Using Fictitious Issues to Investigate Cognitive Processes in Surveys

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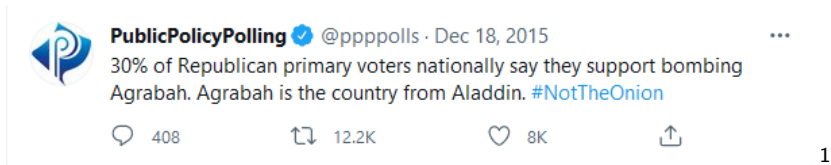
Introduction

Introduction

We investigate the **prevalence** and **underlying mechanisms** that encourage survey respondents to offer opinions on things they are unfamiliar with

PublicPolicyPolling ✓ @ppppolls · Dec 18, 2015 ⋯
30% of Republican primary voters nationally say they support bombing Agrabah. Agrabah is the country from Aladdin. #NotTheOnion

💬 408   🔁 12.2K   ♡ 8K   ⬆

[1]

Are so-called '**pseudo opinions**' a threat to survey data validity?
Or do they represent valid answers to more abstract issues?

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[1] Jensen (2015); Wolter et al. (2021), Image source: https://twitter.com/ppppolls/status/677871578281984002?lang=en.

Background

Background I

Pseudo opinions (sometimes: 'nonattitudes') refer to substantive survey responses to topics the respondent is completely or partially unfamiliar with (Sturgis and Smith 2010; Payne 1951; G. F. Bishop et al. 1980; Schuman and Presser 1980)

They are seen as a threat to the validity of survey data and studies have shown that they are **widespread** (Schuman and Presser 1980; G. F. Bishop, Tuchfarber, and Oldendick 1983 both up to ca. 30%; Sturgis and Smith 2010 ca. 10–15%)

Most research thus far is based on surveys with an interviewer present (CAPI: Sturgis and Smith 2010; CATI: Schuman and Presser 1980; G. F. Bishop et al. 1980; G. F. Bishop, Tuchfarber, and Oldendick 1983) but there are reasons to suspect **online surveys may be different** (Leiner 2019)

Background II

There are two **competing hypotheses** as to why respondents give pseudo opinions:

1. Pseudo opinions are tied to **satisficing** (Krosnick 1991; Roberts et al. 2019), i.e., a simple strategy to avoid effort
2. Pseudo opinions are tied to **social desirability** (Tourangeau and Yan 2007; Wolter 2012), i.e., respondents do not wish to look uninformed / do not wish to 'make a mistake' by responding favourably or unfavourably to an unknown topic

The first is referred to as the **mental coin-flip** hypothesis, the second as the **imputed meaning** hypothesis

Background III

The imputed meaning hypothesis is currently favoured in the literature (Sturgis and Smith 2010), but there is **limited empirical evidence** for it (see Schuman and Presser 1980; G. F. Bishop et al. 1980; G. Bishop and Jabbari 2001; Sturgis and Smith 2010)

Furthermore, in the context of **online surveys**, the imputed meaning hypothesis is arguably implausible:

- ▶ The lack of an interviewer is said to **reduce social desirability pressures** (Shin, Johnson, and Rao 2011)
- ▶ Online surveys often employ **paid** 'professional' panelists with extensive experience, who are motivated by monetary incentives to **complete the survey quickly** (Leiner 2019; Kaminska, McCutcheon, and Billiet 2010)

Design and method

Design and method I

We use **fictitious issues** together with **response latencies** to study pseudo opinions

Fictitious issues refer to survey questions about **nonexistent** or **highly obscure topics** (Sturgis and Smith 2010; Wolter and Junkermann 2019)

> ''Do you agree or disagree with the idea that the 1975 Public Affairs Act should be repealed?''

(G. F. Bishop et al. 1980)

A substantive response to these questions can only be a 'pseudo opinion' because it is **impossible for the respondent to have an opinion** on them

Design and method II

The study:

- ▶ We conducted an **online survey** recruited by an **access panel** provider from 16th to 25th August 2019
- ▶ Target population defined as adults between 18 and 69 residing in Germany
- ▶ Quotas for age and sex in place to ensure sample was representative of the target population on those characteristics

Encompassed a split of **1288 randomly chosen respondents** from the full sample of 3044

Respondents were **debriefed** after the survey was completed

Design and method III

We asked respondents to tell us on a binary scale how they viewed 14 different institutions and organizations (positively vs. negatively)

Eight truly existed (Doctors without Borders, United Nations, etc.), **six were made up by us**:

- ▶ "Environmental Court"
- ▶ "Coastal Aid Agency"
- ▶ "Prague Energy Transition Initiative"
- ▶ "German Nuclear Forum"
- ▶ "Herbert-Schmaar-Foundation"
- ▶ "World Space Agency"

Design and method IV

Response latencies help us **investigate the underlying cognitive processes**

Fast(er) substantive responses $\implies$ mental coin-flip, slow(er) ones $\implies$ imputed meaning

They were **measured non-reactively**, i.e., without the respondents' knowledge, automatically with the survey software. They represent the **time taken to read and answer each individual question** (time of response entry - time of page load)

Design and method V

Each response, y_{ij}, and response latency, x_{ij}, is **nested** within a given item and a given respondent

For a given respondent, we can also calculate the **average response latency** for all items, $\bar{x}_i$, i.e., the 'typical' speed at which the respondent answers

We apply a kind of multilevel **fixed effects probit model** to examine the effect of response latencies on pseudo opinions, holding unobserved respondent-related characteristics (education, reading speed, etc.) constant

This is achieved by including the response latency person means, $\bar{x}_i$, in the regression (Mundlak 1978; Wooldridge 2002)

We model the **conditional probability of a pseudo opinion**, given response latencies, experimental conditions and item dummies

Results

Results I

The following table shows a **high prevalence of pseudo opinions**

▶ Between ca. 23% and 74% of respondents gave pseudo opinions to our fictitious issues

	EC	CAA	PETI	GNF	HSF	WSA
negative	15.92	10.95	15.37	22.28	10.48	13.59
positive	58.54	48.06	28.34	22.59	12.97	26.48
continue	8.54	11.72	18.48	17.86	30.90	21.35
don't know	17.00	29.27	37.81	37.27	45.65	38.59

N = 1288. EC: Environmental Court, CAA: Coastal Aid Agency, PETI: Prague Energy Transition Initiative, GNF: German Nuclear Forum, HSF: Herbert-Schmaar-Foundation, WSA: World Space Agency

Figure 1: Responses to fictitious institutions in percent

Results II

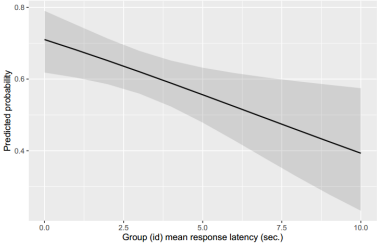|	Model 1	Model 2	Model 3
(Intercept)	0.56 (0.13)***		
Response latencies (RL)			
RL (demeaned)	−0.01 (0.01)		
Group (id) mean RL	−0.08 (0.03)*		
RL^2 (demeaned)			
Group (id) mean RL^2			
Experiments			
Implicit don't know	1.45 (0.08)***		
Speed instructions	0.17 (0.08)*		
Respondent-related variables			
Male			
Age			
Political interest			
Log Likelihood	−3614.80		
Num. obs.	7671		
Num. groups: id	1286		

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ° $p < 0.1$. Two-tailed test.

Figure 2: Correlated random effects probit. DV: substantive responses.

Results III
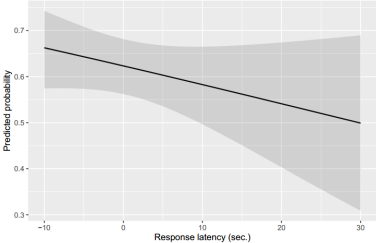
(a) Response latencies

(b) Group (id) mean response latencies

Figure 3: Predicted probability of substantive response over response latencies (Model 1)
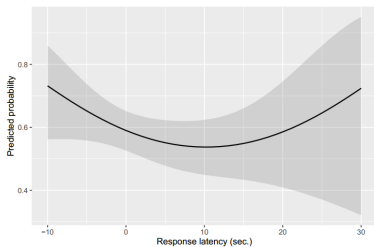
Results IV

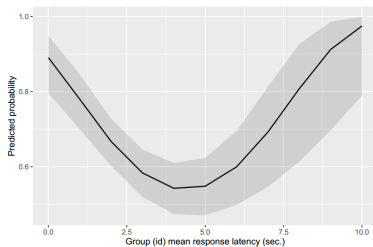|	Model 1	Model 2	Model 3
(Intercept)	0.56 (0.13)***	1.24 (0.20)***	
Response latencies (RL)			
RL (demeaned)	−0.01 (0.01)	−0.03 (0.01)°	
Group (id) mean RL	−0.08 (0.03)*	−0.52 (0.11)***	
RL^2 (demeaned)		0.00 (0.00)	
Group (id) mean RL^2		0.06 (0.01)***	
Experiments			
Implicit don't know	1.45 (0.08)***	1.44 (0.08)***	
Speed instructions	0.17 (0.08)*	0.18 (0.08)*	
Respondent-related variables			
Male			
Age			
Political interest			
Log Likelihood	−3614.80	−3602.00	
Num. obs.	7671	7671	
Num. groups: id	1286	1286	

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; °$p < 0.1$. Two-tailed test.

Figure 4: Correlated random effects probit. DV: substantive responses.

Results V

(a) Response latencies

(b) Group (id) mean response latencies

Figure 5: Predicted probability of substantive response over response latencies (Model 2)

Results VI

	Model 1	Model 2	Model 3
(Intercept)	$0.56 \ (0.13)^{***}$	$1.24 \ (0.20)^{***}$	$1.52 \ (1.04)$
Response latencies (RL)			
RL (demeaned)	$-0.01 \ (0.01)$	$-0.03 \ (0.01)^{\circ}$	$-0.02 \ (0.02)$
Group (id) mean RL	$-0.08 \ (0.03)^{*}$	$-0.52 \ (0.11)^{***}$	$-0.48 \ (0.14)^{***}$
RL^2 (demeaned)		$0.00 \ (0.00)$	$0.00 \ (0.00)$
Group (id) mean RL^2		$0.06 \ (0.01)^{***}$	$0.05 \ (0.02)^{**}$
Experiments			
Implicit don't know	$1.45 \ (0.08)^{***}$	$1.44 \ (0.08)^{***}$	$1.54 \ (0.09)^{***}$
Speed instructions	$0.17 \ (0.08)^{*}$	$0.18 \ (0.08)^{*}$	$0.14 \ (0.09)$
Respondent-related variables			
Male			$0.18 \ (0.09)^{*}$
Age			$0.01 \ (0.00)^{\circ}$
Political interest			$0.21 \ (0.05)^{***}$
Log Likelihood	-3614.80	-3602.00	-2505.14
Num. obs.	7671	7671	5448
Num. groups: id	1286	1286	913

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\circ}p < 0.1$. Two-tailed test.

Figure 6: Correlated random effects probit. DV: substantive responses.

Conclusion

Conclusion I

We find evidence for **both mental coin-flip *and* imputed meaning** hypotheses

However, this occurred at the level of **average response latencies**

This seems to be more of a **response style** (independent of contents of question) than a **response set** (Esser 1990)

Some respondents tend to answer quickly to unfamiliar topics, others tend to deliberate before answering substantively

Conclusion II

Evidence for imputed meaning amongst slower respondents is promising: potentially means pseudo opinions represent **valid responses to more abstract issues**

Next steps:

- ▶ Look also at **responses to existent items**. Drawback: for existent items, fast responses can indicate satisficing or automatic activation of salient attitudes
- ▶ Prevalance of pseudo opinions differs between fictitious issues: need to investigate possible **interactions with response latencies**
- ▶ Possible that **fast pseudo opinions** are also not completely meaningless if item provides **obvious 'cues'**: investigate by manipulating cues

Thanks for your attention!

Please feel free to contact us with comments or questions:
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