



# Willingness to participate in geolocation-based research.

*3<sup>rd</sup> MASS workshop*

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**CARLOS OCHOA** | Research and Expertise Centre for Survey Methodology (RECSM – UPF)



Universitat  
Pompeu Fabra  
Barcelona



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# GEOLOCATION DATA ARE...

## GREAT...

Individuals' locations collected at a frequency and level of precision inconceivable using surveys.

- Reduced burden.
- Increased accuracy.

### Applications:

- Identify individuals' locations and travel patterns [1]
- Detect individuals accessing pre-specified locations [2].

[1] Geurs, Veenstra and Thomas, 2013)

[2] Clemens and Ginnis, 2017

## ... BUT NOT PERFECT

### ERRORS

Limited precision of the technologies used to geolocate devices (e.g., GPS).

- Example: wrong coordinates, undetected visit to a location of interest.

### MISSING DATA

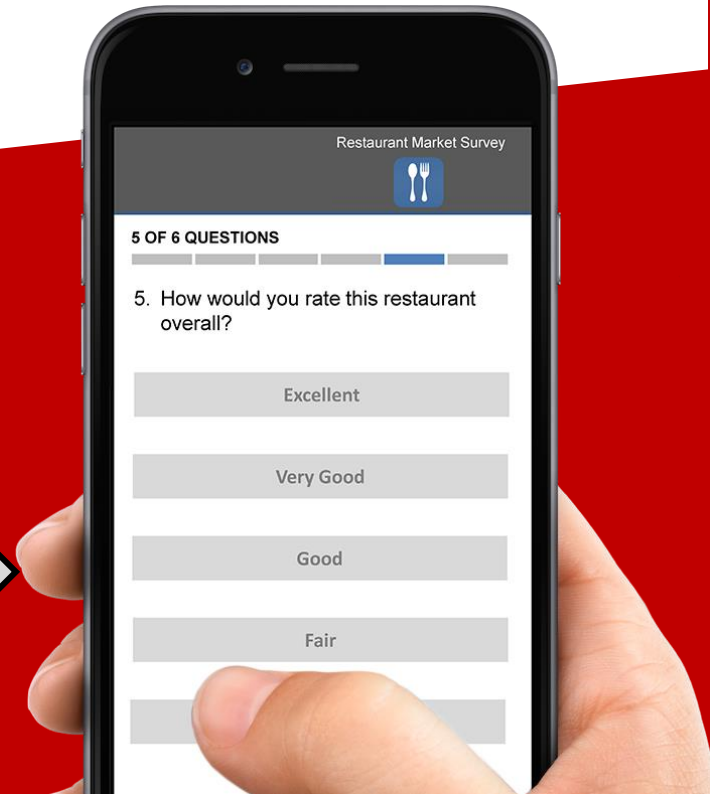
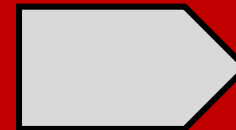
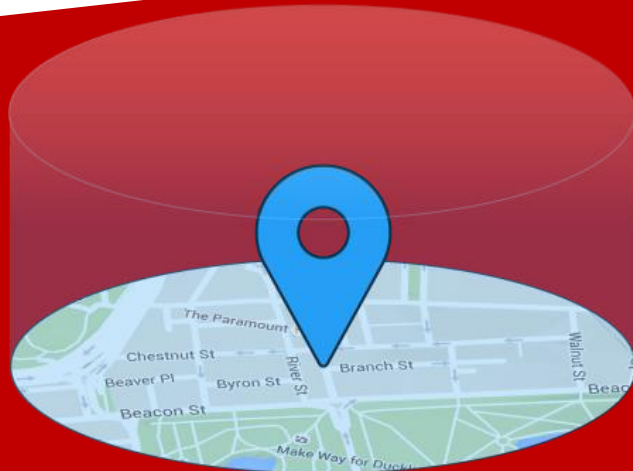
Subjective information cannot be observed using a passive tracker.

- Example: motivation of a travel, satisfaction with the mode of transport.

# IN-THE-MOMENT SURVEYS

Sending a survey (to members of an online panel) right in the moment a location of interest is visited:

1. Add missing information.
2. Clarify doubtful information.
3. Reduce the memory errors that conventional surveys suffer from.



# LIMITING FACTOR: WILLINGNESS TO PARTICIPATE

## Sharing geolocation data

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- Already studied under different conditions. Willingness: 20% - 50%.
- Differences among participants not always consistent across studies.
- Little literature about the effect of the conditions offered to participants.

### My contribution:

- Effect of project duration and incentives using a Conjoint analysis.
- More scenarios than previous literature.

## In-the-moment surveys triggered by geolocation data

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- A few actual experiences reported.
- No previous research on willingness to participate.
- Related research: willingness to participate in in-the-moment surveys triggered by metered data.

### My contribution:

- Levels of willingness ...
- ... for combinations of 5 attributes.

## RESEARCH QUESTIONS

**RQ1** – What are the levels of **willingness to participate** in geolocation-based research among members of an online panel:

- (a) share geolocation data
- (b) in-the-moment surveys triggered by geolocation data.

**RQ2** – How the **attributes** of geolocation-based research influence the willingness to participate?

*Attributes: (1) project duration, (2) survey length, (3) invitation lifetime (time to participate in the survey), (4) geolocation incentive and (5) survey incentive level (compared to a conventional survey).*

**RQ3** – Are there **significant differences** among panelists?

*Sociodemographic variables, personality traits, attitudes/habits and panel experience.*

**RQ4** – *Main reasons for deciding whether or not to participate stated by the panelists?*

# DATA AND METHODS

- **N=1,016 valid surveys**
- Netquest opt-in online panel in Spain.
- 21<sup>st</sup> of Feb. – 7<sup>th</sup> of Mar. 2022.
- Mean survey length: 8.8 min.
- Quotas on age(3)+gender(2) and education(3).
- **27% of the participants have installed a meter** (already sharing online behaviors).

## Choice based conjoint (CBC)

Mixed logit model + coefficients (utilities) estimated from participant's choices.

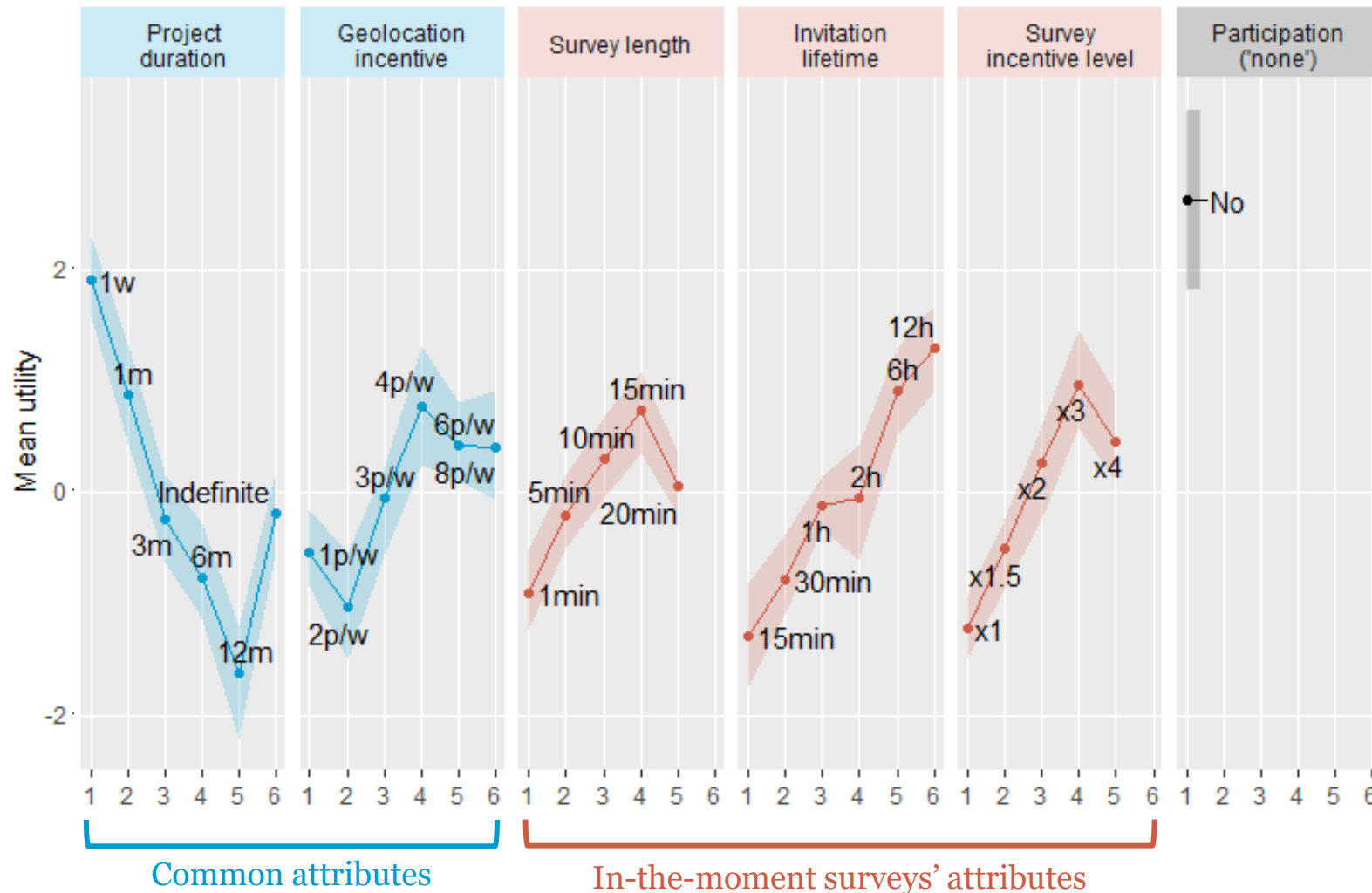
**nicequest** Encuesta

*Si participarías en las dos, escoge la que preferirías en primer lugar. Si no participarías en ninguna, marca la opción 'No participarías'*

Propuesta A	Propuesta B	No participarías
<b>Actividad</b> Encuesta "en el momento" basada en tu geolocalización	<b>Actividad</b> Encuesta "en el momento" basada en tu geolocalización	
Tiempo compartiendo tu geolocalización <b>6 meses</b> o hasta que completes la encuesta	Tiempo compartiendo tu geolocalización <b>1 mes</b> o hasta que completes la encuesta	
Encuesta "en el momento" Duración: 12 horas Tiempo para acceder: 1 min	Encuesta "en el momento" Duración: 30 min Tiempo para acceder: 20 min	
<b>Puntos</b> 2 por semana + 6 por la encuesta	<b>Puntos</b> 4 por semana + 66 por la encuesta	

# INFLUENCE OF EACH ATTRIBUTE-LEVEL

*Average utilities of the mixed logit model (higher utilities = higher preference)*



Preference for:

1. Shorter project durations.
2. Larger survey lengths up to 15 min.
3. Larger invitation lifetimes.



and

4. Larger incentives (without significant differences between the two higher levels).






# IMPORTANCE

*% of variation of each attribute vs. total variation*

## Sharing geolocation

Attribute	Importance (%)	Percentile	
		2.5 <sup>th</sup>	97.5 <sup>th</sup>
Project duration	 64.3	54.6	74.5
Geolocation incentive	 35.7	25.5	45.4

## In-the-moment surveys

Attribute	Importance (%)	Percentile	
		2.5 <sup>th</sup>	97.5 <sup>th</sup>
Project duration	 29.6	24.9	37.0
Invitation lifetime	 21.8	17.1	26.9
Survey incentive level	 18.4	15.1	22.3
Geolocation incentive	 16.4	12.3	22.6
Survey length	 13.7	15.1	22.3



# WILLINGNESS TO PARTICIPATE

## *Willingness to participate in three difference scenarios*

Research activity	Scenario	Mean willingness (%)	Percentile	
			5 <sup>th</sup>	95 <sup>th</sup>
Sharing geolocation	Best	50.1	46.8	53.7
	<b>Average</b>	<b>43.2</b>	<b>41.1</b>	<b>45.1</b>
	Worst	37.6	35.6	39.6
In-the-moment surveys	Best	57.1	55.2	59.3
	<b>Average</b>	<b>47.2</b>	<b>46.6</b>	<b>47.8</b>
	Worst	34.4	32.4	36.2

*Best scenario: Survey / duration: 1 week / invitation lifetime: 12h / survey length: 15 min / 4 points per week / x3 survey incentive*

*Worst scenario: Geoloc / duration: 1 year / invitation lifetime: 15min / survey length: 1 min / 2 points per week / x1 survey incentive*

# DIFFERENCES AMONG PARTICIPANTS

## **Sociodemographic variables**

- Moderate effects (5.5% <-> 12.1%)

## **Personality traits (attitudes)**

- Moderate effects (4.5% <-> 15.9%)

## **Panel experience**

- Past participations: only in the last 3 months (+10.8%)
- Metered panelist: +18.1%

## **Attitudes/habits**

- Large effects:
  - Survey privacy concerns: -26.1%
  - Survey safety concerns: -22.9%
  - Sharing contents in SM: +38.7%
  - Installing apps: +26.2%
  - Google maps: +28.1%

## PRELIMINARY CONCLUSIONS

1. In-the-moment surveys triggered by geolocation data:
  - Feasible in terms of willingness to participate.
  - But actual participation may differ substantially due to practical issues (not seeing the invitation in time).
2. To ensure high levels of willingness:
  - Short project durations with reasonable invitation lifetimes.
  - Up to 15 min survey length
  - Incentives are still key
3. When using quota sampling, variables other than sociodemographic variables should be considered
4. Developing geolocation-based research on “panelists already sharing online behaviors” may be effective and would allow us to research offline and online events.

# Thanks!

CARLOS OCHOA | RECSM - UPF



Carlos.ochoa@upf.edu



<https://www.upf.edu/web/webdataopp>