



Promoting rule compliance in daily-life: Evidence from a randomized field experiment in the public libraries of Barcelona



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ABSTRACT

We study how to promote compliance with rules that carry low penalties and are pervasive in all sorts of organizations. We have access to data on the users of all public libraries in Barcelona. In this setting, we test the effect of sending email messages with different contents. We find that users return their items earlier if asked to do so in a simple email, showing that a general reminder of the users' duty is effective in promoting rule compliance. Furthermore, adding other contents to the general reminder does not increase compliance significantly.

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1. Introduction

Understanding compliance with rules is crucial for firms, organizations, and societies at large. While some rules are backed by severe sanctions, there are many others with relatively low punishment. To illustrate, workers are supposed to obey rules that make everyday interactions among co-workers more effective, such as attending meetings on time. Parents are supposed to pick up their kids from daycare on time, or to communicate immediately any disease that may have negative externalities on other kids. Visitors to parks and recreational facilities are not supposed to litter because it is costly for the maintenance service. Among the academic community, researchers are supposed to attend seminars and submit referee reports in a timely manner. Examples of similar nature abound.

Authorities often use and set this type of rules, in order to improve their functioning based on cost effectiveness and optimality arguments, and they often do not back them with severe sanctions because it may be too costly to monitor and

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implement the sanctions or due to institutional and legal restrictions. While these rules are pervasive and important for the functioning of organizations and societies, very little is known on how to promote compliance with them.

In this paper we contribute towards a better understanding of the mechanisms that may promote compliance with these types of rules. While economists would naturally think about monetary incentives, it has been found that they may backfire (see Benabou and Tirole, 2003, 2006, for theoretical arguments; Gneezy and Rustichini, 2000a, 2000b; Mellstrom and Johannesson, 2008, for empirical studies), or that they are not feasible due to political or legal restrictions. Therefore, it is crucial to understand whether there are other possible ways to promote compliance with rules. The goal of this paper is to analyze the effect of conveying various types of messages, in our case by email. Our interest in the potential effects of sending messages is that it offers a virtually costless and non-invasive intervention mechanism that is simple and flexible to implement. Surprisingly, despite the advantages of this message intervention, little is known about its effectiveness.

A setting that allows us to study compliance with rules with low penalties is the Network of Public Libraries in the city of Barcelona. The type of compliant behavior we analyze is whether users of the libraries return the items they borrowed on time. A user not returning an item by the due date is violating the rule, and generating a negative externality on the population of users. The penalty associated with returning an item late does not involve any monetary fines, but the exclusion from the possibility of borrowing more items for a time period equal to the number of days the item is overdue. We evaluate whether we can get users to return the items they borrow earlier, by means of different email contents that are randomly allocated.

There are important characteristics that make our study unique. First, we observe the borrowing behavior of all users of all public libraries in Barcelona over 11 months. During this time span, there were about 50,000 different users, who borrowed over a million items in the 32 different libraries spread throughout the city of Barcelona. Therefore, we have data on a large number of individuals, in a daily-life situation, taking part in their natural environment, and over an extended period of time. Second, we observe every borrowing-returning transaction of items made by users. This allows us to measure compliant behavior with the borrowing rules with exact precision. Third, the rules that govern the interaction between the users and the libraries are simple and well-defined. Finally, the rich data on users offers a unique opportunity to test for differential treatment effects with regard to previous compliance and demographic variables such as gender, age, and nationality.

By studying compliance in public libraries by way of the random allocation of messages, we add to a small but growing literature on messages and rule-compliance in other settings. Pomeranz (2010) analyzes firms' tax compliance in Chile. She finds that messages indicating an increased audit probability generate a strong increase in VAT payments. Fellner et al. (2013) study citizens' subscriptions to TV licenses in Austria. They find that a legal threat mailing significantly increases compliance rates, while neither a moral appeal nor a social information mailings have any effect. Cadena and Schoar (2011) analyze loan-repayments in Uganda and show that a text message increases repayment rates. Finally, Pruckner and Sausgruber (2013) establish that a moral message increases payments for newspapers sold following an honor system. In contrast to these studies, our setting includes a formal rule with relatively low penalty. What to expect a priori from the email intervention when stakes are small is open to question, since users may simply ignore the messages they receive. Our paper additionally differs in that we can perfectly measure compliance with rules, and study the effect of messages on different users on the basis of their previous compliance. This is important because there is evidence on crowding out effects of different interventions on individual behavior (see Frey and Jegen, 2001).

In our study, we randomize all users into groups receiving one of five different email messages, and study their behavior after receiving the email. One of the five email messages is a CONTROL message that provides a link to the webpage of the Network of Libraries. All the remaining messages add content to the text in CONTROL. The first treatment message, called REMINDER, represents a general reminder of the users' duty to return the borrowed items on time. The second message, SOCIAL, adds to REMINDER an appeal to the effect individual behavior can have on the overall functioning of the public library services. The last two email treatments, LATE and PENALTY, are targeted only at those users who have recently returned at least one item late. Both LATE and PENALTY add to REMINDER the identification of the user as having recently returned items late. Finally, PENALTY builds on LATE and adds a reminder of the penalty associated with non-compliant behavior. Therefore, our email messages are designed to evaluate whether a generic reminder promotes rule-compliance and whether adding contents related to social motivations, the explicit identification for being late, or directing the attention of users towards the penalties associated for rule-breaking, make users conform with the rule to a greater extent.

In our analysis we evaluate the effect of emails on the proportion of late returned items by user, and on the number of days that elapse between the return date and the due date. The first variable measures the propensity to comply with the rule, while the second variable quantifies the positive/negative externality that is imposed on other users when a user returns the item earlier/later than the due date. Our main result is that compliant behavior can be promoted by sending an email that includes a general reminder of the users' duty to comply with the rule. All four treatment emails significantly reduce both, the proportion of late returned items, and the number of days between the return date and the due date. Furthermore, we cannot reject the hypothesis that all four different contents have the same effect, showing that the additional contents to the general reminder do not increase rule compliance significantly. These results show that a low cost intervention such as sending general reminders have a significant effect on users' behavior and the overall functioning of the libraries. Ultimately, this results in an improvement in the service offered by public libraries, as it alleviates the problem of the negative externality imposed by late returns.

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