,400	
Please select your answer here:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Type of personal info required

Extent to which personal data would be shared

This is followed by “discrete choice modelling” to analyse the data

- **Pulls together all of the individual choices**
- **Uses the choices people made to quantify the importance of different attributes**
- **Also inputs socio-demographic data about respondents**
- **Allows us to understand individual choices**
 - **Reveals individuals’ trade-offs across different values of an attribute**
 - **Gives us an estimate of people’s willingness to pay**
 - **Singles out specific groups that behave differently than the others**

We investigated several scenarios in which privacy and liberty might be at odds with security needs



Applying for a passport

Travelling on the UK's national rail network



Attending a major public event



We investigated several scenarios in which privacy and liberty might be at odds with security needs



Travelling on the UK's national rail network



Applying for a passport

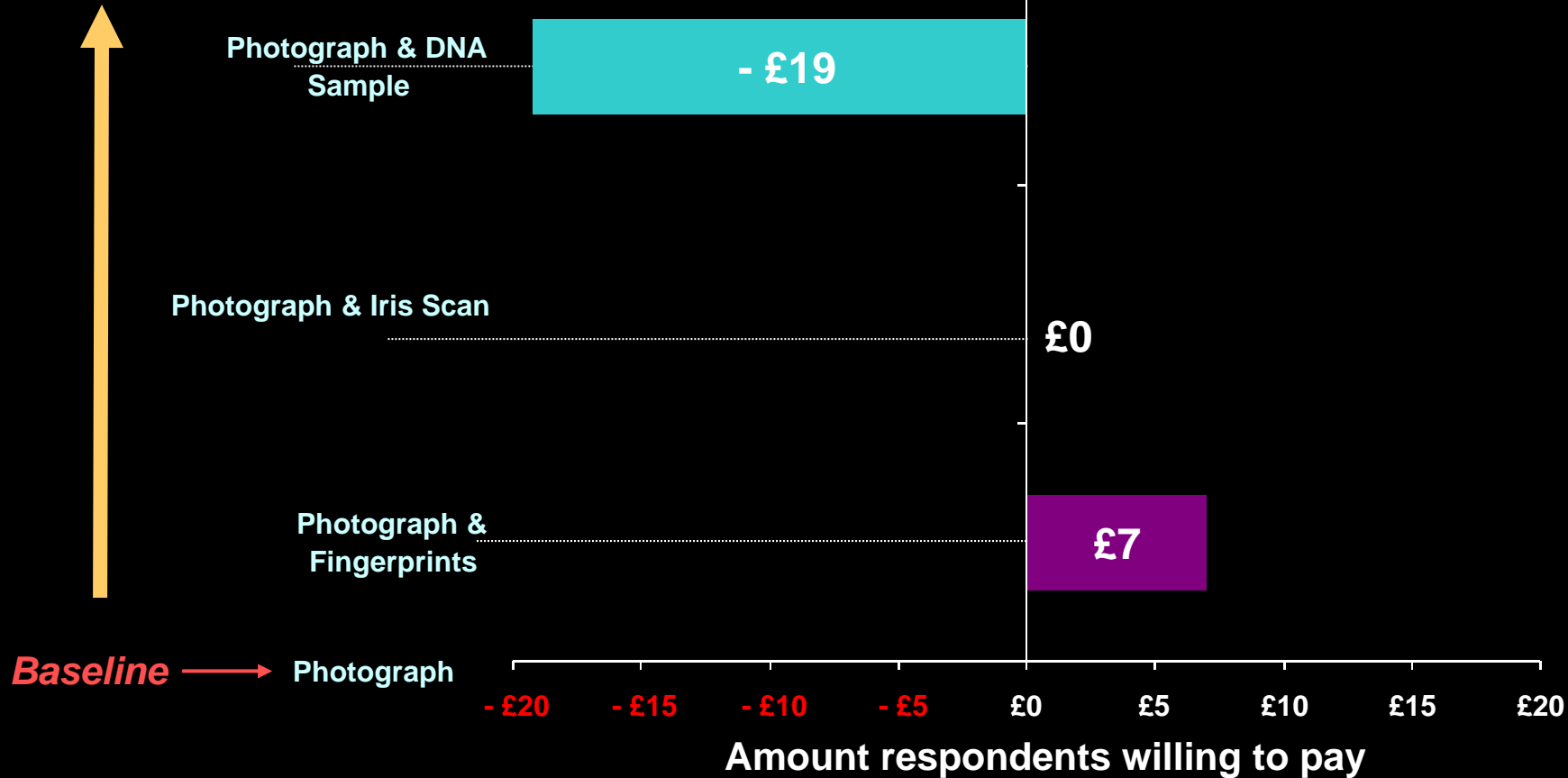
Attending a major public event



Against

In favour

Degree of intrusion



Respondents would pay up to a point for providing additional personal information

But respondents were unwilling to pay for their personal data to be shared to any extent

Extent to which personal data would be shared

Within the private sector

- £30

Within other EU countries

- £23

Across government generally

- £16

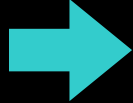
Baseline → Only within the IPS

-£35 -£30 -£25 -£20 -£15 -£10 -£5 £0

Amount respondents willing to pay

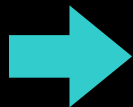
Preferences revealed the trade-offs people were willing to make across privacy, liberty and security

Type of personal information required



- People would rather pay extra to provide photograph and fingerprints
- But would not accept release of advanced biometric information

Extent to which personal data would be shared



- People would prefer their personal data to be kept within the Identity and Passport Service
- Large incentives (e.g. discount on the average price of a passport) would be necessary for respondents to allow sharing of their personal data with third parties

We investigated several scenarios in which privacy and liberty might be at odds with security needs



**Travelling on the
UK's national
rail network**



Applying for a passport

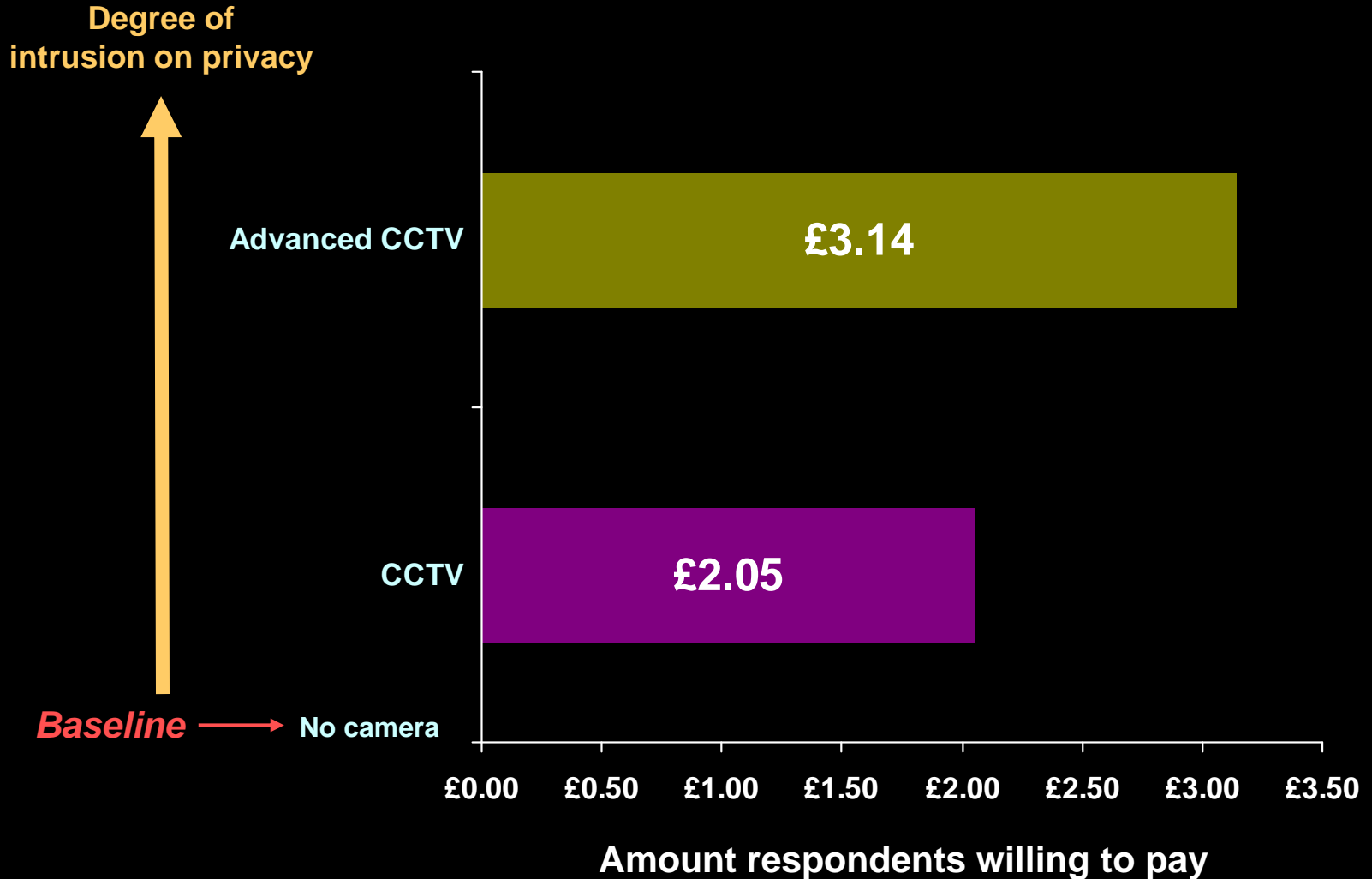
Attending a major public event



Rail-travel scenarios included three types of security measures

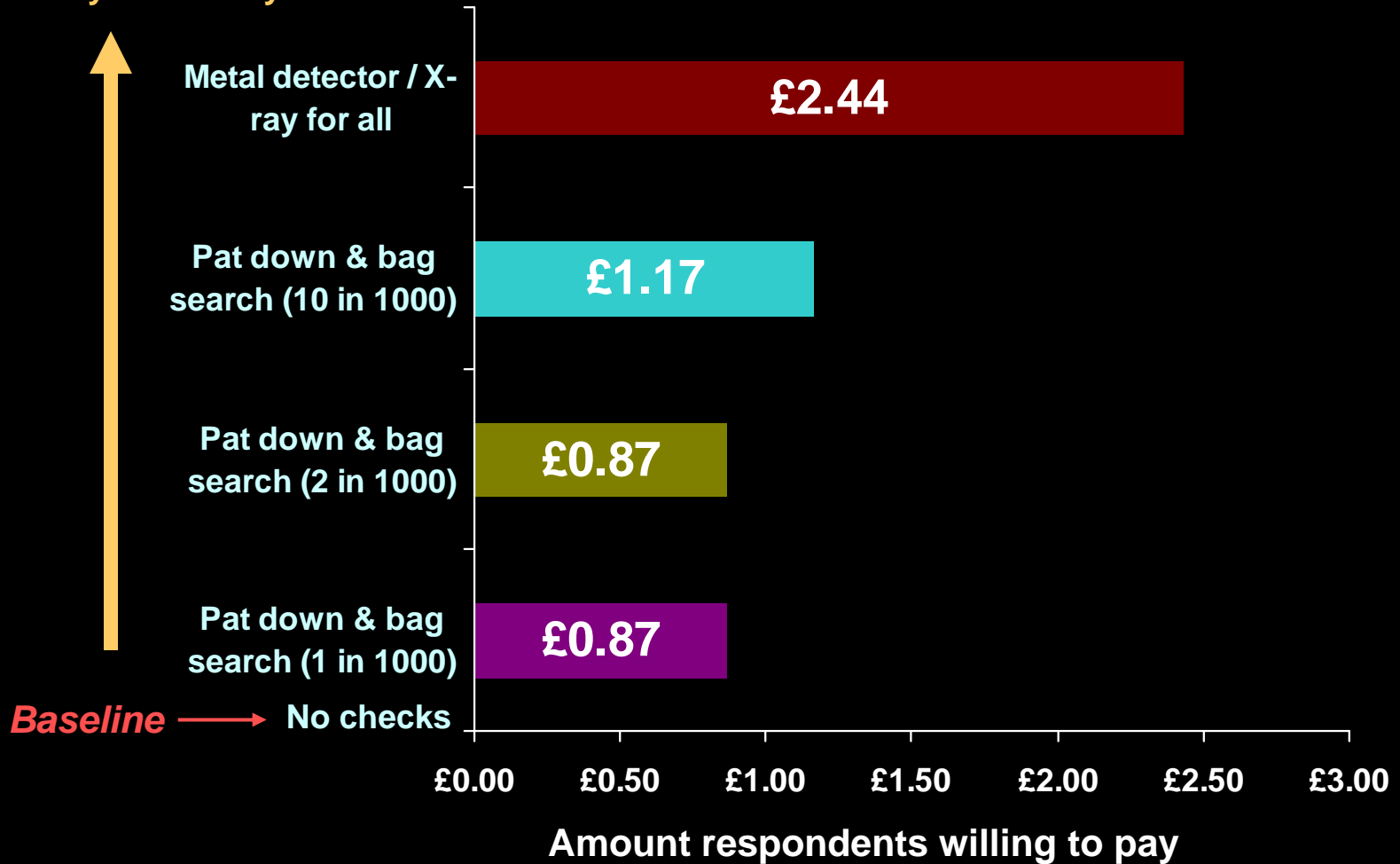
	Option 1	Option 2	Option 3	
<u>Type of Camera</u>	Standard CCTV & New cameras that automatically identify individuals	Standard CCTV & New cameras that automatically identify individuals	Standard CCTV cameras	Type of camera
<u>Time required to pass through security</u>	1 Minute	11 to 15 Minutes	2 to 3 Minutes	
<u>Type of security check</u>	Pat down & bag search for 2 in 1,000 travellers	Pat down & bag search for 1 in 1,000 travellers	Pat down & bag search for 10 in 1,000 travellers	Type of security check
<u>Presence of the following type of security personnel:</u>	Rail staff, British Transport Police & Armed Police	Rail staff and British Transport police	Rail staff, British Transport Police, Armed Police & Uniformed Military	I would choose not to use the rail system under any of these conditions
<u>Increase on price of ticket to cover security</u>	£1	£1.50	£3	
<u>Number of known terrorist plots disrupted</u>	5 plots disrupted every 10 years	5 plots disrupted every 10 years	10 plots disrupted every 10 years	Type of security personnel
<u>Visibility of response to a security incident</u>	If an incident occurs there is some disruption and chaos	If an incident occurs there is some disruption and chaos	If an incident occurs things are handled with minimal disruption	
Please select your answer here:	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

People would pay considerably more for advanced CCTV than for CCTV



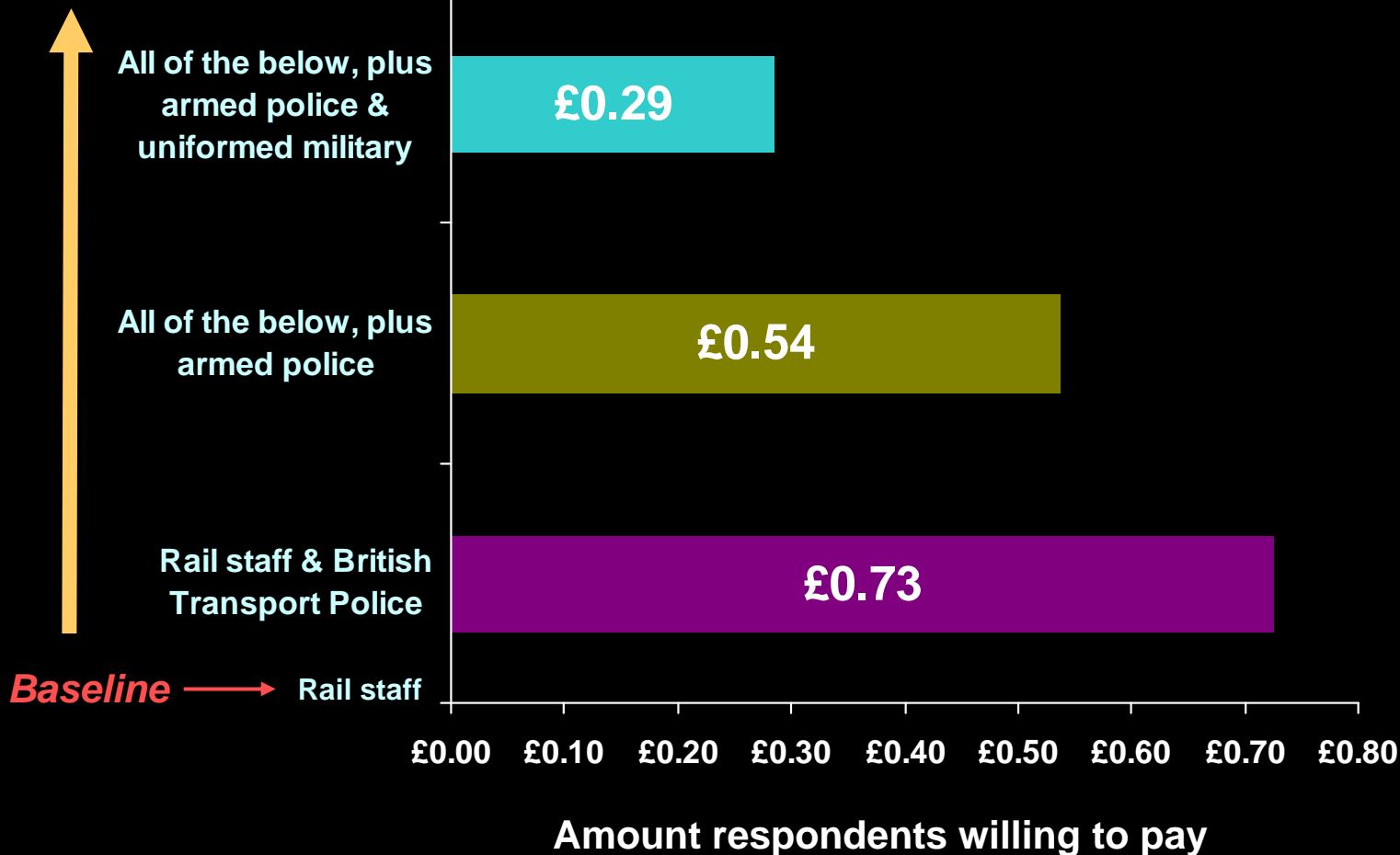
People would pay much more for detectors and X-rays than for pat down and bag search

Degree of intrusion on privacy and liberty



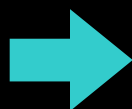
People were hesitant to pay more for additional levels of highly specialised security personnel

Level of specialisation



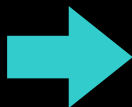
These preferences showed the trade-offs people were willing to make across privacy, liberty and security

Type of camera



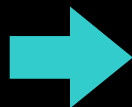
- The security benefits of the more privacy-intrusive cameras seemed to outweigh people's concerns about privacy
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Type of security check



- We anticipated that pat down and bag search would be less intrusive on privacy and liberty
 - But people felt that metal detectors and X-rays resulted in a higher security/privacy & liberty trade-off
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Type of security personnel



- People seem to perceive that more specialised security personnel is necessary
- However, presence of uniformed military was valued less than other types of security personnel

We investigated several scenarios in which privacy and liberty might be at odds with security needs



Applying for a passport

Travelling on the UK's national rail network



Attending a major public event



Scenarios for a major public event included several security measures

	Option 1	Option 2	Option 3	
Delay to pass through security checks	30 minutes to 1 hour	30 minutes to 1 hour	1 to 2 hours	
Security Check Types	Pat down search	Metal detector / X-Ray	Pat down search	
Type of identity check required upon arrival	Ticket and a fingerprint scan	Ticket and an iris- scan	Ticket and an iris- scan	<p>Type of identity check</p> <p>I would choose not to attend the event under any of these conditions</p>
Type of security personnel	Stewards, private security officials, uniformed police & armed police	Stewards, private security officials, uniformed police & armed police	Stewards, private security officials, uniformed police & armed police	
Location of security personnel	On the way to the stadium, at the turnstiles, in control room, inside the stadium & throughout the crowd	On the way to the stadium, at the turnstiles, in control room & inside the stadium	On the way to the stadium, at the turnstiles, in control room, inside the stadium & throughout the crowd	
Additional costs on ticket to cover security	Over £4	£2 to £4	Over £4	<p>Type of security personnel</p>
Visibility of response to a security incident	If an incident occurs there is some disruption and chaos	If an incident occurs then you are aware of that when you get back home	If an incident occurs there is some disruption and chaos	
Please select your answer here:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

People would pay for more intrusive forms of identity check — and the most for ticket check with photo ID

Degree of intrusion on privacy and liberty



Baseline →

- Ticket check + iris scan
- Ticket check + fingerprint scan
- Ticket check + photo ID
- Ticket check + given pass or badge

Ticket check

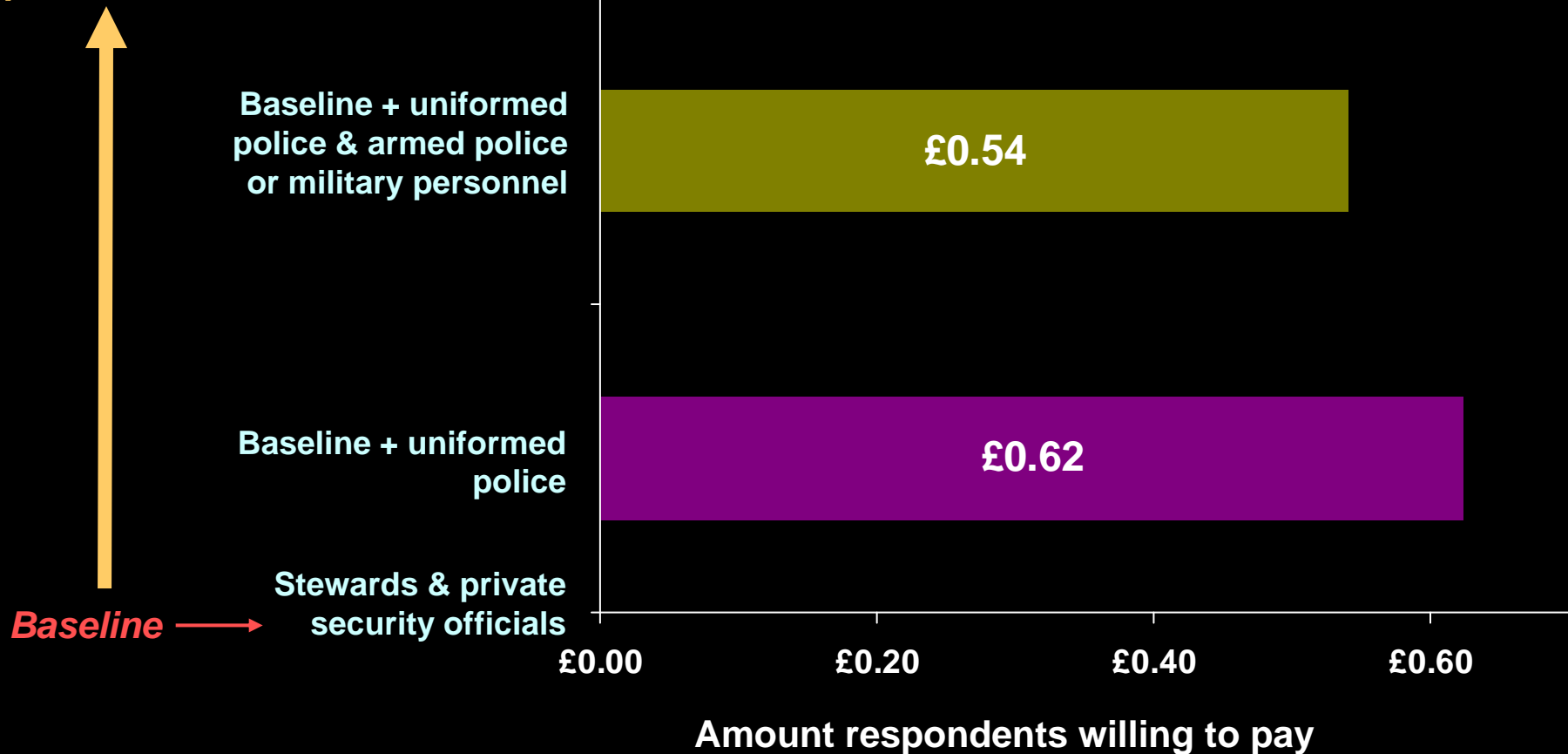


£0.00 £0.50 £1.00 £1.50

Amount respondents willing to pay

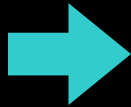
People would pay a bit more for more highly specialised security personnel, but only around 50p

Level of specialisation



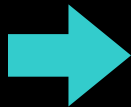
Preferences revealed the trade-offs people were willing to make across privacy, liberty and security

**Type of
identity
check**



- **People preferred some form of identity check, but were less willing to pay for checks requiring biometric information**

**Type of
security
personnel**



- **People were willing to pay more for highly specialised security personnel**
- **But the benefit perceived is lower compared with other security interventions**

A particularly promising area in which to apply this approach is Privacy Impact Assessments

- **Privacy Impact Assessments aim to anticipate the effects of new initiatives on the privacy of those affected**
- **Interest in these assessments is growing rapidly**
- **Our study offers an innovative way of approaching them**
 - **Collection of quantitative data**
 - **Assessment of how an initiative is seen in a practical way, ‘in the round’**

We learnt a number of lessons from our experiment

- **The results demonstrate the validity of using this innovative approach**
- **The experiment revealed a number of areas we would look at more deeply**
 - **Data gathering**
 - **Explicit definitions**
 - **Refinement of attributes**

Stated-preference methods could ensure a stronger evidence base for security policy

- **Obtain the views of citizens subject to the security infrastructure, and quantify them**
- **Add another information source for risk management**
- **Identify the gap between policy and preferences**
 - **Where does policy based on privileged security information run counter to popular preferences?**
 - **Where can policy be adjusted without losing security benefits?**
- **Bring greater objectivity into a charged debate**



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