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# How to Communicate the Nudge: A Real-World Policy Experiment

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# How to Communicate the Nudge: A Real-World Policy Experiment

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## Abstract

Disclosure-based nudges are increasingly utilized by governments around the world to achieve policy goals related to health, safety, employment, environmental protection, retirement savings, debt, and more. Yet a critical aspect of these nudge-type policy interventions—the mode of communication—remains unexplored. We study the effects of the communication medium on debt collection procedures, using a policy experiment conducted in cooperation with the Israeli Ministry of Justice. Debtors often lack adequate information about the debt, the judgment, and the enforcement and collection procedures. As a result, the process of debt collection is often harmful to the debtor and ineffective in securing repayment. We manipulate the choice of medium—telephone, regular mail, text message, and video message—holding fixed the content of the communication. We find that digital communication strategies, in particular, communicating via text message, were the most cost-effective, significantly improving outcomes for both debtors and creditors.

## 1. Introduction

### 1.1. *How to Communicate Nudges*

Disclosure-based nudges are increasingly utilized by governments around the world to achieve policy goals related to health, safety, employment, environmental protection, retirement savings, credit, debt, and more (see, for example, Thaler and Sunstein 2008; Benartzi et al. 2017). The regulators and behavioral scientists designing these policies have focused largely on the important questions of content and design: what information to disclose, how to frame the disclosed infor-

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mation, how to make the disclosure simpler and friendlier, and how to design disclosure forms in terms of font size and type and the placement of statements.<sup>1</sup>

But another critical aspect of nudge-type policy interventions—the mode of communication—remains largely unexplored: How should the information be communicated to individuals—by phone call (or voice message), letter, email, text message, or video message? Does the mode of communication matter? And, if so, which medium, or mode of communication, is most effective? Numerous prior studies of nudges utilize different modes of communication, but to the best of our knowledge no prior study compares the effectiveness of the alternative communication mediums while holding the content and design of the message fixed. This question of communication medium is the focus of our analysis. We believe that our empirical findings could help policy makers choose the optimal mode of communication for their disclosure-based nudge policies across the wide range of settings, similar to ours, in which such policies are used.

A recent metastudy, DellaVigna and Linos (2020), reviews randomized controlled trials (RCTs) testing nudge-type interventions. Looking at studies published in academic journals, DellaVigna and Linos (2020, figure A3) find that, among the 74 nudge treatments considered, 23 percent were paper based (letter or postcard), 12.2 percent used email, 12.2 percent were Web based, 28.4 percent used in-person communication, and 24.3 percent were categorized as “other.” Looking at the trials conducted by two government nudge units, DellaVigna and Linos (2020) find that, among the 243 nudge treatments considered, 51 percent were paper based (letter or postcard), 39.5 percent used email, 2.9 percent were Web based, .8 percent used in-person communication, and 11 percent were cat-

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<sup>1</sup> On the content of mandated disclosures, see, for example, Jones, Loibl, and Tennyson (2015), who note that new disclosures mandated under the Credit Card Accountability Responsibility and Disclosure Act increase the percentage of households that pay off credit card balances in full each month, and Bertrand and Morse (2011), who find that better-designed disclosures reduced the take-up and amount of repeat payday loans. On the question of framing, see, for example, Milkman et al. (2021a) and Bertrand and Morse (2011). On the move toward simpler, friendlier disclosures, see, for example, Benartzi et al. (2017), who find that simple, behaviorally informed email messages increased the enrollment in retirement savings plans, and Carpenter et al. (2017), who note that research by the Consumer Finance Protection Bureau (CFPB) shows that better-designed disclosures improve consumer choice among prepaid cards. On the design of disclosure forms, see, for example, Carpenter et al. (2017) and CFPB, *How We Improved the Disclosures* (<https://www.consumerfinance.gov/know-before-you-owe/compare/>). Questions about the timing of disclosures have also been considered. See, for example, Banerjee et al. (2021), who find that a text message reminder about an upcoming vaccination drive had a large effect on the demand for immunization in Haryana, India, and Bar-Gill (2012), which discusses the timing of mortgage disclosures and credit card disclosures.

egorized as “other.”<sup>2</sup> DellaVigna and Linos (2020) note the communication mediums used in the nudge policies they survey, but only in passing. Other recent surveys cover nudge policies that utilized different modes of communication but do not focus on the medium (see, for example, Benartzi et al. 2017; Hummel and Maedche 2019). In the related context of get-out-the-vote campaigns, Green and Gerber (2019) compare different campaign strategies, including in-person canvassing, direct mailers, phone calls, and mass-media campaigns. And yet in the voting context, as with the other studies of nudges, the relative efficacy of different communication mediums has not been tested in a controlled, real-world policy experiment that compares the effectiveness of the alternative mediums while holding fixed the content of the message. We present such a test in the context of debt repayment.

### *1.2. Nudging Debt Repayment*

Debt and debt collection are a major policy issue in many countries. In the United States as of June 30, 2020, aggregate household debt balances stood at \$14.27 trillion; of this amount, \$512 billion of debt is delinquent (Federal Reserve Bank of New York 2020). On the litigation front, debt collection cases represent a significant percentage of a state court’s docket (see, for example, Bearden 2016).<sup>3</sup> The Federal Trade Commission observes that “[t]he majority of cases on many state court dockets on a given day often are debt collection matters” (Federal Trade Commission 2009, p. 55). A recent study covering 12 states finds that debt claims were the most common civil case in nine states (Pew Charitable Trusts 2020, p. 10, figure 6).<sup>4</sup> And the volume of debt collection cases is only increasing.<sup>5</sup> Similarly, debt and debt collection problems are of major concern in other countries. In the European Union, household debt as a percentage of gross domestic product is rising, reaching 54.1 percent in December 2020,<sup>6</sup> and the corresponding rise in debt collection cases has led policy makers to reevaluate the regulation of debt collection practices (Stănescu 2021). And in Israel, where we conduct our

<sup>2</sup> The main goal of the DellaVigna and Linos (2020) metastudy is to compare nudge studies published in academic journals with nudge trials conducted by government nudge units. But the comparisons focus on the relative magnitudes of the effect—larger in academic studies and smaller in the government trials—and not on the communication medium.

<sup>3</sup> Civil cases on US court dockets are typically organized into five categories: debt collection, mortgage foreclosure, disputes between landlords and tenants, tort, and other. Debt collection covers “[s]uits brought by original creditors or debt buyers claiming unpaid medical, credit card, auto, and other types of consumer debt exclusive of housing (e.g., mortgage or rent)” (Pew Charitable Trusts 2020, p. 5).

<sup>4</sup> According to the Texas Office of Court Administration (2019, p. 5), of the 224,000 civil cases filed in 2019, 24 percent were debt collection cases.

<sup>5</sup> According to the CFPB (2019, p. 159), all issuers in the survey that litigated credit card debt reported that the volume of new balances placed in the litigation channel increased significantly during the survey period, with year-over-year growth ranging from nearly 10 percent to 55 percent across issuers. According to the Texas Office of Court Administration (2019, p. 5), the number of new debt cases filed between 2014 and 2019 increased by 55 percent in the district courts, by 107 percent in the county courts, and by 162 percent in the justice courts.

<sup>6</sup> CEIC Data, European Union Household Debt: % of GDP (<https://www.ceicdata.com/en/indicator/european-union/household-debt--of-nominal-gdp>).

policy experiment, in 2019 one in 10 adults had an open debt collection case (see Section 2).

Disclosure mandates permeate the debt collection process. Debtors must be informed when a collections suit is filed against them. After a judgment, often a default judgment, is awarded, debtors must be informed about the various enforcement or collection procedures (for example, repossession of property, garnishment of wages, and the imposition of various restrictions and limitations on the debtor). Too often, these pre- and postjudgment notifications are ineffective; namely, they fail to inform debtors.

This is bad for debtors. They do not learn about suits that are brought against them and thus end up with default judgments. And after judgment, they are not effectively informed about enforcement procedures—their consequences and how to avoid them—and thus suffer unnecessary costs: exempt property is taken, wages are garnished unnecessarily, advantageous repayment plan options are not pursued, and excessive fees and interest accumulate and add to their obligations. Creditors are also harmed: it takes longer for them to get paid, and they end up with only partial repayment. For example, in a study focusing on credit card debt, the Consumer Financial Protection Bureau (CFPB 2019, p. 160) finds an average cumulative recovery rate of only 24 percent over the 2-year postjudgment period—and this is for the cases that creditors chose to litigate because they thought the debtor had a greater ability to repay.

Our study, conducted in cooperation with the Israeli Ministry of Justice, investigates the effectiveness of the different modes of communication through which disclosure-based nudges are sent in the debt-collection context. Unlike in the United States, debt collection in Israel is centralized. A government agency in the Ministry of Justice, the Enforcement and Collection Authority (ECA), is in charge of collecting most debts. A creditor can open a collections case with the ECA, and the ECA magistrate judges determine which collection procedures to apply. When a case is opened, the ECA sends a notice, a letter sent by registered mail, that informs the debtor that a case has been opened, lists repayment options, notes the possibility of challenging the debt, and warns about the consequences of nonpayment. The Ministry of Justice and the ECA were concerned that the standard notice is insufficiently effective in inducing debtors to either repay their debts or challenge their validity and thus harms both debtors and creditors. Therefore, they initiated this study to reassess, and potentially redesign, the notice sent to debtors and the method or medium by which the information is communicated.

In collaboration with the ECA, we designed a policy experiment. First, concerned that the current legally mandated notice is difficult for debtors to understand, we composed a simple, user-friendly message that covers the main content. Then, to investigate the effectiveness of the various mediums, we sent the new message through different communication mediums—telephone, regular mail, text message, and video message—with quasi-random assignment of debtors to the mediums. We tested seven communication strategies (plus a control) in over 36,000 debt collection cases. As previously noted, the novelty of this study

is our focus on the communication medium, with a uniform, more user-friendly message sent via the different mediums. For the text message and video message strategies, we also tested the effects of a reminder—a shorter version of the initial message—sent 20 days after the initial message.

We found that, relative to the control group that continued to receive the current legally mandated notice by regular mail, the new text message and video notice, with or without the reminder, increased the likelihood that a debtor made at least some payment or was otherwise able to close the case by 20–30 percent. The likelihood of full debt repayment, or case closure, increased by 10 percent, but only with the reminders.<sup>7</sup> The communication medium proved to be more important than the content, which was similar across treatments. In particular, text messages and video messages had a larger effect on repayment rates, as compared with phone calls and letters sent via regular mail. We were surprised to find that the video message was not more effective than the text message. The optimistic bottom line is that a low-cost nudge—a text message—can meaningfully improve the efficacy of notices, to the benefit of both creditors and debtors.<sup>8</sup>

We emphasize that our outcome variables count both (partial or full) debt repayment and other actions that resulted in case closure, for example, when the debtor successfully challenges the validity of the debt or demonstrates an inability to repay it (akin to bankruptcy). Unfortunately, our data do not allow us to distinguish debtors who should repay from those who should challenge the debt or discharge it on the basis of their inability to repay. Therefore, we cannot rule out the possibility that the debtors who should have challenged or discharged the debt were induced by our interventions to make a payment. And we cannot rule out the possibility that the debtors who should have made a payment were able to close the collections case by challenging or discharging the debt. Still, on the basis of our discussions with ECA officials who supervise repayment activity and approve case closures, it is unlikely that our interventions led many debtors to take the wrong action. Indeed, the effective interventions—the text message and video message—likely helped many debtors both by increasing the number of collections cases that were closed after the debt was challenged or discharged and by inducing debtors to repay more quickly and thus avoid significant fees and interest charges (which can exceed the initial debt) and painful enforcement actions.

In addition to measuring repayment activity and case closures, we analyze data on debtors' visits to the local ECA office. We find that the text messages

<sup>7</sup> These are large effects—closer to effect magnitudes found in the academic studies reviewed by DellaVigna and Linos (2020), even though DellaVigna and Linos would categorize our study as a government trial.

<sup>8</sup> Given the success of text messages in our policy experiment, we note studies that utilize text messages. In the United Kingdom, the Financial Conduct Authority studied alerts and reminders that were sent via text message to holders of checking accounts (Adams et al. 2018; Hunt, Kelly, and Garavito 2015) and savings accounts (Adams et al. 2016). Banerjee et al. (2021) used text messages in an immunization study in Haryana, India. And in a policy experiment conducted in New York City, Cooke et al. (2018) find that text message reminders significantly reduced the rate of failure to appear in court. Also in the United States, recent work tests text message reminders as a way to increase influenza and COVID-19 vaccine uptake (Dai et al. 2021; Milkman et al. 2021a, 2021b). Text message reminders to increase COVID-19 vaccine uptake have also been tested in Israel (Senderey et al. 2021).

and video messages, with or without the reminder, reduced the likelihood that a debtor would visit the ECA office by 20–30 percent. We interpret these results as evidence that our nudge interventions successfully conveyed information to debtors. There are two main reasons why a debtor would visit a local ECA office: to obtain information and to make a payment (or take some other action). Since our digital interventions increase the likelihood of debt repayment, a reduction in ECA visits must reflect debtors who were informed by the digital communications and thus did not need to seek information from the ECA office. We note that a similar reduction in ECA visits was observed both for debtors who made a payment and for those who did not, which indicates that many debtors visit an ECA office to obtain information, not to make a payment; they can pay by phone or online (our ECA partners confirmed that such remote payments are common).

The insights from this policy experiment are already being used by the ECA. They should also inform the design, or redesign, of communications with debtors in other countries. Our findings can help lawmakers improve communication strategies and thus facilitate debt repayment while minimizing the pain that debtors suffer from collection and enforcement procedures. Beyond debt collection, our results should inform the design and implementation of information-based nudge policies in the many contexts in which they are used, including health and safety, employment, retirement savings, and environmental protection. Our findings can also inform the important effort to increase voter turnout. Across these diverse contexts, policy makers should focus on digital modes of communication and specifically on easy-to-implement, cost-effective text messages. Indeed, the low cost of nudging by text message would allow policy makers to experiment with different content, framing, and design of disclosures sent via text message.

We are mindful of the concerns about external validity that arise when insights from a policy experiment in one country (Israel) and in one context (debt collection) are exported to other countries and to other policy contexts. For example, in some countries certain modes of communication may be more or less popular. We note, however, that text messages—the most promising mode of communication in our study—are widely used in many countries.<sup>9</sup> Another concern involves the recipient's age. In our policy experiment, text messages were equally effective across age groups, and yet the number of older recipients in our data set was relatively small. Further study is warranted before text messages and other digital communication strategies are implemented in policy areas, such as retire-

<sup>9</sup> In the United States, industry data show that at the end of 2009, 286 million cell phone users sent 152.7 billion text messages each month, for an average of 534 messages per subscriber per month (CTIA, Wireless Quick Facts [[https://web.archive.org/web/20100420031936/http://www.ctia.org/consumer\\_info/service/index.cfm/AID/10323](https://web.archive.org/web/20100420031936/http://www.ctia.org/consumer_info/service/index.cfm/AID/10323)]). A Pew Charitable Trusts study from 2010 finds that 72 percent of adult cell phone users send or receive text messages (Purcell, Entner, and Henderson 2010). More recent data suggest that Americans send over 66,000 text messages per second (CTIA, Protecting Yourself from Spam Text Messages [<https://www.ctia.org/consumer-resources/protecting-yourself-from-spam-text-messages>]). In the United Kingdom, 76 percent of cellphone users reported sending text messages on a daily basis in 2019 (Goodwin 2020). In China, over 1.2 trillion text messages were sent in 2020, not including messages sent via messaging apps, specifically WeChat (Slotta 2021).

ment savings and health services, where the communications target elderly recipients. More generally, it would be worthwhile for future work to replicate our approach—comparing the effectiveness of alternative communication mediums while holding fixed the content of the message—in other countries and in other legal settings.<sup>10</sup>

The remainder of the paper is organized as follows. Section 2 provides background on debt collection and specifically on debt collection in Israel. Section 3 sets up our policy experiment and describes the experimental design, the nudge treatments, and the model specifications. Results are presented in Section 4, and Section 5 concludes.

## 2. Background

### 2.1. Debt Collection

The debt collection process involves a series of communications that are sent to the debtor. These include prejudgment notices—about the filing of a lawsuit, prejudgment remedies (for example, attachment, garnishment, and temporary restraining orders), and the application for a default judgment. They also include postjudgment notices—about the judgment and the various enforcement or collection procedures, including the confiscation and sale of property, the placement of a lien on the debtor’s property, and the issuance of restraining orders and installment payment orders. How are these notices communicated? In most cases, the relevant legal rules envision communication by paper document via mail or personal service or by leaving a copy with someone at the defendant’s dwelling, affixing a copy to the door of the defendant’s dwelling, or leaving a copy with the court clerk. Occasionally, electronic communications are permitted or the court is granted discretion to specify the mode of communication, which opens the door for electronic communications.<sup>11</sup> Too often, the pre- and postjudgment

<sup>10</sup> Different mediums of communication may pose different privacy or data security risks. For example, it is possible that registered mail protects privacy better than a text message (for example, if a third party can look over the recipient’s shoulder while the recipient reads text messages on her phone). Such privacy or data security concerns should be balanced against the efficacy benefits on which this paper focuses. Moreover, in policy contexts in which privacy concerns are especially acute, such as health policy, the privacy concerns may outweigh the efficacy benefits and dictate the communication medium. And yet the trade-off between privacy and efficacy is not inevitable. Indeed, modern technology, including biometrics and encryption technology, can make the more effective digital medium also more privacy protective.

<sup>11</sup> Consider the following examples from the United States. Regarding the prevalence of communication by paper document, see, for example, Fed. R. Civ. Proc. 5, 77(d)(1); Tex. R. Civ. Proc., sec. 103, 501.2(a); Cal. Code Civ. Proc., secs. 415.10, 415.20; N.Y. C.P.L.R. 308. For the few US jurisdictions that permit electronic communications, see, for example, Tex. R. Civ. Proc., sec. 103, 501.2(a); Fed. R. Civ. Proc. 5, 77(d)(1), which notes that federal rules permit electronic communications only if the defendant consents in writing to this method of communication; N.Y. C.P.L.R. 308, which notes that in New York the court’s discretion to order other methods of communication arises only when the listed paper-based methods are impracticable. At the prejudgment stage, and even before a suit is filed, creditors and debt collectors repeatedly contact debtors—by phone, letter, email, and text message—in attempts to collect the debt (see, for example, Consumer Financial Protection Bureau 2017, p. 14; 2019, p. 141). Online Appendix OC summarizes notice requirements (and enforcement and collection procedures) across multiple jurisdictions.



notifications sent to debtors are ineffective. A big part of the problem lies in the way in which information—about the debt, the judgment, and the enforcement and collection procedures—is communicated to the debtor.

### *2.2. Debt Collection in Israel*

In Israel, debt collection is centralized. The ECA is in charge of collecting most debts. (In contrast, in the United States debt collection is decentralized, with the local sheriff in charge of most collection procedures.) After the creditor obtains a judgment and the debtor fails to pay, the creditor can open a collections case with the ECA. With the opening of a collections case, a significant fee is immediately added to the initial debt. The ECA sends legally mandated notices to debtors via registered mail, informing them that they have 30 days to repay or challenge the debt. The 30-day period begins when the ECA receives confirmation that the legally mandated notice was received by the debtor. If a debtor fails to respond within the 30-day period, the ECA magistrate judges determine which collection procedures to apply.

On December 31, 2019, the ECA database included 608,743 active debtors with 2,223,016 collections cases. In other words, one in 10 Israeli adults had an open collections case. Each year, approximately 300,000 new debt collection cases are added to the ECA system. In 2019, the average debt when a case was opened was NIS 30,438 (approximately \$8,700), and the median debt was NIS 5,470 (approximately \$1,500). The ECA's magistrate judges have the power to initiate various collection procedures. They can place liens, repossess property, revoke the debtor's driver's license, revoke the debtor's passport, restrict the debtor's ability to leave the country, restrict the debtor's use of credit cards, and more (ECA 2020, pp. 31, 39, 43, 74, 79).

## **3. The Policy Experiment**

### *3.1. Design: General*

In cooperation with the Israeli Ministry of Justice and the ECA, we conducted an RCT to assess the effects of different communication strategies on debtors and on debt collection outcomes. We focus on the initial notice that debtors receive when a collections case is opened.<sup>12</sup> We designed a message that conveys the general information from the legally mandated notice in a simpler, more user-friendly manner. In particular, the new notice included key information such as that payment should be made quickly if possible; that failure to pay might result in unpleasant consequences (with examples of such consequences); that the ECA regional office can give assistance to those who cannot pay (for example, a repayment plan can be arranged); and the address of the regional ECA office. (The text of the notice is provided in Online Appendix OA.) Although the Min-

<sup>12</sup> It would have been interesting to study possible interventions before a collections case is opened. Unfortunately, we did not have access to debtors at these earlier stages.

istry of Justice imposed strict requirements on the content of the new notice and prohibited any personalization of it, we were able to test its efficacy when conveyed through various communication mediums. We randomly assigned debtors to treatments, focusing on the medium of communication. In addition, when possible we added reminders that do not convey new information but nudge debtors into action through a different mechanism, for example, by helping to overcome the tendency to procrastinate (see, for example, Sunstein 2014).

The RCT included 39,867 cases that were opened in late 2019 or early 2020. (The study includes all cases for which the standard, legally mandated notice was delivered to the debtor between December 1, 2019, and January 16, 2020, as recorded in the ECA database.) Of these cases, our analysis focuses on the 36,362 cases in which the debtor is an individual (rather than a corporation, for example).

Unfortunately, in mid-March 2020 the COVID-19 pandemic led to a complete shutdown of the Israeli economy and a cessation of all debt collection activities. Therefore, we focus on the effects of the treatments on debtors' behavior up to mid-March. Given the profound economic implications of the pandemic, especially for financially weaker populations, any longer-term analysis (that attempts to pick up after the economy restarted) would not be representative of normal, noncrisis effects of the examined communication strategies.

### 3.2. Design: Treatments

We study the effects of seven treatments and the standard, legally mandated notice as a control using a multiarm RCT design. The treatments, or communication strategies, are described in Table 1.<sup>13</sup> The treatments were rolled out sequentially.

As shown in Table 1, the treatments were applied according to the date when the standard, legally mandated notice was delivered to the debtor. In general, for cases in which the standard notice was received in a given week, a specific treatment was applied. (The phone call treatments were applied during a 1-day period rather than 1-week period, given their high implementation costs.) Ideally, we would have chosen an intervention randomly for each collections case, but this was not feasible. The sequential rollout of the interventions could affect our results, for example, if debtors' liquidity varies throughout the month. While self-employed debtors accrue income throughout the month, salaried employees, who are a large majority of Israeli workers, are primarily paid monthly, and a significant minority who are paid hourly or daily wages receive their paychecks twice a month. But even for salaried employees, there is no single, focal payday. Under Israeli law, employers enjoy a 9-day grace period such that employees who are paid monthly can receive their paycheck anytime between the first and ninth

<sup>13</sup> The dates reported in Table 1 are the dates recorded in the Enforcement and Collection Authority (ECA) database of when the standard notice was delivered to the debtors (which may be different from the dates when the standard notice was actually delivered).

**Table 1**  
**Descriptions of the Treatments**

Treatment	Standard Notice Delivered	Description	Cases
0	December 1–5, 2019	Control: standard notice via mail	5,959
1	December 8, 2019	Standard notice via mail and new notice via phone call <sup>a</sup>	1,099
2	December 9, 2019	Standard notice via mail and new notice via phone call after 20 days (on December 29, 2019) <sup>b</sup>	1,022
3	December 15–19, 2019	Standard notice via mail and new notice via mail	5,136
4	December 22–26, 2019	Standard notice via mail and new notice via text message	5,545
5	December 29, 2019–January 2, 2020	Standard notice via mail and new notice via text message and short text message reminder after 20 days (January 19–23, 2020)	5,664
6	January 5–9, 2020	Standard notice via mail and new notice via video (link in text message)	5,764
7	January 12–16, 2020	Standard notice via mail and new notice via video (link in text message) and short video reminder after 20 days (February 2–5, 2020)	6,173

<sup>a</sup> 294 answered the telephone.

<sup>b</sup> 266 answered the telephone.

of the month; a similar 9-day grace period is added to the bimonthly pay dates of employees who are paid hourly or daily wages.<sup>14</sup> Government welfare checks are issued monthly, with different welfare programs issuing payments on different days throughout the month.<sup>15</sup> Overall, there is no single, focal date on which debtors receive income. Of course, any individual debtor will have liquidity shocks throughout the month, but the impact of the shocks should not be overstated. The vast majority of debtors have access to income-smoothing vehicles: Israeli checking accounts come with an overdraft, or revolving credit, feature (similar to the revolving credit that credit cards provide in the United States), and 97.5 percent of households have a checking account (Central Bureau of Statistics 2019). In addition, our interventions did not require an immediate payment. Debtors were given 30 days to pay their debt, arrange for a payment plan, or have the debt discharged. Therefore, liquidity at the precise date of the intervention should matter less.

Still, we took several steps to address concerns about the sequential rollout of the interventions. First, we confirmed that there are no significant differences—in terms of the observed debt and debtor characteristics—across the treatments (see Section 4.1). Second, we calculated the average likelihood that payment (or other) activity was registered in a collections case on each day of the month. We did not observe any spike in activity that would suggest a major liquidity effect, at least not one that is common across a significant number of debtors.<sup>16</sup> Finally, as reported below, the largest effects are found for interventions that were rolled out at the end of the month, whereas the most likely income shocks would have been at the beginning of the month. For these reasons, we consider the temporal allocation of interventions to be a valid quasi randomization.<sup>17</sup>

We next describe the communication strategies. The control group received only the standard, legally mandated notice via regular mail. The standard no-

<sup>14</sup> According to the Israeli Social Security Institute, there are 280,000 self-employed individuals and 3.8 million salaried employees (see Bareket and Lavi 2019). According to one estimate, 45 percent of salaried workers are paid hourly or daily wages. See Worker's Hotline, Hourly Employment (<https://www.kavlaoved.org.il/en/houremploy>). On the 9-day grace period for employees who are paid monthly or bimonthly, see Kol Zchut, Date of Payment of Wages ([https://www.kolzchut.org.il/he/%D7%9E%D7%95%D7%A2%D7%93\\_%D7%AA%D7%A9%D7%9C%D7%95%D7%9D\\_%D7%94%D7%A9%D7%9B%D7%A8](https://www.kolzchut.org.il/he/%D7%9E%D7%95%D7%A2%D7%93_%D7%AA%D7%A9%D7%9C%D7%95%D7%9D_%D7%94%D7%A9%D7%9B%D7%A8)).

<sup>15</sup> During our experiment, social security payments were made on December 12 and January 12, unemployment payments were made on December 17, and long-term benefits were paid on December 22 (see Israeli Social Security Institute, Table of Annuity Payments and Reporting Dates and Payment of Insurance Premiums [<https://www.btl.gov.il/Pages/BenefitsPaymentDates.aspx>]).

<sup>16</sup> These calculations are available from the authors on request. We observed two larger numbers, on the 26th and on the 31st, but those dates do not correspond to any plausible income shock.

<sup>17</sup> A related potential concern has to do with the December holidays, which were celebrated while our experiment unfolded. We do not think that the holidays had a meaningful effect on our results. We focus on Hanukkah, since the vast majority of debtors in our experiment are Jewish. First, unlike in the United States, Hanukkah is not a gift-giving holiday in Israel. See Greenspan (2019): "It's important to recognize that it is an American Jewish phenomenon, this gift-giving that's part of Hanukkah," Rabbi Menachem Creditor, scholar in residence at the UJA-Federation of New York, tells *Time*. "It's not historically part of Hanukkah at all." Second, most Israelis do not vacation during Hanukkah, and so we are less concerned that interventions were less effective because they arrived when the debtor was on vacation. According to Gil (2010), 70 percent of Israelis vacation in July–August, 25 percent vacation in April, and 5 percent vacation in September.

tice is densely written using technical, difficult-to-understand language. Since the standard notice is mandated by law, all debtors in all groups received it. The treatments in groups 1–7 were thus in addition to, and not instead of, the standard notice. (See Online Appendix OA for details of the treatments, including the text of notices and scripts and a discussion of and link to the video.)

Debtors in groups 1 and 2 received phone calls from the ECA. Group 1 received the call immediately after the ECA system registered that the standard notice had been delivered. Group 2 received the call 20 days after the ECA system registered that the standard notice had been delivered. The callers followed a script that tracked the new notice in substance but was shorter and used somewhat different language (given the need to adjust for the more colloquial context of a telephone conversation). While the callers followed the script, they also answered basic questions the debtors asked. This, in addition to other caller-specific effects, created variation among the calls. For these reasons, the comparison between the phone call treatments and the other treatments is less informative.

Debtors in group 3 received the new notice by regular mail. Debtors in group 4 received the new notice via text message. Debtors in group 5 received the new notice via text message and a shorter reminder notice after 20 days. Debtors in group 6 received a text message with a link to a video in which an actor followed a script based on the new notice. Debtors in group 7 received the same video and a shorter reminder video after 20 days. In the shorter video, an actor followed a script based on the shorter notice.<sup>18</sup> Ideally, we would have tested reminders for the phone call and (regular) mail interventions, but this was difficult for the ECA to implement.

The communications in all treatments were in Hebrew. Most Israelis are conversant in Hebrew to an extent that would allow them to comprehend the new notice. Still, we acknowledge that some Arab debtors and debtors who are new immigrants may not be fully proficient in Hebrew and that this might reduce the efficacy of the interventions across all treatments. Future work should explore the potential for increased efficacy when the language of communication can be tailored to the debtor's primary language. We note that the language issue should not detract from our main results for the relative efficacy of different communication mediums.

Our main goal is to study the relative efficacy of the different mediums. Although we are not aware of any general theory that could generate specific hypotheses, we can offer the following predictions or expectations: The increasingly indispensable role of smartphones as the primary communication hub, especially for younger individuals, suggests that digital methods of communication (text and video messages) will be more effective. In addition, many people may be more accustomed to actively responding to a text than to a letter. It is also possible that some people view a text message as less intimidating than a formal let-

<sup>18</sup> In a recent study of the effects of different nudges on COVID-19 vaccine take-up, Dai et al. (2021) tested a video intervention alongside a text message intervention, but the video and text interventions included completely different information.

ter, although it is not clear whether this would lead to a larger or smaller effect for a text message.

### 3.3. Model Specification

#### 3.3.1. Outcome (Dependent) Variables

We study the effects of the different communication strategies on case outcomes 2 months after the intervention. We have two main outcome variables: a broader outcome variable, Any Payment, which equals one if any payment activity occurred or if the case was closed after full payment or for some other reason and zero otherwise, and a narrower outcome variable, Full Payment, which equals one only if the case closed after full payment or for some other reason.<sup>19</sup> Of the 36,362 cases in our data, the debtor made some payment or the case was closed after treatment in 7,721 cases (21 percent). Of these, in 4,778 cases (62 percent) the debt was paid in full or the case was closed for some other reason; in the remaining 2,943 cases (38 percent) there was only partial payment.

A third outcome variable, Visit ECA, tracks whether the debtor visited an ECA regional office after the treatment. We use Visit ECA to explore the mechanism through which our interventions affected case outcomes (repayment activity and case closure)—that is, to show that only some interventions and only some communication mediums successfully informed debtors. Of our 36,362 cases, in 8,472 cases (23 percent) the debtor visited an ECA regional office after treatment.

Given the short time frame—from the treatment date to the end of our observation window in mid-March—it is important to account for the treatment date. Recall that treatments started in early December 2019 and ended in mid-January 2020. To ensure an apples-to-apples comparison, we define our outcome variables to measure impact within a 60-day window after the treatment date.

#### 3.3.2. Control Variables

Our specification includes the following control variables: the debtor's age (Age), the age squared, whether the ECA has a verified cell phone number for the debtor (Verified Cellphone), the log of the debt amount when the collections case was opened (Debt), the ratio of the debt amount in the current collections case to the overall debt in all of the debtor's open cases (Debt/Total Debt), the total number of prior collection cases for the debtor (Total Cases), and the ratio of closed cases to total cases (Closed/Total Cases). We control for the debt amount in the current case since the debtor's ability or inclination to repay may depend on the size of the debt. The ratio of current-case debt to total debt may also affect the

<sup>19</sup> The broader output variable is constructed from two underlying binary variables. The first is Case Status, that is, whether the case is open or closed. If the case is closed, then likely there was some positive activity in the case—either the debtor paid or the creditor or the ECA concluded that there was no point in keeping the case open (perhaps because the debtor successfully contested the debt or showed that he or she was unable to make further payments). The second variable is Any Payment, that is, whether the debtor made a payment before mid-March. The broader output variable equals one if either the case was closed or some payment was made (before mid-March) and zero otherwise. The narrower output variable equals one only if the case was closed and zero otherwise.

ability to repay, especially when high overall debt pulls the ratio down. Similarly, we control for the number of total cases and for the ratio of closed to total cases as possible indicators of the debtor's ability or inclination to repay. We control for age since it is the only demographic characteristic that we have. And we control for whether the ECA has a verified cell phone number for the debtor since this affects the likelihood that a communication, specifically a telephone communication, reaches the debtor. In all specifications, we control for ECA office and case-type fixed effects.

## 4. Results

### 4.1. Summary Statistics

Table 2 reports the mean and standard deviation for the control variables for all observations and for each treatment group. The average age of debtors is 41.35, the average debt amount in the specific collections case is NIS 34,949 (approximately \$10,000), the average ratio of current-case debt to total debt is .33, the average debtor has a total of 11 collections cases, and the average ratio of closed to total cases is .48. Table 2 shows that these averages are quite similar across the treatment groups.

### 4.2. Case Outcomes

Table 3 reports the results of a regression analysis using the outcome variable Any Payment to examine the effects of the different communication strategies on debt payments. In cases that were opened long before the treatment date, the effects of pretreatment actions are larger and dilute the treatment effects; that is why we consider models 2 and 3 in addition to the baseline model 1. We were surprised to learn that some cases were opened more than 60 days before the standard, legally mandated notice was recorded as received in the ECA database. Our ECA partners explained that such delays are often attributed to difficulties in finding the debtor's current address and delivering the registered-mail notice and delays by the postal service in forwarding the delivery confirmation to the ECA.

Across the models, phone calls do not have a statistically significant effect, and the revised notice sent by regular mail has an effect that is statistically significant but much smaller in magnitude relative to the digital interventions. The revised notice by text message with and without a reminder and the video message with and without a reminder have a statistically significant and economically large effect. In the most inclusive model, the treatment effects are about 20 percent.<sup>20</sup> Adding a well-designed notice sent via text message or video message increases the rate of debt payment by 20 percent. This is a large effect. Moreover, for more

<sup>20</sup> The mean value of the output variable is .2123, and the coefficients on the dummy variables for treatments 4–7 are between .039 and .044.

**Table 2**  
**Summary Statistics by Treatment**

	Control	Phone Call	Phone Call after 20 Days	Regular Mail	Text Message	Text Message and 20-Day Reminder	Video	Video and 20-Day Reminder	Average
Age	41.25 (13.77)	42.51 (13.77)	41.74 (14.06)	41.21 (13.68)	41.56 (13.90)	41.02 (13.65)	41.36 (14.01)	41.39 (13.76)	41.35 (13.80)
Verified Cellphone	.73 (.44)	.72 (.45)	.68 (.46)	.72 (.45)	.62 (.49)	.60 (.49)	.59 (.49)	.61 (.49)	.65 (.48)
Debt	33,097 (263,756)	32,207 (158,567)	38,442 (158,696)	37,113 (178,123)	34,066 (106,565)	33,254 (127,281)	34,637 (174,559)	37,489 (201,726)	34,949 (182,595)
Debt/Total Debt	.33 (.33)	.32 (.31)	.34 (.31)	.32 (.31)	.34 (.32)	.35 (.33)	.33 (.30)	.32 (.29)	.33 (.31)
Total Cases	10.83 (12.09)	11.61 (13.34)	10.90 (12.07)	11.17 (12.75)	10.95 (12.88)	10.48 (11.93)	10.39 (11.99)	10.77 (12.15)	10.79 (12.32)
Closed/Total Cases	.50 (.34)	.49 (.34)	.49 (.34)	.48 (.34)	.50 (.35)	.49 (.35)	.47 (.34)	.47 (.34)	.48 (.34)

**Note.** Standard deviations are in parentheses.



**Table 3**  
**Effects of Communication Strategies on Debt Repayment**

	All Cases (1)	Cases Opened ≤60 Days before Treatment (2)	Cases Opened ≤45 Days before Treatment (3)
Age	.000 (.001)	-.000 (.001)	-.000 (.001)
Age <sup>2</sup>	-.000 (.000)	.000 (.000)	.000 (.000)
Age information missing	-.063** (.017)	-.070* (.026)	-.059 (.036)
Verified Cellphone	.028** (.005)	.043** (.007)	.045** (.008)
log(Debt)	-.027** (.003)	-.033** (.003)	-.035** (.003)
Debt/Total Debt	.416** (.014)	.449** (.025)	.455** (.023)
Total Cases	-.001** (.000)	-.000* (.000)	-.000* (.000)
Closed/Total Cases	.195** (.014)	.187** (.017)	.173** (.018)
Phone call	.017 (.017)	.037 (.024)	.032 (.029)
Phone call after 20 days	.011 (.012)	.010 (.018)	.003 (.017)
Regular mail	.015+ (.008)	.026** (.009)	.026* (.014)
Text message	.044** (.010)	.069** (.012)	.063** (.016)
Text message and 20-day reminder	.041** (.007)	.051** (.009)	.053** (.013)
Video	.039** (.012)	.057** (.014)	.061** (.018)
Video and 20-day reminder	.044** (.010)	.060** (.011)	.055** (.011)
<i>N</i>	36,347	18,855	15,080
<i>R</i> <sup>2</sup>	.2129	.2275	.2285
Mean	.2123	.2237	.2225

**Note.** Results are from ordinary least squares regressions. All specifications include Enforcement and Collection Authority (ECA) office and case-type fixed effects. Standard errors (in parentheses) are clustered at the ECA office level.

+  $p < .1$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

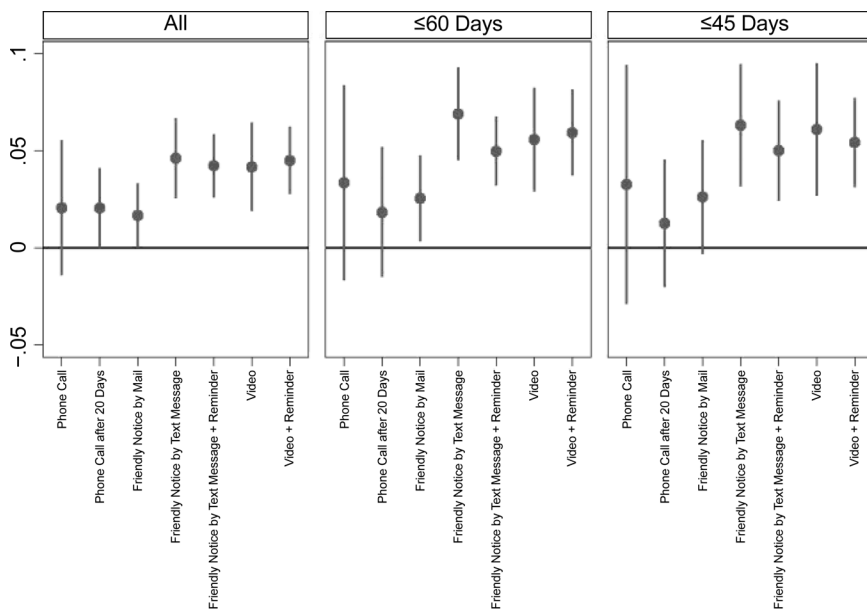


Figure 1. Effects of communication strategies by timing of case opening

recently opened cases in models 2 and 3, the effect is even larger, between 23 percent and 31 percent.<sup>21</sup> These results are also presented in Figure 1.

The covariates included in the regressions affect the outcome variables in the expected directions. Debtors with a larger current-case debt are less likely to make a payment. When the current debt constitutes most of the total debt, debtors are more likely to make a payment. Debtors are less likely to make a payment when the number of prior cases is larger. But they are more likely to make a payment when the ratio of closed cases to total cases is higher (perhaps a higher ratio is a proxy for the type of debtor who is more inclined to repay debts).

Our failure to find statistically significant effects for the phone call interventions, as reported in Table 3 and Figure 1, may be attributed to the smaller number of cases in these interventions and to the even smaller number of cases in which the ECA representative reached the debtor. Indeed, the debtor was reached in only about 25 percent of the cases. Because of this small-*N* problem, not only were the effects of the phone call interventions insignificantly different from 0, but they were also insignificantly different from the effects of the other interventions (including the four digital interventions). To further explore the efficacy of the phone call interventions, we repeated the analysis focusing on the 25 percent

<sup>21</sup> In model 2, the mean value of the output variable is .2237, and the coefficients on the dummy variables for treatments 4–7 are between .051 and .069. In model 3, the mean value of the output variable is .2225, and the coefficients on the dummy variables for treatments 4–7 are between .053 and .063.

Table 4  
Effects of Communication Strategies: Verified Phone Calls

	All Cases (1)	Cases Opened ≤60 Days before Treatment (2)	Cases Opened ≤45 Days before Treatment (3)
Phone call	.026 (.019)	.071* (.032)	.052 (.041)
Phone call after 20 days	.054* (.024)	.064* (.035)	.056 (.035)
Regular mail	.014* (.007)	.024** (.008)	.026* (.011)
Text message	.043** (.010)	.067** (.011)	.063** (.014)
Text message and 20-day reminder	.040** (.007)	.050** (.007)	.053** (.010)
Video	.038** (.011)	.055** (.013)	.060** (.015)
Video and 20-day reminder	.043** (.008)	.058** (.009)	.054** (.009)
<i>N</i>	36,347	18,855	15,080
<i>R</i> <sup>2</sup>	.2130	.2277	.2286
Mean	.2123	.2237	.2225

**Note.** Results are from ordinary least squares regressions. The dummy variables for the phone call interventions equal one only if the debtor answered the phone. Only coefficients for the intervention dummy variables are shown. Standard errors (in parentheses) are clustered at the Enforcement and Collection Authority office level.

\*  $p < .1$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

of debtors who talked to an ECA representative. (For all other interventions, we continue to include all the debtors; the available indicators for a successful communication in the other interventions, for example, whether the debtor received and/or opened a text message, are much less reliable.) The results are reported in Table 4. The effects of the phone call interventions are much larger in the regressions in Table 4. We recognize, of course, that selection is at work here: debtors who answer the phone may not be representative of the overall population of debtors. (Similarly, if we could identify the debtors who opened and read our text messages, we would expect a larger effect for those interventions relative to the effects reported in Table 3. Again, the larger effects would be at least partially attributed to selection.) Our main analysis in Table 3 avoids this selection problem and focuses on the intent-to-treat effects of the interventions, which are the most relevant for policy makers. Still, Table 4 suggests that phone call interventions can be effective.

In Online Appendix OB, we disaggregate the analysis and run separate regressions for younger versus older debtors, debtors with lower versus higher debt in the current collections case and across all open cases, and debtors with a larger

Table 5  
Effects of Communication Strategies on Full Payment

	All Cases (1)	Cases Opened ≤60 Days before Treatment (2)	Cases Opened ≤45 Days before Treatment (3)
Phone call	.008 (.015)	.024 (.020)	.013 (.022)
Phone call after 20 days	-.002 (.010)	-.007 (.015)	-.005 (.014)
Regular mail	-.003 (.006)	-.006 (.007)	-.007 (.009)
Text message	.012 (.008)	.021* (.010)	.016 (.014)
Text message and 20-day reminder	.021** (.005)	.026** (.007)	.027* (.010)
Video	.006 (.009)	.013 (.009)	.017 (.014)
Video and 20-day reminder	.010* (.005)	.017** (.006)	.014* (.005)
<i>N</i>	36,347	18,855	15,080
<i>R</i> <sup>2</sup>	.3836	.4022	.4052
Mean	.1315	.1411	.1406

**Note.** Results are for ordinary least squares regressions predicting whether the collections case was closed in the first 60 days after the treatment. All specifications include Enforcement and Collection Authority (ECA) office and case-type fixed effects. Only coefficients for the intervention dummy variables are shown. Standard errors (in parentheses) are clustered at the ECA office level.

\*  $p < .05$ .

\*\*  $p < .01$ .

versus smaller number of prior collections cases and a larger versus smaller ratio of closed to total cases. Table OB1 shows that there are no age effects for the digital interventions; the effects are similar across age groups. However, it shows a large and statistically significant effect of the phone call intervention for young debtors (age 25 and younger), although fewer than 20 young debtors were assigned to this intervention. Table OB2 shows that the efficacy of all treatments (and especially of the effective treatments in Table 3) is smaller when the overall debt burden is larger. The magnitude of debt in the current collections case does not seem to matter much; the differences between the treatment effects for high versus low current debt are not statistically significant. Table OB3 shows that the efficacy of all treatments (and especially the effective treatments in Table 3) is smaller when the number of prior cases is larger and when the ratio of closed to total cases is smaller. However, none of these differences are statistically significant.

Next, we consider the narrower outcome variable Full Payment. Table 5 reports the results of a regression analysis using Full Payment that examines the effects of the various treatments on case status. As in Tables 3 and 4, we report the results from the three regression models. Across the models, only two treat-

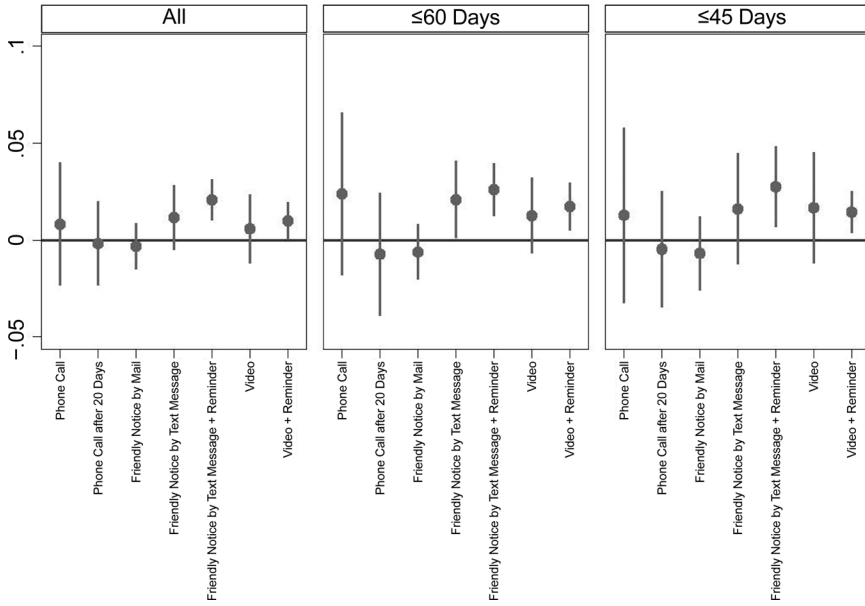


Figure 2. Effects of communication strategies on full payment by timing of case opening

ments had a statistically significant and economically large effect—treatments 5 and 7, in which the debtor received a reminder. In model 1, treatment effects are 16 percent for the text reminder and 8 percent for the video reminder. The effect is slightly larger for more recently opened cases: 18–19 percent for the text reminder and 10–12 percent for the video reminder.<sup>22</sup> Interestingly, text reminders are more effective than video reminders. These results are also presented in Figure 2.

Looking at Table 3 (and Figure 1) and Table 5 (and Figure 2) together, we conclude that treatments 4–7—new notice by text message with and without a reminder and the video message with and without a reminder—lead to a significant increase in repayment activity, but only treatments 5 and 7—those with a reminder—lead to a significant increase in full payment and case closures. Moreover, since the effects of the with-reminder treatments in Table 3 are similar to those of the without-reminder treatments, it seems that the same debtors made an initial payment after receiving the first communication and then closed the case by making another payment after receiving the reminder.<sup>23</sup>

<sup>22</sup> In model 1, the mean value of the output variable is .1315, and the coefficients on the dummy variables for treatments 5 and 7 are .021 and .010, respectively. In model 2, the mean value of the output variable is .1411, and the coefficients on the dummy variables for treatments 5 and 7 are .026 and .017, respectively. In model 3, the mean value of the output variable is .1406, and the coefficients on the dummy variables for treatments 5 and 7 are .027 and .014, respectively.

<sup>23</sup> An alternative theory, which is not consistent with the combined results of Table 3 and Table 5, is that some debtors wait for a reminder and then make a single large payment that closes the case.

### 4.3. Better-Informed Debtors

We have identified communication strategies—new notice by text message and the video message—that increase repayment activity and case closure. We now use our third outcome variable, Visit ECA, to provide additional evidence that these communication strategies convey relevant information to debtors.

A debtor visits an ECA office for two main reasons: to get information and to take some action—repay the debt, challenge the debt, or request an accommodation. If the communication strategy is effective, then fewer debtors will visit an ECA office to get information. With respect to the take-action visits, it is possible that informed debtors who appreciate the importance of taking action would visit an ECA office more often; it is also possible that these debtors would take the necessary action—specifically, make a debt payment—by mail or over the phone and thus visit an ECA office less often. The overall effect of our treatments on ECA visits is thus theoretically indeterminate. We add a new control, a dummy indicating whether the debtor visited an ECA office before the treatment date (Previous Visit ECA), since such a visit would reduce the probability of a posttreatment visit.

Table 6 reports the results of a regression analysis that examines the effects of the treatments on the probability of visiting an ECA office for the three regression models. As expected, the coefficient of Previous Visit ECA is negative and statistically significant.

In model 1, none of the interventions have a statistically significant effect. The treatment effects are likely diluted by activity that occurred before the treatment. When we focus on more recently opened cases—in models 2 and 3—treatments 4–7 had a statistically significant, and economically large, negative effect. Model 2 has a treatment effect of 21–29 percent; model 3 has a treatment effect of 26–33 percent.<sup>24</sup> A well-designed notice sent via text message or video message effectively informs debtors and thus reduces the need to visit an ECA office to get information.<sup>25</sup> Moreover, at least some of these informed debtors decide to pay their debt by mail or by phone, namely, without visiting an ECA office. Table 7 reports visits to the ECA by intervention, comparing debtors who made a payment with those who did not. A similar reduction in ECA visits is observed.

<sup>24</sup> In model 2, the mean value of the output variable is .2438, and the coefficients on the dummy variables for treatments 4–7 are between  $-.051$  and  $-.071$ . In model 3, the mean value of the output variable is .2572, and the coefficients on the dummy variables for treatments 4–7 are between  $-.068$  and  $-.086$ .

<sup>25</sup> There was another engagement variable: Call ECA, the probability that the debtor called the ECA customer service center in the first 60 days after a treatment. Of our 36,362 cases, in 5,025 cases (14 percent) the debtor called the ECA after treatment. We examined the effects of the different treatments on the probability of calling the ECA using the three regression models. In model 1, treatments 3–7 had statistically significant positive effects (as compared with the negative effects for Visit ECA), but the effects disappear for the more recently opened cases in models 2 and 3. Overall, it seems that there are no treatment effects (or weak effects). Why are there significant negative effects for Visit ECA but not for Call ECA? One possible explanation is that the cost of calling is so low, relative to visiting the ECA office, that even with a treatment that effectively conveys some information, debtors are induced to call the ECA office to get more complete information.

Table 6  
Effects of Communication Strategies on Visits to the Enforcement and Collection Authority

	All Cases (1)	Cases Opened ≤60 Days before Treatment (2)	Cases Opened ≤45 Days before Treatment (3)
Previous Visit ECA	-.288** (.010)	-.309** (.010)	-.329** (.009)
Phone call	.034 (.033)	.031 (.054)	.019 (.056)
Phone call after 20 days	.013 (.017)	-.013 (.022)	-.036 (.024)
Regular mail	.018 (.011)	-.002 (.023)	-.030 (.029)
Text message	-.006 (.009)	-.051* (.019)	-.076** (.024)
Text message and 20-day reminder	.002 (.010)	-.070** (.021)	-.079** (.027)
Video	.000 (.009)	-.061** (.019)	-.068* (.025)
Video and 20-day reminder	-.011 (.010)	-.071** (.019)	-.086** (.022)
<i>N</i>	36,347	18,855	15,080
<i>R</i> <sup>2</sup>	.0618	.0848	.0938
Mean	.2329	.2438	.2572

**Note.** Results are for ordinary least squares regressions predicting whether the debtor visited an Enforcement and Collection Authority (ECA) regional office within 60 days after the treatment. All specifications include ECA office and case-type fixed effects. Only coefficients for the intervention dummy variables and an indicator for a previous visit are shown. Standard errors (in parentheses) are clustered at the ECA office level.

\*  $p < .05$ .

\*\*  $p < .01$ .

#### 4.4. Summary

Well-designed text messages and video messages significantly increase debt repayment and case closure. They increase the likelihood of making some payment by 20–30 percent, and with reminders they increase the likelihood of full repayment or case closure by 10–20 percent. In addition, the 20–30 percent reduction in visits to an ECA office suggests that the improved communication strategy informs debtors so that they do not have to visit an ECA office. (The results in Table 4 suggest that phone call interventions may be effective but also that there is no reason to use such expensive communication strategies when equal or better results can be obtained much more cheaply by text message.) These are large effects. DellaVigna and Linos (2020) find similar effects for nudge studies published in academic journals and much smaller effects for nudge interventions implemented on a large scale by government agencies. Our policy experiment fits into the government agency category in DellaVigna and Linos (2020), with the

Table 7  
Visits to the Enforcement and Collection Authority

Intervention	No Payment	Any Payment
Control	.32	.31
Phone call	.35	.23
Phone call after 20 days	.32	.21
Regular mail	.31	.32
Text message	.25	.21
Text message and 20-day reminder	.23	.18
Video	.22	.21
Video and 20-day reminder	.21	.21

design and implementation restrictions imposed by the Ministry of Justice. And yet we obtain results in the magnitude of the unrestricted academic studies.

Our results suggest that the medium of communication matters. The large effects of text and video messages, delivered through debtors' smartphones, likely reflect the role of hand-held devices as the primary communication device for most people. Related, the large effects of text and video messages may reflect the higher likelihood that such messages reach their destination, especially as compared with other mediums of communication. As noted above, response rates for the phone call interventions are low (less than 30 percent answered the phone). For the (paper) letter interventions, we used registered mail with delivery confirmation, but we cannot know whether the letter reached the debtor (or just a person living with the debtor) or if it was opened.

Our outcome variables Any Payment and Full Payment include the possibility that the collections case was closed for other reasons, for example, after the debtor successfully challenged the debt or had it discharged on the basis of inability to repay.<sup>26</sup> And yet we do not know whether a debtor who repaid should have repaid or discharged the debt, and we do not know whether a debtor who discharged the debt should have discharged or repaid the debt. That is, we cannot rule out the possibility that some debtors who were induced to repay by our interventions should have challenged the debt or sought to discharge it. For this reason, our results provide only one input into the larger policy debate.

## 5. Concluding Remarks

### 5.1. Reforming Debt Collection Nudges

The lessons from the Israeli policy experiment can help policy makers improve communications with defendant-debtors in the United States and other countries. Our results suggest that notices should be short and simple, without unnecessary legal jargon. But more important, the notices should be sent by text

<sup>26</sup> The ECA's objective function is multidimensional. It wants to successfully collect valid debts and to help struggling debtors. The ECA may also want to reduce the number of open cases.



message and not by regular mail. This basic insight should spur wide-ranging but easy-to-implement reforms in the legal rules that govern communications with defendant-debtors. Current rules in most US jurisdictions envision paper-based communication. These rules should be changed, and digital communication should be required. The digital notices need not replace the traditional paper notices; they can be required in addition to the traditional notices. Low-cost text messages are as effective as the more costly video messages. This result came as a surprise; we expected the video message to have a larger effect, especially among younger debtors. The upshot is that simple and easy-to-implement text messages are the best option, at least in this context.<sup>27</sup>

Our results concerning the importance of reminders suggest further legal reforms. For the numerous pre- and postjudgment notices that defendant-debtors receive, the law (by and large) envisions one-shot communications. Here too the rules should be changed. Reminders, specifically digital reminders, should be required.

The proposed digitization reforms are wide ranging. They apply to prejudgment communications sent by creditors (or debt collectors)—that a suit has been filed, that a remedy has been ordered, that an application for a default judgment has been filed. And they apply to postjudgment notices—that a judgment has been issued against the defendant-debtor, that the plaintiff-creditor has applied for a certain enforcement order, and that an enforcement order has been issued. But while the scope of the reforms is admittedly broad, their implementation should be quite easy and entail minimal costs for policy makers and creditors. After all, designing and sending text messages should not impose a significant burden. And this process promises significant benefits to both debtors and creditors.

### 5.2. *Beyond Debt Collection: How to Communicate the Nudge*

Whereas the growing nudge literature has made great strides in optimizing the content, framing, and design of disclosure mandates, it has largely ignored the medium of communication. This article highlighted the importance of choosing the right communication medium and provided policy makers with evidence that should inform such choices. We conducted a real-world policy experiment in which we examined the effectiveness of alternative mediums of communication while holding the content of the message fixed. We found that digital communication via text message should be preferred over more expensive, and less effective, nondigital (letters and phone calls) and video messages.<sup>28</sup>

We believe that our results should inform the design and implementation of nudges across a broad range of policy contexts. To be sure, we are mindful of

<sup>27</sup> One possible explanation for why the video message did not have a larger effect involves bandwidth. Even though 4G or better cellular service is available throughout much of Israel, it is possible that some debtors who received the video message when not at home may have had trouble opening it.

<sup>28</sup> We acknowledge that our results are less informative about the relative efficacy of phone calls given our inability to maintain sufficiently similar message content in the script and our limited control over how the conversation unfolded.

concerns about external validity. It would be worthwhile to replicate our study in other settings, comparing in each of them the effectiveness of alternative communication mediums. In particular, the relative success of text messages in our experiment may be context dependent: success rates may be lower in jurisdictions or in time periods in which individuals are inundated with text messages from government agencies. In the meantime, however, we believe that low-cost digital communications should be utilized as the default absent a significant context-specific argument to the contrary.

One issue that future work should further explore concerns the applicability of our findings to individuals in the very high end of the age distribution. In our policy experiment, text messages were effective for both younger and older recipients, but we had few message recipients who were at the very high end of the age distribution. With nudges that target older populations, for example, in the retirement or health contexts, further study is required before a fully digital communication strategy is adopted. In addition, future work should compare the effects, including age-sensitive effects, of various digital communication strategies. Communication by text message, the most successful strategy in our policy experiment, is likely more effective than digital communication via social media with older recipients. Our study provides the basis on which such future work may build.

Finally, our focus on the medium of communication, rather than on the content of the message, avoids some of the paternalism critiques levied against nudge policies. There should be much less (if any) objection to choosing the medium of communication that is most likely to deliver the message to the intended recipient.

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