

An impact of nudges on water consumption: a field experiment.

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Intensification of water consumption is an important environmental issue nowadays. Such international organizations as the UNFAO and the United Nations World Food Program have stated that today water shortage is an actual global problem, and without any intervention, water scarcity issues will not be solved (World Health Organization and UN-Water 2014). Moreover, for water is a necessity for all humans, it was stated that the water problem has the potential to become the reason for future political tensions if it would not be solved on the international level (Starr 1991). Additionally, there is the following pattern: with population growth, the demand for fresh water is also growing. Researchers and politicians suggest different measures to tackle the water consumption issue.

Officials mostly consider a price as tools for solving the water consumption issue. So, European Council called states to provide adequate incentives for users to use water resources efficiently. It was established that water price should cover all deleterious consequences of water consumption taking account of the polluter pays principle (European Council 2000). On the other hand, a branch of researchers argues that there is another way of solving the issue. They consider non-financial incentives, such as nudges, feedbacks and some others as efficient tools for the regulation of water consumption (Richetin et al. 2014; Kahneman 2013).

In this study, I use a panel of individual data. It consists of 12000 households connected to Tyumen's public water supply network, one control group and three treatment groups. Each dwelling had 12 observation of water meter readings covering the period the March 2018-April 2021. The sample contains information about each household's fiscal value, the number of members, and its dwelling area.

To consider how weather affects water consumption I added to the data set the hot days variable for the periods of time covered. The experiment was conducted by randomly assigning a group of households, Tyumen's water supply network consumers, to one of four groups. Groups were weighted based on the number of members, dwelling area, wealth parameters. The control group members were informed and got messages to frame any experimental effect that may be present.

The experiment started in December 2020 and last three month, by March 2021. Each household monthly received the same type of nudge. Nudges, incentives were delivered via text messages printed as part of the water bills. Finally, the data on consumption was obtained from Tyumen's municipal water regulation in March 2021.

The model of the experiment is two-by-two. The first message was sent to the control group, while three types of nudges were given to the treatment groups. The Control group message enclosed a list of tips that explained how the amount of water consumed by household could be reduced without any reason why consumers should reduce water consumption. Type 1 nudge apart from information sent to the control group contained an environmental protection reason. It was said that reducing water consumption is vital for preserving our environment for future generation. The type 2 nudge consisted of the same information as a type 1 nudge, but instead of environmental protection, there was a self-interest incentive. It was written that

a household could save money by reducing water consumption. Besides, a type 3 of nudge encouraged households to reduce their water consumption. It enclosed the tip list and mix of environmental protection and self-interest incentives. Each message also contained a piece of contact information and a link to document with an extensive list of tips on how a consumer may reduce their water consumption in the form of a QR-code.

The study's result showed that pro-environmental nudge is the most efficient way to encourage people to consume water more reasonably. So, the government and water authority should nudge people to change their consumption using various behavioural incentives.

References

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Illustrations

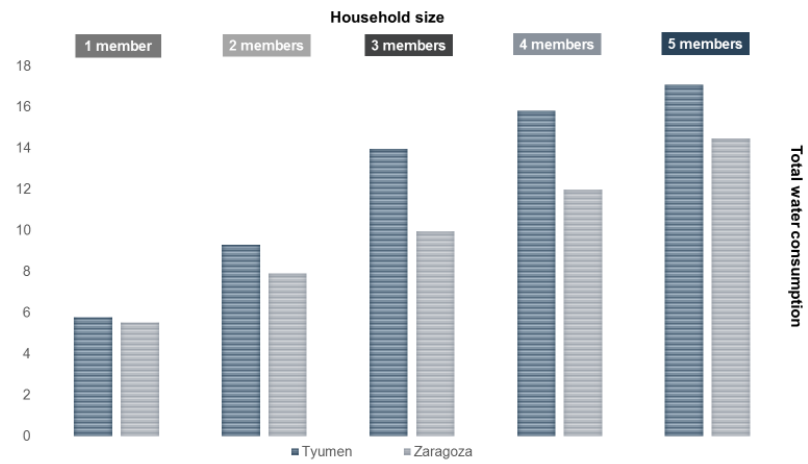


Рис. 1. Comparative assesment of ways of water usage