(FRS) FUTURE RESILIENT SYSTEMS

How Relevant Are Social Comparisons for Energy Conservation Behaviour?

A Case Study on Air-Conditioning Usage in Singapore

Energy conservation is important to Singapore's resilience, as Singapore depends on fossil fuel imports for most of its energy needs. In the long run, energy conservation could also mitigate global climate change. To reduce households' electricity demand, we analysed the relevance of social comparisons as a non-pecuniary behavioural intervention to drive individuals to save energy.

Analysis: The analysis was carried out on 400 students in a university dormitory in Singapore for two periods of seven weeks separated by a semester break. The baseline air-conditioning consumption of all students was recorded before the students were randomly assigned to four groups of similar size and socio-demographic characteristics:

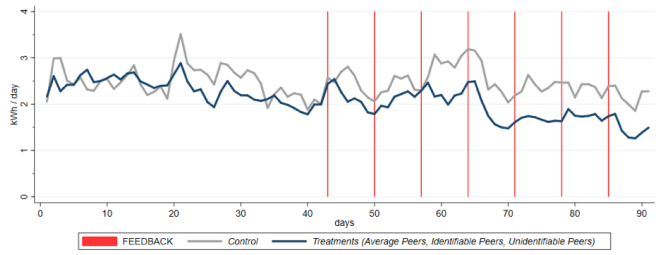
1. Control group: received no feedback
2. Treatment group 1: informed of the individual and the average air-conditioning related electricity consumption in the dormitory on a weekly basis
3. Treatment group 2: informed of the individual air-conditioning related electricity consumption and that of other residents who are close by
4. Treatment group 3: informed of the individual air-conditioning related electricity consumption and that of other residents who are further away

Results: Dormitory residents who were given feedback (three treatment groups) significantly reduced their air-conditioning usage compared to residents who did not receive any feedback (control group). The reductions are greater than in similar studies, which may be due to the fact that we gave appliance-specific feedback.

However, receiving information about the average electricity consumption in the entire dormitory, the electricity consumption of close-by or further-away residents did not result in significant differences in air-conditioning usage behaviour.

Results also show that the behavioural impact of feedback on other residents' electricity consumption was not persistent over time. The effects faded out if feedback was given for an extended time (more than seven weeks) or in intervals (two intervention periods of seven weeks with a break in between).

Finally, results reveal that upward or downward comparisons, i.e. feedback pointing to residents with higher or lower electricity conservation rates compared to a specific resident did not cause any overall behavioural change. Only residents who already consumed very little electricity for air-conditioning increased their efforts in saving electricity.



Conclusion: Social comparisons with neighbours seem to have a positive effect on individuals' energy conservation behaviour and are relevant for increasing resilience. To achieve the desired effects, information about average behaviour is sufficient. Importantly, linking the information to a specific application or context (electricity consumption for air-conditioning) makes the desired effects more pronounced.

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