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Do Interviewers moderate the effect of monetary incentives on response rates in household interview surveys?

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Background and motivation

- Monetary incentives are known to increase response rates (Singer et al 1999)
- Some interviewers are more effective at eliciting cooperation than others (Durrant et al. 2010; Durrant, D'Arrigo, and Steele 2013)
- But little is known about whether & how interviewers differ in effectiveness of deploying incentives to promote survey response and cooperation
- How might this happen?
  - Interviewers 'tailor' deployment by highlighting incentives at addresses where they are most effective (Groves and Couper 1996)
  - Interviewers vary in their beliefs about effectiveness of incentives (Singer et al 2000; Lynn 2001)

Research Questions & empirical strategy

- RQ1: Do interviewers differentially influence the effectiveness of incentives in increasing survey participation?
- RQ2: Are interviewer characteristics associated with effectiveness of incentive deployment?
- ES1: face-to-face household surveys containing randomised incentive experiments
- ES2: Multi-level models predicting response outcome as function of incentive condition and covariates
- ES3: Interviewer level random coefficient for incentive condition

Data

Understanding Society Innovation Panel

- wave 1 data consisting of three random experimental group:

  Group 1: £5 per adult interviewed; Group 2: £10 per adult interviewed; Group 3: £5 per adult interviewed rising to £10 if all adults in household are interviewed
- Each household also received unconditional cash voucher
- Combined groups 2 and 3 into one incentive group

National Survey for Wales 2015

- One randomly selected adult aged 16+
- Conditional incentive
- experimental groups: Group 1: £10 incentive Group 2: no incentive

Data

- NSW 2016
  - Each address on odd numbered quota offered a conditional £5, and addressed on even numbered offered no incentive
  - Experiment terminated earlier due to low response and a new £10 incentive offered onwards

- Number of households issued incentives grouped into incentive or no incentive

Survey	Incentive (£10)	Low (no) Incentive
IP	1,680	843 (£5 incentive)
NSW 2015	2,960	2,828
NSW 2016	3,640	3,467

Data

- Response rate by incentive group for both surveys

		Response *Frequency (%)*	Nonresponse *Frequency (%)*	*Total*
Innovation Panel	Incentive	1,020 (61.4%)	640 (38.6%)	1,660
	No Incentive	469 (56.1%)	367 (43.9%)	836
	Total	1489	1007	2,496
NSW 2015	Incentive	1,504 (58.7%)	1, 059 (41.3%)	2,563
	No Incentive	1,319 (54.1%)	1,119 (45.9%)	2,439
	Total	2823	2178	5,001

Data

- Cooperation rate by incentive group for both surveys

		Response *Frequency (%)*	Nonresponse *Frequency (%)*	
Innovation Panel	Incentive	1,020 (69.2%)	453 (30.8%)	1,473
	No Incentive	469 (66.8%)	233 (33.2%)	702
	Total	1489	686	2,175
NSW 2015	Incentive	1,504 (71.8%)	591 (28.2%)	2,095
	No Incentive	1,319 (67.0%)	649 (33.0%)	1,968
	Total	2,823	1,240	4,063

Data

Explanatory and Response Variables

- Interviewer observations (only for IP data)
- Geographical and area variables (urban/rural, UK regional indicator (IP only))
- Interviewer characteristics (Age, gender, interviewer experience, and race)
- Response Outcome

$$y_{i(j)} = \begin{cases} 1 & \text{household response} \\ 0 & \text{household nonresponse} \end{cases}$$: for household and interviewer

- Gives the probability that contacted household and interviewed by interviewer will cooperate to a survey

Data

Definition of outcome

- Survey response based on AAPOR RR2

$$RR2 = \frac{(I + P)}{(I + P) + (R + NC + O) + (UE(NC) + UE)}$$

- Survey cooperation

$$CR2 = \frac{(I+P)}{(I+P)+(R)}$$

RR=Response Rate, I = Interview,

P = Partial Interviews, R = Refusals,

NC = Non-Contacts , O = Other Unproductive,

UE(NC) = Unknown Eligibility (non-contacted), and UE = Unknown Eligibility

Models

- Multilevel cross-classified response propensity logistic models

- Why cross-classified multilevel models?
  - Allows the variation in the response outcome to be partitioned into household, interviewer and area levels
  - Disentangles interviewer and area effects on survey response and cooperation
  - Enables to vary incentives effects on survey response and cooperation across interviewers

Models

- Model takes the form

$$\text{logit}\left(\pi_{i(jk)}\right) = \log\left(\frac{\pi_{i(jk)}}{1-\pi_{i(jk)}}\right) = \beta_{0(jk)} + \sum_{h=1}^{r} \beta_{hi(jk)} x_{hi(jk)} + \mu_{(jk)} + \nu_k$$

  - μ_0 and ν_0 represent variance for intercept across interviewers and areas assumed to have a normal distribution with means zero and variance $\sigma^2_{\mu 0}$ and $\sigma^2_{\nu 0}$ respectively
  - μ_1 represents variance for incentive across interviewers and assumed to have a mean zero and variance $\sigma^2_{\mu 1}$
  - The changes in random coefficient with respect to random intercept are assessed using covariance defined as $\sigma_{\mu 01}$

- Standard multilevel models used for NSW 2015 and NSW 2015
  - Areas not provided to protect interviewers identity

Models

Specification of models fitted

Model	Fixed and random components specified
1: Base	Incentive
2: Random Intercept (interviewers)	Model 1 + random intercept (interviewers)
3: Random Intercept (areas)	Model 1 + random intercept (areas)
4: Random Intercept (interviewers & areas)	Model 1 + random intercept (interviewers + areas)
5: model 4 + Random coefficient (interviewer)	M4 + incentive random coefficient across interviewers
6: model 5 + interviewer observations	M5 + interviewer observations
7: model 6 + geographical areas	M6 + area level variables
8: model 7 + interviewer characteristics	M7 + interviewer characteristics

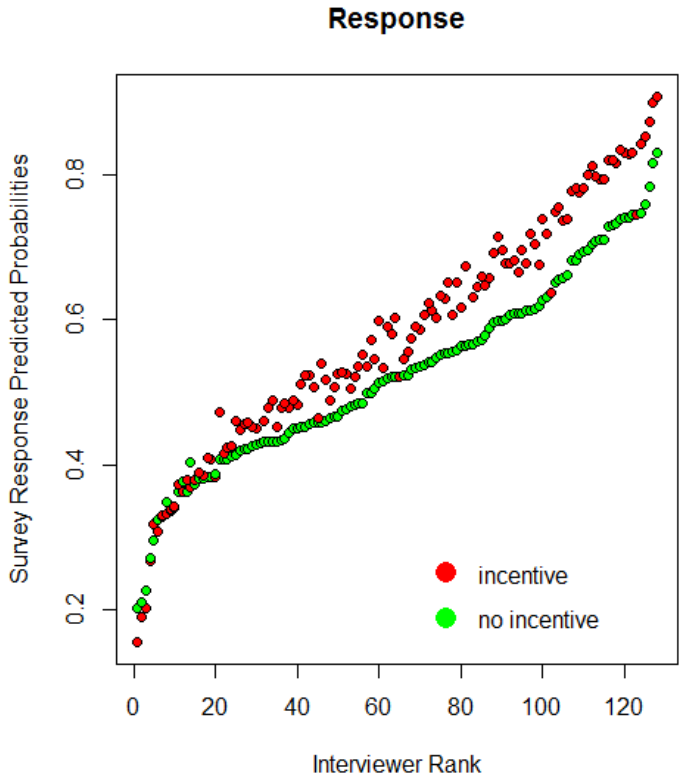
Area effects are only accounted for in IP data. Data obtained from National Survey for Wales did not have smaller geographical regions to protect interviewers identity

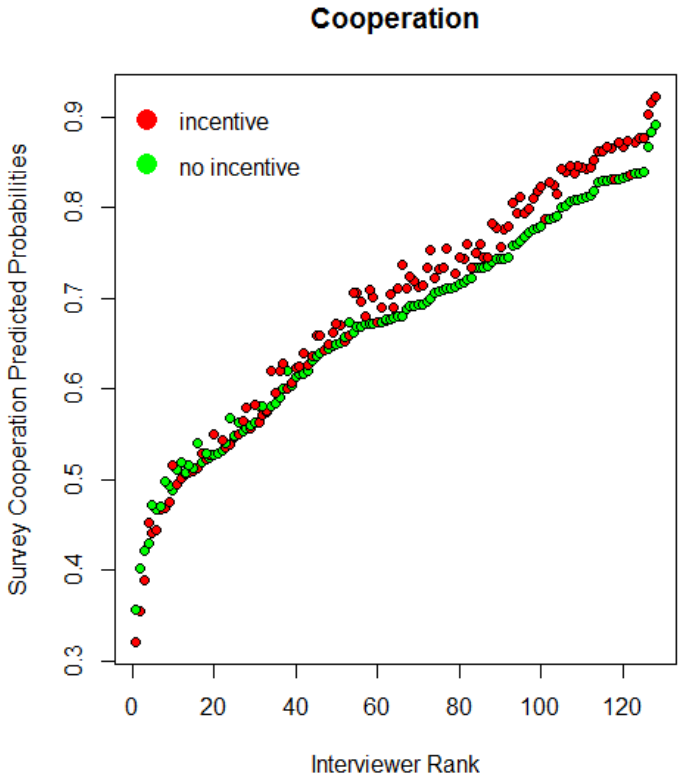
Results summary

- The DIC change between random intercept and random coefficient models for response and cooperation respectively indicate that incentives do vary significantly across interviewers for IP and NSW
- Size of effect reduced when controlling for area differences
- Positive covariance between random intercept & random slope (interviewer effect on incentives higher at higher response rates)
- None of the interviewer characteristics are significantly related to incentive effectiveness

Results

Predicted probabilities for survey response and cooperation in IP with no area controls





Results

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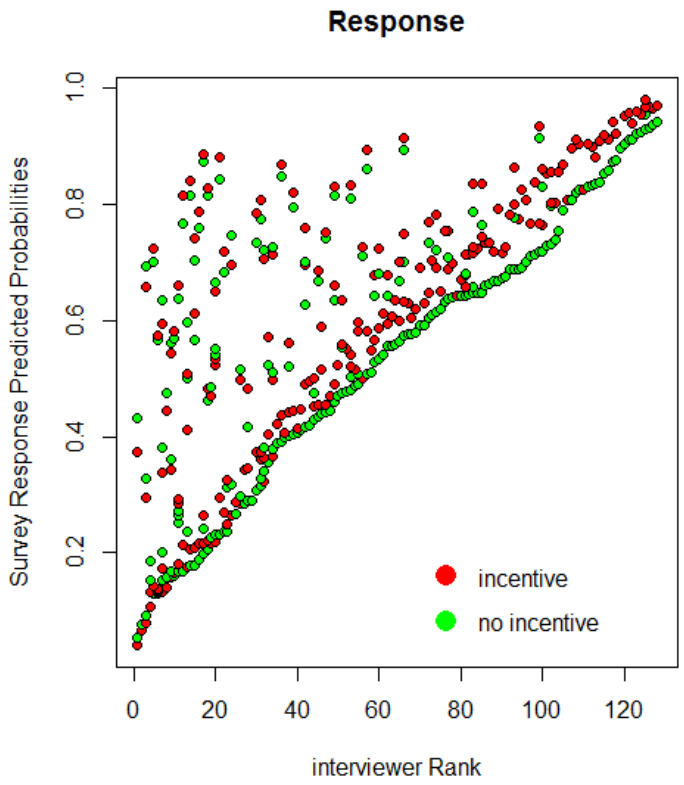
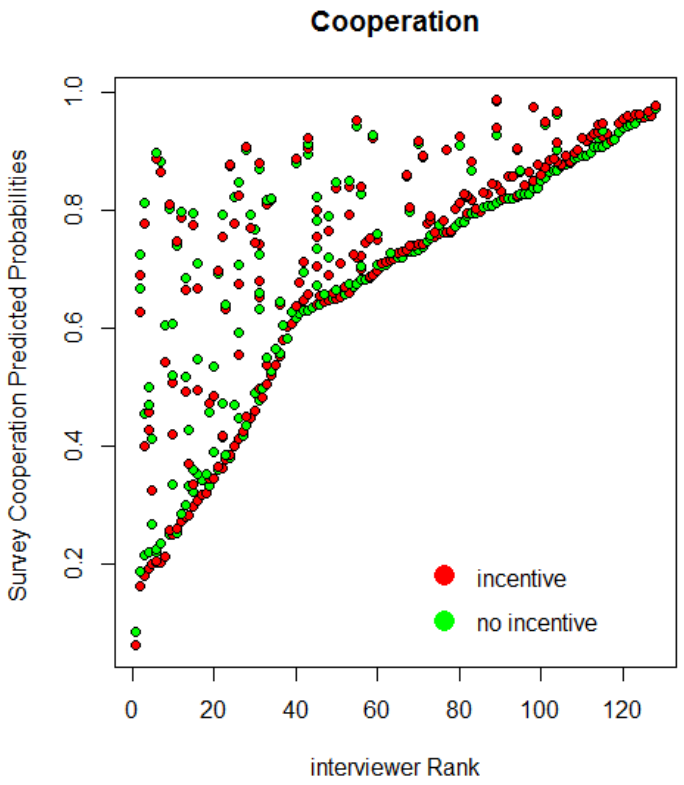
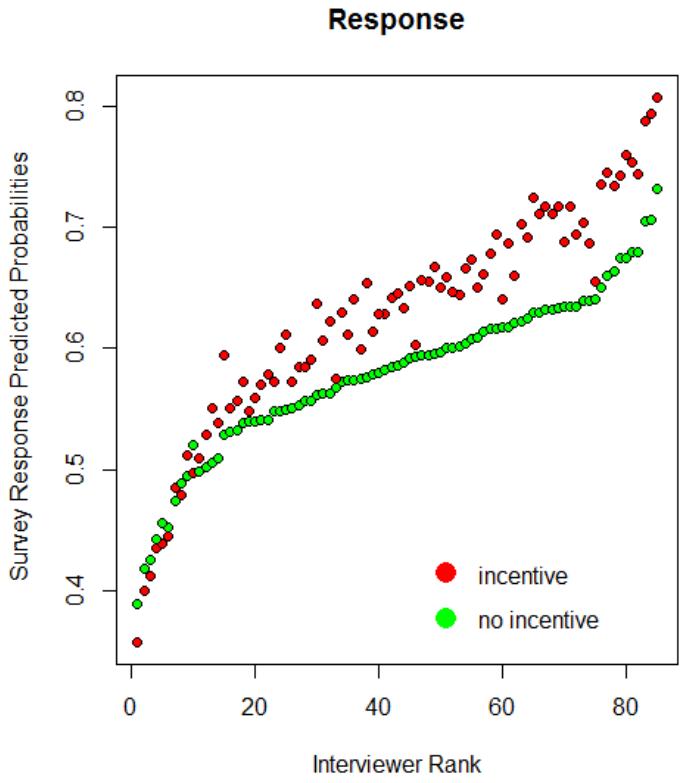
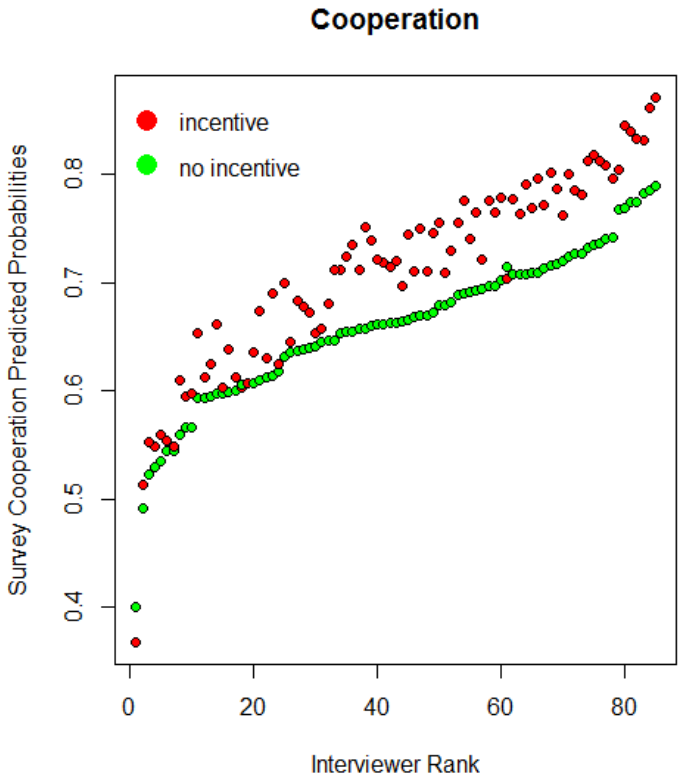




Results

Predicted probabilities for survey response and cooperation in NSW 2015, no area controls





Conclusions

- Incentive effect on response and cooperation varies across interviewers
- This is reduced when differences in area composition are controlled for
- Interviewers who obtain higher response rates without incentives get ‘more bang from the incentive buck’
- Interviewer characteristics unrelated to deployment effectiveness
- Possible that other interviewer characteristics (attitudes, beliefs) might be more influential