

# Nudging for responsible carsharing: using behavioral economics to change transportation behavior

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SHORT-TERM CAR-RENTAL SERVICE, ENTIRELY SELF-SERVICED. STUDY USERS' BEHAVIOUR:

- **Aim** – increase vehicle inspection behaviour among carsharing users
- **Nudge** – reminder card to visually remind users to inspect the vehicle prior to their trip
- **Test** – effects observed in a randomized field experiment among users of car2go carsharing service



- Early observation
  - Observation at a car2go parking area with **16 vehicles**
  - Over **5 days**, observed trips initiated by users
  - On **34 trips**, started:
    - 23 **without** any inspection
    - 7 with **incomplete** inspection
    - 4 with a **full inspection**
  - So, 88 % trips started without a full inspection
- Interview
  - 6 out of 11 participants usually **omit** inspection
  - 55 % self-reported inspection omission  $\neq$  88 % in observation study
  - They know that the inspection is their **obligation**, but they did not
  - Intention-action gap to **save time**, not knowing activation time  $\sim$ 18s

➤ Field Experiment

	Location A	Location B	Total
Total observed trips			
Start	371	313	684
End	171	124	295
Total	542	437	979
Trips used for the analysis (single-passenger trips)			
Control	166	135	301
Intervention	79	83	162
Total	245	218	463
Average vehicle exhaustion time			
Sunny	4:33 p.m.	6:05 p.m.	5:12 p.m.
Cloudy	4:20 p.m.	5:31 p.m.	5:01 p.m.
Rainy	4:08 p.m.	4:27 p.m.	4:18 p.m.
Total	4:24 p.m.	5:19 p.m.	4:00 p.m.

## ➤ Reminder card

- Placed on the **windshield** of the vehicle
- **Red** color to highlight the card on the blue and white car2go vehicles
- Mention “while **waiting**” – people realize availability of time for inspection
- Smiley face – **injunctive** message: inspection as socially preferable
- Has minimal impact on car2go image

## ➤ Back of the card

- **Survey** link about car2go provided to participants
  - With the possibility to win \$30 Amazon **gift** card

Please **INSPECT**  
the car while waiting

Take this card and join a **prize draw!**  
Check the back for details



### Car-sharing User Survey

Please join the **5 min** survey through the link or QR code below.  
One respondent will be awarded a **\$30 amazon.ca gift card**.

**Survey link:** <http://goo.gl/uNbhfV>

If you have any questions please contact us;  
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Project title: Rental Car Inspection Study



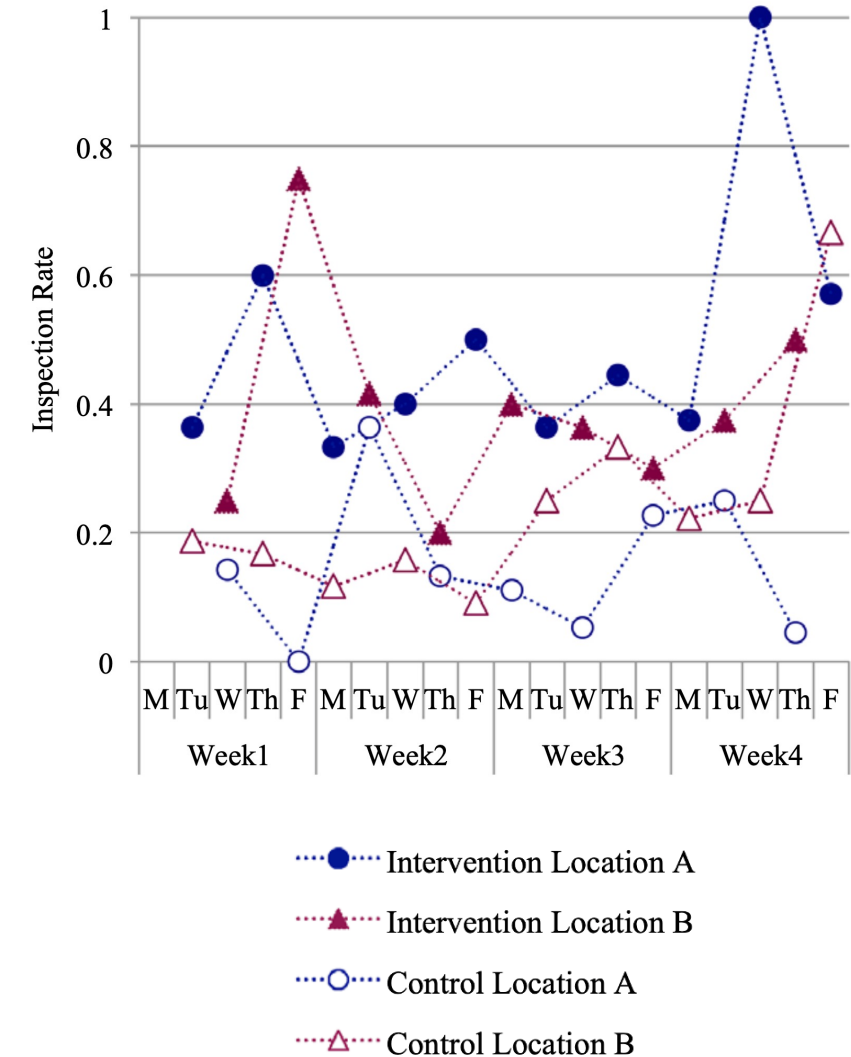
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## ➤ Online Survey

- **Top three reasons** for inspection skip
  - Being in too much of a **hurry**, 100 % of the respondents
  - Believing that the **cars are usually fine**, 79 %
  - **Lighting condition** not being good enough to see, 78 %

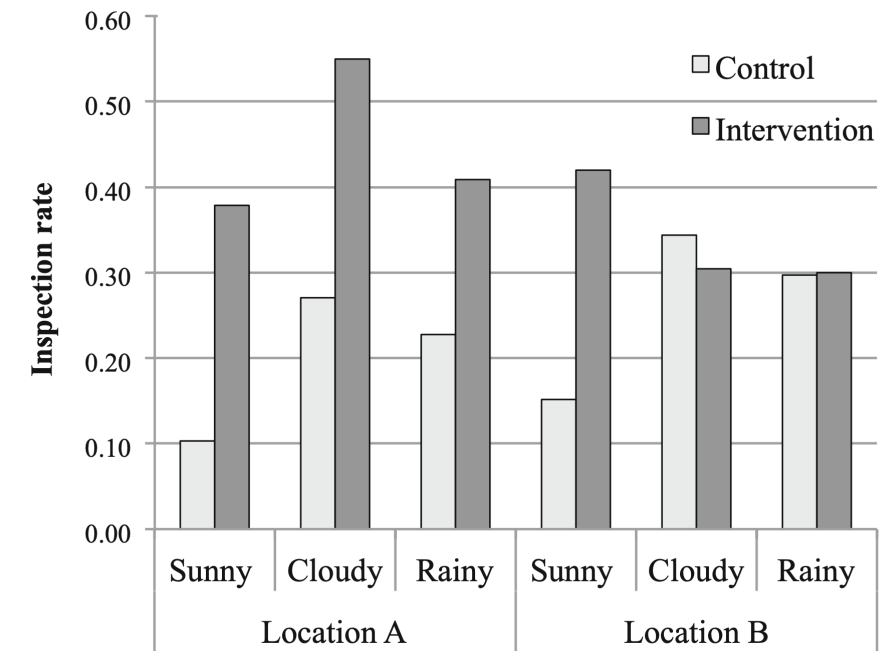
## ➤ Outcomes over time

- Persistent effect: inspection rate in the intervention condition stayed **high**
- Location B showed an increase in the inspection rate in the control condition in the last 2 weeks: may be driven by **learning** effects in repeated users



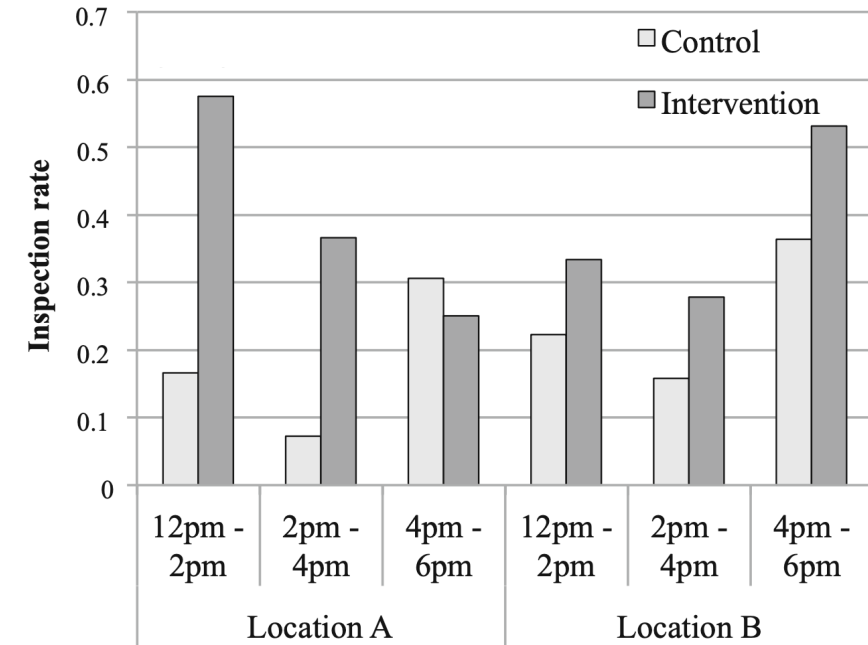
## ➤ Outcomes by weather

- In control situation, users inspected **more in cloudy and rainy days**
- But interviewees listed bad weather condition as a reason of omission. One possible explanation: **different** users between sunny and rainy or cloudy days, since bad weather can make quick door-to-door mobility attractive
- **Occasional** users, like in rainy days, may inspect more than regular users
- With reminder **card** present
  - Inspection rate increased in **all weather conditions in A**
  - Effect was only present in **sunny condition in Location B**, probably because of unbalanced data, most cloudy and rainy days observed



## ➤ Outcomes by time

- Inspection rate in control condition is higher among users starting trips **after 4 p.m.** in both locations, when commuters returning to their home. This implies that **commuters tend to inspect more** often than others
- Inspection rate in intervention condition decreased only in in Location A after 4 p.m., one reason could be the small sample size: most cars were taken out before 4 p.m.
- In Location B, intervention card's effect is **positive but not significant**





## ➤ Outcomes

- Overall inspection ratio increased from 15–24 % to 40–50 % with nudge card
- Over 4 weeks, **inspection rate was consistently higher** in intervention condition than in control condition, suggesting that repeated exposures to reminder card did not diminish the impact of intervention on inspection behavior
- **Commuting users are likely to inspect more** often even without intervention cards, and **bad weather conditions seem to diminish effect** of reminder card especially in the more isolated location B
- Users in location B continued to inspect vehicles **even in absence of reminder card** in last 2 weeks of experiment, suggesting a **persistence effect** of the intervention, especially for repeating users
- **50 % still did not inspect the car**, this suggests that lack of inspection was not driven solely by **lack of attention or forgetting**, but by other factors as well.

## ➤ Improvements

- A possible approach is to remind users of the possibility of **financial charge by omitting an inspection**
- Another possible approach is providing reward. E.g. placing a sticker with a code to one of car2go vehicles and use it as a lucky sticker. Anyone who **found the sticker and report the correct code can get a reward** or win a prize.





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Image source: <https://www.fleetmagazine.com/car-sharing-piu-conveniente/>

# Thank you

*Gianmarco*

Images and text have been gathered from the paper\* “Nudging for responsible carsharing: using behavioral economics to change transportation behavior”;

Michiko Namazu, Jiaying Zhao, Hadi Dowlatabadi; 25 July 2016; Springer Science + Business Media New York 2016