

Reducing no-shows for in-person passport appointments



Sending automated text message reminders to customers did not change the no-show rate for in-person passport appointments

Key findings

We found that automated text message reminders did not change no-shows for in-person passport appointments. Exploratory analysis suggests that the reminders led to a statistically significant increase in the cancellation rate, potentially increasing the operational efficiency of managing customer appointments.

Agency priority

The Department of State (DOS)'s Bureau of Consular Affairs (CA) has a [mission](#) to connect U.S. citizens with the world by issuing millions of U.S. passports each year. CA is interested in increasing the likelihood that everyone who needs an appointment is able to secure one by reducing no-shows. Making as many of these appointments available for people who attend their appointment can help improve efficiency of passport agency operations.

A priority for CA is to learn whether sending automated text message reminders reduces no-shows to appointments by encouraging customers to proactively cancel their appointments when they are no longer needed. Automated text messages may increase efficiency by, 1. reducing demands on staff time spent preparing for customers who don't show up for their appointments, 2. increasing availability of appointments for customers who attend their appointments, and 3. providing the option to cancel by text, which would reduce the burden on staff processing cancellations via email or phone.

Program description

Individuals who need a new or renewed passport and also have urgent travel to a foreign country planned in the next 14 calendar days can book an in-person appointment at one of 28 in-person passport agencies across the United States. These appointments can be [booked online](#) via the Online Passport Appointment System, or by calling the National Passport Information Center (NPIC). On average, 15,545 in-person appointments are

attended by customers each week across all passport agency locations.¹

From December 2022 to January 2024, approximately 18.6% of passport appointments were no-shows.² This implies that more than 236,000 appointment slots went unused during that time period, preventing other customers who may need in-person passport services from securing an appointment slot.

In response to this challenge, in May, 2024, CA implemented new automated texts to remind customers of their upcoming appointments and allow them to cancel their appointments by text.³ This low-cost, highly automated intervention is easy for DOS to implement at scale: the texts are automatically generated using the appointment information, and customers' responses interact with the appointment system, cutting down on staff time spent to process cancellations. Customers only receive automated texts if they opt in to receive them when creating their appointments.^{4,5}

Evaluation design

The program change was evaluated using a quasi-experimental, regression discontinuity-in-time design. The text message implementation date is quasi-random; customers creating in-person appointments did not have prior knowledge of the start date, and had they known, are unlikely to have

¹ This is the average number of attended appointments each week, between December 1, 2022 - August 19, 2024.

² The no-show rate was calculated as a proportion of no-shows out of no-shows, cancellations, and attended appointments. It included $N=1,268,996$ appointments created during December 1, 2022 - December 31, 2023, for appointment slots during December 1, 2022 - January 12, 2024.

³ Prior to automated text implementation, customers received automated calls.

⁴ Customers were asked to opt in via the method they used to create the appointment: either online, or asked verbally over the phone by a customer service representative (CSR).

⁵ Texts are sent approximately 48 hours in advance of customers' appointments, contain the appointment details, and ask recipients to reply to confirm, change, or cancel their appointment. If customers do not respond to the first message approximately 48 hours before their appointment, they receive a second text approximately 24 hours before their appointment.

chosen an appointment date based on whether or not they would receive texts.

CA implemented automated texts on May 22, 2024. We compared the no-show rate between those eligible to receive automated texts and those whose appointments were created prior to the implementation of automated texts. Reducing no-shows is a primary goal because no-show appointment slots waste agency staff time and cannot be reallocated to other customers.

Customers were in the group eligible to receive automated texts if they created their appointment during the two-week period after May 22, 2024 at 1:30am EDT ($n=52,440$).⁶ Customers were in the control group if they created their appointment in the two weeks prior to this date/time ($n=50,417$).

Analysis of existing data

Administrative data from CA were used to compare no-show rates between May 8 and June 5, 2024.⁷ Data included the date the appointment was created, the date the appointment was scheduled for, the passport agency location where the appointment was booked, the date and time customers checked in for their appointment if they attended, the date and time customers canceled their appointment, and the number of attendees for each appointment.⁸ The primary outcome — whether an appointment resulted in a no show — is defined as an appointment that was not canceled and not attended.

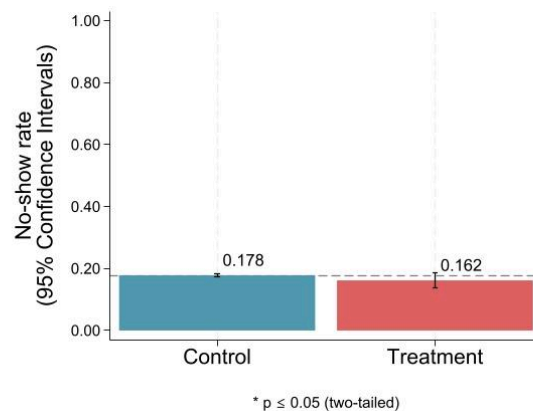
We combined appointment data with automated text message and customer text response data collected by CA, including whether or not the customer had opted in to receive text messages,

when texts were sent, and how appointment holders responded to the texts.

Results

We did not find evidence that automated text message reminders changed the no-show rate for in-person passport appointments. For the pre-registered 4-week window ($N=102,857$), appointment no-shows decreased by 1.6 percentage points for customers eligible to receive automated text messages (16.2%) compared to those in the control group (17.8%), however this difference was not statistically significant at conventional levels ($p = .18$, 95% CI $[-.04, .01]$).

Figure 1. Automated text messages did not lead to a statistically significant reduction in appointment no-shows among customers eligible to receive text messages compared to the control group ($N=102,857$)



Supplemental analyses support the conclusion that automated texts did not change the no-show rate.⁹

A challenge of a regression discontinuity-in-time design is isolating changes caused by the intervention from changes driven by other factors, such as seasonality or holidays. We analyzed appointment data from the same time period in 2023 (with a “placebo treatment” going into effect on the Wednesday before Memorial Day). Results

⁶ Roll-out of automated text messages eligibility began at 1:30am EDT on May 22, 2024. Customers creating appointments after this time were asked whether they consented to receive text messages. Only appointment holders who opted in to receive text messages received the texts.

⁷ Unless noted otherwise, all of the analysis reported in this abstract was prespecified in an analysis plan, which can be found at oes.gsa.gov/assets/analysis/2313-reducing-no-shows-for-passport-appts-analysis-plan.pdf.

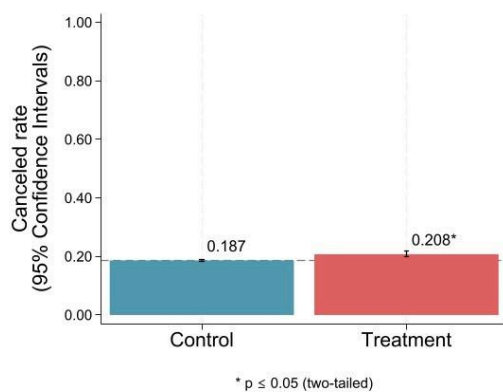
⁸ We deviated from the Analysis Plan after beginning analysis, and only included one of the four pre-registered covariates (“number of attendees”) in our analyses, given the possibility of the other covariates being subject to post-treatment bias.

⁹ When examining a shorter time window around robotext implementation ($n=36,790$), the no-show rate was 6.1 percentage points higher among customers in the treatment group compared to those in the control group, but this difference was not statistically significant ($p = .38$, 95% CI $[-.08, .20]$). Including alternative time trends (quadratic or cubic), or removing controls for day of the week (day appointment was created or booked for) also resulted in small and not statistically significant effects on the no-show rate.

indicate that no-show rates decreased by 3.2 percentage points following the Memorial Day period in 2023 ($p = .006$, 95% CI $[-.05, -.01]$). This could indicate that no-show rates are in flux around Memorial Day each year, which would limit our ability to determine the effectiveness of automated texts implemented around the same time.

Exploratory analysis suggests that the reminders led to a statistically significant increase in the cancellation rate. Cancellations can indicate whether appointments are being made available for other customers to use. The cancellation rate increased by 2.1 percentage points for customers in the treatment group (20.8%) compared to those in the control group (18.7%), and this difference was statistically significant ($p < .001$, 95% CI $[.01, .03]$). The attendance rate was 0.4 percentage points lower for customers in the treatment group (63.1%) compared to those in the control group (63.5%), but this difference was not statistically significant ($p = .70$, 95% CI $[-.03, .02]$).

Figure 2. Automated text messages led to an increase in cancellations among customers eligible to receive text messages compared to the control group ($N=102,857$)



Implications

This evaluation has implications for efforts to use low-cost, automated tools to improve the efficiency of providing a critical service to Americans. Automated text message reminders did not meaningfully reduce appointment no-shows, which implies that automated texts may not be the most effective way to improve the efficiency of in-person passport services. However, we also rule out meaningful increases in no-shows, suggesting that introducing text messages is unlikely to have unintended effects. CA has continued to send automated texts to customers since implementing them in May 2024.

About half of customers who were eligible for the automated texts opted in to receive them. This suggests that texts may serve as an important option for customers who prefer to use automated tools to manage their appointments. Automated text messages increased cancellations, and the majority of text recipients who canceled used the cancel-by-text function. This implies that introducing a simple, low-cost way to cancel appointments has the potential to reduce the burden on staff to process cancellations.

Future work could examine how to make automated texts as cost-effective as possible by learning who is most likely to opt in and who is likely to use text messages over other modes of communication (e.g., calling or emailing), and targeting text messages to that population.