

# What role can surveys play in behavioural science?

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# About Me

- Associate Professor at LSE
- PhD from Northwestern University (2012)
- Research interests
  - Political psychology
  - Survey–experimental methods
  - Reproducible computational social science



# Premise

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- Surveys are obviously useful for studying *characteristics, beliefs, and attitudes*
- Surveys are not often seen as useful for studying *behaviour*

# Goals for today

By the end of today you should be able to:

- 1 Describe the relationship between (and distinction between) attitudes and behaviours
- 2 Identify the limitations of survey measures of past behaviours and behavioural intentions
- 3 Evaluate possible strategies for improving behavioural self-reporting
- 4 Apply direct, survey-based measures of behaviour to your own work





- 1 Attitudes vs. Behaviours
- 2 Problems with Behavioural Self-Reports
- 3 Credible Behavioural Measures in Surveys
- 4 Conclusion

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# Definitions

- Attitude: “a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour” <sup>1</sup>
  
- Behavior: “The actions by which an organism adjusts to its environment.” (APA)

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<sup>1</sup>Eagly and Chaiken, 1998, “Attitude Structure and Function.” *Handbook of Social Psychology*, p.269.



How many of you feel that it is important for  
citizens to vote?

How many of you feel that it is important for citizens to vote?

How many of you voted in the *most recent local election* in which you were eligible to cast a ballot?

What are some behaviours that practising behavioural scientists might care about?  
(Think about any domain or context.)



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- Care about attitudes per se, e.g.:
  - To represent public opinions in policymaking
  - To assess sentiment or satisfaction
  - To try to change those views
- Care about attitudes because they induce *behaviour*
- Attitudes are relatively easy to measure on questionnaire/survey methods but behaviours not so much

# From attitudes to behaviours?

Early psychology research showed limited connection between attitudes and associated behaviours

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- *Theory of Planned Behavior* (Ajzen)
  - From *Theory of Reasoned Action* (Ajzen & Fishbein)
  - Attitudes interact with both subjective norms and “perceived behavioural control”

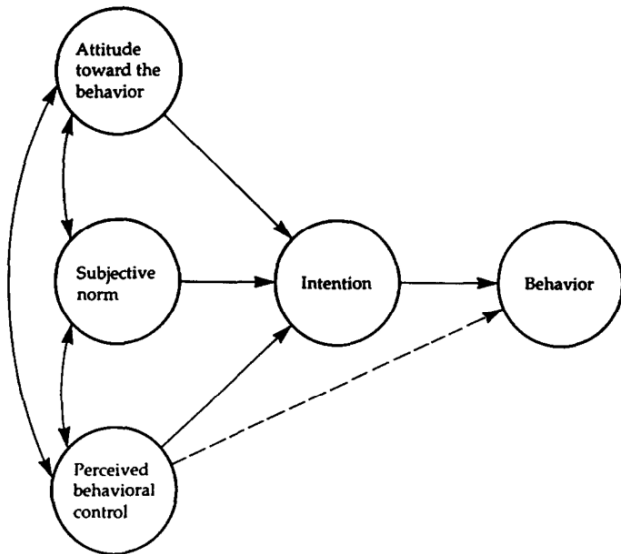


FIG. 1. Theory of planned behavior.



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# From attitudes to behaviours?

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- *Theory of Planned Behavior* (Ajzen)
  - From *Theory of Reasoned Action* (Ajzen & Fishbein)
  - Attitudes interact with both subjective norms and “perceived behavioural control”
  
- Other traditions
  - *MODE* (Fazio), a “dual process” framework
  - *Health Belief Model*
  - Theories of habit
  - Cost-benefit analysis

# From attitudes to behaviours?

- Basically, there are many reasons why attitudes do not correlate very highly with behaviours
- People may also have attitudes toward the behaviours themselves (e.g., wanting to act on attitude but disavouring a given action)
- Attitude strength is possibly critical (but conceptually murky)

## Behaviour Change without Attitude Change

- Recent behavioural science research suggests some behaviours can change dramatically without changing attitudes
  - Nudges related to charitable donations
  - Increasing vaccination even as attitudes toward vaccination become more negative
- If we want to study *behaviour* per se, maybe we don't need to know much about attitudes!



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- 2 Problems with Behavioural Self-Reports**
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# Some Common Wisdom

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But attitudes are not the same as behaviours!



# Some Common Wisdom

Surveys are a good instrument for measuring  
and studying attitudes!

But attitudes are not the same as behaviours!

Therefore, surveys are a poor instrument for  
measuring and studying behaviours!

# Concern 1: Self-reports are not behaviours

- A survey questionnaire measures “responses” expressed in words, numbers, and other trivial actions
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- A survey questionnaire measures “responses” expressed in words, numbers, and other trivial actions
- These are obviously not behaviours but reports of behaviours.
- Questionnaires can, however, measure *behavioural intentions* and *self-reported past behaviour*

## Concern 2: Behavioural intentions are poor predictors of behaviour

- All three models of attitude–behaviour linkage suggest the effect of attitudes on behaviours is conditional
  - TRA: Depends on subjective norms
  - TPB: Also depends on behavioural control
  - MODE: Also depends on motivation and opportunity

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- Behavioural intention questions do not effectively measure future behaviour
- Questionnaires can measure *past behaviour*

# **Concern 3: Survey measures of past behaviour lack validity**

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- Many different, imperfect operationalizations:
  - “Have you ever...?”
  - “When was the last time...?”
  - “How many times in the past <PERIOD> have you...?”
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  - “How many times in the past <PERIOD> have you...?”
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- Numerous issues emerge here!

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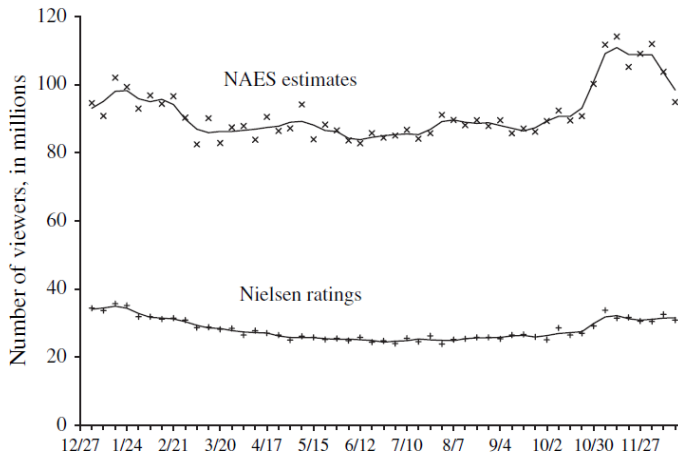
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- Social desirability biases

# Problems with self-reports

Rarely correspond to direct “true” measures behaviour. Why?

- Recall failure and false memories
- Reference period ambiguity and lags
- Recency and primacy biases
- Social desirability biases
- Construct invalidity

# Example: Prior (2009)<sup>2</sup>



<sup>2</sup>Prior. 2009. "Improving Media Effects Research through Better Measurement of News Exposure." *Journal of Politics* 71(3): 893–908. doi:10.1017/S0022381609090781



# Example: Prior (2009)<sup>2</sup>

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# Example: Prior (2009)<sup>2</sup>

- Prior argues that recall of hours television watched and specific programmes watched is too cognitively challenging
- Suggests using population benchmarks to provide “anchoring”

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- People massively overreport voting in elections

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# Example: Holbrook & Krosnick (2016)<sup>3</sup>

- People massively overreport voting in elections
- Past experiments show that giving respondents excuses for why others may not have voted lower reported turnout but not fully
- Their design does two things:
  - Measures self-reported past intention
  - Primes respondents with those excuses and asks for how those excuses might have led them to deviate from their intentions

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# Some provisional conclusions

- 1 It is hard to write construct valid measures of past behaviour
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- 1 It is hard to write construct valid measures of past behaviour
- 2 Behavioural intentions are poorly predictive of future behaviour
- 3 So, behavioural self-reports are very problematic!
- 4 Thesis: focus on behaviours that can be measured within a survey context!

**Abandon behavioural self-reports?**



## **Abandon behavioural self-reports?**

Sometimes we have no choice but to rely on a self-reported measure of past behaviour or future behavioural intentions!

# Improving Self-Reports

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<sup>4</sup>Delavande and Manski. 2010. "Probabilistic Polling and Voting in the 2008 Presidential Election." *Public Opinion Quarterly* 74(3): 433–59.

# Improving Self-Reports

- Use unambiguous, short, and recent reference periods

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# Improving Self-Reports

- Use unambiguous, short, and recent reference periods
- Provide population benchmarks
- Excuse socially undesirable behaviour
- Use alternative survey modes to avoid social desirability
- Try probabilistic measures of intention<sup>4</sup>
- Validate self-reports against actual behaviour where possible

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- 3 Behavioural measures that operationalize behaviours

# Behavioural Measures for Paradata

Why?

- Respondents use of the survey tells us something meaningful about their behaviour

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- Nonresponse

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## Why?

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# Behavioural Measures for Paradata

## Why?

- Respondents use of the survey tells us something meaningful about their behaviour

## What?

- Nonresponse
- Response latencies
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- Eye tracking

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## What?

- Nonresponse
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- Reading times
- Answer switching
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- Mouse tracking
- Smartphone metadata

# Behavioural Measures for Attitudes

Why?

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- Implicit Association Test

# Behavioural Measures for Attitudes

Why?

- Attitudinal self-reports might be “cheap talk”

What?

- Implicit Association Test
- Incentivized Survey questions

# Implicit Association Test

<https://implicit.harvard.edu/>

Press "E" for

European Americans

Press "I" for

African Americans



If you make a mistake, a red X will appear. Press the other key to continue.

Press "E" for

**Bad**

or

**European Americans**

Press "I" for

**Good**

or

**African Americans**

### Part 3 of 7

Use the **E** key for **European Americans** and for **Bad**.

Use the **I** key for **African Americans** and for **Good**.

Each item belongs to only one category.

If you make a mistake, a red **X** will appear. Press the other key to continue.

Go as fast as you can while being accurate.

Press the **space bar** when you are ready to start.

Press "E" for

Bad

or

European Americans

Press "I" for

Good

or

African Americans



If you make a mistake, a red X will appear. Press the other key to continue.

# Example 3: Incentivised Survey Questions

Definitions:

- A survey question is just a self-report
- An *incentivized* survey question attached financial gains or losses to the answer options



Mark your gamble selection with an **X** in the last column across from your preferred gamble.

Gamble	Event	Payoff	Probabilities	Your Selection
1	A	\$10	50%	
	B	\$10	50%	
2	A	\$18	50%	
	B	\$6	50%	
3	A	\$26	50%	
	B	\$2	50%	
4	A	\$34	50%	
	B	-\$2	50%	
5	A	\$42	50%	
	B	-\$6	50%	

Eckel & Grossman. 2008 "Forecasting risk attitudes." *Journal of Economic Behavior & Organization* 68(1): 1-17.  
doi:10.1016/j.jebo.2008.04.006

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Paradigm could be applied to any measure of behavioural intentions to avoid cheap talk.

# Behavioural Measures for Behaviour

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- We want to observe or affect behaviour (e.g., in an experiment)

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What?

- Directly measure or initiate a direct measure of a behaviour
- May be measured by something that occurs within the confines of the survey or something outside of the survey

# Example 1: Active Information Choice

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<sup>5</sup>Guess, AM. 2015. "Measure for Measure." *Political Analysis* 23: 59–75. doi:10.1093/pan/mpu010

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- “Followed link” identification<sup>5</sup>

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Remember, please check **ALL** rows containing any links shown in **PURPLE**. Leave all other rows unchecked.

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Reports From the Hive,  
Where the Swarm  
Concurs

Doctors Can Work  
Together to Improve  
Patient Health, But Need  
Appropriate Incentives

SEC Vote Requires  
Business Filings to Add  
Environmental Risks to  
Bottom Line

Wellness, Rather  
Than Illness, Is Focus  
Under Outcome-  
Accountable Care

Pay for Performance  
Improves Quality of  
Health Care Through  
Collaborative Medicine

Patients Better Served  
When Providers Paid for  
Health Outcomes

Anatomy of a Tear-  
Jerker

Gender Differences in  
Education Need  
Innovative Solution

Why are 3-D Movies so  
Bad?

Improving America's  
Health Requires Provider  
Incentives, Not 'Fee-for-  
Service'

Spammers Use the  
Human Touch to Avoid  
CAPTCHA

Heart Attack While  
Dining at Heart Attack  
Grill in Las Vegas

Physicians Group Says  
Quality Will Improve  
Under Outcome-based  
Payments

When Paid for Outcomes,  
Doctors Have Little  
Reason to Treat Highest  
Risk Patients

USDA Raises Corn  
Export Outlook

Out of the O.R., T.R.  
Knight Back Onto the  
Stage

Council Is Set to  
Consider Increases in  
Hotel and Property Taxes

A Bowl of Chili with  
Bragging Rights

Will a Standardized  
System for Verifying  
Web Identity Ever  
Catch On?

Paying Doctors Based  
on Outcomes Will  
Lead to Rationing

# Example 1: Active Information Choice

- “Followed link” identification<sup>5</sup>
- Information boards<sup>6</sup>

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# Example 1: Active Information Choice

- “Followed link” identification<sup>5</sup>
- Information boards<sup>6</sup>
- Video choice<sup>7</sup>
- Dynamic Process Tracing Environment<sup>8</sup>

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## Stage: Primary Election

Sub-stage: Early Primary

Time Remaining: 21:26

6:46

**Andy Fischer's Political Experience**

**DELEGATE COUNT, END OF FEBRUARY**

Republican Primary

**Sam Green's Mother provides a Childhood Anecdote**

**Dana Turner's Picture**

**Terry Davis's Current Job Performance**

**Taylor Harris's Age**

## Iowa General Election

January, 2008

Time remaining: 5:23

*Hillary Clinton wins in South Dakota!*





## Stage: Pre-Election

Sub-stage: PE-2

Time Remaining: 0:00

0:00

*Question 1 of 1*

Primary elections require voters to choose the party they want to vote in. Before we begin the Iowa primary, please choose either the the Republican or Democrat Primary. You will see candidates for both parties but will be only able to vote in the party you choose.

- Republican
- Democrat

*Select an answer, then click the End button to end the questionnaire.*

End

## Example 2: Sign-up/Enrolment

An extension of information choice behaviour would be explicit engagement in other kinds of (small) behaviours, such as:

- Entering an email address to receive information or join a mailing list<sup>9 10</sup>
- Signing up for an appointment or further interaction

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<sup>9</sup>Leeper, T.J. 2017. "How Does Treatment Self-Selection Affect Inferences About Political Communication?" *Journal of Experimental Political Science*: In press.

<sup>10</sup>Bolsen, Druckman, & Cook. 2014. "Communication and Collective Actions." *Journal of Experimental Political Science* 1(1): 24–38. doi:10.1017/xps.2014.2

# Example 3: Purchasing Decisions

Common ways to study purchasing behaviour include:

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Common ways to study purchasing behaviour include:

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- Retrospective and prospective self-reports

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Common ways to study purchasing behaviour include:

- Direct attitudinal questions
- Retrospective and prospective self-reports
- Conjoint experiments





We are interested in your opinions about the negotiations between Britain and the European Union regarding Britain's exit from the EU and future relationship with the EU.

Please look carefully at these two possible outcomes:

	<u>Outcome A</u>	<u>Outcome B</u>
<b>Britain's one-off payment to the EU to settle outstanding commitments</b>	No payment	£10 billion
<b>When this will come into effect</b>	2025	2023
<b>Border checks between Northern Ireland and the Republic of Ireland</b>	No passport checks and no customs checks	Full passport and customs checks
<b>EU's legal authority in Britain</b>	Britain adopts some EU laws but is not subject to decisions by the European Court of Justice	Britain is subject to all EU laws and all decisions by the European Court of Justice
<b>Britain's future payments to the EU budget to access science and regional development programmes</b>	£1 billion per year for access	£1 billion per year for access
<b>Trade agreement with the EU</b>	Many administrative barriers to trade in goods and services and 5% average tariff on goods	Few administrative barriers to trade in goods and services and 2.5% average tariff on goods
<b>Policy on immigration from the EU</b>	Full control over EU immigration and little to no EU immigration	Some control over EU immigration and lower levels of EU immigration than now
<b>Future rights of current EU nationals in Britain and British nationals in the EU</b>	All can stay indefinitely	Must apply for 'leave to remain' under the same terms as people from non-EU countries

Which of these two outcomes do you prefer?

- Outcome A  
 Outcome B



# Example 3: Purchasing Decisions

Common ways to study purchasing behaviour include:

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Another way is embedding a purchase in a survey.<sup>11</sup>

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<sup>11</sup>Bolsen, T. 2011. "A Lightbulb Goes On." *Political Behavior* 35(1): 1–20. 10.1007/s11109-011-9186-5



# Example 4: Donations

- Miller and Krosnick<sup>11</sup> asked for charitable donations via cheque directly as part of a paper-and-pencil survey

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<sup>11</sup>Miller, Krosnick, & Lowe. N.d. "The Impact of Policy Change Threat on Financial Contributions to Interest Groups." Working paper.

<sup>12</sup>Klar & Piston. 2015. "The influence of competing organisational appeals on individual donations." *Journal of Public Policy* 35(2): 171–91. doi:10.1017/S0143814X15000203

# Example 4: Donations

- Miller and Krosnick<sup>11</sup> asked for charitable donations via cheque directly as part of a paper-and-pencil survey
- Klar and Piston<sup>12</sup> offered respondents a survey incentive up-front for participation and then later offered them a chance to donate (a portion of payment) to a charity

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# Example 5: Web Tracking Data

- 1 Active installation of a tracking app, such as YouGov Pulse<sup>13 14</sup>
- 2 Post-hoc collection of web history files using something like Web Historian<sup>15</sup>

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<sup>13</sup><https://yougov.co.uk/find-solutions/profiles/pulse/>

<sup>14</sup>Guess, AM. N.d. "Media Choice and Moderation." Working paper, <https://dl.dropboxusercontent.com/u/663930/GuessJMP.pdf>.

<sup>15</sup><http://www.webhistorian.org/>

# Other Possibilities

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<sup>16</sup>Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048

# Other Possibilities

- Coordination tasks
  - Synchronous group tasks<sup>16</sup>
  - Game play
  - Simulations

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# Other Possibilities

- Coordination tasks
  - Synchronous group tasks<sup>16</sup>
  - Game play
  - Simulations
- Offering incentives to perform future behaviour (tracked elsewhere)
- OAuth/API integrations w/ other platforms
  - Merging website usage data w/ survey data
  - Treating website sign-up or usage as behavioural outcomes
  - Linking with smartphone metadata

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<sup>16</sup>Mao, Mason, Suri, Watts. 2016. "An Experimental Study of Team Size and Performance on a Complex Task." *PLoS ONE* 11(4): e0153048. doi:10.1371/journal.pone.0153048



With a partner, brainstorm how one or more these behavioural measures might be applied to a survey data collection relevant to your own work or your organisation.



- 1 Attitudes vs. Behaviours
- 2 Problems with Behavioural Self-Reports
- 3 Credible Behavioural Measures in Surveys
- 4 Conclusion**



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- 3 Be creative! Recognise possibilities and limitations of any given survey mode.
- 4 Validate, validate, validate!



# To Sum Up...

- Surveys are well-designed to measure current characteristics, beliefs, and attitudes
- Self-report measures of behaviour have many problems
- Surveys can incorporate direct measures of respondent behaviour
- We're still experimenting, so more research is needed on validity of such measures

# Thanks!

I will be around for questions.  
Don't hesitate to be in touch later on:

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