

## »»» Evaluation update



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### Using behavioral interventions to address non-payment for piped water supply in Kosovo

Non-payment of public utility bills is a common problem in low and middle-income countries and constrains the maintenance and expansion of infrastructure. Unpaid water bills are also a common problem in Kosovo. Accompanying Financial Cooperation (FC) investments in water supply infrastructure in Pristina, a research team assessed how to increase customers' attention by placing yellow stickers with messages e.g. regarding customers' self-identity on their invoices. The effectiveness was analyzed in a randomized control trial. As a result, annual payments have increased by up to 7 Euros per customer (corresponds to amount of an average monthly bill), while costing only 12 cents.

#### 1. Non-payment of water threatens maintenance and expansion of infrastructure

Access to safe drinking water is a crucial component for economic development. Half of the global workforce is employed in water-dependent industries: agriculture, forestry, fisheries, energy, resource-intensive manufacturing, recycling, building and transport (WWAP, 2016). Lacking access to dependable safe drinking water sources has drastic consequences on individuals' health and wealth.

Non-payment of public utility bills is a common problem in low and middle-income countries and constrains the maintenance and expansion of

infrastructure. Unpaid water bills are also a common problem in Kosovo. The German Government through KfW (co-)finances infrastructure projects for the improvement of the water supply and sewerage infrastructure in the service area of the Regional Water Company Pristina (RWCP). The financial sustainability of the projects, particularly in terms of repayment of loans and sustainable financing of operation and maintenance cost of the financed infrastructure, heavily depends on RWCP's financial results and thus on collection efficiency.

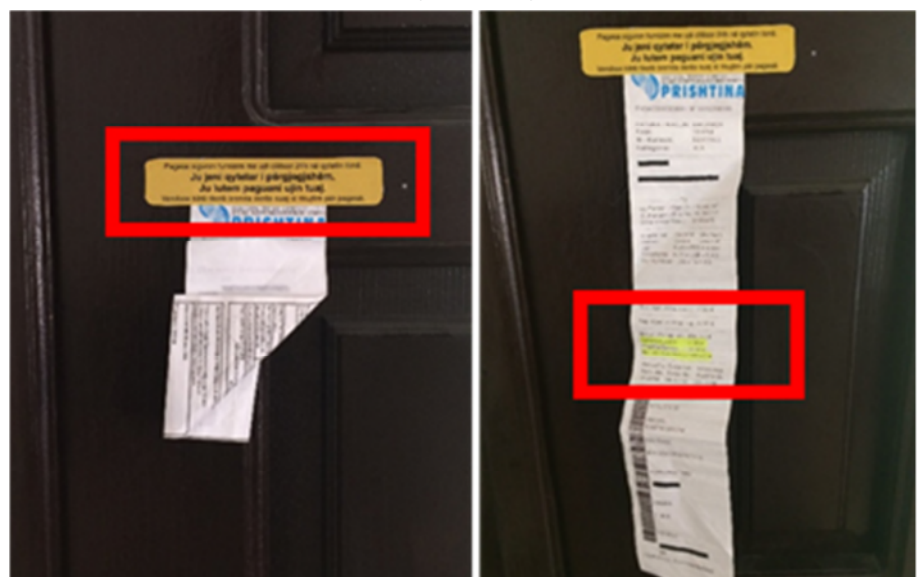
#### 2. Behavioral interventions as an alternative to threat and sanctioning of non-payment

Sanctioning of customers through disconnection is difficult ethically since water is a basic human right. There are however also technical constraints as some customers own collective meters that cannot be disconnected individually.

#### 2.1 Designing effective policy interventions depends on understanding the local context

To understand the causes for non-payment, the research team of local students conducted multiple surveys throughout the city of Pristina. Interestingly, the research team found an overall positive attitude towards paying for water, albeit the relatively high degree of non-payment. Water ranked highest among utility bills, when interviewees were asked to rank electricity, water, waste disposal and internet by the importance to pay.

Additionally, there were two striking observations with respect to the way in which customers receive and perceived their invoices. First, roughly 85% of customers do not own a mailbox. Therefore, the bill is folded and stuck in the door crack or hung on the door handle. Therefore, the invoice is often hardly visible and does not create a



Colored stickers with messages can help to increase the attention of customers towards invoice. Photo source: S.Tonke

feeling of importance or urgency.

Secondly, about half of interviewees are unable to correctly identify the total amount due when shown the invoice. The complexity of the bill arises from the multitude of numbers that are printed on small slip of paper. The most common mistake (70.5% of those that made a guess) is that interviewees in the survey refer to the monthly fee as the amount that needs to get paid in total.

## **2.2 Increasing attention, reducing complexity and addressing positive self-concepts using stickers**

To increase the attention that customers pay to the invoice, the research team used yellow stickers that places the invoice at eye-level on a customer's door instead of placing the invoice in the door crack or the door handle. To improve understanding of the invoice, the research team uses markers to highlight the most important numbers on the invoice. In addition, some stickers included positively framed identity labels (e.g. "Please be a responsible citizen") and some included negatively framed identity labels (e.g. "Please don't be an irresponsible citizen). The different messages ("treatments") are applied to different treatment groups, which are each representative of the city population.

## **3. Experiments provide an evidence based approach to establish causal effect on payment behavior**

To measure the effectiveness of the different sticker types in comparison to an untreated ("business as usual") group, the research team conducted a randomized control trial (field experiment). Field experiments are an attractive alternative to measure the effectiveness of policy interventions. They do provide a causal evidence and are also useful to quantify the size of a treatment effect.

The general idea behind a field experiment is to randomly split (e.g. by coin flip or rolling a dice) individuals into two or more groups. This randomization ensures that these groups are indistinguishable from each other with respect to their average characteristics. For example, all groups should consume a very similar amount of water, pay similar amounts and have the same composition of connection types (individual and collective meters). Information on such characteristics is easily verifiable for the utility.

Randomization in large groups, however, also allows us to assume that characteristics that are much harder to observe are indistinguishable between groups like personality traits, education status or trust in the water utility. These properties of randomization allow us to simply compare payment behavior of different groups after the implementation of the intervention. The only difference is that some groups received a treatment and others did not.

## **3.1 A large scale field experiment among around 11,800 customers**

The experimental sample includes eight neighborhoods containing 11,800 customers, which corresponds to about 17.5% of the private accounts in the city of Pristina. The experimental sample was chosen in cooperation with RWCP to be representative of the rest of the city. At the time of the intervention, about 75% of customers in the sample show debt of more than 8.90 Euro. To implement the research project a team of local students joined the staff of the RWCP during their work and placed the stickers according to the assigned treatment over a period of three months.

## **3.2 Annual payments increase exceeds intervention cost**

During the first three months of the intervention the collection efficiency (fraction of the bill paid) for stickers that contained a negatively framed identity label ("Please don't be an irresponsible citizen") increased by up to 26% in comparison to the untreated group. This effect corresponds to about 4.50 Euro or about 62% of an average monthly bill. Stickers with a positively framed identity label were about half as effective. After the three month period the size of the very large treatment effects wane. Yet, over the span of the whole year, the stickers with this negatively framed message increased payments by up to 7 Euro per customer as compared to the control group without any stickers.

The return-on-investment was very large, given that the production cost of the stickers was only 12 cent and their use was easily implemented in the work routine of the staff. The company wants to continue using the stickers in particular among customers who have high debt and live in apartment blocks that use a collective meter. During the experiment such customers were strongly influenced by the intervention. Beyond the findings of the research per se, the intervention also sparked

discussions around the bill delivery process in general and the customer's perspective on water. For example, whether bills should be delivered every month or whether the printed bill should be revised and simplified.

## **4. The sticker intervention is well accepted among the population**

Besides the cost effectiveness of this intervention, there might be another advantage of using behavioral interventions over more restrictive tools of policy making like the enforcement of disconnections from the water network. According to a survey, the overall impression of the intervention is very positive. On average 90.2% of treated customers agree or partially agree that the stickers are "useful and good". The high approval rate is also reflected in the acceptance rate of the sticker when customers are met in person as less than 1% reject the sticker. This is a desirable advantage over more typical threatening and sanctioning approaches.

## **5. What do the results imply for FC?**

When the behavior of humans is critical to the success and sustainability e.g. of an intervention in development cooperation, behavioral economic analyses can help to understand human decision-making and to identify effective interventions. The World Bank and the office of the German Chancellor already work closely with behavioral economists.

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## **Photos**

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Title photo: [gettyimages.com](http://gettyimages.com) / korhan hasim isik