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Personal Communication in a Fintech World: Evidence from Loan Payments

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Personal Communication in a Fintech World: Evidence from Loan Payments

Abstract

We examine the effect of personal, two-way communication on the behavior of borrowers, who have fallen behind on their consumer loan payments. While the lender has informed all borrowers about the delinquency through an automatically generated letter, some borrowers also receive a phone call from a randomly assigned bank agent. We find that borrowers, who speak with a bank agent typically for only a few minutes, are significantly more likely to make timely payments and significantly less likely to default. This finding holds in a subset of hard-to-reach borrowers as well as when we instrument for the call with exogenous variation in borrowers' reachability. The effect of the call is also persistent. Borrowers, who receive a call, are significantly less likely to become delinquent again. Personal aspects of the call, such as the likeability of the agent's voice, significantly affect payment behavior, while the surprise element of the call does not. Our results suggest that the form of communication significantly affects borrowers' payment behavior.

JEL-Codes: D030, D100, D140, G200.

Keywords: Fintech, communication, guilt aversion, prosocial behavior.

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1. Introduction

With the arrival of new technologies, consumer finance is changing rapidly. Households can view their personal financial information at almost any point and time, they have access to a large set of sophisticated investment products, and they can obtain credit relatively easily and often instantaneously. Importantly, consumer financial services are increasingly provided online, drastically changing the nature of the interaction between financial service providers and their customers. The traditional two-way, face-to-face communication in a bank branch has largely been replaced by human-to-machine interactions and one-way, often automated communication in form of letters, emails, and text-messages. In Germany, for example, the number of bank branches dropped by about 40% between 2000 and 2015 (Deutsche Bundesbank (2016)), and about 60% of bank-customer interactions now take place outside of bank branches (Accenture (2015)). While households might have more accurate and timelier financial information today than in the past, does the form of communication, through which they obtain this information, affect their behavior?

To address this question, we examine the effect of personal, two-way communication on the payment behavior of borrowers, who have fallen behind on their monthly consumer loan payments. Specifically, while all borrowers in our sample receive written communication about the missed payment in form of a letter from the lender, some borrowers also receive a phone call from a randomly assigned bank agent. During the phone conversation, which typically lasts only a few minutes, the bank agent informs the borrower about the delinquency and asks the borrower to make the necessary payment within a few weeks after the call. Importantly, the agent does not convey any additional information relative to the bank's letter, nor can the agent change the existing loan terms or accept payment on the phone.

Our data are from a large German bank that employs 30 call center agents in a bank-operated call center in Germany. Between January and June 2012, we observe call center agents' attempts to contact bank customers by phone, who missed a payment on a consumer loan for the first time. The bank's objectives are to resolve the delinquency within 45 days of its initial occurrence and to minimize the probability of default and loan termination. However, agents do not speak to all delinquent customers with a valid phone number as some borrowers make payments before they are reached and others are not reached over the two-week window, during which bank agents make up to ten call attempts. Importantly, though, a week before call center agents start contacting delinquent borrowers, the bank sends a letter to all delinquent borrowers notifying them about the delinquency and asking them to make the outstanding payment. Furthermore, all borrowers, who are not reached by a call center agent and who are still delinquent on day 35, receive a second letter from the bank. The phone call therefore does not change the content or the frequency of the communication between the bank and the borrowers.

We find a statistically significant and economically substantial difference in the payment behavior between borrowers, who receive only written communication from the bank, and those, who also speak with a bank agent. Specifically, the borrowers, who are reached by phone, have a 20-percentage-point higher probability to pay within the bank's 45-day window, while their probability of default and of loan termination is significantly lower – by about 12 and 10 percentage points (pp), respectively – relative to those borrowers, who are not reached by phone. Given sample averages for repayment, default, and termination of 70, 25, and 18 percent, the differences between reached and non-reached borrowers are economically large.

Whether a borrower speaks with a call center agent is not entirely randomly determined and might reflect borrowers' characteristics that could also affect borrowers' payment behavior.

We address concerns about endogeneity in two ways. First, we consider the effect of a phone conversation for a subset of borrowers, who are hard to reach in the sense that they all require a large number of call attempts. Second, we employ an instrumental variable regression, which exploits the random assignment of borrowers to call attempts on different weekdays with different probabilities of reaching borrowers. Both approaches support a significant and large effect of the bank's phone call on delinquent borrowers' payment behavior.

A number of different mechanisms are consistent with our results. First, borrowers might ignore the letter from the bank, for example by mistaking it for advertising mail, or they might find it difficult to process written information relative to spoken content. The phone conversation with a bank agent would then mainly alert borrowers to the delinquency. Second, borrowers might be aware of the delinquency, but might not expect a phone call from the lender. The bank's effort associated with the phone call would then signal the seriousness of the delinquency and make the bank's intention to enforce payment more salient than an automatically generated letter. Finally, the phone conversation with a bank agent might add a personal element to the existing payment obligation towards a financial institution and motivate borrowers to behave in a more trustworthy way. Indeed, a large body of experimental evidence suggests that even in the absence of reputation incentives individuals often behave in an honest, fair, and altruistic way towards other humans, but not necessarily towards organizations or machines (see, for example, Haran (2013), De Melo, Marsella, and Gratch (2016), and Cohn, Gesche, and Marechal (2018)). Prosocial behavior towards other humans has been found to decrease with social distance and to increase with the observability of individuals' behavior (e.g, Hoffman, McCabe, and Smith (1996), Conrads and Lotz (2015), Della Vigna, List, and Malmendier (2015)). It might reflect an intrinsic desire for fairness and

promise keeping as well as concerns about social image and hence aversion to guilt or shame (e.g., Charness and Dufwenberg (2006) and Vanberg (2008)).

To shed light on the likely mechanism, we perform two additional analyses. First, using our main sample, we document that the call effect is not limited to borrowers with small outstanding loan amounts, who might be most surprised about the bank's collection efforts, but obtains among borrowers with large outstanding loan amounts as well. We also find that the call effect is significantly smaller for non-German borrowers relative to borrowers, who are German citizens, possibly consistent with a reduced activation of prosocial behavior among those, who are likely less integrated into German society. Finally, we find that those, who speak with a bank agent on the phone and successfully resolve the initial delinquency, are significantly less likely to become delinquent again in the future.

Second, we collect additional data from call center agents through a follow-up survey. We ask agents to record borrowers' reactions to being informed about the delinquency as well as to the phone conversation. From some agents we also obtain voice recordings of the pre-scripted opening sentence, which allow us to assess the likeability of agents' voices. Conditional on having spoken with a call center agent, borrowers, who - based on agents' assessments - seem surprised about the delinquency or about the bank's phone call, are not more likely to pay within 45 days compared to borrowers, who do not appear to be surprised. These results suggest that the call does not mainly serve as a payment reminder or as a means to emphasize the serious nature of the delinquency. However, we find that payment success among borrowers, who have spoken with a call center agent, varies significantly across call center agents. In particular, the likability of agents' voices significantly increases the probability of payment, consistent with the personal nature of the call playing an important role in the call's effect on borrowers' payment behavior.

Our paper is related to recent research on the impact of technology on consumer finance. For example, D’Acunto, Prabhala, and Rossi (2017) document that robo-advising can reduce behavioral biases, while Fernandes, Lynch, and Netemeyer (2014), Lusardi et al. (2015), and Carlin, Jiang, and Spiller (2017) show that access to online advice, in particular in form of videos, improves financial decision making. Carlin, Olafsson, and Pagel (2017) find that timely access to consolidated bank account information through a mobile phone application reduces penalties, such as late fees, that consumers pay. Berg, Burg, Gombović, and Puri (2018) show that digital footprints have the potential to improve access to credit for the unbanked by overcoming information asymmetries between lenders and borrowers. Our findings do not cast doubt on such improvements, but they suggest that, as the interaction between financial service providers and their retail costumers changes, the behavior of these costumers might change as well. Specifically, our results suggest that the absence or presence of a human element in the communication between banks and borrowers might have a significant effect on customers’ willingness to honor an existing financial obligation, and that therefore retaining or reintroducing some personal communication could be valuable for financial institutions.

More broadly, our findings provide important field evidence for a large body of theoretical as well as experimental research that argues and shows that human behavior is at least partly prosocial, i.e., altruistic, fair, and trustworthy in the interaction with other humans (see, for example, Rabin (1993), Camerer and Thaler (1995), Fehr and Schmidt (1999), Akerlof and Kranton (2000), Battigalli and Dufwenberg (2007), Andreoni and Bernheim (2009), and Tadelis (2011)), but significantly less so in the interaction with institutions or machines, even if these machines are equipped with human features, such as pre-recorded voice messages (Haran (2013), De Melo, Marsella, and Gratch (2016), and Cohn, Gesche, and Maréchal (2018)).

Our research is also related to recent studies highlighting the importance of reminders (e.g., Chetty, Saez, and Sándor (2014), Calzolari and Nardotto (2016)). Specifically with respect to loan repayments, Cadena and Schoar (2012), Karlan, McConnell, Mullainathan, and Zinman (2016), and Medina (2017) show that simple reminders of upcoming payments, for example in form of text messages, can improve borrowers' payment behavior. Differently from these studies, the borrowers in our study have already missed a payment and are therefore reminded of the underlying debt obligation and asked to rectify the existing delinquency. In that context, we find that verbal communication, involving an actual human being, appears to be significantly more effective than written, machine-generated communication of the same content.

Finally, our study is related to research on the relationship between banks and their customers. For example, Agarwal et al. (2009) and Puri, Rocholl, and Steffen (2017) show that an existing bank relationship reduces the likelihood of default. Schoar (2012), Drexler and Schoar (2014), Canales and Greenberg (2016), as well as Karlan, Morten, and Zinman (2016) highlight the importance of the personal relationship between loan officers and borrowers. Our results show that a brief phone conversation with a bank agent, who is randomly assigned to the call, can have a substantial effect on customers' behavior, even if borrowers have no prior or future relationship with the bank agent.

2. Institutional Set up

Our data set of consumer loan delinquencies is provided by a large German bank with a national network of bank branches. Consumer loans in our sample are uncollateralized credit obligations, which are used to finance the purchase of consumer durables as well as travel and other service expenditures. Loans in our data set are distributed through the bank's branch network as well as through different points of sale (POS). In both cases, the bank is the lender and the contractual

counterparty. Consumer loans are repaid through constant monthly installments over one to five years. Interest rates, which are fixed over the life of the loan, typically depend on the amount and the maturity of the loan.¹

A borrower becomes delinquent or late, once she does not pay the monthly installment, which is in most cases automatically deducted from the borrower's primary checking account. To reduce confounding effects due to an existing bank relationship, our sample includes only borrowers, who have their primary checking account with a different bank. Hence, the lender is not able to withdraw the outstanding funds after the first attempt failed due to insufficient funds. To resolve the delinquency, the borrower has to take action and transfer money to the lender.

The bank operates an in-house call center with 30 call center agents. The call center agents place phone calls to all of the bank's retail borrowers, who have missed a payment on a consumer loan, car loan, or mortgage, or who have exceeded the limit of the overdraft line of credit associated with their checking account at the bank. The primary objective of the call is to alert borrowers to the delinquency and to resolve the delinquency within 45 days.

The call center agents are bank employees, who receive a largely fixed salary. Variable compensation, at most 10% of agents' fixed salary, is based on customer satisfaction and team performance. Agents usually speak accent-free German, and calls are very standardized as agents follow highly pre-scripted protocols. Employees are trained to interact professionally with customers, even if a customer may be frustrated. Anecdotal evidence from surveys conducted by the bank as well as from our on-site visit suggests that customers' reactions to the bank's "care calls" are overwhelmingly positive.

¹ In 2015, the size of outstanding consumer credit, including installment credit and revolving credit, such as credit lines and credit card debt, was about 7% of GDP in Germany and about 19% in the USA. Outstanding installment credit alone was about 5% of GDP in Germany and 14% in the USA.

Payments on most consumer loans are due on the first or fifteenth of a month. If a borrower misses a payment, the bank sends a letter to the delinquent borrower 15 days after the missed payment, informing the borrower about the delinquency and requesting payment within two weeks (see Appendix A for a sample letter). If a payment is 20 days overdue, the delinquent borrower's record is entered into the call center's database. Call center agents begin making phone calls to these borrowers typically within two days and make up to ten call attempts over two weeks to reach a delinquent borrower by phone. Figure 1 provides an overview over the delinquency process and the call center activities.

Calls are made between 8 a.m. and 7 p.m. on weekdays and between 9 a.m. and 1 p.m. on Saturdays. Each day, the call center manager determines the sequence, in which different loan product groups, such as car loans, consumer loans, and mortgages, are processed. However, the order, in which individual borrowers within a given product group are called, is determined randomly through an auto-dialer. Importantly, the loan amount, the days in delinquency, or other loan- or customer-specific characteristics do not influence the order, in which the auto-dialer selects borrowers on a given day. Finally, borrowers and call center agents are matched randomly again via an auto-dialer.

Each borrower is at most called once per day. Borrowers, who are not reached on a given day, are typically called again the next day. However, borrowers, who are called, but not reached on a Friday, are called again either on Saturday or on Monday, with random assignment between both days. Borrowers, who are called, but not reached on a Saturday, are called again on Tuesday, not Monday. The process continues for about two weeks and up to ten call attempts. The process

stops when the borrower is reached by a call center agent or when the borrower makes the outstanding loan payment.²

When call center agents reach a borrower by phone, they introduce themselves and inform the borrower about the delinquency, even though borrowers should already be aware of the delinquency given the bank's letter. They then ask borrowers to pay the overdue amount within the 45-day period (see Appendix B for a stylized sample call). Importantly, agents are not authorized to accept payment on the phone, to agree on any kind of credit deferral, or to change the general payment schedule. Finally, after the call, borrowers receive a confirmation letter with payment instructions.

Borrowers, who are not reached within the two-week period and who are still delinquent 35 days after the beginning of the delinquency, receive a second letter from the bank with the request to pay the outstanding amount within one week. Finally, all borrowers, who do not pay within 45 days of delinquency, irrespectively of whether they have been reached by an agent or not, are transferred to an advanced collection department, which has substantially more discretion to work out a repayment schedule with the borrower or to terminate the loan.

3. Data

While the bank's call center agents contact borrowers, who are late with payments on different loan products, including mortgages, construction or business loans, we focus on consumer loans. We restrict our sample to borrowers, who become delinquent for the first time in their history with the bank between January and June 2012 and whose case is not immediately handled by an advanced collection department, for example, due to personal bankruptcy.

² If the phone number on record is found to be invalid or out-of-service, the process stops as well. In this case, a second letter asking for payment is sent to the borrower. We exclude these borrowers from our analysis.

Panel A of Table 1 summarizes the characteristics for our sample of 4,020 delinquent consumer loan borrowers. Detailed definitions of all variables are provided in Appendix Table C1. The majority of borrowers are male and German citizens, 64.1% and 80.5% of borrowers respectively. Only a small fraction are students (9.2%), retired (3.9%), or unemployed (0.2%) at the time of the loan application. On average, borrowers are 35 years old. While borrowers live in all parts of Germany, the largest fraction, 38.7%, live in the South and the smallest fraction, 6.5%, in former East Germany. The average initial loan amount of EUR 2,508 is rather small, as the share of point of sale loans (POS) loans is high (86%). POS loans are mainly used to finance the acquisition of consumer durables and have an average initial loan amount EUR 1,112, while the average initial amount of bank originated loans is EUR 10,917. The average loan maturity is 23.97 months at origination, and delinquency occurs on average 10.81 months after origination. The low average interest rate of 2.40% p.a. is due to the large fraction (about 86%) of POS loans with a zero interest rate. The average non-zero interest rate is 8.44%. Finally, the missed payments that caused the delinquency range between EUR 25 and EUR 956, with a mean of EUR 90.

On average, call center agents make 3.28 call attempts per delinquent borrowers. They ultimately reach and speak with 73.0% of the borrowers in our sample. However, as Figure 2 shows borrowers the likelihood whether an agent speaks with a borrower varies across the number of call attempts. Borrowers with few call attempts are either reached or made payments early in the process and therefore remain unreached, while the majority of borrowers with nine or ten call attempts remains unreached. Given the limited scope of agents' actions, most phone conversations are short, with an average (median) duration of about 2.69 (2.18) minutes.³

³ Information about the call duration is missing for 83 calls.

To assess how delinquent borrowers respond to speaking with a bank agent, we use several variables related to borrowers' immediate and future payment behavior. Specifically, the indicator variable *Payment (45 days)* is equal to one if the borrower resolves the delinquency within 45 days of its initial occurrence by paying the outstanding amount, and zero otherwise. The indicator variable *Default* is equal to one if the borrower's payment remains overdue for more than 90 days, and zero otherwise. The indicator variable *Termination* is equal to one if the loan has been terminated by the bank by the end of 2014, and zero otherwise. The 45-day time span represents the number of days, during which the bank's call center tries to resolve the delinquency, and the 90-day time span represents the Basel II criterion for default, which triggers loan-loss provisions on the bank's side, while loan termination adversely affects borrowers' credit records. *Default* and *Termination* can differ, as banks are legally allowed to terminate a loan only if a client has not repaid the outstanding arrears within two weeks after the default notice.

Panel B of Table 1 reports summary statistics for these outcome variables. The early recovery rate in our sample is quite high, with 70.4% of borrowers making payments within the first 45 days after becoming delinquent, while 24.7% of borrowers default, and 18.1% of loans are terminated by the bank.

We observe the payment behavior of the borrowers in our main sample until the end of 2014. We can therefore also analyze whether borrowers, who resolve the first delinquency within 45 days, become delinquent again and, if so, when. Panel B of Table 1 reveals that of the 2,832 borrowers, who resolve their first delinquency, 38.2% become delinquent again and, on average 123 days after the initial delinquency.

4. Personal Communication and Payment Behavior: Main Results

We begin our empirical analysis by examining the effect of a phone conversation (*Talk*) between a randomly assigned bank agent and a delinquent borrower on the borrower's payment behavior, measured by the three outcome variables *Payment (45 days)*, *Default*, and *Termination*. Since all three outcomes variables are discrete variables, we mainly employ a logit model and report marginal effects. Throughout, we control for regional and time variation, by including 120 regional fixed effects, indicating the bank's main branch closest to a given borrower, as well as month fixed effects. Finally, all standard errors are heteroscedasticity robust and allow for arbitrary correlation between error terms of borrowers in the same region.

4.1. Baseline Results

Our baseline sample includes only borrowers, who have not rectified the delinquency within 20 days, when their records enter the call center data pool. All borrowers in the baseline sample have a least one call attempt, and we exclude all borrowers, who did not provide a phone number at the time of loan application or whose phone numbers are out-of-service or no longer affiliated with the borrower. Finally, as mentioned above, a letter informing borrowers about the delinquency and requesting payment within two weeks is sent to all borrowers 15 days after the onset of delinquency and five days before entry into the call center such that all borrowers should be aware of the delinquency at the time of the first call attempt.⁴

Table 2 reports the association between a phone conversation (*Talk*) and the probability that a borrower makes the outstanding payment within 45 days, that a borrower defaults, and that the bank terminates the loan. Columns (1) through (3) report the effect without additional controls,

⁴ Note that regular mail in Germany is delivered within one day between all destinations in Germany. It is, however, possible that a borrower's address is incorrect or that a borrower has not opened the letter from the bank.

except for regional and month fixed effects, while Columns (4) through (6) show results once borrower and loan characteristics are controlled for.

Column (1) suggests that delinquent borrowers, with whom bank agents have a brief conversation on the phone, have a 20-percentage-point higher probability of making loan payments within 45 days compared to those borrowers, who are notified about the delinquency only through a letter. Given an average payment probability in our sample of 70.4%, *Talk* is associated with a 28.0% higher payment probability in relative terms. Similarly, Columns (2) and (3) reveal that *Talk* is associated with a significant reduction in the default and termination probabilities of 12.0 and 9.9 pp or 47.0% and 54.7% relative to the corresponding sample means of 24.7% and 18.1%.

The inclusion of a large set of loan- and borrower-specific controls alters these results only slightly. As Columns (4) through (6) of Table 2 reveal, *Talk* continues to be significantly associated with an increase of loan payments within 45 days by 19.0 pp and a decrease of default and termination by 11.2 and 9.5 pp respectively.

4.2. Identification

Our baseline results are consistent with a significant and substantial treatment effect of a brief, but personal phone conversation between a delinquent borrower and a randomly assigned bank agent, who has no prior personal relationship with the borrower. However, these baseline estimates are subject to endogeneity concerns. First, the baseline estimates might suffer from omitted variables that affect the payment behavior and are correlated with the likelihood of being reached by the bank's call center agents and hence our main variable of interest, *Talk*. Given that the bank's phone number is suppressed and that unknown calls, i.e. calls without a phone number, were still common in Germany in 2012, it appears unlikely that borrowers, who intend not to pay, could easily ignore a phone call from the bank, especially as borrowers in our sample become delinquent for the first

time and are likely not aware of the bank’s “soft” collection process. Nevertheless, for other reasons some borrowers might be hard to reach by phone and might also be less likely to pay the delinquent amount on time, causing the baseline estimates to overstate the effect of the phone conversation. Second, our baseline estimates could also suffer from reverse causality, as delinquent borrowers, who make the necessary payments before they are reached by a call center agent, are no longer called by the call center, and *Talk* will equal zero for them. Such an effect would cause our baseline estimates to understate the treatment effect.

We implement two different approaches to arrive at unbiased estimates of the effect of *Talk* on delinquent borrowers’ payment behavior. The first approach estimates the effect on subsamples of hard-to-reach borrowers, while the second approach exploits exogenous variation in borrowers’ reachability and provides instrumental variable (IV) estimates.

4.2.1. Hard-to-Reach Borrowers

In our baseline sample, borrowers, who do not speak with a bank agent, either make the outstanding payment before they are reached by phone or are hard to reach and ultimately not reached. Concerns about reverse causality arise as unreached borrowers, who pay the outstanding amount will no longer be called and therefore early payment causes the *Talk* indicator to take on zero. At the same time, hard-to-reach borrowers could be less likely to pay independently of being reached. Figure 3 indeed reveals that payment success, *Payment (45 days)*, is smaller for those borrowers with a large number of call attempts, while Figure 2 showed that the number of borrowers with a large number of call attempts is relatively larger among those that are not reached compared to those borrowers that are reached by the bank’s call center agents. The documented *Talk* effect could therefore be biased upwards by the higher payment probability of those with fewer call attempts.

To address this concern, we examine the effect of *Talk* for subsamples of hard-to-reach borrowers. In particular, we estimate the effect separately for borrowers with at least five, seven, or nine call attempts. If *Talk* has no causal effect on borrowers' payment behavior and our baseline results simply reflect the lower payment probability of hard-to-reach borrowers, we expect the absolute size of the *Talk* effect to decrease as the sample consists of ever harder to reach borrowers. At the same time, if our baseline results are biased due to reverse causality, we expect the effect size to increase as we exclude borrowers, with whom the bank agents do not speak because they have repaid the outstanding amount before they are reached by a call center agent.

Table 3 presents the results for all three subsamples of borrowers. For borrowers with at least five call attempts, the effect is 5.9 pp larger for *Payment (45 days)* and 1.7 pp (2.1 pp) smaller for *Default (Termination)* relative to the effect of *Talk* in the full sample. Once we further restrict the sample to borrowers with at least seven or nine call attempts, we observe substantially larger, in absolute terms, effects, which with one exception remain statistically significant. That is, even though the payment probability is lower for borrowers with more call attempts, among hard-to-reach borrowers the few, who speak with a bank agents, are substantially more likely to pay within 45 days and substantially less likely to experience default or loan termination. It remains possible, however, that unobservable characteristics among hard-to-reach borrowers affect whether they speak with a bank agent as well as their payment behavior. We address this concern next.

4.2.2. Instrumental Variable Estimates

To detect a casual effect of a brief phone conversation with a bank agent on borrowers' payment behavior, we would ideally carry out an experiment, in which we randomly assign the treatment in form of a phone conversation to all delinquent borrowers, whose records enter the call center. We would thereby avoid that unobservable, payment-relevant borrower characteristics or early

payment by the borrower affect the probability of treatment. Since such experimental data are not available to us, we employ an instrumental variable estimation that exploits exogenous variation in the reachability of a borrower.

First Stage

Figure 4 plots the daily percentage of phone calls to delinquent borrowers, which result in a phone conversation, relative to all call attempts on a given day between January and June 2012. The average daily “reachability” is about 24% for our sample period. However, Figure 4 reveals substantial variation in the reachability. While some of the variation is due to special events, such as holiday weekends or European Championship soccer matches, it is easy to see from Figure 4 that a lot of variation is due to the day of the week. Indeed, Figure 5 shows that with 65.25% the average reachability is highest on Saturdays, and with 9.43% lowest on Mondays. Indeed, about 70% of the variation in average daily reachability is explained by those two days of the week.

Recall that call center agents make up to ten attempts to reach a delinquent borrower. A borrower that is not reached on a given day is called again the following day, such that differences in reachability across different weekdays should have little effect on whether or not a borrower is reached. However, the call center treats Saturdays, which have reduced operating hours, and Mondays as one day, and randomly assigns borrowers, who are not reached on a Friday or whose records enter the call center for the first time on a Thursday, to either Saturday or Monday. That is, even a borrower with ten call attempts might never be called on a Saturday. Whether a borrower receives a call on a Saturday, the day with the highest average reachability, therefore depends on the day of the first call, the total number of call attempts, as well as the random assignment between Saturdays and Mondays. Since the number of call attempts is likely endogenous, we cannot use the information whether any of the call attempts for a given borrower occurred on a Saturday as

an instrument. But whether the first call to a borrower is made on a Saturday should be exogenous relative to a borrower's payment behavior, while informative of the likelihood that the borrower is reached. That is, a borrower is first called on a Saturday, when her records enter the call center on a Thursday, as calls begin two days after records arrive in the call center, and she is randomly assigned to Saturday, as opposed to Monday, for her first call. Since borrowers' records enter the call center 20 days after a payment has been missed, and payment due dates are defined as the N^{th} day of a month, often the first of fifteenth, the day of the first call attempt should be unrelated to borrowers' payment behavior. However, borrowers with a first call attempt on a Saturday should have an increased chance of speaking with a bank agent, relative to borrowers with first calls on a Monday or between Tuesday and Friday. Similarly, borrowers with a first call attempt on a Monday should have a decreased chance of speaking with a bank agent, relative to other borrowers.

In Column (1) of Table 4, we use a linear probability model and test whether a borrower, whose first call attempt is on Saturday (Monday) is more (less) likely to speak with a bank agent on the phone, as captured by our main treatment variable, *Talk*. The results indeed show a significantly positive effect of *First Call on Saturday* and a significantly negative effect of *First Call on Monday*. Both effects are sizeable as they increase and decrease the probability of a phone conversation by 24.8 and 21.8 pp respectively.

Although the day of the week, on which borrowers' records arrive in the call center, should be exogenous, we also consider the subsample of borrowers, whose records arrive on a Thursday. For these borrowers, there is no variation with respect to when their records enter the call center, however the day of the first call, Saturday or Monday, is randomly determined by an auto-dialer.⁵

⁵ Consistent with random assignment between Saturday and Monday, differences in loan or borrower characteristics between borrowers with a first call attempt on a Saturday and those with a first call attempt on a Monday are small

While the sample is naturally much smaller, Column (2) of Table 4 reveals that being first called on Saturday increases the likelihood of a phone conversation with a bank agent by 48.0 pp relative to being first called on a Monday.

Finally, in Column (3) of Table 4, we again use the full sample, but predict the outcome of only the first call attempt. That is, *First Call* equals one if a borrower is reached on the first call attempt and zero otherwise. Both predictors have the same sign as in Column (1). However, while the coefficient estimate for *First Call on Saturday* is in absolute terms much larger in Column (3) compared to Column (1), the opposite is the case for *First Call on Monday*, as the advantage of additional call attempts varies between those first called on a Saturday and those first called on a Monday.⁶

Second Stage

In Table 5, we report Two-Stage Least Squares (2SLS) regression results for our three main outcome variables. For compactness, we report coefficient estimates only for *Talk*, the main variable of interest. However the same control variables as in previous tables are included throughout. In Panel A, we consider our full sample and use *First Call on Saturday* and *First Call on Monday* as instruments for *Talk*. For comparison, we also report the corresponding Ordinary Least Squares (OLS) results, which for all three outcomes are very similar to the marginal effects estimates from the logit estimates in Table 2. The point estimates for the effect of *Talk* are

and largely statistically insignificant (see Appendix Table D1). Conditional on being reached, payment behavior does not significantly differ between both types of borrowers (see Appendix Table D2).

⁶ To see this, consider a borrower, who is first called on a Saturday, but not reached. Over the remaining up to nine call attempts, she can be called on another Saturday at most once, while a borrower, who is first called, but not reached, on a Tuesday through Friday, can still receive up to two Saturday call attempts. Hence, the advantage of having been first called on a Saturday decreases as we allow the call variable to reflect the outcome of all call attempts (Column (1)), not just of the first call attempt. The opposite, however, is the case for those, whose first call attempt occurs on a Monday and whose up to nine remaining call attempts include at most one Saturday, since the tenth call attempt would occur on Friday of the following week.

significantly positive for *Payment (45 days)* and significantly negative for *Default* and *Termination*. For all three outcomes, the 2SLS estimates are – in absolute terms – somewhat larger than the corresponding OLS values. In particular, we find that a brief phone conversation with a bank agent increases timely payment by 27.2 pp, while decreasing default and termination by 15.5 and 16.0 pp respectively.

In Panel B of Table 5, we report the corresponding results for the much smaller sample of those borrowers, whose records enter the call center on a Thursday and whose first call therefore occurs on a Saturday or Monday. That is, the random assignment to one of these two days for the first call attempt is the only source of variation in the instrument, *First Call on Saturday*, which is employed for this subsample. Comparing the *Talk* effect estimates between the OLS and the 2SLS estimation, we again find that for *Payment (45 days)* the 2SLS point estimate is somewhat larger than the OLS point estimate, i.e., 24.0 relative to 18.3 pp, while both are statistically significant. For the remaining two outcomes, *Default* and *Termination*, we find in absolute terms somewhat smaller and statistically insignificant 2SLS point estimates, compared to the OLS estimates for the same sample. However, with 525 observations, the sample size is small and the standard errors are larger than those found in Panel A, where we employ the full sample of 4,020 observations.

Finally, in Panel C of Table 5 we again use the full sample, but consider only those borrowers as treated, who speak with a bank agent at the first call attempt and for whom *First Call* equals one. All borrowers, who do not answer the first call, are considered untreated, even if they speak with a bank agent at a later point in time. We find that the OLS point estimates are smaller than those in Panel A, as treatment is measured imperfectly. For all three outcomes, we find highly statistically significant 2SLS estimates for *First Talk*, which in absolute terms are again somewhat larger than the OLS estimates.

Overall, results from our instrumental variable estimation support a significant and substantial causal effect of a brief phone conversation with a bank agent on borrowers' payment behaviors. The magnitude of the IV estimates suggests that logit and linear probability estimates might slightly understate the treatment effect. However, compared to IV estimates in a large number of recent studies, summarized by Jiang (2017), the differences we document are relatively small. Importantly, given the F -test statistics in Table 5, the employed instruments, *First Call on Saturday* and *First Call on Monday*, do not seem to suffer from concerns about weak instruments (Stock and Yogo (2005)). Furthermore, the difference between OLS and IV estimates are consistent with the likelihood of a phone conversation taking place being negatively correlated with a borrower's payment probability, as would indeed be the case if low credit risk borrowers make a payment before they are reached by a call center agent.

5. Possible Mechanisms of the Personal Communication Effect

The bank's main objective when calling delinquent borrowers is to obtain payment within 45 days and to avert default and loan termination. While the phone conversation with a bank agent appears to significantly contribute to these objectives, several different mechanisms potentially explain the payment behavior of borrowers, who speak with a bank agent, relative to the behavior of those, who do not speak with a bank agent. First, the results may be driven by those borrowers, who have not paid attention to the letter and for whom the phone call acts as a reminder. Similarly, the call could make the bank's monitoring and enforcement process more salient, as borrowers may be surprised by the banks' reaction to even a small delinquency. It is also possible that borrowers are better able to process information that is presented to them verbally as part of a phone conversation compared to written information presented in a letter. Finally, the personal communication with an individual bank agent might change that nature of the existing obligation from a payment

commitment towards an impersonal financial institution to a commitment towards an individual and thereby trigger prosocial behavior due to, for example, self-image or social image concerns.

To better understand to which extent these different mechanisms are at work, we examine cross-sectional variation as well as long-term outcomes in our main sample and then provide results from a follow-up survey of call center agents.

5.2.1. Evidence from the Baseline Sample

Using our baseline sample, we first test whether the effect of *Talk* varies across borrowers by loan size and borrower nationality and then look at outcomes beyond the initial delinquency.

Loan Size and Borrower Nationality

At the time of the delinquency, the outstanding loan balance varies substantially across borrowers. Borrowers with large outstanding loan balances are likely aware of their outstanding loan and therefore might not be surprised about receiving a phone call from the bank. Borrowers with small outstanding loan balances, however, might be particularly surprised about the bank's collection efforts and might perceive the phone call as a signal about the seriousness of the delinquency. We therefore examine to which extent the effect of *Talk* is due to the reaction by borrowers with relatively small outstanding loan amounts. We identify borrowers with outstanding loan amounts in the lowest quartile (less than EUR 260), in the second lowest quartile (between EUR 260 and 457), in the third quartile (between EUR 458 and 745) and in the top quartile (more than EUR 745) and interact *Talk* with corresponding indicator variables for the membership in the second through fourth quartile. To isolate the effect due to the outstanding loan amount from variation in the size of the overdue payment, we create corresponding indicators based on the monthly installment

payment.⁷ The results in Table 6 Column 1 suggest that effect of *Talk* on payment within 45 days is 11.7 pp for those borrowers with smaller outstanding loan amounts and increases by between 11 and 15 pp for borrowers with outstanding amounts in the second, third, and fourth quartile. Interestingly, the interaction terms between *Talk* and the installment-size indicators payment suggest a decreasing effect of *Talk* as the installment payment increases, consistent with borrowers' discretion to respond to the phone conversation being limited by liquidity considerations as the payment amount increases. Overall, these results suggest that the effect of *Talk* is not due to borrowers with small outstanding loan amounts, who might be most surprised about the bank's attention to the delinquency, but is large and significant for borrowers with small and large outstanding amounts.

In Column 2 of Table 6, we compare the effect of *Talk* between borrowers, who are German citizens, and those, who are residents but not citizens of Germany (*Foreign*). While we find no significant difference in the payment behavior between both groups in our baseline results, it is possible that on average borrowers, who are foreign residents, perceive a larger social distance between themselves and the call center agents compared to German borrowers as they might be less integrated into German society. We indeed find a significantly negative interaction term between *Talk* and *Foreign*, which reduces the effect of *Talk* by about 7 pp. While this result is consistent with the personal dimension of the phone conversation trigger prosocial behavior, we can, of course, not rule out alternative explanation, for example that foreign borrowers struggle understanding the call center agent on the phone.

⁷ The corresponding cut-off values are EUR 43, 61, and 100.

Long-term Effects

For the borrowers in our baseline sample, we observe their payment behavior following the initial delinquency until August 2014. We are therefore able to examine whether the phone conversation with a bank agent affects the likelihood of future delinquencies and, conditional on a future delinquency, the time until the next delinquency. While 38% of those borrowers, who successfully resolve the initial delinquency, fall behind on their payments at least once again, Table 7 Column (1) shows that the probability of a new delinquency is 4.0 pp lower for those borrowers, who speak with a bank agent during their first delinquency relative to those that do not. Column (2) suggests that among borrowers, who become delinquent again, on average 123 days after their first delinquency, those, who are reached by a bank agent during the first delinquency, avoid the next delinquency by about 19 days longer relative to those that do not speak with a bank agent.

These results suggest that the treatment effect extends beyond simply alerting borrowers to the current delinquency and alters their behavior such that the probability and the arrival time of a future delinquency are significantly reduced. Nevertheless, the long-term effects are still consistent with different mechanisms, in particular the call's signaling the seriousness of the delinquency and making the bank's monitoring and collection efforts more salient as well as the call's increasing borrowers' prosocial behavior.

5.2.2. Evidence from a Survey of Call Center Agents

In order to further examine, how a phone call to a delinquent borrower affects the borrower's payment behavior, we collect additional survey data from several call center agents about some of their conversations with delinquent borrowers in February 2016.

Sample Description

Our sample consists of thirteen of the 30 call center agents, who volunteered to participate in the survey, as well as 245 borrowers, with whom these agents speak in February 2016. Panel A of Table 8 reports summary statistics for the outcome variable *Payment (45 days)* as well as for call, loan, and borrower characteristics. Borrowers in this sample differ slightly from borrowers in our baseline sample, since we include borrowers, who are delinquent on their consumer loan, as well as borrowers, who are delinquent on their overdraft line of credit of their checking account. Borrowers are also not necessarily delinquent for the first time and therefore might have previously spoken with a call center agent. We address these differences between borrowers by adding several additional control variables in our analysis below.

Panel B of Table 8 reports summary statistics for agents' age and gender as well as their assessments of their calls. In particular, we ask agents whether the borrower was surprised about the delinquency and whether the borrower was surprised about receiving a call from the bank. In each case, agents react to a statement such as "The customer was surprised about the delinquency," by selecting a number between 1 and 5, where 1 corresponds to "Do not agree at all" and 5 to "Strongly agree." We form two corresponding indicator variables, *Surprise: Delinquency* and *Surprise: Call*, which equal one if agents selected 4 ("Agree") or 5 ("Strongly Agree") and zero otherwise.

Finally, eight agents also provide us with a recording of the standardized opening of their calls to delinquent borrowers. Each recording is analyzed by six to seven undergraduate students at Goethe University in Frankfurt/Main, Germany. Students rate each voice recording between 1 ("Not At All Likeable") and 5 ("Very Likeable"). Panel C of Table 8 reports summary statistics for these likeability rating of the voice of the eight call center agents. *Likeable Voice* represents

the fraction of raters that rated an agent’s voice as 4 (“Likeable”) or 5 (“Very Likeable”). *Likeable Voice (Adjusted)* represents the rater-adjusted version of *Likeable Voice*.⁸

Results

In our analysis of the survey data, we employ OLS regressions and account for standard errors’ being correlated at the agent level.⁹ As mentioned above, we account for additional variation across borrowers in this sample by including several control variables.¹⁰

For 27% of borrowers in this sample, agents report that the borrowers seem surprised about the delinquency, while 73% of borrowers do not appear surprised about the delinquency, likely because they have already been informed about the delinquency by regular mail. It is possible that at least some of the effect of *Talk on Payment (45 days)* is due to the reaction of those borrowers, who have not paid attention to the letter and for whom the phone call might act as a reminder of an existing, overdue, payment obligation. We test this possibility in Column (1) of Table 9 and find that this does not seem to be the case. Borrowers, who are reached by phone and who appear to be surprised about the delinquency, are not more likely to pay within 45 days compared to borrowers, who do not appear to be surprised about the delinquency.

⁸ We first convert each rating into an indicator, which is one for ratings of four and five, and zero otherwise. We then form the average of this indicator for each rater and subtract it from each indicator. *Likeable Voice (Adjusted)* is the average of the adjusted indicators across raters, which we form for each agent.

⁹ Since the number of clusters in our sample is small (13 agents), we use the wild bootstrap-*t* approach with a 1,000 repetitions and report *p*-values throughout all regressions, as proposed by Cameron et al. (2008). Significance levels are generally similar in case standard errors are robust to clustering at the regional and agent level, again implemented through a wild bootstrap-*t* procedure with 1,000 repetitions.

¹⁰ In particular, we include *Delinquent Loan*, an indicator variable, which is one if the delinquency is associated with a consumer loan and zero for other consumer credit products, *Talk last 6 Months*, an indicator variable, which is one if the borrower received a phone call during the previous six months and zero otherwise, as well as *First Talk*, an indicator variable, which is one if this is the first phone call related to the current delinquency and zero otherwise. Given the small size of the sample and the absence of time variation, we do not include month and regional fixed effects.

It is possible that borrowers are aware of the delinquency itself, but are reminded of the importance of a timely payment as the call might make the banks' monitoring and collection efforts more salient. In Column (2) of Table 9, we therefore test whether the borrower's surprise about receiving a phone call affects her payment behavior. We again find no difference in the payment behavior between borrowers, who seem surprised about the phone call, and those, who do not.

To examine to which extent the personal element of the call might motivate borrowers to pay within the 45-day window, we test whether differences across agents cause variation in the call's effect. Since bank agents are randomly matched to calls, variation across agents is exogenous. Importantly, reminder functions of the call should not vary significantly across agents, as agents follow highly pre-scripted protocols that allow for limited variation across calls with respect to form and content. However, using the results reported in Column (3) of Table 9, we find that agent fixed effects are jointly significantly different from zero ($F(12, 221) = 2.96$; p -value: 0.10%); that is, different agents affect borrowers' payment behavior differently, even though all agents use the same protocol and convey the same information.

While agent fixed effects reflect many possible differences across agents, we are able to analyze variation in the likeability of the voices of eight agents. Such differences should be irrelevant if calls function as reminders, but might matter if the phone conversation affects borrowers' prosocial behavior. Based on Panel C of Table 8, on average 54% of the raters consider an agent's voice (very) likeable. The standard deviation of *Likeable Voice* is 0.167 and suggests that there is variation across agents. We explore this variation by examining the effect of the perceived likeability of agents' voices on borrowers' payment behavior.

In Panel A of Table 10, we compare the frequency of payment outcomes between borrowers, who are called by agents, whose voice the majority of raters rate as (very) likeable, and

borrowers, who are called by agents without a likeable voice. The results suggest that the payment behavior differs significantly across both groups of borrowers. Among borrowers, who are called by agents with a (very) likeable voice, 84.5% pay within 45 days, while only 71.6% of borrowers, who are called by agents without a likeable voice, pay by the 45 days deadline.

In Panel B of Table 10, we confirm a significant association between the likeability of agents' voices and borrowers' payment behaviors in a regression framework, controlling for agents' age and gender as well as loan, call, and borrower characteristics. While agents' age and gender do not have a significant effect, Column 1 suggests that a one standard deviation increase in *Likeable Voice* is associated with a 4 pp increase in the probability of payment. In Column (2), we employ the rater adjusted likeability measure and find very similar results.

Based on the results above, we conclude that the personal dimension rather than the informational, reminder-like, or signaling-related characteristics of the call seem to determine the success of the phone call. Such an increase in promise keeping behavior due to personal interaction would be consistent with a large experimental literature that has highlighted prosocial behavior caused by deeply rooted preferences for fairness and altruism, guilt aversion, and social image concerns. Of course, we cannot rule out that borrowers mistakenly assume that individual call center agents will be personally involved with decisions regarding borrowers' current or future loans and that borrowers behave in a more trustworthy way expecting call center agents, especially those that appear friendly and likeable, to reciprocate in the future (He, Offerman, and Ven (2016)). However, even in this case, the personal dimension of the interaction with the borrower would still be essential.

6. Conclusion

At a time when interactions between financial institutions and their retail customers become increasingly anonymous and impersonal, we examine the importance of personal communication between a large bank and its customers. Our results, which are based on comparing the payment behavior of delinquent borrowers, who receive a letter from the bank, with the behavior of borrowers, who also receive a phone call from a randomly assigned bank agent, suggest that a brief phone conversation significantly increases the likelihood of successfully resolving the delinquency by a substantial margin.

Our main finding holds for a subset of hard-to-reach borrowers and is robust to an IV estimation that employs exogenous variation in the likelihood that a borrower is reached by a bank agent. The effect of the phone conversation is also persistent in that it lowers the probability of future delinquencies. Detailed data for a small sample of phone conversations and bank agents point to the human element of the communication, such as the likeability of the agent's voice, being an important element of the call's effect, rather than the call serving as a reminder, alert, or signal.

The setting of our study does not allow us to rule out that a robocall, i.e., an automated call delivering a recorded message, could affect borrowers' payment behavior in a similar way as calls by "live" bank agents do. However, recent experimental evidence by Cohn, Gesche, and Maréchal (2018) suggests that the interaction with an actual human being might be critical.

One important implication of our results is that as the interaction and communication between financial institutions and their customers evolve, the behavior of these customers might also change. Our findings highlight the potential value of retaining or reintroducing a human element in the interaction between institutions and their retail customers.

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Table 1: Summary Statistics: Baseline Sample**Panel A: Call, Borrower, and Loan Characteristics**

This table reports summary statistics for borrower-level demographic variables, loan variables as well as variables related to the phone call for the baseline sample. All variables are defined in Appendix Table C1.

	Obs.	Mean	Std. Dev	Min	Max
Talk (indicator)	4,020	0.730	0.444	0.000	1.000
Male (indicator)	4,020	0.641	0.480	0.000	1.000
Age (in years)	4,020	34.76	12.41	18.000	75.000
German (indicator)	4,020	0.805	0.396	0.000	1.000
Foreign (indicator)	4,020	0.195	0.396	0.000	1.000
Student (indicator)	4,020	0.092	0.289	0.000	1.000
Retiree (indicator)	4,020	0.039	0.194	0.000	1.000
Unemployed (indicator)	4,020	0.002	0.044	0.000	1.000
East Germany (indicator)	4,020	0.065	0.247	0.000	1.000
West Germany (indicator)	4,020	0.346	0.476	0.000	1.000
North Germany (indicator)	4,020	0.200	0.400	0.000	1.000
South Germany (indicator)	4,020	0.387	0.487	0.000	1.000
Delinquent Amount (in thousands)	4,020	0.090	0.088	0.025	0.956
Initial Loan Amount (in thousands)	4,020	2.508	4.880	0.150	41.700
Repayment Term (in months)	4,020	23.971	21.957	1.000	84.000
Time since Origination (in months)	4,020	10.811	12.057	0.000	84.000
Interest Rate	4,020	0.024	0.041	0.000	0.135
Point of Sale Credit (indicator)	4,020	0.858	0.349	0.000	1.000
Number of Call Attempts	4,020	3.280	3.130	1.000	10.000
Phone Call Duration (in minutes)	2,920	2.690	1.758	0.5333	19.850
First Call on a Monday	4,020	0.062	0.242	0.000	1.000
First Call on a Saturday	4,020	0.070	0.256	0.000	1.000

Panel B: Outcomes

This table reports summary statistics for borrowers' payment behavior for the baseline sample. All variables are defined in Appendix Table C1.

	Obs.	Mean	Std. Dev	Min	Max
Payment (45 days) (indicator)	4,020	0.704	0.456	0.000	1.000
Default (indicator)	4,020	0.247	0.431	0.000	1.000
Termination (indicator)	4,020	0.181	0.385	0.000	1.000
Future Delinquency (indicator)	2,832	0.382	0.486	0.000	1.000
Time until next Delinquency (in days)	1,081	122.587	135.322	5.000	815.000

Table 2: Baseline Results

This table reports estimated marginal effects of *Talk* as well as borrower and loan characteristics on *Payment (45 days)*, *Default*, and *Termination* from logit regressions (evaluated at the means). *Regional FE* and *Month FE* represent regional and month fixed effects. All variables are defined in Appendix Table C1. Standard errors are clustered at the regional level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Payment (45 days)	(2) Default	(3) Termination	(4) Payment (45 days)	(5) Default	(6) Termination
Talk	0.197*** (0.018)	-0.116*** (0.014)	-0.099*** (0.013)	0.190*** (0.018)	-0.112*** (0.014)	-0.095*** (0.012)
Point of Sale Credit				-0.068 (0.048)	0.113*** (0.043)	0.102*** (0.037)
Time since Origination				0.001 (0.001)	-0.004*** (0.001)	-0.006*** (0.001)
Repayment Term				-0.000 (0.001)	0.002** (0.001)	0.002** (0.001)
Interest Rate				-0.844*** (0.326)	1.343*** (0.292)	1.108*** (0.243)
Initial Loan Amount				-0.001 (0.006)	0.005 (0.005)	0.005 (0.004)
Delinquent A.				0.160 (0.241)	-0.036 (0.232)	-0.028 (0.184)
Male				-0.032** (0.014)	0.025 (0.015)	0.013 (0.013)
Foreign				0.024 (0.022)	-0.006 (0.018)	-0.018 (0.017)
Age				0.018*** (0.004)	-0.016*** (0.004)	-0.016*** (0.004)
Age Squared				-0.016*** (0.005)	0.013** (0.005)	0.014*** (0.006)
Student				0.021 (0.027)	-0.010 (0.021)	-0.020 (0.019)
Retiree				-0.036 (0.062)	0.079 (0.052)	0.003 (0.048)
Unemployed				-0.228 (0.189)	0.131 (0.154)	0.152 (0.105)
Month FE	x	x	x	x	x	x
Regional FE	x	x	x	x	x	x
Observations	3,980	3,963	3,938	3,980	3,963	3,938
Pseudo R-Sq.	0.0511	0.0322	0.0397	0.0724	0.0645	0.0843

Table 3: Subsample Analysis: Hard-to-Reach Borrowers

This table reports the estimated marginal effect of *Talk* on *Payment (45 days)*, *Default*, and *Termination* from logit regressions for the subsample of borrowers with at least 5 (N = 970), 7 (N = 740), or 9 (N = 627) call attempts (evaluated at the means). All variables are defined in Appendix Table C1. All regressions include borrower and loan characteristics as well as regional and month fixed effects. Standard errors are clustered at the regional level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Payment (45 days)	(2) Default	(3) Termination
Borrowers with at least 5 Call Attempts	0.249*** (0.052)	-0.095** (0.043)	-0.074* (0.042)
Borrowers with at least 7 Call Attempts	0.383*** (0.052)	-0.229*** (0.075)	-0.153** (0.064)
Borrowers with at least 9 Call Attempts	0.376*** (0.085)	-0.228* (0.126)	-0.170 (0.138)

Table 4: Instrumental Variable Estimation: First Stage

This table reports coefficient estimates from a linear probability model of *Talk* and *First Call* on indicators, which equal one if the day of the first call attempt is a Saturday or a Monday and zero otherwise. In Column (1), all borrowers are included. In Column (2), only borrowers, whose records enter the call center on a Thursday and whose first call attempt occurs on Saturday or Monday, are included. In Column (3), all borrowers are included, but the dependent variable is *First Call*. *Regional FE* and *Month FE* represent regional and month fixed effects. All variables are defined in Appendix Table C1. Standard errors are clustered at the regional level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Talk	(2) Talk	(3) First Call
First Call on a Saturday	0.248*** (0.016)	0.480*** (0.041)	0.502*** (0.025)
First Call on a Monday	-0.218*** (0.034)		-0.092*** (0.031)
Point of Sale Credit	-0.076* (0.042)	-0.143 (0.100)	-0.130*** (0.046)
Time since Origination	-0.002*** (0.001)	-0.002 (0.002)	-0.002** (0.001)
Repayment Term	-0.000 (0.001)	0.002 (0.002)	-0.001 (0.001)
Interest Rate	-0.329 (0.297)	-1.639* (0.907)	-0.146 (0.258)
Initial Loan Amount	0.007 (0.005)	-0.002 (0.012)	0.004 (0.004)
Delinquent Amount	-0.202 (0.199)	0.260 (0.552)	-0.316* (0.176)
Male	0.018 (0.016)	-0.031 (0.045)	0.028* (0.017)
Foreign	-0.014 (0.018)	0.020 (0.066)	-0.007 (0.017)
Age	0.009** (0.004)	0.030*** (0.011)	0.011** (0.005)
Age Squared	-0.009** (0.005)	-0.035** (0.014)	-0.012** (0.006)
Student	0.049* (0.026)	0.127 (0.079)	0.039 (0.028)
Retiree	0.087** (0.042)	0.112 (0.125)	0.088* (0.051)
Unemployed	-0.138 (0.179)	-0.320*** (0.103)	-0.343*** (0.088)
Constant	0.633*** (0.079)	-0.058 (0.223)	0.448*** (0.090)
Month FE	x	x	x
Regional FE	x	x	x
Observations	4,020	525	4,020
Adj. R-Sq.	0.0336	0.310	0.0810
F-Test	72.845	170.998	140.105

Table 5: Instrumental Variable Estimation: Second Stage**Panel A: OLS Estimates and 2SLS: Reachability – All Customers**

This table reports the effects of *Talk* on *Payment (45 days)*, *Default*, and *Termination* estimated from Ordinary Least Squares (OLS) regressions as well as from Two-Stage Least Squares (2SLS) estimations. The two instrumental variables related to reachability are two indicators, which equal one if the day of the first call attempt is a Monday or a Saturday, respectively. All regressions include borrower and loan characteristics as well as regional and month fixed effects. All variables are defined in Appendix Table C1. Standard errors are clustered at the regional level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) OLS Payment (45 days)	(2) 2SLS Payment (45 days)	(3) OLS Default	(4) 2SLS Default	(5) OLS Termination	(6) 2SLS Termination
Talk	0.198*** (0.020)	0.272*** (0.089)	-0.117*** (0.016)	-0.155** (0.072)	-0.105*** (0.016)	-0.160*** (0.061)
Observations	4,020	4,020	4,020	4,020	4,020	4,020

Panel B: OLS Estimates and 2SLS: Reachability – Customers Entering on Thursdays

This table reports the effects of *Talk* on *Payment (45 days)*, *Default*, and *Termination* estimated from Ordinary Least Squares (OLS) regressions as well as from Two-Stage Least Squares (2SLS) estimations for borrowers, who enter the call center system on Thursday and are then randomly called on Saturday or Monday. The instrumental variable related to reachability is an indicator, which equals one if the day of the first call attempt is a Saturday. All regressions include borrower and loan characteristics as well as regional and month fixed effects. All variables are defined in Appendix Table C1. Standard errors are clustered at the regional level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) OLS Payment (45 days)	(1) 2SLS Payment (45 days)	(2) OLS Default	(2) 2SLS Default	(3) OLS Termination	(3) 2SLS Termination
Talk	0.183*** (0.056)	0.240** (0.098)	-0.142** (0.059)	-0.097 (0.088)	-0.159*** (0.055)	-0.111 (0.070)
Observations	525	525	525	525	525	525

Panel C: OLS Estimates and 2SLS: Reachability – First Call

This table reports the effects of *First Call* on *Payment (45 days)*, *Default*, and *Termination* estimated from Ordinary Least Squares (OLS) regressions as well as from Two-Stage Least Squares (2SLS) estimations. The two instrumental variables related to reachability are two indicators, which equal one if the day of the first call attempt is a Monday or a Saturday, respectively. All regressions include borrower and loan characteristics as well as regional and month fixed effects. All variables are defined in Appendix Table C1. Standard errors are clustered at the regional level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) OLS Payment (45 days)	(1) 2SLS Payment (45 days)	(2) OLS Default	(2) 2SLS Default	(3) OLS Termination	(3) 2SLS Termination
First Call	0.150*** (0.013)	0.188*** (0.052)	-0.076*** (0.013)	-0.151*** (0.046)	-0.062*** (0.011)	-0.132*** (0.036)
Observations	4,020	4,020	4,020	4,020	4,020	4,020

Table 6: Loan Size and Borrower Nationality

This table reports estimated marginal effects of *Talk* as well as additional loan and borrower characteristics on *Payment (45 days)* from logit regressions (evaluated at the means). All regressions include borrower and loan characteristics as well as regional and month fixed effects. All variables are defined in Appendix Table C1. Standard errors are clustered at the regional level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Payment (45 days)	(2) Payment (45 days)
Outstanding 2 nd x Talk	0.149** (0.064)	
Outstanding 3 rd x Talk	0.127* (0.065)	
Outstanding 4 th x Talk	0.111** (0.049)	
Foreign x Talk		-0.070* (0.040)
Talk	0.117** (0.055)	0.204*** (0.020)
Outstanding Amount 2 nd Quartile	-0.200*** (0.046)	
Outstanding Amount 3 rd Quartile	-0.138*** (0.044)	
Outstanding Amount 4 th Quartile	-0.195*** (0.042)	
Installment Amount 2 nd Quartile	-0.027 (0.040)	
Installment Amount 3 rd Quartile	0.076** (0.035)	
Installment Amount 4 th Quartile	0.127*** (0.043)	
Installment 2 nd x Talk	0.029 (0.053)	
Installment 3 rd x Talk	-0.049 (0.042)	
Installment 4 th x Talk	-0.091* (0.047)	
Foreign Borrower		0.071** (0.030)
Observations	3,980	3,980
Pseudo R-Sq.	0.0833	0.0738

Table 7: Long-term Effects

This table reports the effect of borrowers receiving a *Talk* on *Future Delinquency* and *Time until next Delinquency* controlling for borrower and loan characteristics. *Regional FE* and *Month FE* represent regional and month fixed effects. The sample includes only borrowers, who have successfully resolved their first delinquency. All variables are defined in Appendix Table C1. Column (1) reports estimated marginal effects from a logit regression (evaluated at the means). Column (2) reports coefficient estimates from an OLS regression. Standard errors are clustered at the regional level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Future delinquency	(2) Time until next delinquency
Talk	-0.040** (0.019)	19.229** (9.397)
Point of Sale Credit	-0.013 (0.056)	39.622 (30.713)
Repayment Term	0.003** (0.001)	2.988*** (0.527)
Interest Rate	1.233*** (0.423)	-150.303 (209.096)
Initial Loan Amount	0.001 (0.007)	-3.320 (3.198)
Monthly Installment	-0.299 (0.264)	41.264 (98.668)
Male	0.011 (0.019)	17.155** (7.774)
Foreign	0.089*** (0.027)	-18.710** (8.603)
Age	-0.010 (0.007)	-3.998 (3.054)
Age Squared	0.006 (0.009)	5.223 (4.038)
Student	-0.005 (0.041)	-8.165 (12.246)
Retiree	-0.004 (0.073)	25.457 (29.857)
Unemployed	0.269 (0.277)	-27.597 (76.124)
Month FE	x	x
Regional FE	x	x
Observations	2,806	1,081
Pseudo/Adj. R-sq.	0.0664	0.0952

Table 8: Summary Statistics: Survey Sample**Panel A: Sample Characteristics**

This table reports summary statistics for the outcome variable (*Payment (45 days)*) as well as call, loan, and borrower characteristics for the survey sample.

	Obs.	Mean	Std. Dev	Min	Max
Payment (45 days) (indicator)	245	0.816	0.388	0.000	1.000
<i>Talk Characteristics</i>					
Phone Call Duration (in minutes)	245	2.233	1.802	0.020	10.270
Talk last 6 Months (indicator)	245	0.363	0.482	0.000	1.000
First Talk (indicator)	245	0.800	0.401	0.000	1.000
<i>Loan Characteristics</i>					
Delinquent Amount (in thousands)	245	0.821	1.196	0.025	6,046.000
Delinquent Loan (indicator)	245	0.122	0.328	0.000	1.000
<i>Borrower Characteristics</i>					
Age (in years)	245	40.976	15.946	18.000	87.000
Male (indicator)	245	0.673	0.470	0.000	1.000

Panel B: Survey Responses

This table reports summary statistics for characteristics of participating agents as well as their survey responses. For survey questions “1” means “do not agree at all”, and “5” means “highly agree”. Agents responded to the following statements: *Surprise: Delinquency* - “The customer was surprised about the delinquency” and *Surprise: Call* - “The client was surprised about the call.”

	Obs.	Mean	Std. Dev	Min	Max
<i>Agent Characteristics</i>					
Age (in years)	13	34.231	10.224	21	46
Male (Indicator)	13	0.615	0.506	0	1
<i>Agents' Assessment</i>					
Surprise: Delinquency (indicator)	245	0.265	0.442	0	1
Surprise: Call (indicator)	245	0.396	0.490	0	1

Panel C: Voice Assessments

This table reports summary statistics for the average likeability of agents' voices calculated as the fraction of raters that rated an agent's voice as 4 ("Likeable") or 5 ("Very Likeable") as well as the adjusted likeability, which is the rater adjusted version that we calculate by subtracting the rater's overall fraction of voices rated as likeable or very likeable from each of her voice ratings. The likeability of each of the voice recordings was rated by 6 to 7 students each.

	Obs.	Mean	Std. Dev
Likeable Voice	8	0.541	0.167
Likeable Voice (adjusted)	8	-0.006	0.149

Table 9: Call Characteristics

This table reports agents' responses to call-related survey questions (*Surprise: Delinquency*, *Surprise: Call*) on *Payment (45 days)* from an OLS regression, controlling for borrower characteristics (*Male*, *Age*), loan characteristics (*Delinquent Amount*, *Delinquent Loan*) and call characteristics (*Talk last 6 Months*, *First Talk*). *Agent FE* represent agent fixed effects. All variables are defined in Appendix Table C1. Standard errors are clustered at the agent level using the wild bootstrap-*t* approach with 1,000 repetitions (Cameron et al. (2008)). *p*-values are presented in parentheses. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Payment (45 days)	(2) Payment (45 days)	(3) Payment (45 days)
Surprise: Delinquency	0.024 (0.498)		0.004 (0.918)
Surprise: Call		0.039 (0.470)	-0.002 (0.942)
Delinquent Amount	-0.026 (0.416)	-0.028 (0.382)	-0.031 (0.336)
Delinquent Loan	-0.209** (0.032)	-0.208** (0.036)	-0.201** (0.048)
Male	-0.041 (0.458)	-0.041 (0.404)	-0.049 (0.388)
Age	-0.012 (0.122)	-0.012 (0.102)	-0.012* (0.070)
Age Squared	0.000 (0.102)	0.000* (0.080)	0.000** (0.048)
Talk last 6 Months	-0.094 (0.300)	-0.095 (0.300)	-0.080 (0.388)
First Talk	0.131* (0.078)	0.131* (0.064)	0.151*** (0.006)
Phone Call Duration	-0.014 (0.354)	-0.014 (0.306)	-0.011 (0.456)
Constant	1.051*** (0.000)	1.061*** (0.000)	1.269*** (0.000)
Agent FE			x
Observations	245	245	245
Adj. R-sq	0.0818	0.0835	0.0814

Table 10: Agent Characteristics**Panel A: Likeable Voice and Payment**

This table compares the frequency of payment outcomes (*Payment (45 days)*) between borrowers, who are called by agents with a likeable voice (*Likeable Voice* > 0.50) and those who are called by agents without a likeable voice (*Likeable Voice* ≤ 0.50). We report the corresponding Pearson's chi-square test for the difference in frequencies.

Likeable Voice	Payment (45 days) = 0	Payment (45 days) = 1	Total
	Freq (Percent)	Freq (Percent)	
0	21 (28.38%)	53 (71.62%)	74 (100%)
1	16 (15.53%)	87 (84.47%)	103 (100%)
Pearson chi2(1) = 4.2967 $p = 0.038$			

Panel B: Agent Characteristics and Payment

This table reports the effect of *Likeable Voice* and *Likeable Voice (Adjusted)* on *Payment (45 days)* from an OLS regression, controlling for borrower characteristics (*Male, Age*), loan characteristics (*Delinquent Amount, Delinquent Loan*), and call characteristics (*Talk last 6 Months, First Talk*). All variables are defined in Appendix Table C1. Standard errors are clustered at the agent level using the wild bootstrap-*t* approach with a 1,000 repetitions discussed (Cameron et al. (2008)). *p*-values are presented in parentheses. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Payment (45 days)	(2) Payment (45 days)
Likeable Voice	0.248* (0.092)	
Likeable Voice (adjusted)		0.261** (0.040)
Male Agent	0.188 (0.134)	0.175 (0.150)
Age Agent	0.001 (0.708)	0.002 (0.406)
Delinquent Amount	-0.077*** (0.002)	-0.079*** (0.002)
Delinquent Loan	-0.331*** (0.002)	-0.335*** (0.002)
Male	-0.054 (0.230)	-0.057 (0.176)
Age	-0.018 (0.104)	-0.018 (0.122)
Age Squared	0.000 (0.138)	0.000 (0.114)
Talk last 6 Months	-0.135 (0.232)	-0.137 (0.232)
First Talk	0.132*** (0.008)	0.129** (0.036)
Phone Call Duration	-0.018 (0.538)	-0.019 (0.556)
Constant	0.916*** (0.000)	1.059*** (0.000)
Observations	135	135
Adj. R-sq.	0.169	0.169

Figure 1: Timeline

This figure describes the bank's response to delinquent loans over time (in days). Day zero is the day, on which the borrower misses a regular loan payment and becomes delinquent.

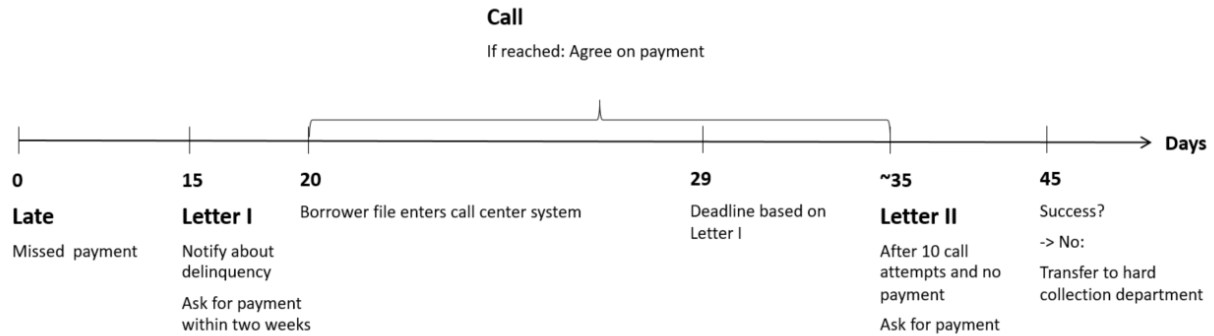


Figure 2: Number of Call Attempts

This figure depicts the distribution of call attempts for reached (Talk = 1) and non-reached (Talk = 0) borrowers.

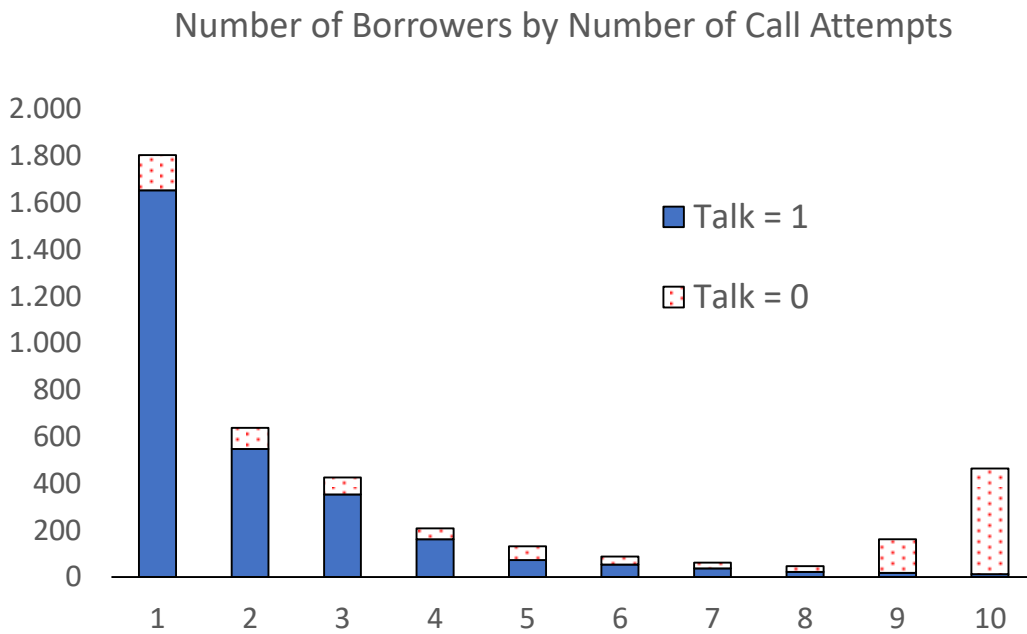


Figure 3: Payment by the Number of Call Attempts

This figure depicts the average outcome Payment (45 days) by the number of call attempts.

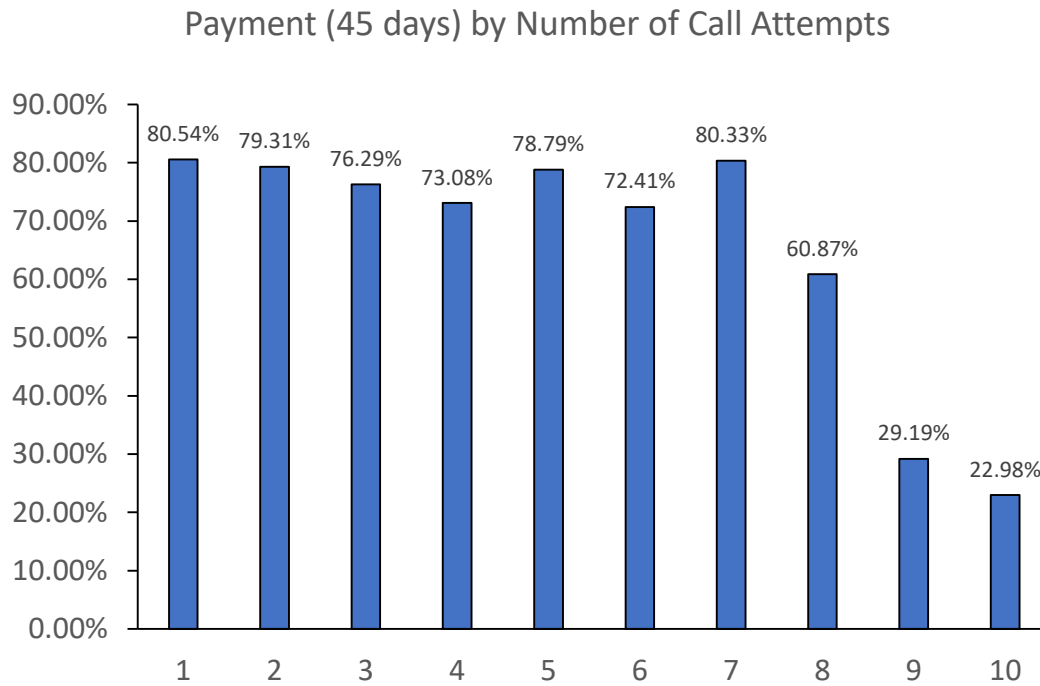


Figure 4: Daily Reachability

This figure shows the reachability for each day during our sample period. The daily reachability is calculated as the ratio of the number of calls in which a borrower is reached to all calls that were placed during a given day.

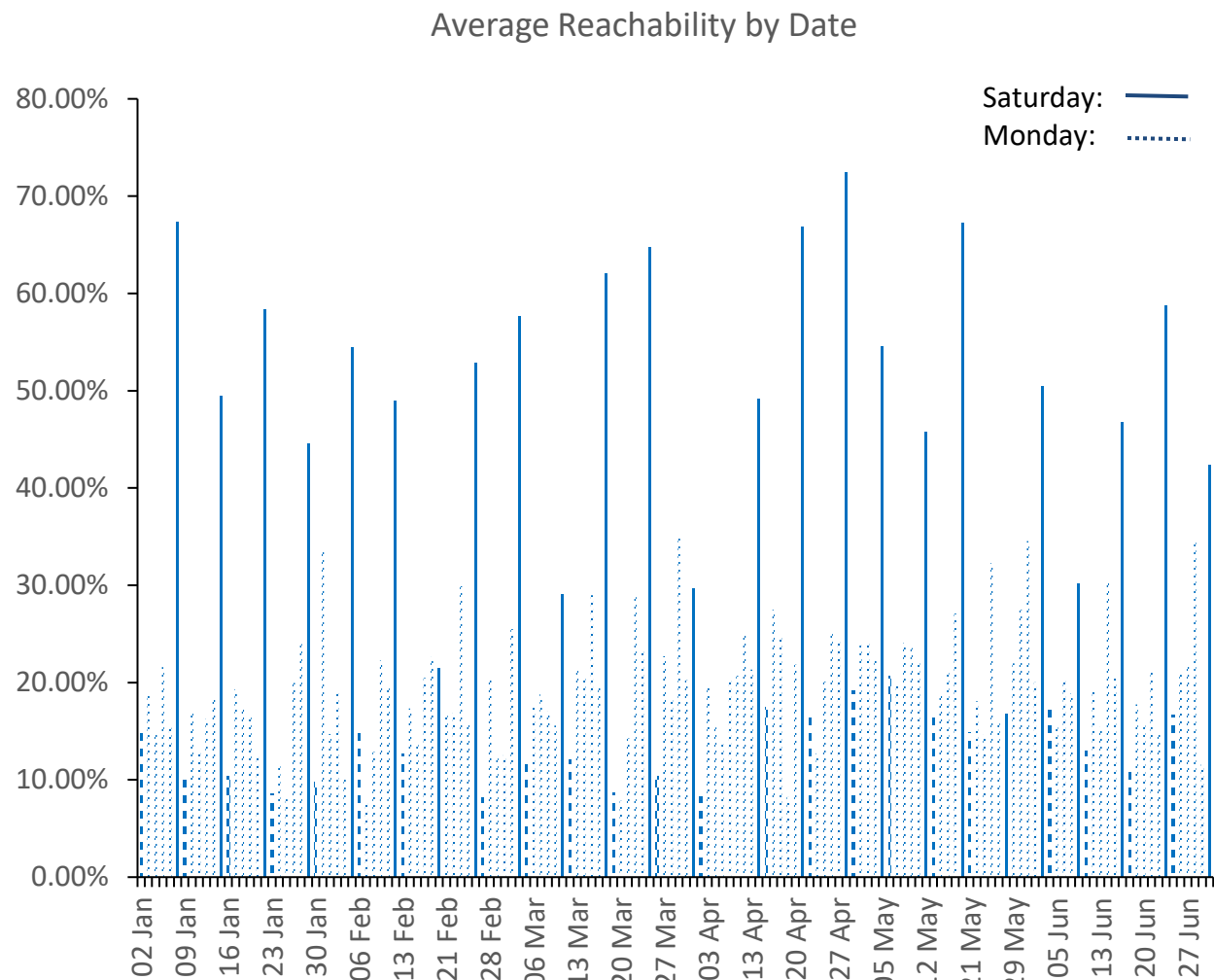
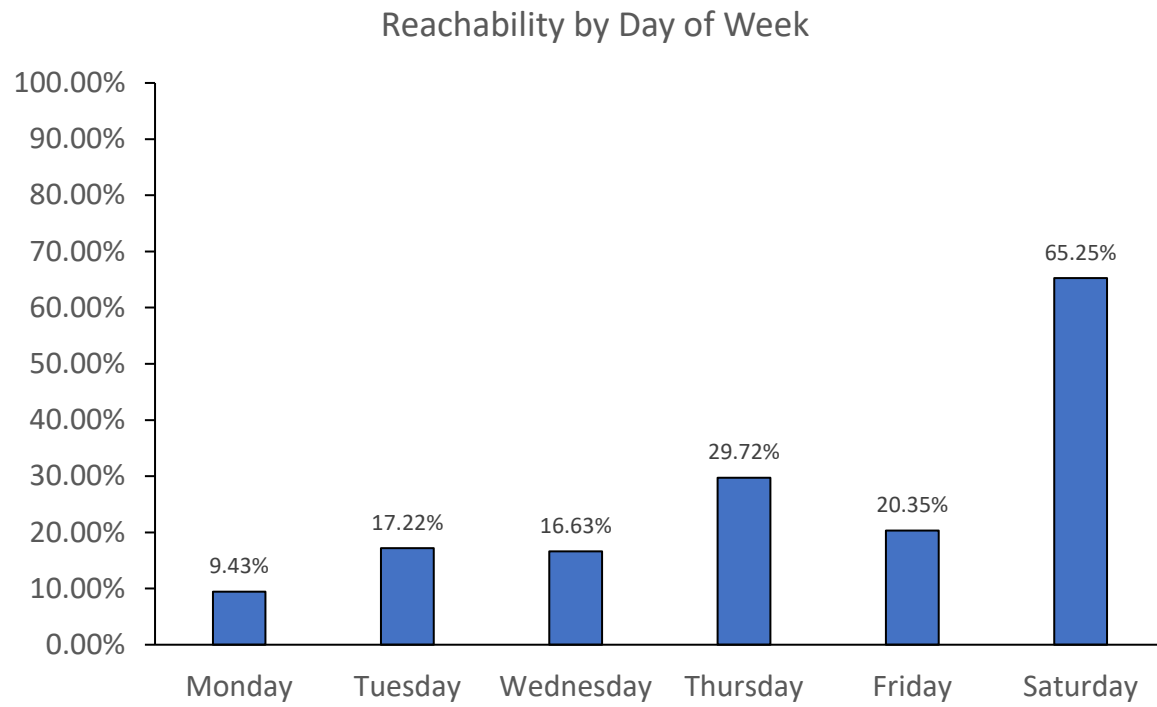


Figure 5: Reachability by Weekday

This figure shows the average reachability for each week day.



Appendix A: Sample Letter

Appendix A presents a sample letter, which is sent to all delinquent borrowers after 15 days (see Letter I in Figure 1). The lender is referred to as “XY Bank.”

	XY Bank
Hans Mustermann Musterstraße 23 12345 Musterstadt	
	Monday, 5th March 2012
Your account number: 105 1234567	
Dear Mr Mustermann,	
the actual balance on your consumer loan account does not conform to the terms of agreement. Currently, the account is in arrears with EUR 175 .	
<i>We are very interested to find a joint solution. Please contact your personal advisor. Alternatively you can call the service hotline: 0180 123 456 789.</i>	
Please use the following bank account to pay the outstanding arrears until the 19th of March :	
XY Bank	
Account Number: 7654321	
Bank Sort Code: 54089312	
You may receive dunning letters, which inform you about the delinquency, until the full repayment of arrears. In case these arrears are repaid until the above mentioned date, no further action is required.	
Become active, because this is the only way to avoid the commencement of dunning proceedings.	
In future, please contact our employees on time, before you get into payment difficulties. Experience has taught us, that a short call is often sufficient to find a solution.	
Kind regards.	

Appendix B: Sample Call Transcript

Appendix B presents the transcript of a sample phone conversation between a call center agent (A) and a delinquent borrower (B). The lender is referred to as “XY Bank.”

Agent (A): Hello my name is Fritz Mueller and I am calling from XY Bank. Do I speak to Mr Hans Mustermann?

Borrower (B): Yes, it's me.

A: Could you please tell me your birth date and your zip code for verification?

B: 01.05.1963 and my zip code is 12345

A: Perfect, thank you. I am calling, since the actual balance on your consumer loan account does not conform to the terms of agreement. Currently, the account is in arrears with EUR 175. We are very interested in resolving this matter. How do you intend to pay the outstanding amount?

B: Yes, sorry. This month it did not work out as planned. I have already planned to settle the balance. At the beginning of next month, once my paycheck comes in, I will be able to transfer the money.

A: All right, that's within two weeks then.

B: Yes.

A: You will receive a letter with the information on which account to transfer the outstanding arrears within two weeks.

B: Ok, thank you.

A: Perfect. Thanks for your time and have a nice day.

Appendix C

Appendix Table C1: Variable Definitions

This table reports variable definitions of all variables used in the analyses.

Variable	Definition
Age	The age of the borrower.
Age Agent	The age of the call center agent speaking with a borrower.
Default	An indicator variable that equals one if the borrower's payment is overdue for more than 90 days and zero otherwise.
Delinquent Amount	The borrower's shortfall amount in the first delinquency case, measured at the beginning of the collection period, in thousands.
East Germany	An indicator variable that equals one if the borrower lives in the East of Germany (i.e., Brandenburg, Berlin, Saxony, Saxony-Anhalt, Thuringia), and zero otherwise.
First Call	An indicator variable that equals one if a borrower is reached at the first call attempt and zero otherwise.
First Call on Monday	An indicator variable that equals one if the first call attempt is on a Monday and zero otherwise.
First Call on Saturday	An indicator variable that equals one if the first call attempt is on Saturday and zero otherwise.
Foreign	An indicator variable that equals one if the borrower is a German resident, but not a citizen and zero otherwise.
Future Delinquency	An indicator variable that equals one if a borrower becomes delinquent again and zero otherwise. We construct this variable only for borrowers, who successfully resolve their first delinquency.
German	An indicator variable that equals one if the borrower is German citizen and zero otherwise.
Initial Loan Amount	The borrower's full initial loan amount, agreed upon at origination, in thousands.
Interest Rate	The borrower's interest rate of the consumer loan, agreed upon at origination, in percent.
Likeable Voice	The fraction of six to seven raters that rate an agent's voice as 4 ("Likeable") or 5 ("Very Likeable") and zero otherwise.
Likeable Voice (Adjusted)	We first convert each rating into an indicator, which is one for ratings of four and five, and zero otherwise. We then form the average of this indicator for each rater and subtract it the indicator. <i>Likeable Voice (Adjusted)</i> is the average of the adjusted indicators across raters, which we form for each agent.
Male	An indicator variable that equals one if the borrower is male and zero if female.

Male Agent	An indicator variable that equals one if the agent is male and zero if female.
North Germany	An indicator variable that equals one if the borrower lives in the North of Germany (i.e., Schleswig-Holstein, Mecklenburg-Western Pomerania, Hamburg, Bremen, Lower Saxony) and zero otherwise.
Number of Call Attempts	The number of call attempts made by the call center to reach a borrower in the first delinquency case.
Payment (45 days)	An indicator variable that equals one if the borrower resolves the delinquency within 45 days of its initial occurrence by repaying the outstanding amount and zero otherwise.
Phone Call Duration	The duration of the phone call between borrower and call center agent in minutes.
Phone Number	An indicator variable that equals one if the borrower did not provide a phone number as part of their loan application zero otherwise.
Point of Sale Credit	An indicator variable that equals one if the delinquent consumer loan has been originated through point-of-sales financing and zero otherwise.
Repayment Term	Length of the loan measured by the number of total monthly payments.
Retiree	An indicator variable that equals one if the borrower is a retiree, and zero otherwise.
South Germany	An indicator variable that equals one if the borrower lives in the South of Germany (i.e., Bavaria, Baden-Wuerttemberg) and zero otherwise.
Student	An indicator variable that equals one if the borrower is a student, and zero otherwise.
Surprise: Delinquency	An indicator variable that equals one if an agent selects 4 (“Agree”) or 5 (“Strongly Agree”) on a 1-5 scale answering to the following statement: “The customer was surprised about the delinquency” and zero otherwise.
Surprise: Call	An indicator variable that equals one if an agent selects 4 (“Agree”) or 5 (“Strongly Agree”) on a 1-5 scale answering to the following statement: “The customer was surprised about the call” and zero otherwise.
Talk	An indicator variable that equals one if a borrower speaks with a call center agent on the phone and zero otherwise.
Talk last 6 months	An indicator variable that equals one if a borrower has spoken with a call center agent in the previous six months and zero otherwise.
Termination	An indicator variable that equals one if the borrower’s account or credit has been terminated by the bank over the sample period, and zero otherwise.
Time since Origination	The number of months since loan origination.
Time until next Delinquency	The number of days between the first and second delinquency (as measured by their entry into the call center system) for borrowers who become delinquent at least twice between January 2012 and August 2014.

Unemployed	An indicator variable that equals one if the borrower is unemployed and zero otherwise.
West Germany	An indicator variable that equals one if the borrower lives in the West of Germany (i.e., Hesse, North Rhine-Westphalia, Rhineland-Palatinate, Saarland) and zero otherwise.

Appendix D

Appendix Table D1: Characteristics of Borrowers with a First Call Attempt on a Monday and Borrowers with a First Call Attempt on a Saturday

This table reports mean comparisons of personal and loan characteristics of borrowers with a first call on a Monday versus a first call on a Saturday. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	Obs.	First Call Monday	Obs.	First Call Saturday	Significance of Difference
Male (Indicator)	251	0.594	283	0.601	
Age (in years)	251	34.920	283	38.92	***
Foreign (Indicator)	251	0.159	283	0.163	
Student (Indicator)	251	0.108	283	0.067	*
Retiree (Indicator)	251	0.060	283	0.085	
Unemployed (Indicator)	251	0.000	283	0.004	
East Germany (Indicator)	251	0.933	283	0.079	
West Germany (Indicator)	251	0.358	283	0.356	
North Germany (Indicator)	251	0.175	283	0.205	
South Germany (Indicator)	251	0.374	283	0.356	
Delinquent Amount (in thousands)	251	0.092	283	0.108	
Initial Loan Amount (in thousands)	251	2.724	283	3.336	
Interest Rate	251	0.025	283	0.030	
Point of Sale Credit (Indicator)	251	0.841	283	0.781	*
Repayment Term	251	24.076	283	27.668	*
Time since Origination	251	10.610	283	11.696	

Appendix Table D2: Outcomes of Borrowers Reached on a Monday and Borrowers Reached on a Saturday

This table reports mean comparisons of outcomes of borrowers reached in a first call on a Monday versus a first call on a Saturday. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	Obs.	First Call Monday	Obs.	First Call Saturday	Significance of Difference
Payment	55	0.818	239	0.791	
Default	55	0.127	239	0.167	
Termination	55	0.111	239	0.111	