

# Increasing Retirement Savings through Access Points and Persuasive Messages: Evidence from Mexico\*

Mariano Bosch<sup>†</sup>  
IDB

Adrian Rubli<sup>‡</sup>  
ITAM

This version: February 2020  
First draft: May 2018

We study how reducing transaction costs for deposits affects savings, and whether non-branded advertising matters for these effects. Focusing on retirement savings in the privatized pension system in Mexico, we analyze two policies: an expansion of access channels for additional contributions at 7-Eleven stores, and the subsequent media campaign providing information on this expansion and persuasive messages to save. We find that access alone has small and weak effects, but including the campaign leads to a 10-12% increase in savings behavior. However, due to declines in the average contribution size, we find null effects on the total amount saved.

JEL codes: D14, D83, G23

Key words: savings, defined contribution retirement plans, access, transaction costs, media campaigns, non-branded advertising, persuasion

---

\*For their helpful comments, we are grateful to Andrew Foster, Paolina Medina, and seminar participants at ITAM and the 2018 Latin American and Caribbean Economic Association (LACEA). We thank the staff at CONSAR, especially Alejandro Maldonado, Alejandra Vargas, Marlene Olvera, Iveth García, and Fernanda Santiago, for continued support in accessing the data and providing additional information. We also thank Anne Hand and María Teresa Silva at IDB for their constant support and helpful comments. Adrian Rubli acknowledges support from the Asociación Mexicana de Cultura, AC. The views expressed herein are those of the authors and do not necessarily reflect the official views of CONSAR or any other government or non-government agency or private enterprise. All remaining errors are our own.

<sup>†</sup>Inter-American Development Bank, Labor Markets and Social Security Unit. 1300 New York Ave., NW Washington, DC, USA. Email: *mbosch@iadb.org*.

<sup>‡</sup>Corresponding author. Instituto Tecnológico Autónomo de México, Department of Business Administration. Camino a Santa Teresa 930. Colonia Heroes de Padierna, Magdalena Contreras CDMX 10700, Mexico. Email: *adrian.rubli@itam.mx*.

# 1 Introduction

There is a large literature concerned with low savings rates across different contexts ([Demirgüç-Kunt et al., 2015](#)).<sup>1</sup> In particular for retirement savings, for the 64% of American families with 401(k) accounts, median savings is just 60,000 USD ([Morrissey, 2016](#)). In Mexico – the setting for this study – net pension replacement rates are around 29%, well below the 59% OECD average ([OECD, 2019](#)).<sup>2</sup> For individuals with access to financial services, multiple frictions – such as transaction costs, loss aversion, mental accounting, present bias, financial literacy, advertising, peer effects, and technology (see [Karlan and Morduch, 2010](#), for a review) – may impose important constraints on savings behavior.

While there is a vast literature exploring the effect of granting access to financial services for those not currently served by banks and other financial institutions (e.g., [Dupas and Robinson, 2013a](#); [Burgess and Pande, 2005](#); [Cole et al., 2011](#)), less is known about how transaction costs – for example, in terms of making deposits or withdrawals – affect the savings behavior of individuals that are already served. Furthermore, most of the existing studies are relatively small, experimental interventions that allow for causal identification, but are silent on the potential challenges of an at-scale policy.<sup>3</sup> A notable exception is [Bachas et al. \(2019\)](#), that studies an at-scale rollout of debit cards that reduced withdrawal costs to cash transfer recipients in Mexico that were already banked.

This paper aims to fill this gap by analyzing an at-scale policy that decreased transaction costs for making deposits, targeting individuals that already had access to savings accounts. Our institutional setting corresponds to voluntary contributions to the privatized social security system of defined contribution (DC) plans in Mexico. We ask what is the effect of making deposits readily available at 7-Eleven convenience stores on savings behavior, and

---

<sup>1</sup>It is not ex-ante clear whether *everyone* should be saving more ([Karlan et al., 2014](#)). However, policy-makers and academics have pushed towards reducing savings constraints in an effort to increase savings.

<sup>2</sup>Financial advisors generally recommend an income replacement rate of roughly 70%. See, for example, [Biggs and Springstead \(2008\)](#).

<sup>3</sup>[Ashraf et al. \(2006a\)](#) studies a randomized trial that offered free at-home deposit collection for banked individuals living in areas lacking a bank branch. [Schaner \(2017\)](#) randomly provides free ATM cards that reduce withdrawal fees for those with accounts. Both studies find increases in account use.

whether messages that may include both informative and persuasive components via a media campaign matter for the effects of this at-scale policy.

In 1997, Mexico introduced a privatized pension system based on DC plans. DC plans have recently garnered attention due to an increasing trend to adopt privatized pension systems worldwide (Whitehouse, 2006; Pallares-Miralles et al., 2012). Formal-sector workers in Mexico are automatically enrolled and allowed to choose a fund manager. Aside from mandatory contributions, workers may also choose to make additional deposits called voluntary savings. These deposits are kept separate from the main contributions, and workers are allowed to make withdrawals before retirement.<sup>4</sup>

Prior to the policies we analyze, workers could make voluntary contributions either by requesting direct payroll deductions from their employer or by directly contacting their fund manager. To facilitate deposits, the government regulatory agency overseeing the pension system, CONSAR (National Commission of the Retirement Savings System), partnered with 7-Eleven to allow workers to make voluntary deposits directly at these convenience stores with as little as 50 pesos (3.70 USD) by simply providing their national id number.

Several months later, CONSAR implemented a nation-wide, non-branded TV and radio ad campaign, which ran continuously for six months. The ads emphasized that saving for retirement, even in small quantities, is important, and depicted workers making contributions at 7-Eleven locations. The ads, however, did not provide any financial information.

The first intervention alleviates transaction costs by increasing access channels for deposits. We call this an *access expansion*, with the understanding that the policy did not seek to create new retirement accounts. The media campaign (i) informs of this first policy, (ii) emphasizes the possibility of making small contributions, and (iii) presents a persuasive message – without financial information – to nudge workers toward increasing savings.

---

<sup>4</sup>These voluntary contributions can effectively be used for non-retirement savings and actually provide the highest financial return for the majority of the population, given the low interest rates (often below inflation) offered by banks. For example, in 2014, banks in Mexico offered an average yearly rate of 2.35%, while the average returns in the pension system ranged from 5 to 12% (see, for example, <https://www.dineroenimagen.com/2014-08-06/41473>, and <http://www.elfinanciero.com.mx/archivo/quien-paga-mas-por-el-dinero>, last accessed October 23, 2018).

We exploit 7-Eleven’s plausibly exogenous market presence at the municipality level, the implementation date of the two policies, and detailed administrative data at the worker account level to obtain difference-in-differences estimates of the causal impacts of these interventions. We present convincing evidence that supports the assumptions necessary for a causal interpretation. Our results hold across a battery of robustness checks.

Our estimates distinguish between effects during the access-only period, during the campaign, and after the campaign ended, identifying the marginal effects of the expansion of access channels alone and of the bundle (access expansion plus media campaign). However, our setting does not allow us to isolate the marginal effect of the ad campaign alone, nor disentangle the marginal effect of each of the three components of the ads.

Our main results show that expanding convenient access to deposits alone has small and relatively weak impacts on voluntary savings. However, we find strong effects for the bundled policies. Relative to municipalities without 7-Eleven presence, those with 7-Eleven experienced a significant 12% increase in the number of workers making at least one voluntary contribution, and a 10% increase in the total number of contributions during the media campaign. We also find strong evidence of a post-campaign effect for up to seven months, similar in magnitude to the effects during the campaign, which could be suggestive of habit formation.<sup>5</sup> We show evidence that the effects are larger among younger workers with lower incomes.

We then estimate the effect on average contribution size. We find large and significant declines of 11% during the media campaign in 7-Eleven municipalities. We then show that the increase in voluntary savings and the decrease in contribution size result in positive but mostly statistically insignificant effects on the total amount saved. We cannot reject that the coefficients across the three relevant time periods are jointly zero.

---

<sup>5</sup>Most experimental analyses of persuasive messages have found that effects are short-lived ([DellaVigna and Gentzkow, 2010](#); [Gerber et al., 2011](#); [Simester et al., 2009](#)). We abstain from claiming that our long-lasting effects can be attributed only to the persuasive message component of the ads. However, our results may suggest that, at least in some contexts, persuasion can have long-run effects.

Our estimates imply that a total of almost 21 thousand new voluntary savers over this time period can be attributed to the policies, corresponding to 42% of the increase in voluntary savers that we observe in the raw data for our sample period. We calculate an increase in voluntary savings that corresponds to 1.2% of the total stock in March 2016. While the impacts of the policies on savings behavior are not negligible, the full effect on the pension system is small due to the declines in contribution size, which may be due to an emphasis of the policies on small contributions or to compositional changes in the types of workers making deposits.

Lastly, we explore the effect of the interventions on voluntary savings via the status quo methods available at baseline. We find evidence of spillovers, with significant increases in voluntary contributions via these methods, with a pattern that echoes the main results. We interpret this as evidence of the importance of the persuasive message in the ads and of the salience of retirement savings induced by the campaign.

Our results provide two key takeaways. First, increasing access to making deposits matters most when accompanied by the media campaign. This suggests that non-branded advertising that publicizes interventions and provides persuasive messages is an important tool for changing behavior in an at-scale policy. Second, while participation in voluntary savings among workers increased, the negative impacts on contribution size result in small effects on total amount saved, that are indistinguishable from zero. This suggests that, in some cases, changing the composition of individuals participating, or incentivizing participation (extensive margin) via smaller or less costly actions (intensive margin), may lead to negligible net effects on the final outcome of interest.<sup>6</sup>

This paper contributes to our understanding of the frictions that affect savings behavior, specifically, transaction costs in access to savings.<sup>7</sup> Many studies have focused on providing

---

<sup>6</sup>Policy-makers may care about this final outcome, for example here, the total amount saved through voluntary contributions. However, they may also care about individuals in the tails of the distribution.

<sup>7</sup>In terms of other frictions, previous experimental literature has explored increasing interest rates (Schaner, 2018; Bertrand et al., 2010), offering commitment devices (Ashraf et al., 2006b; Dupas and Robinson, 2013b), and providing reminders (Karlan et al., 2016), among others.

access to the unbanked, via experimentally waiving opening fees (Dupas and Robinson, 2013a; Dupas et al., 2018; Prina, 2015; Dupas et al., 2016; Brune et al., 2016; Atkinson et al., 2013; Kast and Pomeranz, 2018), subsidizing opening fees (Cole et al., 2011), and expanding banking via post offices (Aportela, 1999), retailers (Bruhn and Love, 2014), and rural banks (Burgess and Pande, 2005).

A smaller set of studies have analyzed reducing transaction costs for individuals that already have access to banking services, such as offering free at-home deposit collection (Ashraf et al., 2006a), and providing free ATM cards that make withdrawals easier (Schaner, 2017; Bachas et al., 2019). In contrast, we focus on an at-scale government policy that relaxed transaction costs for those with active savings accounts, and compare the stand-alone intervention with the addition of non-branded advertising that disseminated information on the initial policy and provided a persuasive message to save.

We also contribute to understanding the long-term effects on savings, since previous papers have mostly focused on short-run impacts. The literature has identified some long-run effects on savings due to, for example, a transitory increase in interest rates (Schaner, 2018), and changes in deposit collection services (De Mel et al., 2013).

The rest of the paper is organized as follows. Section 2 provides context. Section 3 describes the data. Section 4 lays out the empirical strategy. Section 5 presents the results on voluntary savings. Section 6 explores effects on the size of voluntary contributions and on voluntary savings via status quo methods. Section 7 concludes.

## 2 Context

Life-cycle fluctuations in earnings, for example due to retirement, are an important motivation for savings (Karlan and Morduch, 2010). As more economies transition to privatized pension systems, defined contribution plans for retirement are becoming increasingly popular (Whitehouse, 2006; Pallares-Miralles et al., 2012). These individual retirement accounts

allow for more flexibility in investment decisions (Benartzi and Thaler, 2013; Krasnokutskaya and Todd, 2009). If workers are rational agents maximizing lifetime utility, this flexibility should allow adjustments to shocks. However, frictions often lead to individuals using rules of thumb instead of optimal behavior (Handel and Schwartzstein, 2018).

Existing literature has analyzed various heuristics in retirement savings, such as inertia (Chetty et al., 2014; Choi et al., 2003, 2005; Illanes, 2016; Luco, 2013); loss aversion (Benartzi and Thaler, 1995; Looney and Hardin, 2009); present bias (Beshears et al., 2020); peer effects (Duflo and Saez, 2002); framing of information and complexity of enrollment and investment procedures (Carroll et al., 2009; Iyengar et al., 2004; Hastings and Tejada-Ashton, 2008); and even biases driven by grammatical features of language (Chen, 2013). This paper focuses on transaction costs for making deposits, and an associated policy that informed of the first policy and also provided a persuasive message for making deposits.

## 2.1 Privatized Social Security in Mexico

In 1997, Mexico transitioned from a pay-as-you-go pension system to a privatized social security system based on individual retirement accounts. The government, through its regulatory agency CONSAR (*Comisión Nacional del Sistema de Ahorro para el Retiro*, National Commission of the Retirement Savings System), oversees this system. Workers choose a manager from a small set of government-approved private fund managers, called AFORES (*Administradoras de Fondos para el Retiro*, Retirement Funds Managers), which generally offer a homogeneous financial product (Duarte and Hastings, 2012; Hastings et al., 2017).<sup>8</sup> Many well-known banks, insurance companies, and financial institutions have entered the market for AFORES.

The individual retirement fund is made up of three separate accounts. The first, which we call the main account, corresponds to mandatory contributions. Every two months, 6.5% of a

---

<sup>8</sup>Even though AFORES offer homogeneous products, heterogeneity in labor supply decisions leads to considerable variation in terms of which may be the optimal investment decision. Duarte and Hastings (2012) and Hastings et al. (2017) characterize this heterogeneity and the complexity involved in each worker's decision-making process.

worker's base salary is contributed to this account.<sup>9</sup> This only applies to workers in the formal sector. The second account refers to a housing fund, which is administered by INFONAVIT, the Mexican federal institute for workers' housing. Only employers in the formal economy make contributions to the housing fund, at 5% of the base salary on a bimonthly basis.<sup>10</sup> The third account constitutes voluntary savings. These are any additional contributions made by workers. Any worker with an account, regardless of employment status, may make voluntary contributions. These contributions are tax deductible, and may be accessed anytime two months after making the contribution.

Fund managers' investments are constrained by regulations that limit the riskiness of AFORE portfolios. Furthermore, regulations require less risky financial products for portfolios of workers that are nearing retirement age. Notwithstanding these constraints, return rates vary considerably by AFORE. In 2014, AFORE returns ranged from 6 to 12% for the riskier portfolio automatically assigned to workers ages 36 and under, and from 5 to 9% for the least risky financial products automatically assigned to workers over age 59.<sup>11</sup>

In general, access to financial services in Mexico is limited, and returns are fairly low. Only 36% of the adult population has a savings, payroll or investment account in a formal banking institution, and most savings products offer returns below inflation (Peña et al., 2014). In 2014, banks offered an average yearly rate of 2.35%, and up to 3.75% for larger amounts of at least 5 to 10 million pesos (370 to 740 thousand USD).<sup>12</sup> Note that inflation in Mexico was 4% in 2014. Given these limited options for savings, voluntary contributions are the most attractive choice for most workers in terms of access and returns.

---

<sup>9</sup>Workers contribute 1.125%, employers 5.15%, and the federal government 0.225%. The federal government additionally contributes 5.5% of the general minimum wage to each worker's main account. Note that a worker's base salary may be lower than the full wages she receives due to underreporting by employers.

<sup>10</sup>This money may be accessed through mortgage loans from INFONAVIT to buy a house, build a house, or remodel an existing property. If workers do not request this money from INFONAVIT, the total amount is added to the main account at the time of retirement.

<sup>11</sup>See, for example, <https://www.dineroenimagen.com/2014-08-06/41473> (last accessed October 23, 2018).

<sup>12</sup>At the time, 1 USD=13.5 pesos. See, for example, <http://www.elfinanciero.com.mx/archivo/quien-paga-mas-por-el-dinero> (last accessed October 23, 2018).

## 2.2 Policies Incentivizing Voluntary Contributions

Low contribution rates, low base salaries, and extended absences from formal employment present important challenges in this privatized system.<sup>13</sup> At current rates, income replacement rates at retirement will be on average around 40%, with many workers well below that (Villagómez, 2014). In an effort to address this issue, CONSAR has implemented many policies, some of which have emphasized voluntary contributions. Two particular policies in this area are the focus of this paper.

The first policy focused on increasing access points. Until October 2014, workers had two options for making voluntary contributions: they could ask their employer to automatically deduct a fraction directly from their payroll, or they could contact their AFORE representative either in person or over the phone.<sup>14</sup> We call these the status quo methods for voluntary contributions.

Starting on October 6, 2014, CONSAR made voluntary savings available at all 7-Eleven convenience stores. Workers could now make contributions with as little as 50 pesos (3.70 USD) by just providing their national id number to the cashier.<sup>15</sup> The store charges CONSAR a fixed fee of 4 pesos (0.30 USD) per deposit, but importantly, workers do not pay this fee themselves. With over 1,800 locations, 7-Eleven is an important player in the convenience store market in Mexico, although they lack market presence in 19 out of 32 states.

The second policy, tied to this increase in access, was a national media campaign that ran from July to December 2015. This non-branded advertising consisted of radio and TV ads with a catchy jingle, urging workers to increase their voluntary savings and depicting the possibility of doing so at 7-Eleven locations. The main TV ad is available from the

---

<sup>13</sup>In many contexts, including the US, low worker participation rates and low contributions are an important barrier to adequate savings (Skinner, 2007; Benartzi and Thaler, 2013).

<sup>14</sup>Starting in June 2014, workers could also make electronic transfers, via their bank accounts. However, this is not a sizable channel, as there are only 35 million bank accounts and 5 million Internet users in Mexico, from a total population of 110 million, according to data from the government statistics office INEGI.

<sup>15</sup>To be clear, the 50 peso minimum for voluntary contributions was also in place for the status quo methods, although it was less common for workers to choose this amount. See Figure A1 in the online appendix.

Nielsen-Ibope advertisement archive, with ad identification number 228053.<sup>16</sup> Figure A2 in the online appendix shows still images from the television ad, encouraging savings in 10-peso coin increments and emphasizing access via 7-Eleven. Table A1 provides the full text of the ad’s message in the original Spanish and an English translation.

Thus, the media campaign consisted of three elements: (i) information about the access expansion for making deposits at 7-Eleven, (ii) emphasis on the possibility of making small contributions, and (iii) reminders to save for retirement. Importantly, the ads did *not* provide any financial information about worker accounts or AFORES, nor a rationale for *why* workers should increase voluntary savings. Therefore, we broadly refer to the media campaign as a persuasive message, as a way to emphasize the lack of financial information, even if the ads did provide information about the 7-Eleven channel and making small contributions.

Although 7-Eleven is the largest retail channel for voluntary contributions, it should be noted that access was expanded to other convenience stores and institutions after 2014. In June 2015, access was expanded to Telecomm, a government agency that operates telegraphic and satellite services and offers basic financial services. In February 2016, another convenience store chain, Circle-K, began accepting voluntary contributions, and by August 2016, access had expanded to Bansefi, a public development bank. Note, however, that the volume of voluntary contributions at these other locations is much smaller than the one at 7-Eleven (see Figure A3 in the online appendix). We discuss the implications for our empirical strategy in Section 4. Additionally, there was another month-long media campaign in March 2016 similar to the main campaign discussed above (Nielsen-Ibope ad number 257082).

### 3 Data

We obtain detailed, anonymized account-level data directly from CONSAR covering a span of 43 months, from January 2013 to July 2016. From the universe of 19 million active worker

---

<sup>16</sup>Nielsen-Ibope offers access to a publicly available database of historical television advertisements at <http://youspot.ibopeagb.com.mx/>. A version of the ad with English subtitles is available at <https://www.youtube.com/watch?v=uSd0pwVJy1o> (last accessed April 4, 2018).

accounts, we obtain information for all accounts with at least one voluntary contribution over this time period.<sup>17</sup> This gives us a total of 201,565 accounts, from which 75,998 had at least one voluntary contribution prior to October 2014, when 7-Eleven access began. From the remaining 18.8 million worker accounts that did not make any voluntary contributions over these 43 months, we obtain a 10% random sample for computational purposes (1,886,907 accounts).

For each account in our dataset, we observe all voluntary contribution transactions, including the date and amount contributed. We also observe individual-level characteristics (namely, gender, date of birth, state and municipality of residence, and year of affiliation), as well as each worker’s balance in each account in March and September of every year (recall from Section 2 that each worker’s retirement account is made up of three separate accounts: the main account, a housing fund, and the voluntary contributions account). Note that the workers’ residence is only available in our data for the last quarter of 2015, which means we cannot observe workers switching locations over time. We use all this information to create a balanced panel of account-months, where we observe the total number of voluntary contributions and the total amount contributed for each worker in a given month.

We eliminate workers for which we identify inconsistent values within account ids of the gender, date of birth, residence, and year of affiliation variables.<sup>18</sup> Overall, this leaves us with 97% of the original sample or 195,811 accounts with at least one voluntary contribution between 2013 and 2016, with 73,091 accounts making at least one voluntary contribution before October 2014. We are also left with 1,882,599 accounts for which we never observe any voluntary contributions.

Table 1 presents summary statistics for these worker accounts, differentiating between accounts with voluntary contributions prior to 7-Eleven access (“early savers”), accounts

---

<sup>17</sup>CONSAR has a total of 54 million accounts. However, over 35 million are inactive because of sustained absences from the labor market due to a null labor supply, workers entering the informal labor market, or international migration.

<sup>18</sup>Our concern is that inconsistent values may imply an incorrect identification of workers. Note however that we keep worker ids in our sample for which these variables consistently take on a missing value.

with voluntary contributions in October 2014 and after (“treatment savers”), and accounts without voluntary contributions in this time period (“never savers”). Over the 43 months covered in the data, the number of months in which the early savers make voluntary contributions, their total number of voluntary contributions, and their total amount contributed is 3.5 times larger than the treatment savers.

We collapse these data to obtain a balanced panel of municipality-months using the workers’ municipality of residence as determined in the last quarter of 2015. We then join this dataset with a roster of 7-Eleven locations obtained from CONSAR, using locations from the pre-treatment period. Figure 1 shows a map detailing the municipalities where 7-Eleven is present. Out of 2,298 municipalities with at least one active worker account, 7-Eleven is present in 84 municipalities, mostly in the northern and central parts of the country.<sup>19</sup> Note however that 45% of worker accounts (8,271,542 accounts) correspond to workers living in municipalities with 7-Eleven presence. Our empirical strategy will exploit this geographic variation to identify the causal effect of the policies on savings behavior.

Municipalities with 7-Eleven stores are different than those without, particularly because convenience stores tend to locate in urban areas. We compare municipality-level characteristics obtained from the 2010 census by 7-Eleven presence in Table 2. Municipalities with 7-Eleven stores have a larger population, are more educated, are more likely to be employed, are more likely to have some sort of healthcare coverage, and are more likely to live in homes with access to basic services like electricity, piped water, and sewerage. Table 2 also shows summary statistics for 159 municipalities without any worker accounts (and without 7-Eleven stores). These are very poor and rural areas that are evidently excluded from our analysis. Regardless of these level differences across municipalities by 7-Eleven presence, our identifying assumption below will rely on similar trends over time.

---

<sup>19</sup>Although there are around 2,500 municipalities in total, some of them do not have any active worker accounts. These are mostly very rural, poor and small municipalities.

## 4 Empirical Strategy

### 4.1 Raw Data Trends

Figure 2 plots raw outcomes related to making voluntary contributions over time. We present municipality-level aggregates for the 84 municipalities with 7-Eleven presence (darker line) versus the remaining municipalities without 7-Eleven (lighter line). We highlight three relevant time periods: (i) October 2014 to June 2015, when access to making deposits at 7-Eleven began, (ii) July to December 2015, when the access expansion was bundled with non-branded advertising that informed of 7-Eleven access and provided persuasive reminders to save, and (iii) January to July 2016, when the media campaign was no longer in effect. Outcomes are normalized to one in September 2014, and the difference between the treatment and control municipalities is also shown (dashed line).

Figure 2a considers the total number of active worker accounts that made at least one voluntary contribution in a given month. There is a level difference between these groups of municipalities prior to October 2014, with 7-Eleven municipalities having more workers making at least one voluntary contribution in any given month. The plot of the (normalized) difference suggests very similar trends over time for these two groups in the pre-treatment period. The plot also indicates a change in the trend post-treatment, which is more apparent during the media campaign. Figure 2b shows a similar graph for the total number of voluntary contributions made in each group of municipalities. Once again, trends prior to the treatment are similar, and we observe a sharper increase in this outcome for municipalities with 7-Eleven presence once the media campaign begins.

Overall, Figure 2 suggests that there was an important change in voluntary contributions in the treatment municipalities relative to the control over the relevant time period, with a starker difference once the media campaign was implemented. These plots motivate the empirical strategy, where we estimate the causal effect of the policies by comparing changes over time in municipalities with and without 7-Eleven access.

## 4.2 Identification Strategy

Our main empirical strategy follows a difference-in-differences (DD) specification at the municipality level. For a balanced panel of municipality-months, we compare changes over time for relevant outcomes in treatment municipalities relative to changes over time in control municipalities. Formally, we estimate the following equation:

$$\begin{aligned}
 y_{mt} = & \beta_1(\mathbb{1}_{[7\text{-Eleven}]_m} \times \mathbb{1}_{[\text{access only}]_t}) + \beta_2(\mathbb{1}_{[7\text{-Eleven}]_m} \times \mathbb{1}_{[\text{media campaign}]_t}) \\
 & + \beta_3(\mathbb{1}_{[7\text{-Eleven}]_m} \times \mathbb{1}_{[\text{post-campaign}]_t}) + \gamma_m + \theta_t + \varepsilon_{mt}^1
 \end{aligned} \tag{1}$$

where  $y_{mt}$  is an outcome for municipality  $m$  at time  $t$ ;  $\mathbb{1}_{[7\text{-Eleven}]_m}$  is an indicator for whether or not there is 7-Eleven market presence in municipality  $m$ ;  $\mathbb{1}_{[\text{access only}]_t}$  is an indicator for the access-only period, from October 2014 to June 2015;  $\mathbb{1}_{[\text{media campaign}]_t}$  is an indicator for the media campaign, from July to December 2015;  $\mathbb{1}_{[\text{post-campaign}]_t}$  is an indicator for the months after the campaign, from January to July 2016;  $\gamma_m$  are municipality fixed effects;  $\theta_t$  are month-year fixed effects; and  $\varepsilon_{mt}^1$  is the idiosyncratic error term.

Regressions are weighted by the number of active accounts prior to October 2014 in each municipality, which is equivalent to an individual-level estimation (Angrist and Pischke, 2008).<sup>20</sup> All results are robust to alternative weighting variables as well as to not using weights. Standard errors are clustered at the municipality level to allow for serial correlation in the unobserved component within municipalities, which is the level at which the treatment varies.

We focus on two main outcomes related to making voluntary contributions: (i) the total number of worker accounts with at least one voluntary contribution in a given municipality-month, and (ii) the total number of voluntary contributions in a municipality-month. All

---

<sup>20</sup>We classify an account as being active prior to October 2014 if there is at least one non-zero balance in the main account in March 2013, September 2013, March 2014, and September 2014. This excludes accounts that were created or activated post-treatment. We use sampling weights to calculate the total number of accounts from the sample that never made voluntary contributions over this time period.

outcomes are measured in natural logs to improve model fit and facilitate interpretation.<sup>21</sup> Note that these municipality-level aggregates need only consider the 195,811 accounts with at least one voluntary contribution throughout our sample period. Estimates are identical up to a constant to specifications that use municipality averages of these outcomes instead, including the accounts that had no voluntary contributions.

The municipality fixed effects in equation 1 imply that we effectively identify coefficients from variation within municipalities over time. This addresses any time-invariant differences between municipalities with and without 7-Eleven stores. The month-year fixed effects address any common trends in savings behavior over time, including yearly seasonality in income and savings behavior.

The DD estimate for the access channel policy alone is given by  $\beta_1$ . The estimate for both the access channel and media campaign policies together is given by  $\beta_2$ . The estimate for long-run effects of the bundled policies, specifically once the ad campaign is removed, is represented by  $\beta_3$ . Under certain conditions, which we discuss below, these DD estimators provide the causal effect of increased access to savings channels through 7-Eleven and its interaction with the media campaign.

For each regression, we test whether all three coefficients in equation 1 are jointly equal to zero ( $H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$ ) in order to show whether the treatments – regardless of which one(s) – had any effect. In terms of parsing out the effects, we are interested not only in the magnitudes of these three coefficients, but also in their relative sizes. We present two additional tests. First, we test whether the effect of the access channel policy alone and that of the access plus media campaign is the same ( $H_0 : \beta_1 = \beta_2$ ). Second, we test whether the effects during and after the campaign are of similar size ( $H_0 : \beta_2 = \beta_3$ ) in order to explore persistence of the effects.

---

<sup>21</sup>In practice, to deal with municipality-months that did not have any voluntary savings, we transform each variable  $x$  using the function  $\ln(x + 1)$ . Results are similar under alternative functional forms.

## Threats to Identification

The main identifying assumption given our strategy is that outcomes in municipalities without 7-Eleven are a good counterfactual of what would have occurred in municipalities with 7-Eleven access in the absence of the treatments. First, we argue that workers' unobserved preferences and biases regarding savings behavior are orthogonal to the presence of 7-Eleven stores in their municipality of residence. Furthermore, if these unobservables are fixed over time, they will be completely captured by the municipality fixed effects.

As such, the fundamental source of omitted variable bias are time-varying factors at the municipality level. Therefore, causality depends on assuming that unobservable trends in treatment and control municipalities are similar, often referred to as the common trends assumption (Angrist and Pischke, 2008). An obvious concern would be that the estimated effects simply reflect differential trends by urbanicity, given that 7-Eleven municipalities are on average more urban than our controls. We address this by presenting an additional specification that includes a differential linear trend for each category of a four-tier urbanicity classification of the form  $\sum_{u=1}^4 \omega_u (\mathbb{1}_{[\text{urbanicity}=u]_m} \times t)$  in equation 1, as well as by presenting estimates for a regression that restricts to urban municipalities only.<sup>22</sup>

In order to provide supporting evidence for the parallel pre-trends assumption, and to fully model the treatment effects over time, we also estimate the following dynamic DD equation:

$$y_{mt} = \sum_{k=1}^T \beta_k (\mathbb{1}_{[7\text{-Eleven}]_m} \times \mathbb{1}_{[t=k]}) + \gamma_m + \theta_t + \varepsilon_{mt}^2 \quad (2)$$

where  $\mathbb{1}_{[t=k]}$  is an indicator for time period  $k$ ,  $T$  represents the total number of time periods in the regression, and everything else is as defined above.

A particular threat to identification is that other municipality-level policies may have been introduced simultaneously. Recall from Section 2 that three other firms and institutions

---

<sup>22</sup>In practice, we define urbanicity by population: rural municipalities are those with a population less than 2,500 individuals in their municipal seat (main administrative town or city), semiurban are those with 2,500 to 15,000, urban are 15,000 to 100,000, and metropolitan are those with a population greater or equal to 100,000 people.

(Telecomm, Circle-K, and Bansefi) began accepting voluntary contributions for retirement accounts during this time.<sup>23</sup> Using available information at the state level, Figure A4 in the online appendix shows the relationship between 7-Eleven presence and these other organizations, showing little correlation. Telecomm and Bansefi, both government agencies, have locations in all 32 states, while Circle-K is present in 22 states (11 of which coincide with 7-Eleven).

While all three organizations pose a potential threat to identification, we are particularly concerned with Telecomm accepting deposits starting in June 2015, since the ad campaign beginning in July 2015 also mentioned this access channel, although it was less prominently featured than 7-Eleven. We obtain publicly-available, municipality-level data on Telecomm locations, and show that Telecomm is present in almost all municipalities and that the number of Telecomm locations is not strongly correlated with the number of 7-Eleven stores at the municipality level (see Figure A5 in the online appendix). This indicates that (i) we cannot use a similar strategy to equation 1 for the Telecomm channel expansion, and (ii) as long as the Telecomm treatment effect is similar across treatment and control (as defined by 7-Eleven presence), this will lead to downward-biased estimates. To the extent that the Telecomm access expansion is a nation-wide policy, it is not a major source of concern for this particular strategy.

Furthermore, as stated in Section 2, we argue that these three additional channels are not sizable enough to confound our estimates. For this, we refer to the information on the method and channel used for each transaction. Figure A3 in the online appendix provides the relevant histograms for each channel. These data indicate that out of all the voluntary contributions made through these new access channels up to July 2016, 82.8% correspond to 7-Eleven, followed by 14.5% at Telecomm, 1.4% at Bansefi, and 1.3% at Circle-K. Since voluntary contributions at the new locations are mostly a 7-Eleven phenomenon, we believe

---

<sup>23</sup>Note that access was expanded to Bansefi in August 2016, which is not in our transactions data. However, anticipatory behavior may still bias the estimates for the latter months in our data.

that any potentially confounding effect on the estimates of  $\beta_2$  and  $\beta_3$  is sufficiently small. The dynamic DD using equation 2 also lends support to this interpretation.

In summation, the prevalence of 7-Eleven as the main source of voluntary contributions from new channels, as well as the campaign that focused widely on 7-Eleven, suggest that our empirical strategy is indeed capturing the causal effect of 7-Eleven access on voluntary savings behavior. We lend further credibility to this claim in a robustness check that uses different measures of treatment exposure constructed from the number of 7-Eleven locations per municipality.

Another important assumption for our empirical strategy is that there is no differential sorting of workers due to the policy. It seems unlikely that workers would respond by moving to a different municipality given this particular treatment. Note that our only information regarding workers' place of residence corresponds to the last quarter of 2015, as this had not been previously recorded. Our concern would be that some workers responded to the treatment by moving, leading to an incorrect classification of treatment and control workers, and a selected sample for our treatment estimates.

We address this concern in a robustness check by focusing on workers' place of birth instead of residence. We obtain data on state of birth for all workers in our data. Unfortunately, municipality of birth is not recorded. We then contrast estimates from regressions that classify workers into treatment and control states based on their state of residence versus their state of birth. This allows us to check for any significant differences in the estimates, which would indicate a bias in the residence-based results.

Another related issue would be workers differentially changing their labor supply in response to the policies. This too would lead to a selected sample and possibly an overestimate of the effects. To address this we use national survey data collected on a quarterly basis, and show that labor supply outcomes do not vary over time between treatment and control municipalities. These results are available in Figure B1 in the online appendix.

Lastly, we also rule out the possibility that 7-Eleven expanded differentially in response to the treatment. To the extent that these voluntary contributions do not represent a significant source of revenue for 7-Eleven, this seems unlikely. Nevertheless, we use 7-Eleven locations from 2014, before the treatment, in all our estimations. We were also able to obtain state-level data on locations by the end of 2016. These data indicate that 7-Eleven did not expand into states where they previously had no stores, and that the number of locations per state did not change much (see Figure A6 in the online appendix).

## 5 Effects on Making Voluntary Contributions

This section presents our main findings on voluntary savings. We begin by showing the main results, and providing suggestive evidence that bolsters our interpretation. We then show some robustness checks: a dynamic DD, estimates using different variables measuring intensity of treatment exposure, and a comparison at the state level between assigning treatment status based on state of residence versus state of birth.

### 5.1 Main Results

Table 3 shows the main results from estimating equation 1. We present estimates for our two main outcomes: (i) the total number of accounts with at least one voluntary contribution in a municipality-month, which we call voluntary savers, and (ii) the total number of voluntary contributions in a municipality-month, both measured in logs. Regressions are weighted by the number of active worker accounts prior to October 2014 in each municipality, and standard errors are clustered at the municipality level (2,298 municipalities).

We start by presenting our baseline specification for each of the outcomes in columns 1 and 4. Columns 2 and 5 present estimates from an equation that adds urbanicity-specific linear trends. Lastly, columns 3 and 6 restrict the sample to urban municipalities only. See Section 4 for more details.

Our main specification in Table 3 column 1 indicates that relative to baseline there was a significant 5% increase in the number of voluntary savers in municipalities with 7-Eleven market presence during the access-only period (prior to the media campaign), relative to municipalities without 7-Eleven. This was then followed by a significant 12% increase, with respect to baseline levels, during the campaign for municipalities with 7-Eleven access, relative to those without 7-Eleven. After the media campaign, we find a significant 15% differential increase in the number of voluntary savers in treatment municipalities relative to our baseline. A test of coefficients allows us to reject that the access-only ( $\beta_1$ ) and the media campaign ( $\beta_2$ ) effects are equal. We also reject that the effects during the campaign and after the campaign ( $\beta_3$ ) are of the same magnitude.

The main specification for the number of voluntary contributions in column 4 shows a positive, insignificant coefficient for the access-only period, a significant 10% increase during the campaign period, and a significant 12% increase post-campaign. We cannot reject that the magnitude of the effects during and after the campaign is the same.

As stated above, our key identifying assumption is that municipalities without 7-Eleven presence are a good counterfactual of what would have happened in 7-Eleven municipalities absent the treatment. An important concern would be that these estimates are driven by differential trends in municipalities that are more urban (and also more likely to have a 7-Eleven). Columns 2 and 5 in Table 3 address this potential issue by including a differential linear trend by urbanicity category of the municipality. For the number of voluntary savers, we find somewhat smaller point estimates, but the overall pattern holds. Note that we cannot reject that the last two effects (during and post-campaign) are of the same magnitude. For the number of voluntary contributions, column 5 paints a very similar picture to the main specification in column 4.

Given that 7-Eleven is more likely to locate in urban municipalities, we address an analogous concern by restricting to urban municipalities only in columns 3 and 6. The results are very similar across our two outcome variables. We also show that our results are not

driven by a handful of 7-Eleven municipalities, by estimating separate regressions leaving out of the sample one of our 84 treated municipalities at a time (Figure A7 in the online appendix). Lastly, we show that the results are not driven by municipalities with large numbers of accounts, by showing that the results are robust to regressions that weight by municipality population and to regressions that do not include any weights (Table A2 in the online appendix).

Taken together, the results in Table 3 suggest two things. First, the initial intervention that lowered transaction costs by increasing access to deposits via 7-Eleven had a significant effect on the number of voluntary savers, but not on the number of voluntary contributions. Furthermore, this effect is relatively small. In contrast, the bundled policies – access expansion plus the ad campaign – have large, positive and robust effects across specifications for both outcomes. This suggests that the information and the persuasive message embedded in the ads were an important driver of the increase in savings behavior for this policy.

Second, we find strong evidence of persistent effects after the campaign ended in municipalities with increased access channels. In most specifications, we cannot reject that the size of the effect during the campaign is the same as the effect in the months after the campaign, and for the one specification where they are statistically different, the effect is larger post-campaign. This may suggest habit formation in savings behavior, due to the information about the first policy provided by the ads or to long-lasting impacts of persuasion.

To understand more about the types of workers driving these results, we present additional estimates stratifying the sample by year of affiliation and by main account balance at baseline in Table 4. Recall that workers affiliating with social security before 1997 will still retire under a defined benefit plan, while those affiliating in 1997 and after will depend on their individual account. Note that age correlates highly with affiliation year.

The first four columns in Table 4 show that the results are much larger for younger workers who affiliated with social security in 1997 and after. A test allows us to reject at the 99% confidence level that the effects are of the same magnitude for both groups of

workers. The last four columns in Table 4 show that the magnitudes of the effects are much larger for workers with below the median balance of the main account at baseline. Again, the differences between workers below and above the median are significant. Overall, this suggests that younger workers and those with lower incomes had a larger response to the treatments.

We present additional results in the online appendix. First, in appendix C, we stratify the sample by workers with and without voluntary contributions prior to the policies. We find effects for both groups (Table C1), suggesting that the policies induced workers already saving to save more and workers who were not saving to start doing so. Note that some of the estimates for workers already making contributions at baseline are significantly smaller than the main effects in Table 3.

We also explore some additional relevant heterogeneity based on workers' observable characteristics in online appendix D. We show that the results are marginally stronger for men, and significantly larger for younger workers, workers that affiliated with social security after 1997, workers with lower retirement account balances, and workers affiliated with fund managers with lower pre-treatment voluntary savings rates (Tables D1 to D5). This suggests a compositional effect since workers induced by the treatment to making deposits have lower incomes, a lower propensity to save, and a lower preference for savings.

### **Exposure to the media campaign**

Our main results show small and weak increases in voluntary savings during the access-only period, followed by a robust 9-12% increase during the ad campaign, indicating that the bundled policies have a much stronger effect on voluntary contributions than the access expansion policy alone. This would suggest that the campaign allowed workers to learn about the 7-Eleven channel, and that it provided them with persuasive reminders to save for their retirement. However, an alternative interpretation is that individuals learned slowly about the possibility of making deposits at 7-Eleven, and needed time to experience and

learn to trust this channel, in a way that the bundle itself did not really matter and we would have observed the same pattern over time even in the absence of the ads.

We argue that the former explanation is more likely. We present suggestive evidence supporting our claim by exploiting state-level data from the 2014 Module on Availability and Use of Information Technologies at Home (MODUTH) and the fact that government ads are only broadcast on national TV. This nationally-representative survey registers each household’s number of television sets and cable TV accounts. We construct a measure of cable TV penetration given by the share of televisions with cable in a state, and classify states as high and low exposure to cable TV using the median. Unfortunately, the MODUTH survey does not register the respondents’ municipality of residence, which is why we are forced to restrict our analysis to the state level.

Since government ads in Mexico can only be shown on national, broadcast network television channels (i.e., channels that do not require a cable provider in order to watch them, also called over-the-air television), we assume that our measure of cable TV penetration is monotonically related to exposure to the ads. States with low cable TV usage will thus have experienced a higher exposure to the ad campaign since the broadcasting stations that they are more likely to have watched will have been required by the government to air the ad. Therefore, we stratify our sample by exposure to the ads and estimate equation 1 as before.<sup>24</sup>

Table 5 shows the results for each of the outcomes. Odd-numbered columns correspond to states with above median cable TV penetration, and hence a low exposure to the ad campaign. Even-numbered columns are the states with high exposure, since they have lower cable TV penetration.

Columns 1 and 2 present the results for voluntary savers. Prior to the campaign, during the access-only period, point estimates are relatively similar between the high and low exposure states. However, during the media campaign, we find a 5% statistically insignifi-

---

<sup>24</sup>Note that standard errors are clustered by state. However, as there are only 32 states in Mexico, cluster-robust standard errors may be downward-biased. Therefore, we also present wild cluster bootstrap p-values over 1,000 replications to correct for the small number of clusters, following [Cameron and Miller \(2015\)](#).

cant increase in low exposure states and a significant 12% increase in high exposure states. We also find that high-exposure states experience a significant effect post-campaign, while low-exposure states do not. While this evidence is far from perfect, it does suggest that the increase we observe in the number of voluntary savers during the campaign is indeed due to exposure to the ads, and is not simply reflecting a gradual increase in 7-Eleven usage over time that would have continued regardless of the campaign. The results for voluntary contributions in columns 3 and 4 paint a similar picture.

Although some of the estimates in Table 5 lack precision, we generally find similar coefficients in high and low exposure states during the access-only period, and larger and more significant coefficients in high exposure states during and after the campaign across outcomes. We interpret this as suggestive evidence that our main results are not just about convenient access to deposits and gradual usage over time, but instead that the larger effect of the bundled policies is indeed due to the ad campaign. We cannot disentangle whether the ads simply provided information about the 7-Eleven channel expansion, or whether the persuasive message it contained also mattered. However, we believe that the evidence does indicate that the media campaign is important for the results.

## 5.2 Robustness Checks

### Dynamic DD

In order to lend support to the parallel pre-trends assumption and to better grasp the dynamics of the effects over time, we estimate equation 2 and present the results graphically in Figure 3. The plots show the  $\beta_k$  coefficients for the interaction of 7-Eleven presence with an indicator for month  $k$ , taking September 2014 as the excluded category. Bars show 95% confidence intervals from cluster-robust standard errors.

Figure 3a presents the results for the total number of accounts with voluntary contributions in a given municipality-month. It shows small, flat, and (mostly) statistically insignificant coefficients for months prior to October 2014. This indicates that there is no

substantial difference in the trends of the number of voluntary savers in treatment and control municipalities prior to the policy. This provides reassurance that our key identifying assumption holds.<sup>25</sup>

For the access-only period, all estimates are positive and most are significantly different from zero. On average, we see a 9% differential increase in voluntary savers throughout this period. During the media campaign, all estimates are positive, significant, and larger than the average of the previous estimates, showing an effect of around 16%. The fact that these estimates are all larger than the access-only estimates (except one) is consistent with the ads being an important driver of the effect, and not just reflecting a continuing increase in 7-Eleven usage. Lastly, in the post-campaign period, estimates are significant and similar in magnitude to those during the campaign.

Figure 3b shows a similar pattern for the total number of voluntary contributions. Pre-treatment estimates are small, flat, and almost all are insignificant. The access-only period shows a few significant estimates. Throughout the media campaign, estimates are larger and are all significantly different from zero. In the post-campaign period, the point estimates are similar in size and significant.

Overall, the estimates in Figure 3 confirm that the relevant outcomes followed a similar trend over time between treatment and control municipalities prior to the implementation of the policies. This helps validate our identification strategy. They also show that the results in Table 3 are not driven by a handful of significant coefficients across months. Lastly, the pattern and significance of the point estimates for the post-campaign period lend credibility to the persistence of the effects.

---

<sup>25</sup>Note that a test of joint significance for these 20 coefficients allows us to reject that they are all equal to zero. However, we argue that this is not an issue for the following reasons. First, there is no clear monotonic trend in the point estimates, or even any indication of cyclicity. Second, we test for a differential trend in 7-Eleven municipalities in the pre-period in Table A3 in the online appendix. We regress the outcome on an indicator for 7-Eleven presence interacted with the date, including municipality and year-month fixed effects, using only the months prior to the treatment. We find very small and insignificant coefficients, indicating that there is no differential trend in 7-Eleven municipalities prior to the treatment.

## Intensity of Treatment

We now turn to exploiting variation in the intensity of exposure to 7-Eleven market presence. For this, we focus on five measures. First, we use the indicator for whether a municipality has 7-Eleven locations, as before. Second, we use the number of locations by municipality at baseline. Third, we use the number of 7-Eleven stores in a municipality per 10 square kilometers. Fourth, we use the number of stores per 100,000 working age individuals (15 to 59 years old). Lastly, using data from the 2014 economic census, we calculate the 7-Eleven market share by obtaining the fraction of all convenience stores in a municipality that correspond to 7-Eleven.

We use these measures to estimate regressions analogous to equation 1. Table 6 shows the results. The first five columns correspond to the effect on the number of voluntary savers. The effects across intensity measures are qualitatively similar. In terms of magnitudes, the average sizes of the effects are smaller for the new intensity measures. For example, the original estimate indicated an average increase of 12% in the number of voluntary savers during the media campaign in municipalities with 7-Eleven presence relative to those without, while these estimates show an average increase of around 1-7%.<sup>26</sup> Columns 5 through 8 in Table 6 show the results for the total number of voluntary contributions. Estimates using the intensity measures are generally less significant than the simple indicator, although the point estimates are qualitatively similar. Table A4 in the online appendix presents results for five additional, alternative intensity measures.

The results in Table 6 exploit differing variation in intensity of exposure to the 7-Eleven treatment. Finding a similar pattern across specifications provides reassurance that we are indeed capturing the causal effect of this policy, and not simply a spurious effect from the municipalities with 7-Eleven presence. We cannot determine ex-ante which of these measures is the most relevant in terms of exposure to the treatment, and as such we do not ascribe to

---

<sup>26</sup>We calculate this by taking the estimate and multiplying by the average of the intensity measure in treatment municipalities. For the full distribution of these measures, see Figure A8 in the online appendix.

a single measure. Note that these estimates provide a clearer picture of the distribution of the effects across space in terms of workers' access to 7-Eleven stores.

### **Assigning Treatment Status Based on Place of Birth**

Our main results use workers' municipality of residence (as measured in the last quarter of 2015) to assign treatment status based on 7-Eleven market presence. Although unlikely, workers could respond to the treatment by sorting selectively in and out of treatment municipalities. In order to address this, we obtain data on each worker's place of birth. However, these data only specify state of birth, limiting this analysis to the state level.

Figure A9 in the online appendix shows histograms for state of residence and state of birth. Although the differences across states between the residence and birth classifications are less stark, the overall ranking of states is mostly unchanged. Figure A10 further explores the relationship between workers' state of residence and their state of birth. For each state of birth, we plot the histogram of state of residence. Except for two states, over 50% of workers born in a given state are residing in that state in 2015, and on average, this proportion is 72%. This suggests that internal migration in Mexico is not very high.

Table 7 presents estimates of equation 1 using state-level data, comparing between treatment assigned by state of residence (as before) and by state of birth.<sup>27</sup> Assuming positively selected migrants, estimates using state of residence will tend to overstate the effect of the treatments. For both outcomes, Table 7 shows that results are very similar when using state of residence relative to using state of birth. The point estimates are generally smaller when considering state of birth, although we cannot reject that the magnitudes are the same. The fact that these estimates are indistinguishable from one another is reassuring and suggests that our residence-based results do not suffer from significant bias due to selective sorting.

---

<sup>27</sup>We cluster our standard errors by state, and also present wild cluster bootstrap p-values over 1,000 replications to correct for the small number of clusters (Cameron and Miller, 2015).

## 6 Effects on Size of Contributions and Contributions via Status Quo Methods

Thus far, we have shown the main results in Section 5 indicating the impact of the policies on making voluntary contributions. This is the first-order question in this setting, quantifying the causal estimate of the access to deposits policy alone and then the bundled policies of access and media campaign. Our findings indicate small effects for the access expansion alone, and larger and stronger effects once the ad campaign was implemented, with effects outlasting the duration of the ads. This suggests that the ads, by both providing information about the access expansion and presenting persuasive messages to save for retirement, are an important tool for effecting change in savings behavior.

This section now turns to two additional questions related to crowding out and spillovers. First, motivated by the emphasis of these policies – especially in the ad campaign – on the possibility of making small contributions and by the selection into treatment by worker type suggested in online appendix D, we explore changes induced by the treatments on the size of voluntary contributions and the total amount contributed. The net effect of increases in participation in voluntary savings and the (potential) declines in contribution size, on total amount saved is ambiguous, and hence, an empirical question. By inducing smaller contributions, the increase in voluntary savings may result in no additional total savings in the pension system.

Second, we explore whether the new access channels have any effects on contributions via status quo methods that were available at baseline. One possibility is that the new access channel crowds out the status quo methods as workers substitute away from these methods toward the more convenient 7-Eleven channel. Another possibility is that the treatments, especially the broad message presented in the ads, lead to spillovers that increase savings behavior via status quo methods.

## 6.1 Size of Contributions

We define three outcomes of interest related to amounts contributed. First, we calculate the average size of contributions in a municipality-month as the average amount contributed per transaction. Note that this variable has a heavily skewed distribution, since some workers make large contributions via the status quo methods (i.e., setting up a recurring deduction via their employer or contacting their AFORE directly).<sup>28</sup> Second, we calculate the average amount contributed in a municipality-month per account with positive voluntary savings. Lastly, we consider the total amount contributed via voluntary savings.

We estimate equation 1 for these outcomes (Figure A11 in the online appendix shows the raw data trends), and present the results in Table 8. Column 1 considers the average size of voluntary contributions. We find negative estimates for all three periods, with large and significant effects during and after the media campaign. These results indicate that average contribution sizes decreased by 11% in 7-Eleven municipalities relative to control municipalities during the campaign relative to the baseline period, and by 21% during the post-campaign period. We can reject that these magnitudes are statistically the same.<sup>29</sup>

Column 2 shows a similar pattern for the average amount contributed per voluntary saver. All estimates are negative and increasing in magnitude over time, with an estimated 25% decline during the post-campaign period. Lastly, column 3 shows the estimates for the total amount saved voluntarily. These coefficients are positive, and only the media campaign point estimate is statistically significant. A test of joint significance does not allow us to reject that all three estimates are simultaneously equal to zero. We also fail to reject that the estimates of the first two periods and of the last two periods are equal to one another.<sup>30</sup>

---

<sup>28</sup>Figure A1 in the online appendix shows histograms of the transactions data for this variable.

<sup>29</sup>We also show the effects separately for different bin sizes of amount per contribution in online appendix Figure A14, indicating an important increase in the probability of making very small contributions (under 100 pesos).

<sup>30</sup>We present robustness checks for these outcomes similar to the ones for the main results in the online appendix. See Tables A5 to A9, and Figures A12 and A13.

Overall, the results in Table 8 indicate that the treatments, particularly with the ad campaign, led to important declines in the average amounts contributed per transaction and per worker. This may be due to the emphasis of the ads on very small quantities, or it may reflect the fact that the workers with the largest effects on voluntary savings are likely those with lower incomes and smaller propensity to save. The results on the total amount saved via voluntary contributions follow from these findings, and indicate that the treatments were ineffective at generating higher savings in 7-Eleven municipalities relative to the control. This suggests that the shift toward smaller amounts was enough to offset the increase in participation estimated in Section 5.

### **Discussion of the Overall Effects of the Policies**

We use our estimates from both the main outcomes in Table 3 and the outcomes related to contribution sizes in Table 8 to back out the full effects of the treatments on voluntary savings. We use our point estimates, regardless of significance level, keeping in mind that our results do not allow us to reject that the effects on total amount saved are equal to zero. As such, this exercise is likely to overestimate the effects of the policies.

For each outcome, we take the average effect to be the weighted average of the three coefficients corresponding to the time periods of interest. We calculate that our estimates allow us to identify a total of 20,640 new voluntary savers over this time period, making a total of 25,136 new voluntary contributions. In the raw data, we identify 122,720 worker accounts with voluntary savings during the treatment periods, relative to 73,091 pre-treatment (see Table 1). Therefore, 42% of the new voluntary savers during these 22 months can be directly attributed to the policies we study.<sup>31</sup>

In terms of the total amount contributed, the point estimates suggest that the treatments generated almost 58 million pesos (4.3 million USD) of voluntary contributions during the

---

<sup>31</sup>Under the same logic, the raw data points to 537 thousand new voluntary contributions relative to baseline, so that we can attribute 5% of this increase to the policies alone. Note that workers already making contributions at baseline make one contribution every three months on average. The workers induced into participation via the treatments make a contribution on average every six months instead.

treatment periods analyzed and across all 84 treatment municipalities. However, this only represents 1.2% of the total stock of voluntary savings in the system in March 2016. Hence, these calculations suggest that while the impacts of the policies on savings behavior are not negligible, the full effect on the pension system is small. The large increase in deposits is diluted due to the small contribution sizes.

The negative impacts on contribution size suggest that the total amount saved could have been larger had the average amount per contribution remained unchanged. However, since this may be due to the emphasis on small contributions or to changes in the composition of workers participating in voluntary savings, the implications for retirement savings are unclear. If the former explanation holds, then the policy reducing transaction costs was hampered by the emphasis on small contributions. If the latter holds, then the vulnerable workers on the left tail of the distribution benefited from the policies, even if their contributions are smaller.

## 6.2 Other Contribution Methods

For our final exploration, we turn to analyzing the impact on voluntary contributions made via status quo methods, relying on information about which deposit channel was used for voluntary contributions. The transactions data allows us to distinguish between voluntary contributions at access points (mostly 7-Eleven) and all other methods available at baseline, which include direct contact with AFORES and contributions established directly with employers.<sup>32</sup> We take the data for contributions made via status quo methods, obtain the municipality aggregates, and estimate equation 1 on our two main outcomes and our three outcomes related to contribution sizes.

Table 9 presents the results. Our findings across all five columns echo the results in Tables 3 and 8, with significant effects only once the media campaign began. For voluntary savers, we find a small and insignificant coefficient for the access only period, followed by

---

<sup>32</sup>We actually only observe whether the contribution occurred at an access point, and the particular channel. Therefore, we cannot distinguish between the different status quo methods.

larger and significant effects during the campaign (10% increase) and after the campaign (13%). We can reject that the access only and media campaign coefficients are statistically equal. We find very similar effects for voluntary contributions in column 2, with a significant 7 and 8% increase during and after the ad campaign, respectively.

The next two columns consider the average size of contributions and the average amount saved per voluntary saver, showing large and significant declines once the bundled policies were introduced (access expansion plus ads). Lastly, column 5 corresponds to the total amount saved. None of the three estimates are significant at the 95% level, and we cannot reject that all three are jointly zero.

Overall, Table 9 indicates that the treatments – once the ad campaign began – led to an increase in voluntary contributions via the status quo methods.<sup>33</sup> These spillovers suggest that the message in the ad was effective at increasing savings through channels other than 7-Eleven in treatment municipalities relative to controls, perhaps because of the salience of retirement savings and through habit formation.<sup>34</sup> We also find, as before, that contribution sizes decrease as a response to the interventions, particularly with the ad campaign, which in turn leads to a null effect on the total amount saved.

## 7 Conclusion

This paper analyzes the staggered introduction of two policies aimed at increasing savings for retirement. The initial policy reduced transaction costs for savings by increasing access channels for making deposits, while the second one is a media campaign. We find that increasing access points by allowing workers to make voluntary contributions at 7-Eleven convenience stores has small and weak effects on savings unless accompanied by the ad campaign. We

---

<sup>33</sup>Table A10 in the online appendix presents evidence at the account level suggesting that the treatments increased the probability of making contributions via both methods (7-Eleven and status quo), and that the increase in contributions via only traditional channels is only present for individuals who had not made voluntary savings prior to the treatments.

<sup>34</sup>Similar to our findings regarding spillovers, the literature has mostly failed to find evidence of crowd-out effects in savings across a variety of interventions (Dupas and Robinson, 2013b; Ashraf et al., 2006b; Bachas et al., 2019).

also identify strong persistence of these savings effects after the campaign, suggesting habit formation and that messages may have a long-lasting effect. These results indicate that the non-branded advertising that provided information about the access expansion and a persuasive message nudging workers to save for retirement is a fundamental tool for generating changes in savings behavior.

We also find strong negative impacts of the bundled policies (access expansion plus ad campaign) on the average size of voluntary contributions. The increase in making voluntary contributions and the decline in contribution size result in a weak net effect on total amount saved. We also show that both the participation and size effects spill over to the status quo contribution methods, particularly once the media campaign began, suggesting that the persuasive message in the ads also generated changes in non-7-Eleven contributions.

We make two important contributions. First, we reveal the complementarity between policies aimed at decreasing barriers to savings and policies that provide information and persuasion. Our results underscore the need for disseminating information about policies and nudging individuals in order to effect change when implementing at-scale interventions. Unfortunately, our setting does not allow us to distinguish between the purely informational channel and the persuasion effect.

Second, we show that interventions that attempt to increase participation by encouraging smaller or less costly actions, or interventions that change the composition of individuals participating in a given behavior, may lead to negligible effects on the net outcome of interest. In our setting, the access expansion and persuasive message were mostly offset by changes in contribution sizes, due either to an emphasis on small contributions or compositional changes in workers making deposits. If policy-makers care about the net effect – in this case, total amount saved – then quantifying these effects is fundamental for policy design. However, policy-makers may care about the tails of the distribution, not the mean, in which case these policies were successful in achieving that goal.

## References

- Angrist, J. D. and J.-S. Pischke (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press.
- Aportela, F. (1999). Effects of financial access on savings by low-income people. Technical report, National Bureau of Economic Research.
- Ashraf, N., D. Karlan, and W. Yin (2006a). Deposit collectors. *Advances in Economic Analysis & Policy* 5(2).
- Ashraf, N., D. Karlan, and W. Yin (2006b). Tying Odysseus to the mast: Evidence from a commitment savings product in the Philippines. *The Quarterly Journal of Economics* 121(2), 635–672.
- Atkinson, J., A. De Janvry, C. McIntosh, and E. Sadoulet (2013). Prompting microfinance borrowers to save: A field experiment from Guatemala. *Economic Development and Cultural Change* 62(1), 21–64.
- Bachas, P., P. Gertler, S. Higgins, and E. Seira (2019). How debit cards enable the poor to save more. Technical report, National Bureau of Economic Research.
- Benartzi, S. and R. H. Thaler (1995). Myopic loss aversion and the equity premium puzzle. *The quarterly journal of Economics* 110(1), 73–92.
- Benartzi, S. and R. H. Thaler (2013). Behavioral economics and the retirement savings crisis. *Science* 339(6124), 1152–1153.
- Bertrand, M., D. Karlan, S. Mullainathan, E. Shafir, and J. Zinman (2010). What's advertising content worth? Evidence from a consumer credit marketing field experiment. *The Quarterly Journal of Economics* 125(1), 263–306.

- Beshears, J., J. J. Choi, C. Harris, D. Laibson, B. C. Madrian, and J. Sakong (2020). Which early withdrawal penalty attracts the most deposits to a commitment savings account? *Journal of Public Economics* 183, 104144.
- Biggs, A. G. and G. R. Springstead (2008). Alternate measures of replacement rates for social security benefits and retirement income. *Social Security Bulletin* 68, 1.
- Bruhn, M. and I. Love (2014). The real impact of improved access to finance: Evidence from Mexico. *The Journal of Finance* 69(3), 1347–1376.
- Brune, L., X. Giné, J. Goldberg, and D. Yang (2016). Facilitating savings for agriculture: Field experimental evidence from Malawi. *Economic Development and Cultural Change* 64(2), 187–220.
- Burgess, R. and R. Pande (2005). Do rural banks matter? Evidence from the Indian social banking experiment. *American Economic Review* 95(3), 780–795.
- Cameron, A. C. and D. L. Miller (2015). A practitioner’s guide to cluster-robust inference. *Journal of Human Resources* 50(2), 317–372.
- Carroll, G. D., J. J. Choi, D. Laibson, B. C. Madrian, and A. Metrick (2009). Optimal defaults and active decisions. *The quarterly journal of economics* 124(4), 1639–1674.
- Chen, M. K. (2013). The effect of language on economic behavior: Evidence from savings rates, health behaviors, and retirement assets. *American Economic Review* 103(2), 690–731.
- Chetty, R., J. N. Friedman, S. Leth-Petersen, T. H. Nielsen, and T. Olsen (2014). Active vs. passive decisions and crowd-out in retirement savings accounts: Evidence from Denmark. *The Quarterly Journal of Economics* 129(3), 1141–1219.

- Chetty, R., J. N. Friedman, and E. Saez (2013). Using differences in knowledge across neighborhoods to uncover the impacts of the EITC on earnings. *American Economic Review* 103(7), 2683–2721.
- Choi, J. J., D. Laibson, B. C. Madrian, and A. Metrick (2003). Optimal defaults. *American Economic Review* 93(2), 180–185.
- Choi, J. J., D. Laibson, B. C. Madrian, and A. Metrick (2005). Saving for retirement on the path of least resistance. Technical report, National Bureau of Economic Research.
- Cole, S., T. Sampson, and B. Zia (2011). Prices or knowledge? What drives demand for financial services in emerging markets? *The journal of finance* 66(6), 1933–1967.
- De Mel, S., C. McIntosh, and C. Woodruff (2013). Deposit collecting: Unbundling the role of frequency, salience, and habit formation in generating savings. *American Economic Review* 103(3), 387–92.
- DellaVigna, S. and M. Gentzkow (2010). Persuasion: empirical evidence. *Annual Review of Economics* 2(1), 643–669.
- Demirguc-Kunt, A., L. Klapper, D. Singer, and P. Van Oudheusden (2015). *The global Findex database 2014: Measuring financial inclusion around the world*. The World Bank.
- Duarte, F. and J. S. Hastings (2012). Fettered consumers and sophisticated firms: Evidence from Mexico’s privatized social security market. Technical report, National Bureau of Economic Research.
- Duffo, E. and E. Saez (2002). Participation and investment decisions in a retirement plan: The influence of colleagues choices. *Journal of public Economics* 85(1), 121–148.
- Dupas, P., S. Green, A. Keats, and J. Robinson (2016). Challenges in banking the rural poor: Evidence from Kenya’s Western Province. *African Successes, Volume III: Modernization and Development* 3, 63.

- Dupas, P., D. Karlan, J. Robinson, and D. Ubfal (2018). Banking the unbanked? Evidence from three countries. *American Economic Journal: Applied Economics* 10(2), 257–97.
- Dupas, P. and J. Robinson (2013a). Savings constraints and microenterprise development: Evidence from a field experiment in Kenya. *American Economic Journal: Applied Economics* 5(1), 163–92.
- Dupas, P. and J. Robinson (2013b). Why don't the poor save more? Evidence from health savings experiments. *American Economic Review* 103(4), 1138–71.
- Gerber, A. S., J. G. Gimpel, D. P. Green, and D. R. Shaw (2011). How large and long-lasting are the persuasive effects of televised campaign ads? Results from a randomized field experiment. *American Political Science Review* 105(1), 135–150.
- Handel, B. and J. Schwartzstein (2018). Frictions or mental gaps: What's behind the information we (don't) use and when do we care? *Journal of Economic Perspectives* 32(1), 155–78.
- Hastings, J., A. Hortaçsu, and C. Syverson (2017). Sales force and competition in financial product markets: The case of Mexico's social security privatization. *Econometrica* 85(6), 1723–1761.
- Hastings, J. S. and L. Tejada-Ashton (2008). Financial literacy, information, and demand elasticity: survey and experimental evidence from Mexico. Technical report, National Bureau of Economic Research.
- Illanes, G. (2016). Switching costs in pension plan choice. Technical report, Northwestern University Working Paper.
- Iyengar, S. S., G. Huberman, and W. Jiang (2004). How much choice is too much? Contributions to 401 (k) retirement plans. *Pension design and structure: New lessons from behavioral finance* 83, 84–87.

- Karlan, D., M. McConnell, S. Mullainathan, and J. Zinman (2016). Getting to the top of mind: How reminders increase saving. *Management Science* 62(12), 3393–3411.
- Karlan, D. and J. Morduch (2010). Access to finance. In *Handbook of development economics*, Volume 5, pp. 4703–4784. Elsevier.
- Karlan, D., A. L. Ratan, and J. Zinman (2014). Savings by and for the poor: A research review and agenda. *Review of Income and Wealth* 60(1), 36–78.
- Kast, F. and D. Pomeranz (2018). Savings accounts to borrow less. Technical report.
- Krasnokutskaya, E. and P. Todd (2009). Investor behavior and fund performance under a privatized retirement accounts system: Evidence from Chile. Technical report, University of Michigan, Michigan Retirement Research Center.
- Looney, C. A. and A. M. Hardin (2009). Decision support for retirement portfolio management: Overcoming myopic loss aversion via technology design. *Management Science* 55(10), 1688–1703.
- Luco, F. (2013). Switching costs and competition in retirement investment. Technical report, The Center for the Study of Industrial Organization-Northwestern University. The Center for the Study of Industrial Organization-Northwestern University.
- Meyer, B. D. (2002). Labor supply at the extensive and intensive margins: The EITC, welfare, and hours worked. *American Economic Review* 92(2), 373–379.
- Morrissey, M. (2016). The state of American retirement. Technical report, Economic Policy Institute, Washington, DC.
- OECD (2019). Pensions at a glance, 2019. Technical report.
- Pallares-Miralles, M., C. Romero, and E. Whitehouse (2012). International patterns of pension provision II: a worldwide overview of facts and figures.

- Peña, X., C. Hoyo, D. Tuesta, et al. (2014). Determinantes de la inclusión financiera en México a partir de la ENIF 2012. Technical report, BBVA Research.
- Prina, S. (2015). Banking the poor via savings accounts: Evidence from a field experiment. *Journal of Development Economics* 115, 16–31.
- Schaner, S. (2017). The cost of convenience? Transaction costs, bargaining power, and savings account use in Kenya. *Journal of Human Resources* 52(4), 919–945.
- Schaner, S. (2018). The persistent power of behavioral change: Long-run impacts of temporary savings subsidies for the poor. *American Economic Journal: Applied Economics* 10(3), 67–100.
- Simester, D., Y. J. Hu, E. Brynjolfsson, and E. T. Anderson (2009). Dynamics of retail advertising: Evidence from a field experiment. *Economic Inquiry* 47(3), 482–499.
- Skinner, J. (2007). Are you sure you’re saving enough for retirement? *Journal of Economic Perspectives* 21(3), 59–80.
- Villagómez, F. A. (2014). El ahorro para el retiro. Una reflexión para México. *El trimestre económico* 81(323), 549–576.
- Whitehouse, E. (2006). *Pensions panorama: Retirement-income systems in 53 countries*. The World Bank.

# Tables and Figures

Table 1:  
Worker account descriptive statistics

	Early savers (1)	Treatment savers (2)	Never savers (3)
Share female	0.37 (0.48)	0.39 (0.49)	0.36 (0.48)
Age in January 2013	45.17 (13.02)	39.47 (12.39)	35.13 (11.37)
Year of affiliation	1990 (12.79)	1995 (12.49)	1998 (10.75)
Account balance March 2013 (MXN):			
Main account	163,709.18 (222,100.11)	172,064.91 (409,014.07)	74,513.47 (112,381.44)
Housing account	49,616.61 (89,752.19)	38,835.67 (71,491.02)	21,806.63 (42,000.08)
Voluntary contributions	28,531.07 (102,709.52)	2,502.49 (14,335.78)	161.29 (1,388.61)
Account balance March 2016 (MXN):			
Main account	185,283.02 (243,788.51)	150,466.68 (207,432.94)	99,058.48 (136,807.24)
Housing account	58,704.96 (108,685.21)	50,121.55 (87,074.52)	29,154.24 (51,249.51)
Voluntary contributions	47,645.53 (156,419.19)	11,108.88 (41,759.21)	574.57 (4,496.99)
Months with voluntary contributions	8.06 (11.63)	2.29 (3.58)	0.00 (0.00)
Total voluntary contributions	13.51 (25.14)	3.67 (7.71)	0.00 (0.00)
Total amount contributed (MXN thousands)	39.97 (102.76)	11.39 (38.86)	0.00 (0.00)
Total accounts	73,091	122,720	1,882,599

Notes: This table shows descriptive statistics at the worker account level. Means are shown with standard deviations in parentheses. Accounts are stratified based on voluntary contributions: accounts with voluntary contributions prior to October 2014 (column 1), those with contributions after 7-Eleven access began (column 2), and those without any contributions (column 3). The transactions data spans 43 months.

Table 2:  
Municipality-level descriptives by 7-Eleven presence

	Municipalities with accounts		Without accounts
	With 7-Eleven	Without 7-Eleven	Without 7-Eleven
Total population, thousands	422.10 (431.70)	34.70 (83.33)	1.92 (2.42)
Total households, thousands	109.43 (110.84)	8.56 (21.08)	0.46 (0.53)
Urban municipal government seat (pop.>15,000)	0.87 (0.34)	0.20 (0.40)	0.00 (0.00)
Share ages 11 and under	0.22 (0.04)	0.25 (0.04)	0.24 (0.06)
Share ages 12 to 17	0.11 (0.01)	0.13 (0.02)	0.14 (0.03)
Share ages 18 to 59	0.59 (0.03)	0.51 (0.04)	0.45 (0.04)
Share ages 60 and over	0.08 (0.03)	0.11 (0.04)	0.18 (0.08)
Average years of schooling, pop. 15 and over	9.51 (1.17)	6.65 (1.41)	5.12 (0.94)
Share employed, pop. 12 and over	0.52 (0.04)	0.44 (0.06)	0.38 (0.10)
Share without healthcare coverage	0.29 (0.08)	0.38 (0.17)	0.42 (0.26)
Share with IMSS healthcare coverage	0.44 (0.12)	0.16 (0.14)	0.09 (0.16)
Share with Seguro Popular healthcare coverage	0.13 (0.09)	0.40 (0.19)	0.45 (0.28)
Share dwellings with a dirt floor	0.02 (0.01)	0.12 (0.11)	0.26 (0.14)
Share dwellings with electricity	0.96 (0.02)	0.95 (0.06)	0.93 (0.08)
Share dwellings with piped water	0.92 (0.06)	0.79 (0.20)	0.77 (0.24)
Share dwellings with sewerage	0.94 (0.05)	0.75 (0.23)	0.55 (0.32)
Share dwellings with a radio	0.82 (0.07)	0.69 (0.14)	0.61 (0.15)
Share dwellings with a TV	0.95 (0.03)	0.81 (0.16)	0.59 (0.20)
Share dwellings with a computer	0.36 (0.13)	0.12 (0.09)	0.03 (0.03)
Share dwellings with a cellphone	0.75 (0.07)	0.39 (0.23)	0.08 (0.13)
Share dwellings with an internet connection	0.27 (0.13)	0.06 (0.07)	0.01 (0.01)
Observations	84	2,214	159

Notes: This table shows descriptive statistics from the 2010 census at the municipality level, distinguishing them by 7-Eleven presence (columns 1 and 2). The third column shows municipalities without any registered accounts (and without 7-Eleven presence). Averages and standard deviations for groups of municipalities shown. Urban municipal government seat indicates whether population is greater than 15,000 in the town that is the administrative center of the municipality. IMSS is public healthcare for the formally employed and their dependents. Seguro Popular is healthcare for the unemployed and informal workers.

Table 3:  
Effect of treatments on making voluntary contributions

	Voluntary savers			Voluntary contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
7-Eleven $\times$ access only	0.0483** (0.022)	0.0384* (0.023)	0.0396* (0.023)	0.0265 (0.020)	0.0199 (0.021)	0.0204 (0.022)
7-Eleven $\times$ media campaign	0.122*** (0.026)	0.107*** (0.028)	0.113*** (0.028)	0.103*** (0.028)	0.0931*** (0.030)	0.0941*** (0.029)
7-Eleven $\times$ post-campaign	0.149*** (0.033)	0.129*** (0.035)	0.132*** (0.035)	0.115*** (0.035)	0.102*** (0.037)	0.100*** (0.037)
Observations	98,814	98,814	21,758	98,814	98,814	21,758
R-squared	0.987	0.987	0.986	0.985	0.985	0.984
Linear trends by urbanicity		X			X	
Only urban municipalities			X			X
Mean dependent variable	111.22	111.22	126.82	180.12	180.12	205.60
Coefficient tests:						
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.00	0.00	0.00
$H_0 : \beta_1 = \beta_2$	0.00	0.00	0.00	0.00	0.00	0.00
$H_0 : \beta_2 = \beta_3$	0.07	0.14	0.22	0.50	0.62	0.73

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table 4:  
Effect of treatments on making voluntary contributions:  
Heterogeneity by affiliation year and main account balance

	Stratifying by year of affiliation				Stratifying by main account balance			
	Voluntary savers		Voluntary contributions		Voluntary savers		Voluntary contributions	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
7-Eleven × pre-campaign	0.0133 (0.023)	0.0917*** (0.027)	0.00132 (0.022)	0.0605** (0.027)	0.146*** (0.029)	0.0304 (0.025)	0.133*** (0.033)	0.0158 (0.023)
7-Eleven × media campaign	0.0780*** (0.028)	0.180*** (0.033)	0.0671** (0.030)	0.154*** (0.036)	0.242*** (0.031)	0.109*** (0.031)	0.245*** (0.040)	0.0919*** (0.033)
7-Eleven × post-campaign	0.103*** (0.034)	0.231*** (0.042)	0.0780** (0.036)	0.198*** (0.047)	0.332*** (0.040)	0.137*** (0.037)	0.320*** (0.048)	0.113*** (0.038)
Observations	88,021	96,320	88,021	96,320	96,621	89,698	96,621	89,698
R-squared	0.986	0.980	0.983	0.977	0.965	0.988	0.960	0.986
Mean dependent variable	71.89	39.33	115.24	64.88	22.31	88.91	31.65	148.47
Sample restriction:								
Affiliation year	<1997	≥1997	<1997	≥1997				
Main account balance					<median	≥median	<median	≥median

Notes: This table shows heterogeneity of the main results by year of affiliation (before and after 1997) and main account balance at baseline (below and above the median). Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 5:  
Effect of treatments on making voluntary contributions:  
Stratifying by exposure to the media campaign

	Voluntary savers		Voluntary contributions	
	(1)	(2)	(3)	(4)
7-Eleven × access only	0.0249 (0.063) [0.730]	0.0287 (0.057) [0.650]	0.00198 (0.061) [0.970]	0.0330 (0.051) [0.560]
7-Eleven × media campaign	0.0483 (0.092) [0.650]	0.124* (0.062) [0.090]	0.0448 (0.091) [0.660]	0.118 (0.069) [0.140]
7-Eleven × post-campaign	-0.00476 (0.127) [0.970]	0.156** (0.058) [0.030]	-0.00378 (0.134) [0.980]	0.146* (0.063) [0.060]
Observations	688	688	688	688
R-squared	0.973	0.995	0.978	0.995
Mean dependent variable	335.91	1,178.51	619.06	1,861.49
Exposure to ads	Low	High	Low	High

Notes: This table shows the results, splitting the data by exposure to the ads. Observations are at the state-month level. Exposure to the ads is measured in terms of cable TV penetration (share of televisions with cable) at the state level in 2014. High exposure corresponds to cable TV penetration below the median. Voluntary savers are the total number of accounts in a state-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment states at baseline is shown. Regressions include state and month-year FE, control for average income and number of hours worked (quarterly measures from the National Occupation and Employment Survey [ENOE]), and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by state in parentheses. Wild cluster bootstrap p-values in brackets (starts denote significance from these values).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6:  
Effect of treatments on making voluntary contributions: Intensity  
of treatment

	Voluntary savers					Voluntary contributions				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
7-Eleven measure × access only	0.0483** (0.022)	0.0005*** (0.000)	0.0040 (0.003)	0.0020** (0.001)	0.0160*** (0.006)	0.0265 (0.020)	0.0003** (0.000)	0.0029 (0.003)	0.0012 (0.001)	0.0105* (0.006)
7-Eleven measure × media campaign	0.1225*** (0.027)	0.0005** (0.000)	0.0075*** (0.003)	0.0024** (0.001)	0.0207*** (0.007)	0.1031*** (0.028)	0.0003 (0.000)	0.0047* (0.002)	0.0014 (0.001)	0.0130* (0.007)
7-Eleven measure × post-campaign	0.1485*** (0.034)	0.0005* (0.000)	0.0089*** (0.003)	0.0019 (0.001)	0.0177** (0.009)	0.1147*** (0.036)	0.0002 (0.000)	0.0058** (0.003)	0.0007 (0.002)	0.0097 (0.010)
Observations	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814
R-squared	0.987	0.987	0.987	0.987	0.987	0.985	0.985	0.985	0.985	0.985
Intensity measure:										
Indicator	X					X				
Number of stores		X					X			
Stores per sq. km.			X					X		
Stores per capita				X					X	
Market share					X					X
Coefficient tests:										
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.17	0.05	0.02
$H_0 : \beta_1 = \beta_2$	0.00	0.72	0.01	0.52	0.27	0.00	0.55	0.35	0.81	0.63
$H_0 : \beta_2 = \beta_3$	0.08	0.88	0.16	0.32	0.35	0.50	0.86	0.35	0.34	0.46
Mean dep. var.	111.22	111.22	111.22	111.22	111.22	180.12	180.12	180.12	180.12	180.12
Mean intensity measure	1.00	22.07	1.64	24.35	3.19	1.00	22.07	1.64	24.35	3.19

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, using various measures for intensity of 7-Eleven exposure. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Five measures of intensity are presented: (i) an indicator for 7-Eleven presence, (ii) the total number of stores in the municipality, (iii) the number of stores per 10 sq. km., (iv) the number of stores per 100,000 working age individuals (15-59 y/o), and (v) 7-Eleven's market share, defined as the fraction of convenience stores that belong to 7-Eleven. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7:  
State-level estimates on making voluntary contributions  
comparing state of residence vs state of birth

	Voluntary savers		Voluntary contributions	
	(1)	(2)	(3)	(4)
7-Eleven $\times$ access only	0.0306 (0.041) [0.460]	0.0346 (0.028) [0.250]	0.0256 (0.036) [0.490]	0.0261 (0.026) [0.340]
7-Eleven $\times$ media campaign	0.102** (0.049) [0.040]	0.0875** (0.031) [0.020]	0.0959* (0.051) [0.070]	0.0835** (0.034) [0.030]
7-Eleven $\times$ post-campaign	0.111* (0.055) [0.050]	0.0729* (0.036) [0.070]	0.102* (0.057) [0.080]	0.0570 (0.039) [0.160]
Observations	1,376	1,376	1,376	1,376
R-squared	0.994	0.997	0.994	0.997
State of residence	X		X	
State of birth		X		X
Mean dep. variable	854.43	816.10	1,383.63	1,320.31

Notes: This table shows state-level results from expanding 7-Eleven access before, during, and after the media campaign. Odd columns classify workers into treatment and control based on their state of residence, even columns use state of birth. Observations are at the state-month level. Voluntary savers are the total number of accounts in a state-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment states at baseline is shown. Regressions include state and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by state in parentheses. Wild cluster bootstrap p-values in brackets (stars denote significance from these values).

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table 8:  
Effect of treatments on size of voluntary contributions

	Size of contribution (1)	Amount per saver (2)	Amount saved (3)
7-Eleven $\times$ access only	-0.0359 (0.035)	-0.0586* (0.034)	0.0337 (0.039)
7-Eleven $\times$ media campaign	-0.111*** (0.040)	-0.133*** (0.040)	0.0757** (0.037)
7-Eleven $\times$ post-campaign	-0.210*** (0.053)	-0.247*** (0.053)	0.0454 (0.043)
Observations	98,814	98,814	98,814
R-squared	0.703	0.726	0.938
Mean dependent variable	3.13	4.83	641.18
Coefficient tests:			
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.21
$H_0 : \beta_1 = \beta_2$	0.10	0.09	0.29
$H_0 : \beta_2 = \beta_3$	0.01	0.00	0.36

Notes: This table shows the results from expanding 7-Eleven access before, during, and after the media campaign on different amounts. Observations are at the municipality-month level. All amounts measured in thousands of Mexican pesos. Size of contribution is the average amount saved voluntarily per transaction. Amount per saver is the average amount saved voluntarily per person. Amount saved is the total amount from voluntary contributions. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

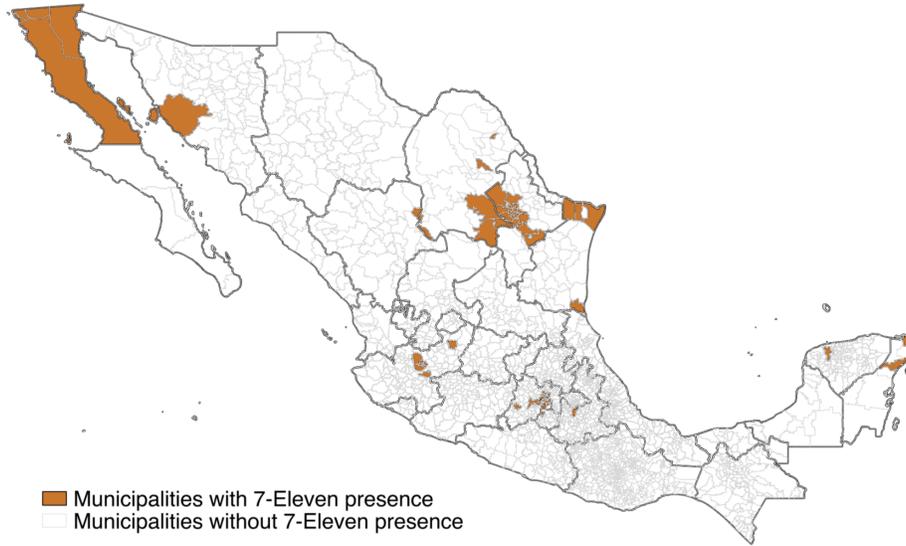
Table 9:  
Effect of treatments on voluntary contributions: Spillovers on  
status quo (non-7-Eleven) contribution methods

	Voluntary savers	Voluntary contributions	Size of contributions	Amount per saver	Amount saved
	(1)	(2)	(3)	(4)	(5)
7-Eleven $\times$ access only	0.0334 (0.022)	0.00746 (0.020)	-0.0196 (0.035)	-0.0463 (0.034)	0.0301 (0.039)
7-Eleven $\times$ media campaign	0.0999*** (0.027)	0.0717** (0.028)	-0.0849** (0.041)	-0.115*** (0.041)	0.0671* (0.037)
7-Eleven $\times$ post-campaign	0.126*** (0.034)	0.0800** (0.036)	-0.179*** (0.053)	-0.228*** (0.053)	0.0355 (0.044)
Observations	98,814	98,814	98,814	98,814	98,814
R-squared	0.987	0.985	0.704	0.727	0.938
Coefficient tests:					
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.01	0.01	0.00	0.30
$H_0 : \beta_1 = \beta_2$	0.00	0.00	0.16	0.12	0.36
$H_0 : \beta_2 = \beta_3$	0.08	0.63	0.01	0.00	0.35
Mean dependent variable	111.22	180.12	3.13	4.83	641.18

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign on outcomes related to contribution methods available at baseline (status quo). Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a state-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Size of contribution is the average amount saved voluntarily per transaction. Amount per saver is the average amount saved voluntarily per person. Amount saved is the total amount from voluntary contributions. All amounts measured in thousands of Mexican pesos. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

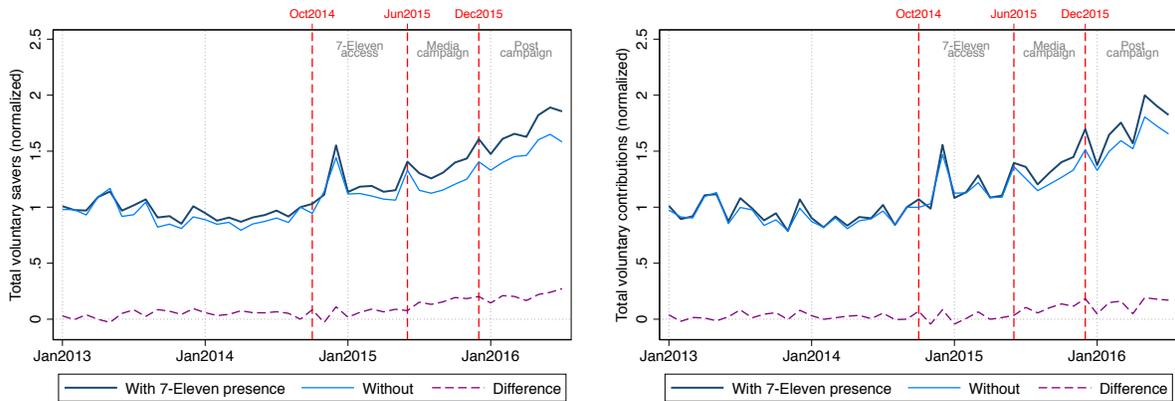
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 1:  
7-Eleven presence by municipality



Notes: This map shows the distribution of 7-Eleven presence in Mexico by municipality.

Figure 2:  
Voluntary contributions over time by 7-Eleven presence

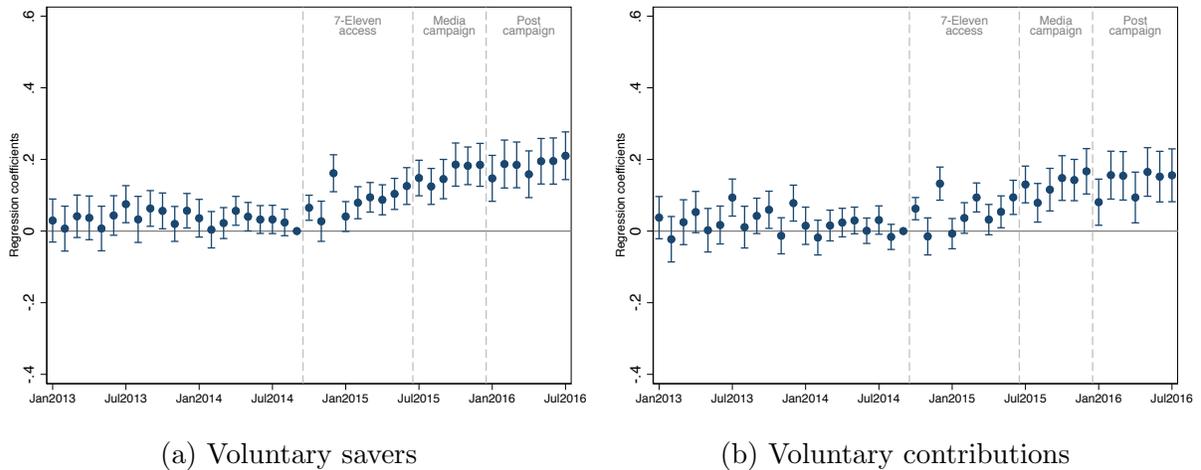


(a) Total voluntary savers

(b) Total voluntary contributions

Notes: These plots show the raw data, divided by municipalities with and without 7-Eleven presence. The first graph shows the total number of accounts in a municipality with at least one voluntary contribution in a given month, and the second graph shows the total number of voluntary contributions. All data series have been normalized so that the value in September 2014 is equal to one. The vertical lines show each of the treatments: 7-Eleven access only, access during the campaign, and access after the campaign.

Figure 3:  
Effect of treatments on making voluntary contributions



Notes: These plots show the main results from expanding 7-Eleven access before, during, and after the media campaign, within a dynamic DD framework. Observations are at the municipality-month level. The first panel shows the total number of accounts in a municipality-month with at least one voluntary contribution, and the second shows the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. Coefficients for month indicators interacted with 7-Eleven presence are shown, from regressions that include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Bars correspond to 95% confidence intervals based on robust standard errors clustered by municipality.

# Appendices for Online Publication

## Contents

- A Additional Figures and Tables
- B Effects on Labor Market Outcomes
- C Workers with and without Voluntary Contributions at Baseline
- D Heterogeneous Effects of the Main Results

## A Additional Tables and Figures

We present supplementary tables and figures in this appendix. Table A1 displays the text of the media campaign ad in the original language and an English translation, showing that no financial information was provided in terms of why retirement savings matter or the characteristics of the savings instrument.

Table A2 shows that the main results are robust to alternative weights using total population of the municipality, and to not using weights at all.

Table A3 uses data from the pre-period (before October 2014) to present evidence indicating the lack of a pre-trend in the main outcome variables between treatment and control municipalities.

Table A4 shows the main results under alternative measures of 7-Eleven intensity exposure that complement Table 6 in the main text.

Tables A5 to A9 present robustness checks for the outcomes measuring contribution sizes similar to the ones presented for the main outcomes. Table A5 shows state-level estimates stratifying by exposure to the media campaign, Table A6 shows results for the 7-Eleven intensity exposure measures, Table A7 compares estimates at the state level between state of residence and state of birth, Table A8 shows robustness to alternative weighting of the regressions, and Table A9 presents evidence for the lack of pre-trends.

Figure A1 shows histograms for the distribution of contribution sizes by contribution method.

Figure A2 presents some still images from the advertisement, showing the different elements emphasized by the campaign (i.e., saving in small increments and making deposits at 7-Eleven convenience stores).

Figure A3 shows the distribution of number of voluntary contributions by access channel for 7-Eleven and three other institutions that began taking contributions later in the sample period.

Figure A4 shows the correlation (or lack thereof) between 7-Eleven presence and other locations that also began accepting voluntary contributions at the state level.

Figure A5 focuses on just 7-Eleven and Telecomm at the municipality level to show the correlation between their locations.

Figure A6 shows changes in 7-Eleven locations at the state level over time between the baseline period and post-interventions (2014 versus 2016).

Figure A7 shows a robustness check that estimates the main equation 84 times, leaving out one of the treatment municipalities at a time.

Figure A8 displays histograms for each of the 7-Eleven intensity measures used in the robustness check presented in the main text (Table 6).

Figure A9 shows the distribution of workers' state of birth and state of residence as described in the data.

Figure A10 shows the correlation between workers' state of residence and state of birth.

Figure A11 shows the raw data patterns for the outcomes measuring contribution sizes.

Figure A12 shows the estimates from a dynamic DD using contribution sizes as the outcome variables.

Figure A13 performs the leave-one-out robustness check on the outcomes related to contribution sizes.

Figure A14 presents the results using bins of different contribution amounts as the outcome variables.

Figure A15 shows histograms for each of the alternative 7-Eleven intensity measures used in Table A4.

Table A1:  
Ad campaign text

A-3

<u>Original Spanish text</u>	<u>English translation</u>
10 pesitos al día muy fácil tú puedes ahorrar	10 pesos each day is easy to save
Poco a poco un retiro más digno vas a asegurar	And little by little you will ensure a better retirement
10 morlacos, 10 varos o como les quieras llamar	10 bucks, 10 clams, whatever you call them
Es sencillo lograrlo sin tu bolsillo afectar	It's easy to achieve, it's no burden on your pocket
Con 10 pesitos (diez diez) para tu AFORE (diez diez)	With just 10 pesos (ten, ten), for your AFORE (ten, ten)
Lo de hoy es ahorrar y después tu futuro gozar	It's trendy to save, so you can then enjoy your future
Con 10 pesitos (diez diez) para tu AFORE (diez diez)	With just 10 pesos (ten, ten), for your AFORE (ten, ten)
Hay que ahorrar diariamente con 10 pesitos o más	You must save everyday, just 10 pesos or more
Súmale 10 pesitos al día para asegurar	Add 10 pesos a day in order to ensure
Tu futuro, tu AFORE y muy buena pensión alcanzar	that your future, AFORE and pension will turn out right
En Seven Eleven y en Telecomm tú podrás aportar	At 7-Eleven and Telecomm you can save
Deposita sin costo 50 pesitos o más	Deposit without charge from 50 pesos or more
Con 10 pesitos (diez diez) para tu AFORE (diez diez)	With just 10 pesos (ten, ten), for your AFORE (ten, ten)
Lo de hoy es ahorrar y después tu futuro gozar	It's trendy to save, so you can then enjoy your future
Con 10 pesitos (diez diez) para tu AFORE (diez diez)	With just 10 pesos (ten, ten), for your AFORE (ten, ten)
Hay que ahorrar diariamente con 10 pesitos o más	You must save everyday, just 10 pesos or more
Se te nota que sí traes morralla, tú puedes ahorrar	One can see that you've got spare change, you can save
El guardián de tu AFORE y tu aliado sin duda es CONSAR.	Your best ally and guard for your AFORE, without a doubt, is CONSAR.

Notes: The left column shows the original Spanish text from the television ad's jingle. The right column shows the equivalent in English (authors' own translation). The ad uses the diminutive form of the word "peso" to emphasize that workers do not need to make large contributions. Note also that even though AFORE is the acronym for the retirement fund managers, it is customary to refer to one's retirement account as an AFORE as well (for example, "10 pesos for your AFORE" means 10 pesos for your individual retirement account).

Table A2:  
Effect of treatments on making voluntary contributions:  
Robustness to alternative regression weights

	Voluntary savers			Voluntary contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
7-Eleven $\times$ access only	0.0483** (0.022)	0.0951*** (0.018)	0.175*** (0.016)	0.0265 (0.020)	0.0743*** (0.017)	0.166*** (0.018)
7-Eleven $\times$ times media campaign	0.122*** (0.026)	0.187*** (0.023)	0.296*** (0.022)	0.103*** (0.028)	0.175*** (0.025)	0.322*** (0.029)
7-Eleven $\times$ times post-campaign	0.149*** (0.033)	0.240*** (0.029)	0.413*** (0.032)	0.115*** (0.035)	0.213*** (0.031)	0.434*** (0.038)
Observations	98,814	98,814	98,814	98,814	98,814	98,814
R-squared	0.987	0.988	0.952	0.985	0.986	0.944
Mean dependent variable	111.22	111.22	111.22	180.12	180.12	180.12
Weights	Accounts	Population	None	Accounts	Population	None
Coefficient tests:						
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.00	0.00	0.00
$H_0 : \beta_1 = \beta_2$	0.00	0.00	0.00	0.00	0.00	0.00
$H_0 : \beta_2 = \beta_3$	0.07	0.00	0.00	0.50	0.01	0.00

Notes: This table shows robustness of the main results to alternative regression weights. We present estimates weighting by the number of accounts pre-treatment (main specification), by the total municipality population in 2010, and without any weights. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE. Robust standard errors clustered by municipality in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table A3:  
Pre-trends for making voluntary contributions

	Voluntary savers			Voluntary contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
7-Eleven $\times t$	-0.000431 (0.001)	0.000608 (0.002)	0.000514 (0.002)	-0.00113 (0.001)	-0.000611 (0.002)	-0.000365 (0.002)
Observations	48,258	48,258	10,626	48,258	48,258	10,626
R-squared	0.991	0.991	0.990	0.990	0.990	0.988
Linear trends by urbanicity		X			X	
Only urban municipalities			X			X
Mean dependent variable	111.22	111.22	126.82	180.12	180.12	205.60

Notes: This table shows supporting evidence for the parallel pre-trends assumption. Observations are at the municipality-month level, and are restricted to time periods before any intervention. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table A4:  
Effect of treatments on making voluntary contributions:  
Alternative measures of intensity of treatment

	Voluntary savers					Voluntary contributions				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
7-Eleven measure × access only	0.0050** (0.002)	0.0058** (0.002)	0.0032** (0.001)	0.0009** (0.000)	0.0027** (0.001)	0.0031 (0.002)	0.0035* (0.002)	0.0019 (0.001)	0.0005 (0.000)	0.0017 (0.001)
7-Eleven measure × media campaign	0.0077*** (0.002)	0.0090*** (0.003)	0.0038** (0.002)	0.0010** (0.000)	0.0031** (0.002)	0.0047* (0.002)	0.0060** (0.002)	0.0021 (0.002)	0.0005 (0.000)	0.0018 (0.002)
7-Eleven measure × post-campaign	0.0080*** (0.003)	0.0098*** (0.003)	0.0030 (0.002)	0.0008 (0.001)	0.0023 (0.002)	0.0045 (0.003)	0.0060** (0.003)	0.0011 (0.003)	0.0003 (0.001)	0.0007 (0.002)
Observations	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814
R-squared	0.987	0.987	0.987	0.987	0.987	0.985	0.985	0.985	0.985	0.985
Intensity measure:										
Stores per 10 sq. km., urban areas only	X					X				
Stores per 10 sq. km., municipal seat only		X					X			
Stores per 100,000 people			X					X		
Stores per 100,000 households				X					X	
Stores per 100,000 employed people					X					X
Coefficient tests:										
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.01	0.01	0.01	0.01	0.04	0.22	0.11	0.04	0.03	0.10
$H_0 : \beta_1 = \beta_2$	0.06	0.02	0.51	0.59	0.60	0.37	0.15	0.82	0.92	0.89
$H_0 : \beta_2 = \beta_3$	0.76	0.40	0.32	0.30	0.23	0.86	0.97	0.34	0.33	0.29
Mean dep. var.	111.22	111.22	111.22	111.22	111.22	180.12	180.12	180.12	180.12	180.12
Mean intensity measure	4.84	5.75	14.98	55.68	18.49	4.84	5.75	14.98	55.68	18.49

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, using various measures for intensity of 7-Eleven exposure. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Five alternative measures of intensity are presented: (i) the number of stores per 10 sq. km. of urban areas of the municipality, (ii) the number of stores per 10 sq. km. of the municipal government seat (main town or city), (iii) the number of stores per 100,000 people, (iv) the number of stores per 100,000 households, and (v) the number of stores per 100,000 employed people in the 2010 census. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A5:  
Effect of treatments on size of contributions: Stratifying by  
exposure to the media campaign

	Size of contribution		Amount per saver		Amount saved	
	(1)	(2)	(3)	(4)	(5)	(6)
7-Eleven $\times$ access only	0.0913 (0.072) [0.290]	-0.0497 (0.048) [0.340]	0.0689 (0.067) [0.370]	-0.0455 (0.042) [0.310]	0.0935 (0.105) [0.490]	-0.0171 (0.056) [0.800]
7-Eleven $\times$ media campaign	-0.0159 (0.059) [0.790]	-0.00465 (0.065) [0.950]	-0.0193 (0.057) [0.740]	-0.0100 (0.057) [0.860]	0.0283 (0.076) [0.730]	0.114** (0.050) [0.030]
7-Eleven $\times$ post-campaign	0.0759 (0.115) [0.580]	0.0232 (0.101) [0.820]	0.0770 (0.109) [0.570]	0.0134 (0.096) [0.890]	0.0710 (0.106) [0.520]	0.169** (0.070) [0.030]
Observations	688	688	688	688	688	688
R-squared	0.651	0.756	0.577	0.725	0.871	0.980
Mean dependent variable	2.28	3.50	4.05	5.52	1382.29	6847.33
Exposure to ads	Low	High	Low	High	Low	High

Notes: This table shows the results, splitting the data by exposure to the ads. Observations are at the state-month level. Exposure to the ads is measured in terms of cable TV penetration (share of televisions with cable) at the state level in 2014. High exposure corresponds to cable TV penetration below the median. All amounts measured in thousands of Mexican pesos. Size of contribution is the average amount saved voluntarily per transaction. Amount per saver is the average amount saved voluntarily per person. Amount saved is the total amount from voluntary contributions. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment states at baseline is shown. Regressions include state and month-year FE, control for average income and number of hours worked, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by state in parentheses. Wild cluster bootstrap p-values in brackets (starts denote significance from these values).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A6:  
Effect of treatments on size of contributions: Intensity of treatment

	Size of contribution					Amount per saver					Amount saved				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
7-Eleven measure × access only	-0.0359 (0.035)	-0.0006*** (0.000)	-0.0047 (0.004)	-0.0017 (0.001)	-0.0131 (0.009)	-0.0586* (0.034)	-0.0007*** (0.000)	-0.0058 (0.004)	-0.0025* (0.001)	-0.0188** (0.009)	0.0337 (0.039)	0.0000 (0.000)	0.0013 (0.004)	0.0002 (0.001)	0.0034 (0.010)
7-Eleven measure × media campaign	-0.1109*** (0.041)	-0.0007 (0.000)	-0.0065 (0.006)	-0.0007 (0.003)	-0.0080 (0.016)	-0.1329*** (0.041)	-0.0009** (0.000)	-0.0093 (0.006)	-0.0018 (0.003)	-0.0160 (0.016)	0.0757** (0.037)	0.0001 (0.001)	0.0037 (0.003)	0.0020 (0.002)	0.0149 (0.014)
7-Eleven measure × post-campaign	-0.2105*** (0.053)	-0.0011 (0.001)	-0.0142* (0.008)	-0.0026 (0.005)	-0.0271 (0.026)	-0.2471*** (0.053)	-0.0014** (0.001)	-0.0173** (0.008)	-0.0038 (0.004)	-0.0355 (0.024)	0.0454 (0.044)	-0.0001 (0.001)	0.0001 (0.005)	0.0010 (0.003)	0.0055 (0.020)
Observations	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814
R-squared	0.703	0.703	0.703	0.702	0.703	0.726	0.726	0.725	0.725	0.725	0.938	0.938	0.938	0.938	0.938
Intensity measure:															
Indicator	X					X									
Number of stores		X					X								
Stores per sq. km.			X					X							
Stores per capita				X					X						
Market share					X					X					
Coefficient tests:															
$H_0 : \{\beta_j\} = 0, \forall j$	0.00	0.05	0.07	0.42	0.37	0.00	0.00	0.04	0.20	0.19	0.22	0.89	0.12	0.62	0.49
$H_0 : \beta_1 = \beta_2$	0.11	0.89	0.70	0.65	0.71	0.10	0.68	0.43	0.72	0.84	0.30	0.88	0.63	0.36	0.44
$H_0 : \beta_2 = \beta_3$	0.01	0.28	0.02	0.46	0.20	0.00	0.21	0.02	0.36	0.15	0.36	0.52	0.16	0.59	0.41
Mean dep. var.	3.13	3.13	3.13	3.13	3.13	4.83	4.83	4.83	4.83	4.83	641.18	641.18	641.18	641.18	641.18
Mean intensity measure	1.00	22.07	1.64	24.35	3.19	1.00	22.07	1.64	24.35	3.19	1.00	22.07	1.64	24.35	3.19

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, using various measures for intensity of 7-Eleven exposure. Observations are at the municipality-month level. All amounts measured in thousands of Mexican pesos. Size of contribution is the average amount saved voluntarily per transaction. Amount per saver is the average amount saved voluntarily per person. Amount saved is the total amount from voluntary contributions. Five measures of intensity are presented: (i) an indicator for 7-Eleven presence, (ii) the total number of stores in the municipality, (iii) the number of stores per 10 sq. km., (iv) the number of stores per 100,000 working age individuals (15-59 y/o), and (v) 7-Eleven's market share, defined as the fraction of convenience stores that belong to 7-Eleven. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A7:  
State-level estimates on size of contributions comparing state of residence vs state of birth

	Size of contribution		Amount per saver		Amount saved	
	(1)	(2)	(3)	(4)	(5)	(6)
7-Eleven $\times$ pre-campaign	-0.0218 (0.040) [0.580]	-0.0323 (0.033) [0.340]	-0.0266 (0.037) [0.480]	-0.0407 (0.033) [0.220]	0.00363 (0.047) [0.940]	-0.00643 (0.033) [0.870]
7-Eleven $\times$ media campaign	-0.0289 (0.051) [0.590]	-0.0439 (0.049) [0.400]	-0.0344 (0.048) [0.490]	-0.0478 (0.048) [0.350]	0.0667* (0.037) [0.060]	0.0393 (0.044) [0.410]
7-Eleven $\times$ post-campaign	0.0170 (0.083) [0.840]	-0.0280 (0.063) [0.690]	0.00890 (0.081) [0.900]	-0.0437 (0.064) [0.500]	0.119* (0.061) [0.070]	0.0284 (0.058) [0.610]
Observations	1,376	1,376	1,376	1,376	1,376	1,376
R-squared	0.711	0.705	0.655	0.666	0.973	0.979
State of residence	X		X		X	
State of birth		X		X		X
Mean dep. variable	3.03	1.04	4.95	1.54	4,745.39	4,609.20

Notes: This table shows state-level results from expanding 7-Eleven access before, during, and after the media campaign. Odd columns classify workers into treatment and control based on their state of residence, even columns use state of birth. Observations are at the state-month level. All amounts measured in thousands of Mexican pesos. Size of contribution is the average amount saved voluntarily per transaction. Amount per saver is the average amount saved voluntarily per person. Amount saved is the total amount from voluntary contributions. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment states at baseline is shown. Regressions include state and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by state in parentheses. Wild cluster bootstrap p-values in brackets (stars denote significance from these values).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A8:  
Effect of treatments on size of contributions: Robustness to  
alternative regression weights

	Size of contribution			Amount per saver			Amount saved		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7-Eleven $\times$ access only	-0.0359 (0.035)	-0.0302 (0.033)	0.0618 (0.058)	-0.0586* (0.034)	-0.0532 (0.033)	0.0510 (0.061)	0.0337 (0.039)	0.108*** (0.033)	0.186*** (0.035)
7-Eleven $\times$ media campaign	-0.111*** (0.040)	-0.198*** (0.039)	-0.0594 (0.064)	-0.133*** (0.040)	-0.215*** (0.039)	-0.0383 (0.072)	0.0757** (0.037)	0.120*** (0.032)	0.274*** (0.046)
7-Eleven $\times$ post-campaign	-0.210*** (0.053)	-0.417*** (0.048)	-0.423*** (0.070)	-0.247*** (0.053)	-0.452*** (0.048)	-0.414*** (0.075)	0.0454 (0.043)	0.0546 (0.037)	0.203*** (0.047)
Observations	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814	98,814
R-squared	0.703	0.791	0.698	0.726	0.809	0.718	0.938	0.952	0.870
Mean dependent variable	3.13	3.13	3.13	4.83	4.83	4.83	641.18	641.18	641.18
Weights	Accounts	Population	None	Accounts	Population	None	Accounts	Population	None
Coefficient tests:									
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00
$H_0 : \beta_1 = \beta_2$	0.10	0.00	0.04	0.09	0.00	0.12	0.29	0.72	0.04
$H_0 : \beta_2 = \beta_3$	0.01	0.00	0.00	0.00	0.00	0.00	0.36	0.02	0.11

Notes: This table shows robustness of the main results to alternative regression weights. We present estimates weighting by the number of accounts pre-treatment (main specification), by the total municipality population in 2010, and without any weights. Observations are at the municipality-month level. All amounts measured in thousands of Mexican pesos. Size of contribution is the average amount saved voluntarily per transaction. Amount per saver is the average amount saved voluntarily per person. Amount saved is the total amount from voluntary contributions. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE. Robust standard errors clustered by municipality in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table A9:  
Pre-trends for size of voluntary contributions

	Size of contribution			Amount per saver			Amount saved		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7-Eleven $\times t$	0.000442 (0.003)	0.00332 (0.003)	0.00280 (0.003)	-0.000495 (0.003)	0.00194 (0.003)	0.00167 (0.003)	-0.00232 (0.003)	0.00234 (0.004)	0.000899 (0.003)
Observations	48,258	48,258	10,626	48,258	48,258	10,626	48,258	48,258	10,626
R-squared	0.730	0.731	0.611	0.755	0.755	0.633	0.939	0.940	0.925
Linear trends by urbanicity		X			X			X	
Only urban municipalities			X			X			X
Mean dependent variable	3.13	3.13	3.25	4.83	4.83	5.13	641.18	641.18	726.53

Notes: This table shows supporting evidence for the parallel pre-trends assumption. Observations are at the municipality-month level, and are restricted to time periods before any intervention. All amounts measured in thousands of Mexican pesos. Size of contribution is the average amount saved voluntarily per transaction. Amount per saver is the average amount saved voluntarily per person. Amount saved is the total amount from voluntary contributions. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

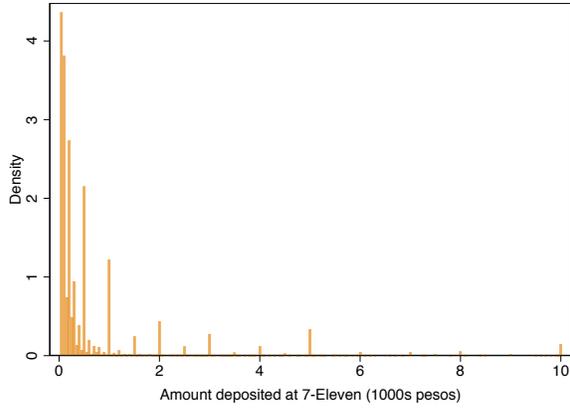
Table A10:  
Probability by worker type of making contributions via 7-Eleven,  
via status quo methods, and both

	Early savers			Treatment savers		
	Only 7-Eleven (1)	Only traditional (2)	Both methods (3)	Only 7-Eleven (4)	Only traditional (5)	Both methods (6)
7-Eleven $\times$ pre-campaign	0.0004*** (0.000)	0.003 (0.003)	0.001*** (0.000)	0.002*** (0.000)	-0.003 (0.003)	0.001*** (0.000)
7-Eleven $\times$ media campaign	0.001*** (0.000)	0.002 (0.003)	0.001*** (0.000)	0.004*** (0.000)	0.010*** (0.004)	0.002*** (0.000)
7-Eleven $\times$ post-campaign	0.001*** (0.000)	-0.002 (0.003)	0.001*** (0.000)	0.006*** (0.000)	0.029*** (0.006)	0.003*** (0.000)
Observations	3,326,880	3,326,880	3,326,880	5,189,616	5,189,616	5,189,616
R-squared	0.126	0.491	0.099	0.096	0.235	0.092
Mean dependent variable	0.00	0.24	0.00	0.00	0.00	0.00
Coefficient tests:						
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.05	0.00	0.00	0.00	0.00
$H_0 : \beta_1 = \beta_2$	0.00	0.50	0.02	0.00	0.00	0.00
$H_0 : \beta_2 = \beta_3$	0.12	0.01	0.08	0.00	0.00	0.00

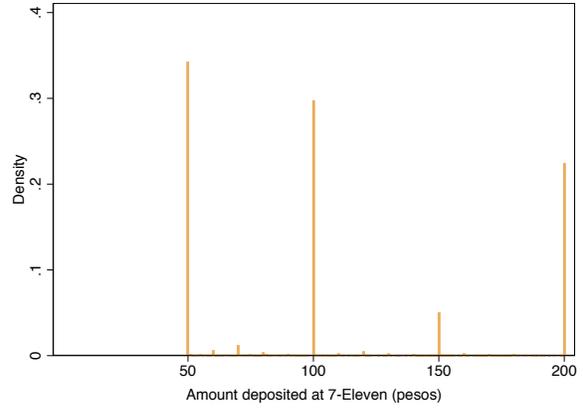
Notes: This table shows regressions at the individual level of changes in the probability of making contributions via 7-Eleven, via traditional or status quo methods, and both. Observations are at the account-month level. Results are shown separately for workers that had made voluntary contributions at baseline (early savers) and workers that began making contributions with the treatments (treatment savers). The mean of the dependent variable for the treatment accounts at baseline is shown. Regressions include account and month-year FE. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

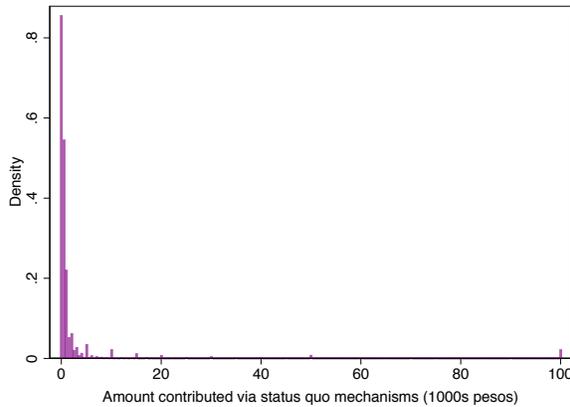
Figure A1:  
Histograms of size of contributions by contribution methods



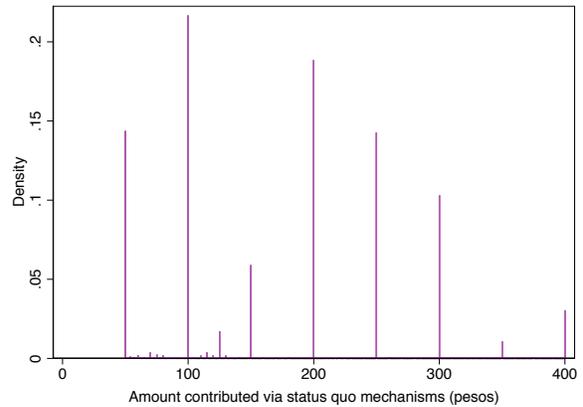
(a) 7-Eleven, full distribution



(b) 7-Eleven, below median



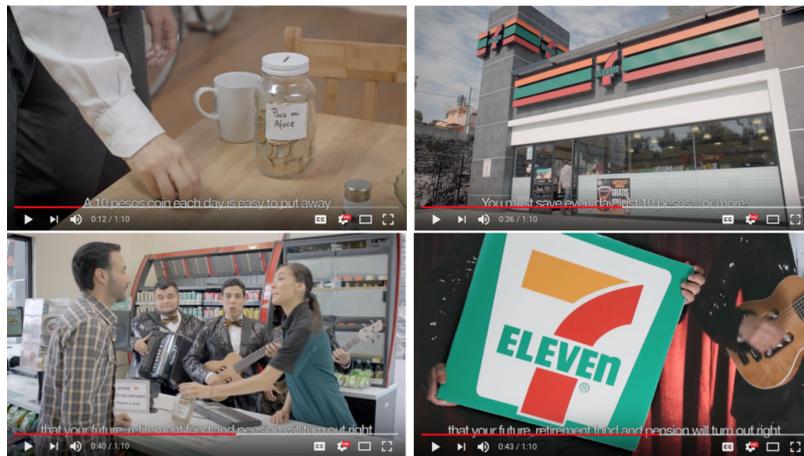
(c) Status quo, full distribution



(d) Status quo, below median

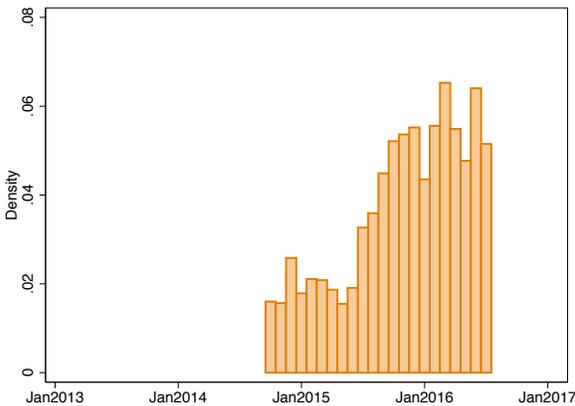
Notes: These plots show histograms for the size of contributions from the full transactions data. The top two graphs restrict to voluntary contributions made at 7-Eleven. The bottom two graphs consider the status quo mechanisms available before the treatments. The plots on the left show the full distribution over the entire time frame included in this study. The plots on the right restrict to contributions below the median (200 Mexican pesos for 7-Eleven contributions, 400 for status quo methods).

Figure A2:  
Still images from the ad campaign on television

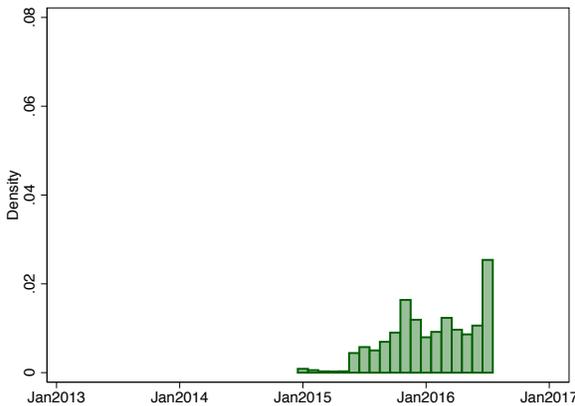


Notes: These four images are representative of the message the ad campaign was transmitting. The top left image shows an individual saving in 10 peso coins, with the objective of depositing the money in their AFOPRE. The top right image shows the individual going to a 7-Eleven convenience store. The image on the bottom left shows the worker making a voluntary contribution, and the bottom right image emphasizes the 7-Eleven policy. These stills were taken from a version of the ad with English subtitles, available at <https://www.youtube.com/watch?v=uSd0pwVJy1o> (last accessed April 4, 2018).

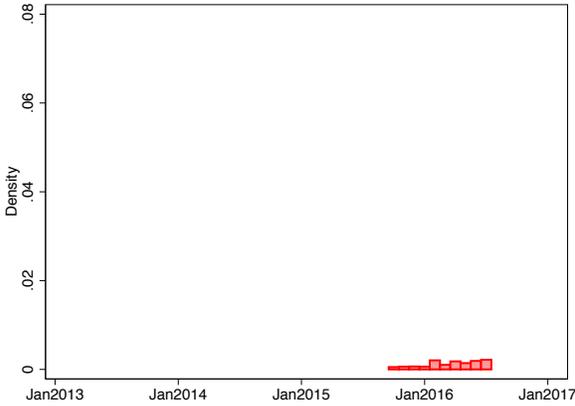
Figure A3:  
Histograms of voluntary contributions by store or institution



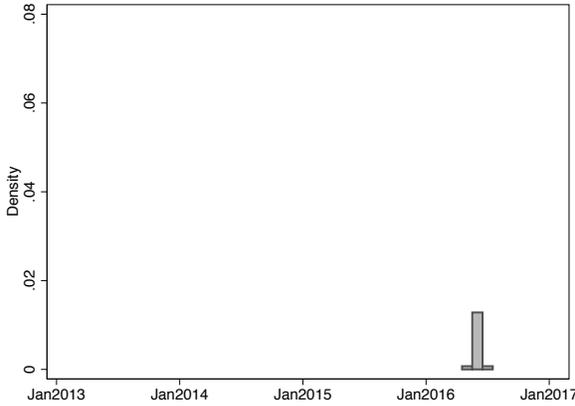
(a) 7-Eleven



(b) Telecomm



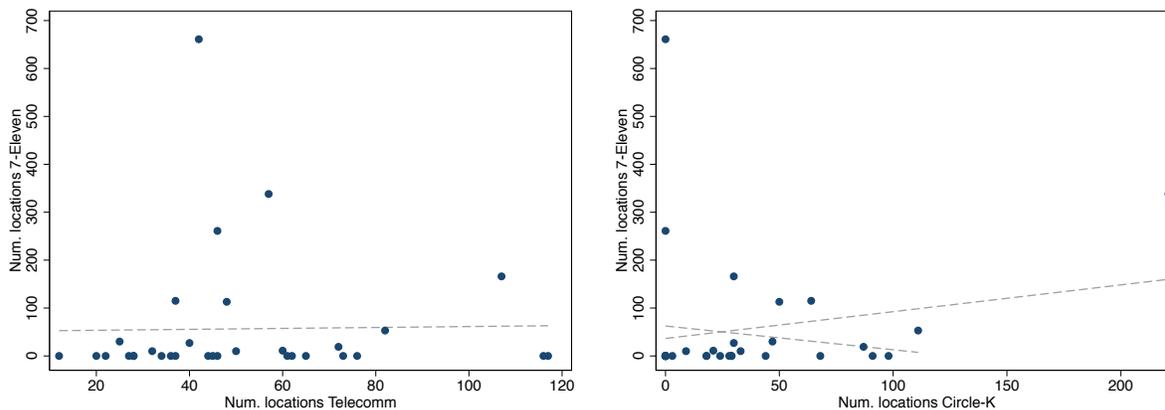
(c) Circle-K



(d) Bansefi

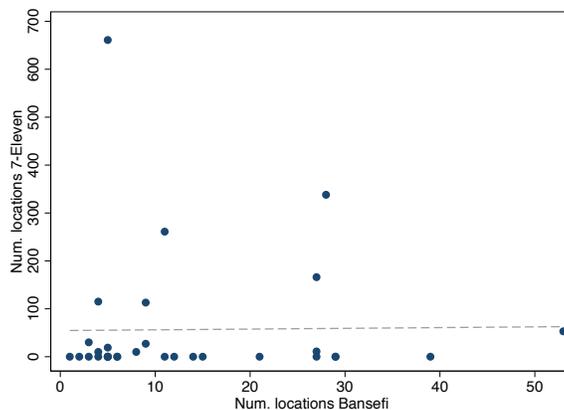
Notes: These plots show histograms detailing the density of voluntary contributions at each chain of stores or financial institution over time.

Figure A4:  
 Relationship between 7-Eleven state presence and other stores or institutions



(a) Telecomm

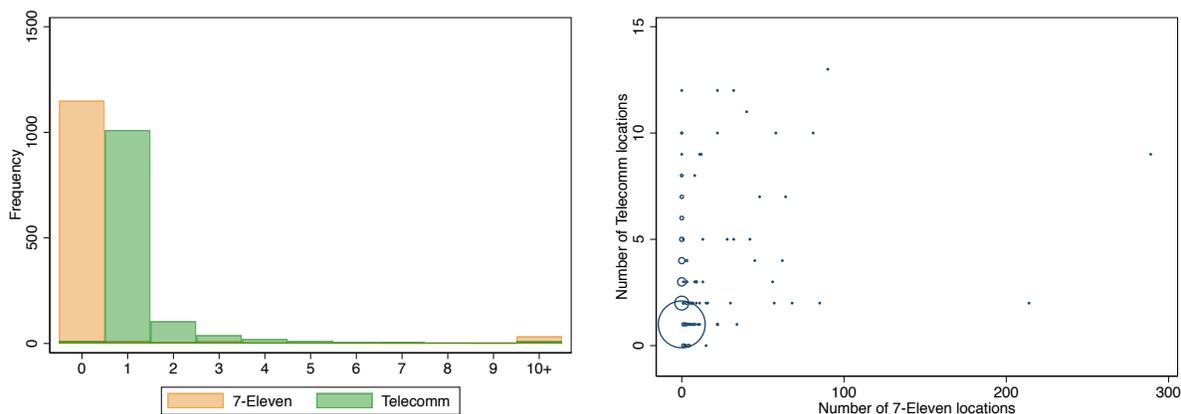
(b) Circle-K



(c) Bansefi

Notes: These plots show the relationship between the number of 7-Eleven stores by state and the number of locations for Telecomm, Circle-K, and Bansefi. The dashed lines represent the linear fit. In the second panel, the upward sloping linear fit considers all the data for 32 states, while the downward sloping line excludes the outlier (Distrito Federal).

Figure A5:  
 Relationship between 7-Eleven and Telecomm at the municipality level

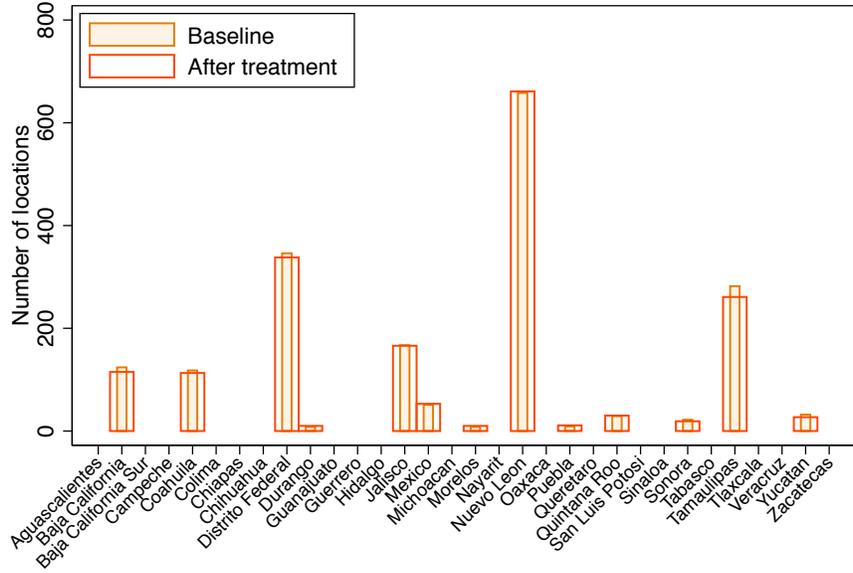


(a) Number of locations per municipality

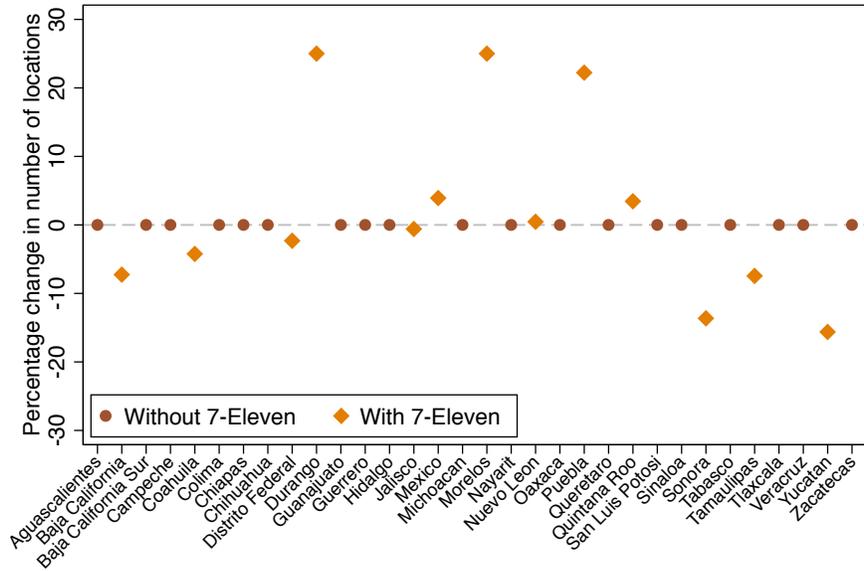
(b) Relationship at the municipality level

Notes: These plots show the relationship between the number of 7-Eleven stores and the number of locations for Telecomm at the municipality level. The plot on the left shows histograms for the number of locations, showing that 7-Eleven does not have widespread presence (mass at zero), while Telecomm is more ubiquitous. The plot on the right shows the correlation between the number of locations of 7-Eleven and Telecomm. The size of the circles denotes the number of municipalities with that particular combination, where the most common configuration is municipalities with one Telecomm location and zero 7-Eleven stores.

Figure A6:  
7-Eleven presence by state over time



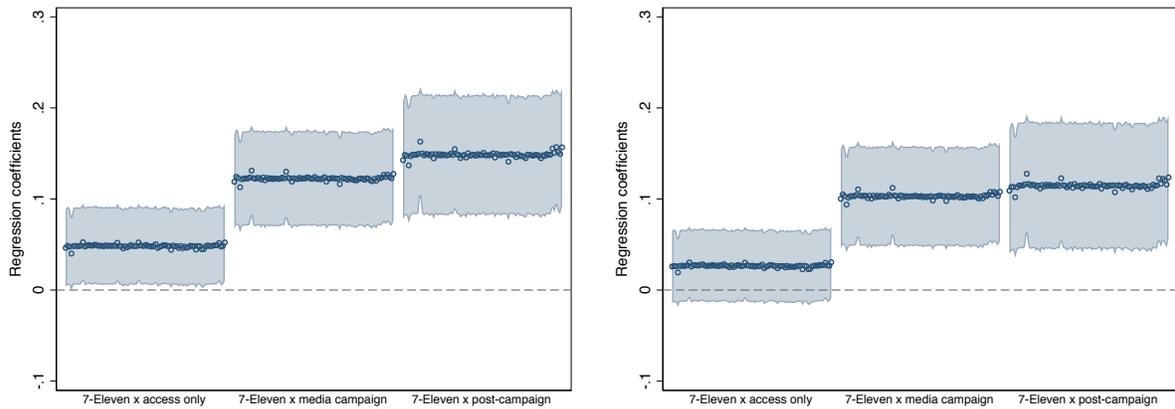
(a) Number of locations



(b) Change in locations

Notes: These plots show 7-Eleven locations by state pre and post-treatment (2014 vs 2016). The top graph shows the histograms, while the bottom graph plots the percentage change in number of locations over time, for each of the 32 states.

Figure A7:  
 Effect of treatments on making voluntary contributions:  
 Robustness to leave-one-out estimates

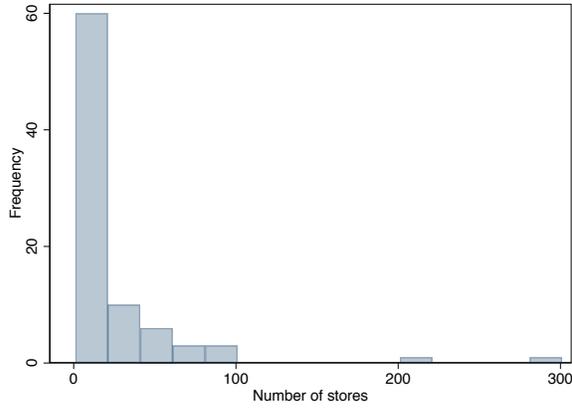


(a) Voluntary savers

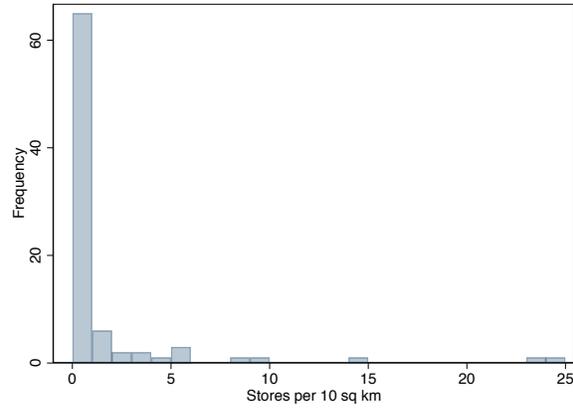
(b) Voluntary contributions

Notes: These plots show robustness of the main results to outliers. We estimate the main specification 84 times, leaving one of the 84 7-Eleven municipalities out of the sample each time. We plot the three coefficients of interest and their 95% confidence interval based on robust standard errors clustered by municipality. Observations are at the municipality-month level. The first panel shows the total number of accounts in a municipality-month with at least one voluntary contribution, and the second shows the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment.

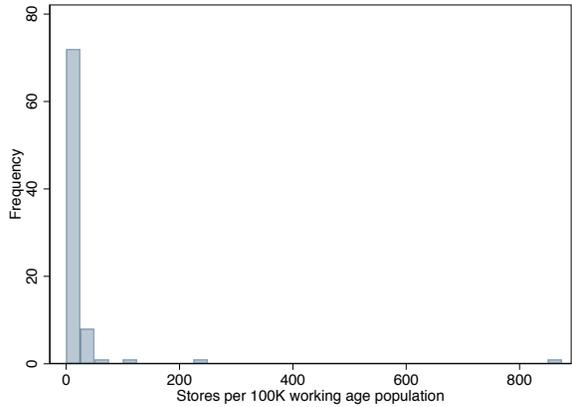
Figure A8:  
Histograms of municipality measures of 7-Eleven intensity



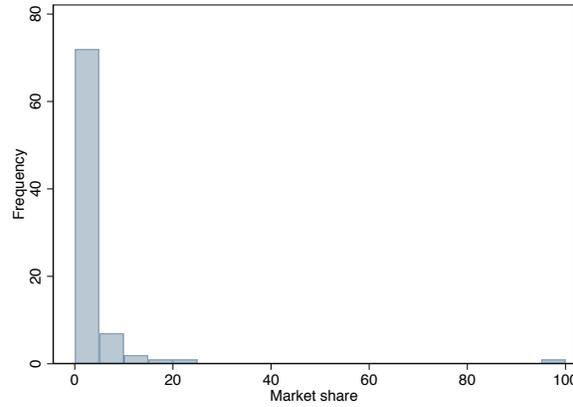
(a) Number of stores



(b) Stores per 10 sq. km.



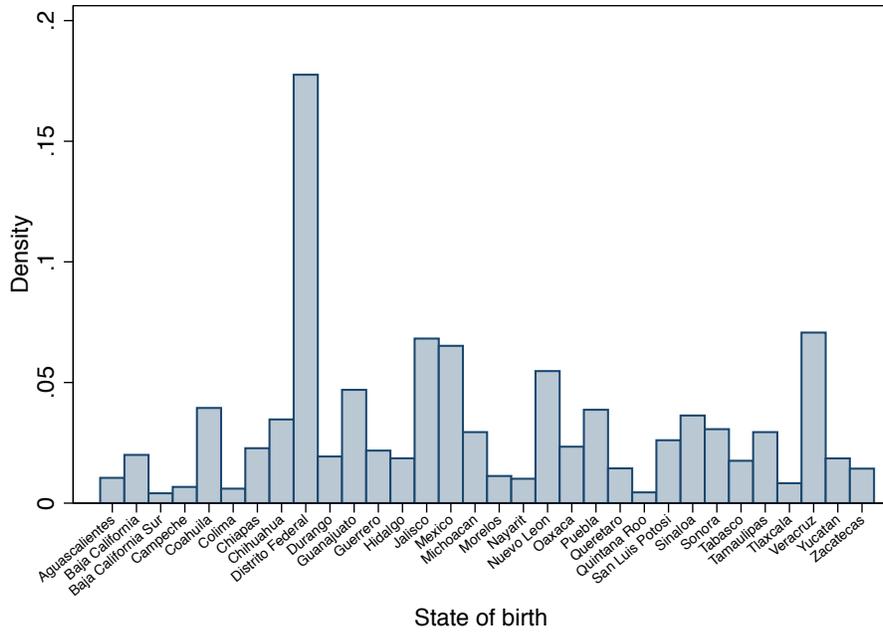
(c) Stores per 100,000 working age individuals



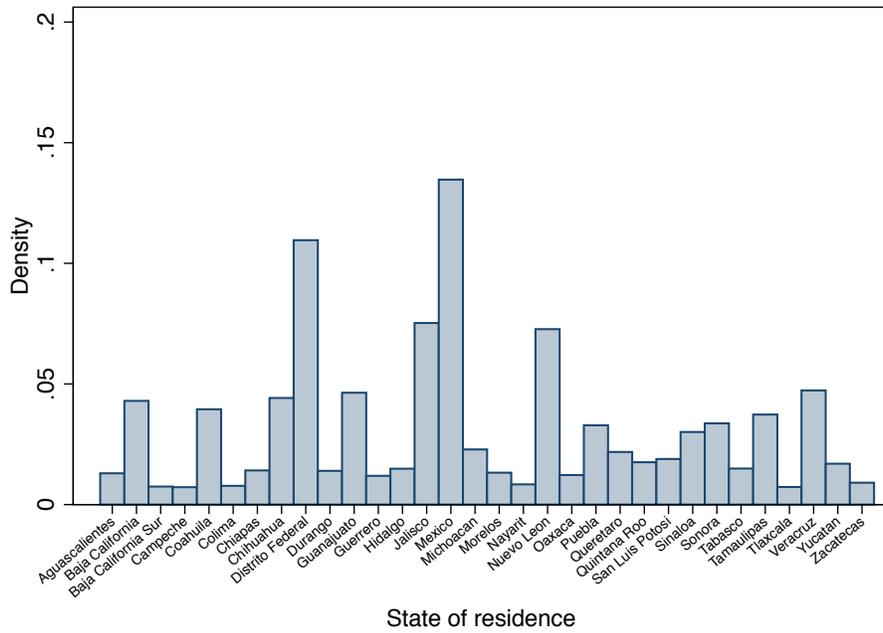
(d) Market share

Notes: These plots show histograms displaying the frequency for different measures of 7-Eleven intensity of exposure for the 84 municipalities in the treatment group of the analysis. Each panel considers the following measures: (i) the total number of stores in the municipality, (ii) the number of stores per 10 sq. km., (iii) the number of stores per 100,000 working age individuals (15-59 y/o), and (iv) 7-Eleven's market share, defined as the fraction of convenience stores that belong to 7-Eleven.

Figure A9:  
Distribution of workers' state of birth and state of residence



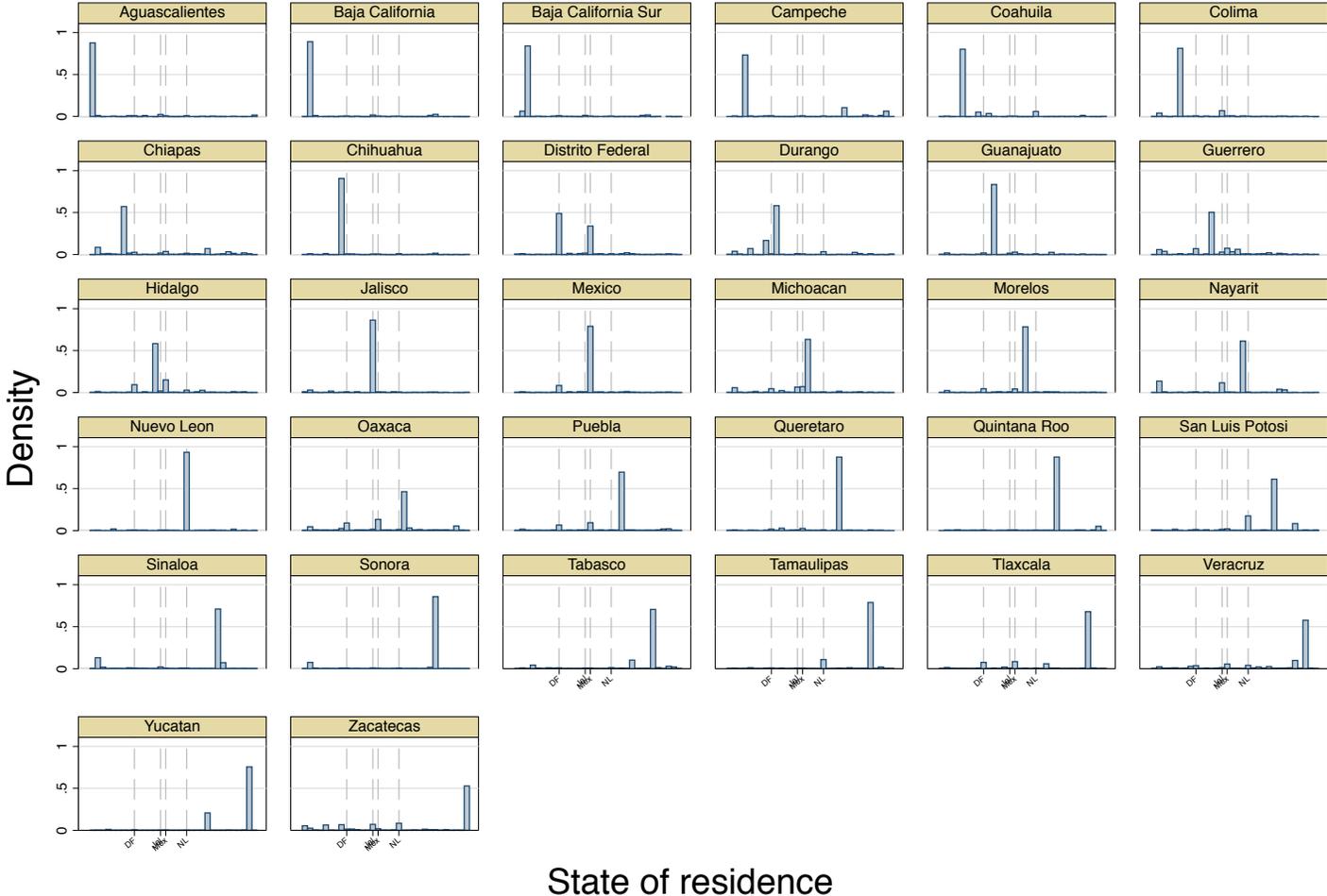
(a) Distribution of state of birth



(b) Distribution of state of residence

Notes: These plots show histograms for workers' state of birth and state of residence (measured in the last quarter of 2015).

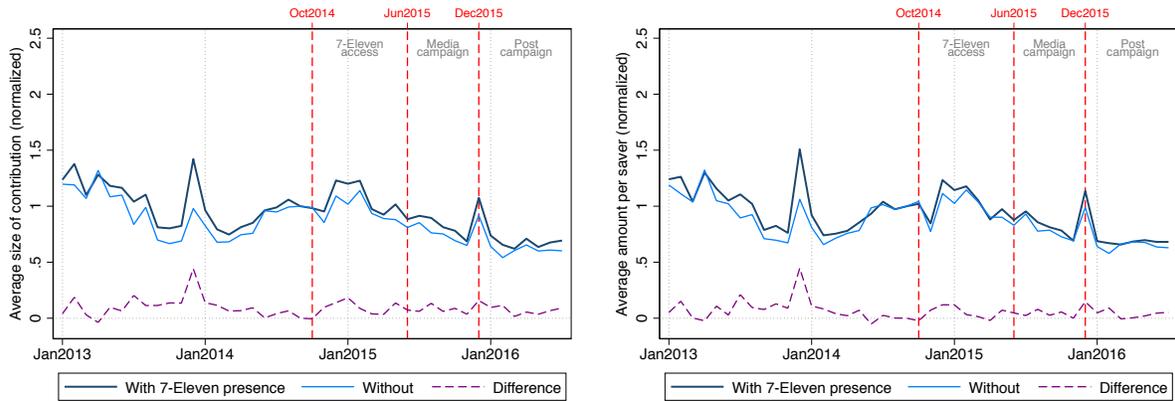
Figure A10:  
 Relationship between workers' state of birth and state of residence



Graphs by state of birth

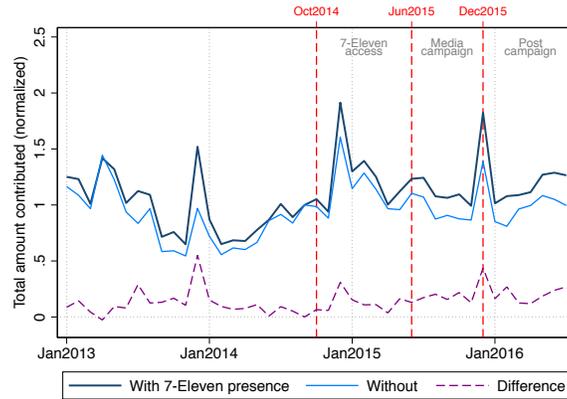
Notes: These plots show the relationship between state of birth and state of residence (measured in the last quarter of 2015). Dashed lines correspond to states that contain the three largest metropolitan areas: Mexico City (Distrito Federal [DF] and Mexico [Mex]), Guadalajara (Jalisco [Jal]), and Monterrey (Nuevo Leon [NL]).

Figure A11:  
Size of voluntary contributions over time by 7-Eleven presence



(a) Average size of contributions

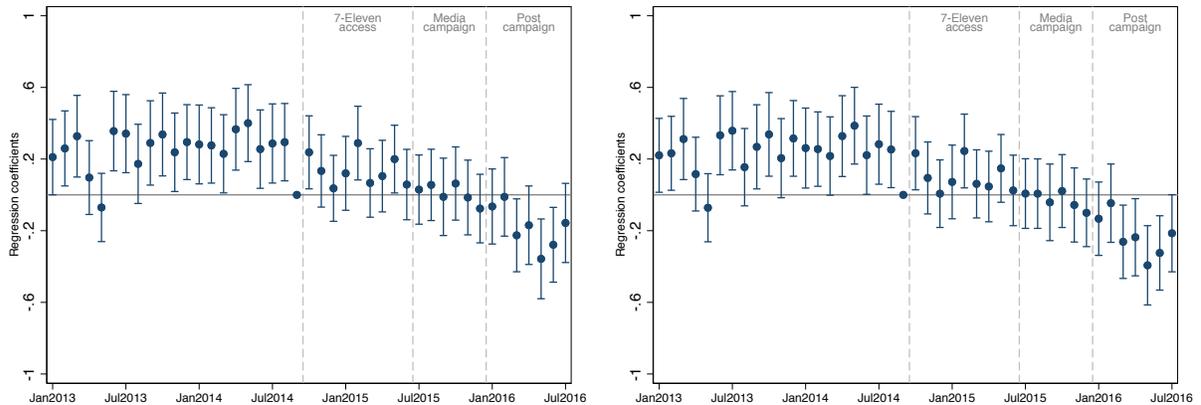
(b) Average amount per voluntary saver



(c) Total amount from voluntary contributions

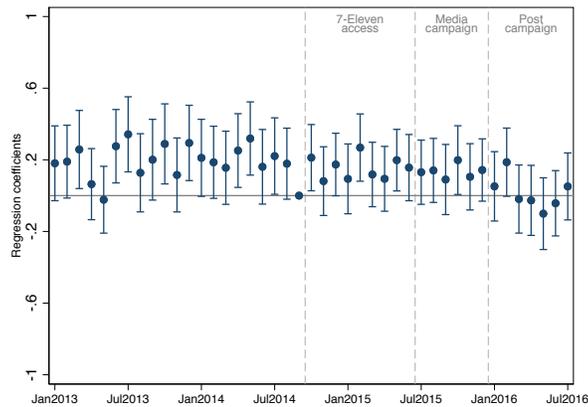
Notes: These plots show the raw data, divided by municipalities with and without 7-Eleven presence. The first graph shows the average size of voluntary contributions, the second graph shows the average amount saved per voluntary saver, and the third graph shows the total amount contributed to the voluntary savings account. All data series have been normalized so that the value in September 2014 is equal to one. The vertical lines show each of the treatments: 7-Eleven access only, access during the campaign, and access after the campaign.

Figure A12:  
Effect of treatments on size of contributions



(a) Size of contributions

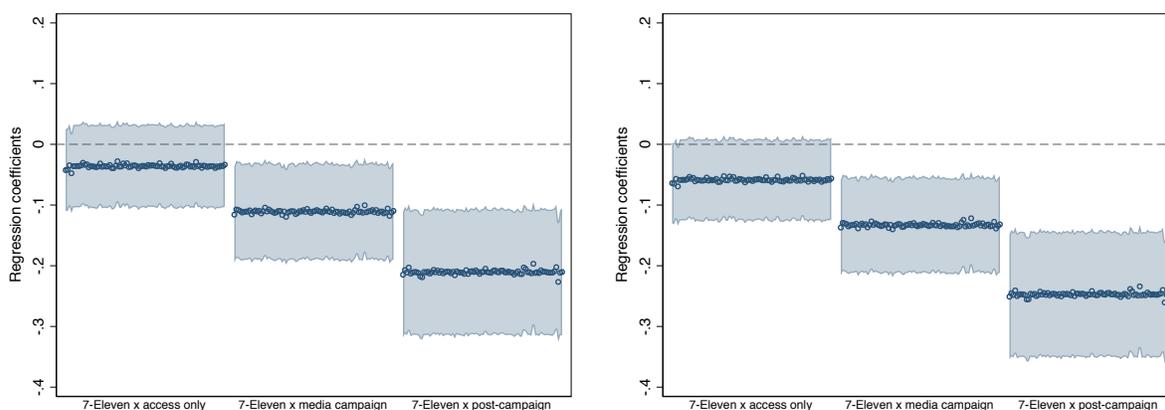
(b) Amount per saver



(c) Amount saved

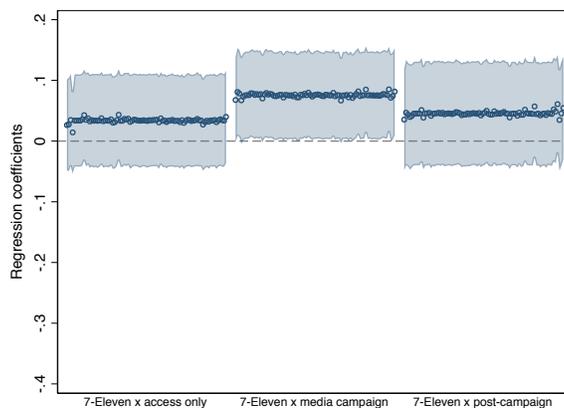
Notes: These plots show the results from expanding 7-Eleven access before, during, and after the media campaign, within a dynamic DD framework. Observations are at the municipality-month level. All amounts measured in thousands of Mexican pesos. The first graph shows the average amount saved voluntarily per transaction, the second graph shows the average amount saved voluntarily per person, and the third graph is the total amount from voluntary contributions. Outcome variables are measured in logs for the estimation. Coefficients for month indicators interacted with 7-Eleven presence are shown, from regressions that include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Bars correspond to 95% confidence intervals based on robust standard errors clustered by municipality.

Figure A13:  
Effect of treatments on size of contributions: Robustness to  
leave-one-out estimates



(a) Size of contributions

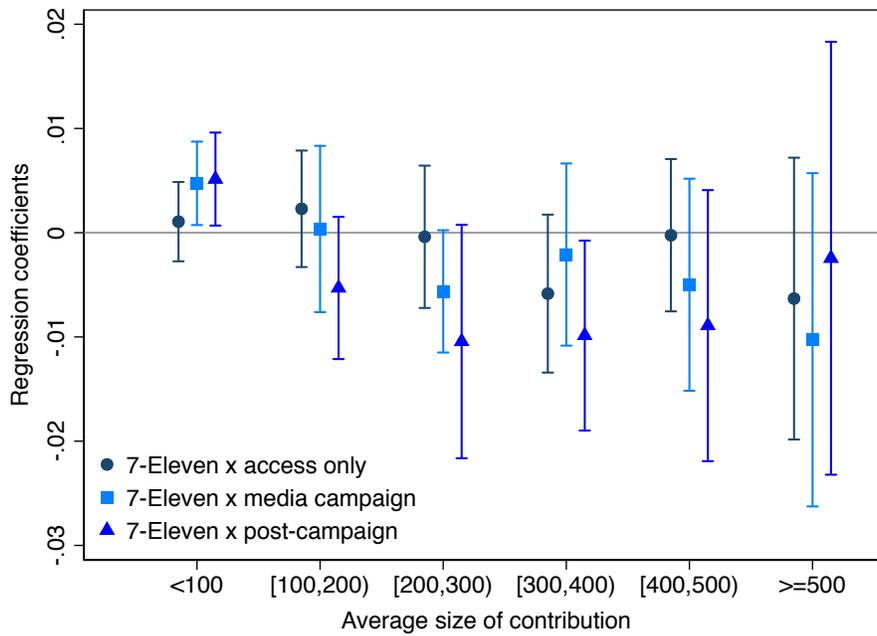
(b) Amount per saver



(c) Amount saved

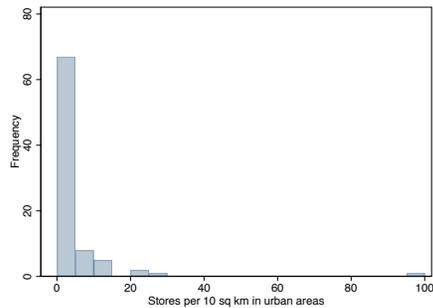
Notes: These plots show robustness of the main results to outliers. We estimate the main specification 84 times, leaving one of the 84 7-Eleven municipalities out of the sample each time. We plot the three coefficients of interest and their 95% confidence interval based on robust standard errors clustered by municipality. Observations are at the municipality-month level. All amounts measured in thousands of Mexican pesos. The first graph shows the average amount saved voluntarily per transaction, the second graph shows the average amount saved voluntarily per person, and the third graph is the total amount from voluntary contributions. Outcome variables are measured in logs for the estimation. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment.

Figure A14:  
Effect of treatments on size of contributions

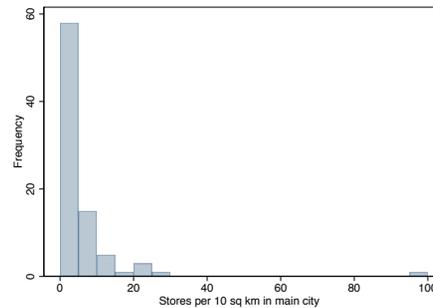


Notes: This plot shows the effect of the treatments on the average size of contributions for different intervals. We focus on small quantities, in intervals of 100 pesos. Each interval on the horizontal axis corresponds to a different binary variable used as the dependent variable in separate regressions. Observations are at the municipality-month level. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment.

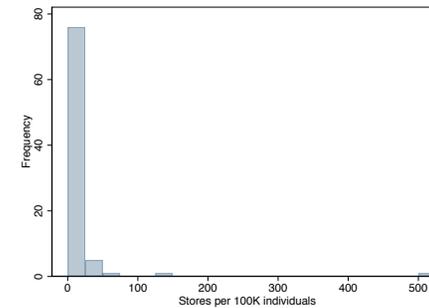
Figure A15:  
Histograms of alternative municipality measures of 7-Eleven  
intensity



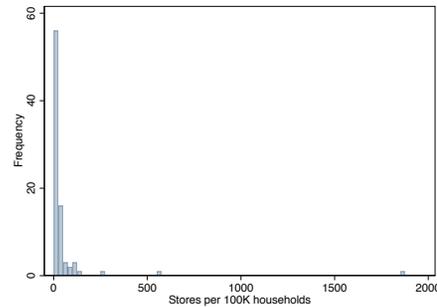
(a) Stores per 10 sq. km., urban areas only



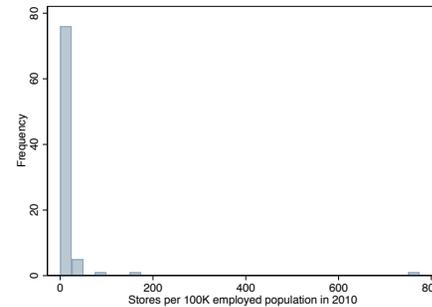
(b) Stores per 10 sq. km., municipal seat only



(c) Stores per 100,000 individuals in municipality



(d) Stores per 100,000 households in municipality



(e) Stores per 100,000 employed individuals

Notes: These plots show histograms displaying the frequency for different measures of 7-Eleven intensity of exposure for the 84 municipalities in the treatment group of the analysis. Each panel considers the following measures: (i) the number of stores per 10 sq. km. of urban areas of the municipality, (ii) the number of stores per 10 sq. km. of the municipal government seat (main town or city), (iii) the number of stores per 100,000 people, (iv) the number of stores per 100,000 households, and (v) the number of stores per 100,000 employed people in the 2010 census.

## B Effects on Labor Market Outcomes

This section uses the National Occupation and Employment Survey (ENOE) to analyze effects of our treatments on labor market outcomes. The main concern is that our treatment may have induced changes in labor market participation, so that any effects on voluntary savings are driven by these compositional effects. We show below that this is not the case.

The ENOE is a nationally-representative survey with four rounds per year. All employment variables are directed at individuals ages 15 and older. We generate municipality-level aggregates for each survey round, detailing the share of individuals in a municipality that work and the share that work in the formal sector. We then condition on individuals that are currently working and calculate average monthly income at the municipality level, and the average number of hours worked per week.

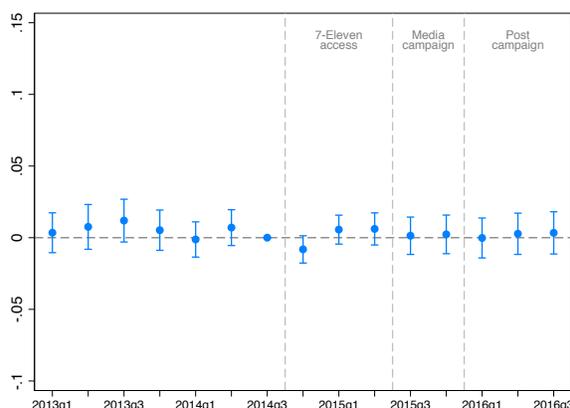
We estimate an equation similar to our dynamic DD in the main text of the form:

$$y_{mt} = \sum_{k=1}^T \beta_k (\mathbb{1}_{[7\text{-}Eleven]_m} \times \mathbb{1}_{[t=k]}) + \gamma_m + \theta_t + \nu_{mt} \quad (\text{B1})$$

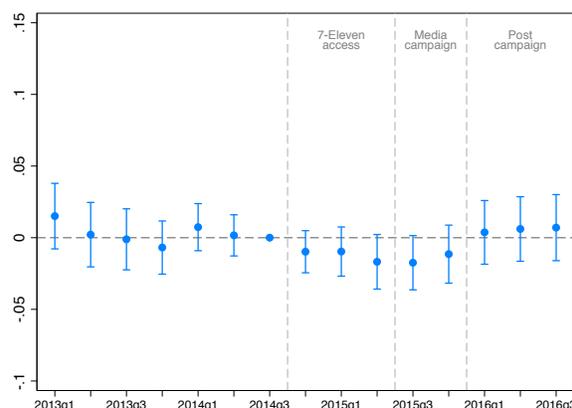
where  $t$  denotes a quarter-year,  $y_{mt}$  is a municipality-quarter labor market outcome, and everything else is as defined in the main text.

Figure B1 shows the results from estimating equation B1 on our panel of municipality-quarters from the ENOE. We use the third quarter of 2014 as our excluded period. Each graph corresponds to one of the four outcomes. Error bars for the 95% confidence interval are shown, using standard errors clustered at the municipality level. Each graph shows estimates that are insignificant at the usual levels. This indicates that our treatments are not affecting any other labor market outcomes, and hence are not confounding our main results.

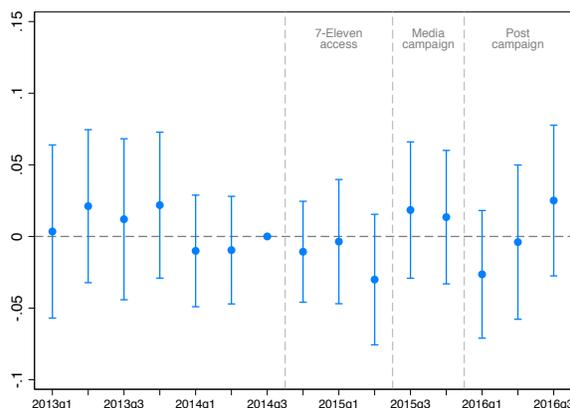
Figure B1:  
Effect of treatments on voluntary contributions



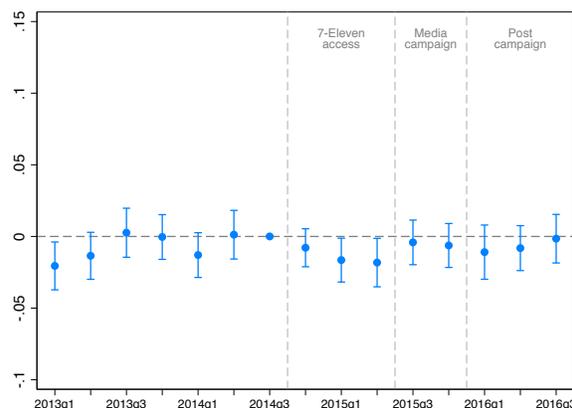
(a) Share working



(b) Share in formal sector



(c) Average monthly income



(d) Average work hours per week

Notes: These plots show effects on labor supply outcomes using the same time periods from expanding 7-Eleven access before, during, and after the media campaign, within a dynamic DD framework. Observations are at the municipality-quarter level, using data from the quarterly ENOE surveys. The outcomes are the share of individuals in a municipality-quarter that are working, the share that are working in the formal sector, the average monthly income conditional on working, and the average number of hours worked per week conditional on working. The last two outcomes are measured in logs. Coefficients for month indicators interacted with 7-Eleven presence are shown, from regressions that include municipality and quarter-year FE. Bars correspond to 95% confidence intervals based on robust standard errors clustered by municipality.

## C Workers with and without Voluntary Contributions at Baseline

We partition the data to explore effects for workers that had already made at least one voluntary contributions before the treatments (intensive margin) and those that had not (extensive margin). Alternatively, one may think of the former group as workers who care more about savings or do not face high transaction costs at baseline, and the latter group as the opposite. We calculate the municipality aggregates and estimate equation 1 from the main text.

Table C1 presents the results. Odd-numbered columns correspond to this intensive margin (workers already participating in voluntary savings), and even-numbered columns to the extensive one (workers that had not made any voluntary contributions). The results for workers that already had voluntary contributions at baseline show significant estimates for voluntary savers and contributions, although the magnitudes are smaller than the main results in Table 3. There is evidence of a persistent effect after the media campaign ended, although at a smaller magnitude than the effect during the campaign.

Columns 2 and 4 indicate large effects for workers that had not made voluntary contributions at baseline. Given that the outcomes were all zero prior to the treatment, the magnitudes of the estimates may be misleading, since they must be positive and large by construction. Note however that the magnitudes indicate that the strongest effect was experienced during the campaign, with similar magnitudes in the post-campaign period.

Overall, these results suggest that the policies had an effect both on individuals who were already making voluntary contributions and those that were not. This allows us to conclude that these policies are effective not only at inducing savings in non-savers, but also at increasing savings rates among savers.

Table C1:  
Effect of treatments on voluntary contributions by accounts with  
and without voluntary contributions at baseline

	Voluntary contributions at baseline			
	With		Without	
	[early savers]		[treatment savers]	
	Vol. sav.	Vol. cont.	Vol. sav.	Vol. cont.
	(1)	(2)	(3)	(4)
7-Eleven $\times$ access only	0.0433*** (0.016)	0.0331* (0.017)	1.782*** (0.203)	1.896*** (0.218)
7-Eleven $\times$ media campaign	0.0649*** (0.019)	0.0744*** (0.020)	2.012*** (0.221)	2.128*** (0.241)
7-Eleven $\times$ post-campaign	0.0439** (0.021)	0.0492** (0.023)	2.085*** (0.226)	2.184*** (0.244)
Observations	55,341	55,341	98,685	98,685
R-squared	0.991	0.988	0.893	0.896
Coefficient tests:				
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.00
$H_0 : \beta_1 = \beta_2$	0.03	0.00	0.00	0.00
$H_0 : \beta_2 = \beta_3$	0.05	0.05	0.00	0.02
Mean dep. variable	113.93	184.52	0.00	0.00

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, splitting the data by accounts with (columns 1 and 2) and without voluntary contributions (columns 3 and 4) prior to the treatment. Observations are at the municipality-month level. Odd-numbered columns show voluntary savers as the total number of accounts in a municipality-month with at least one voluntary contribution. Even-numbered columns are voluntary contributions, which are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## D Heterogeneous Effects of the Main Results

We explore relevant heterogeneity in the main results based on the characteristics that we observe. The objective of this exercise is to identify any potential selection by worker characteristics in the effects. It is possible that workers that were already making contributions under the status quo methods are different from the workers that were induced by the treatments into making deposits.

We stratify the data by gender, age groups, year of affiliation, pre-treatment balance of the main retirement account, and by AFORES' baseline voluntary savings rate. For each subsample, we calculate the relevant municipality-level aggregates, and estimate equation 1 as before.

We find that the treatment effects are generally larger for men, younger workers, workers that affiliated with the system after 1997, workers with lower retirement account balances, and workers affiliated with fund managers with lower pre-treatment voluntary savings rates. Most of these differences are statistically significant, especially for the effects during and after the media campaign. Broadly speaking, these results are consistent with the ideas that men are more likely than women to work formal jobs, that both younger and recently enrolled individuals depend on their individual accounts for retirement (note that older enrollees will retire under the previous defined benefits plan, even though they have their individual account under the new system), and that those with lower savings have more to gain. These results point to increased participation for individuals that have lower incomes, and are therefore more inclined to make smaller deposits.

### Gender

The summary statistics in Table 1 of the main text show that around 36% of the 19 million active worker accounts are women, with a slightly larger proportion in the sample of workers that made at least one voluntary contribution between 2013 and 2016. This is consistent

with women being less present in the labor force, but also with women being (slightly) more likely to work in informal sector jobs.<sup>1</sup>

Table D1 presents the results separately by gender. Results for women are generally smaller in magnitude and less significant than those for men. We can reject that all post-treatment coefficients are jointly equal to zero. For women, we cannot reject that the magnitude of the effects during and after the media campaign are the same, while for men we obtain significantly larger magnitudes post-campaign. We can reject that the post-campaign effects are the same across genders for the first outcome, and that both the media and post-media effects are the same for the second one. This indicates that men respond more to the treatments than women.

## Age

Table D2 presents the results stratifying by age groups. We divide the sample into four categories based on a worker's age in January 2013: individuals younger than 30, workers between 30 and 49 years old, those between 50 and 64, and workers aged 65 and over. Our rationale is that the first group are very young workers, the second group are workers in their prime, the third group are those nearing retirement, while the last group are those that could or should have already retired.

We present the estimates from equation 1, using municipality aggregates based on these four groups. Columns 1 through 4 in Table D2 show point estimates that grown smaller for older age groups. However, note that results are sizable and significant even among individuals nearing retirement (ages 50 to 64). The same holds for the total number of voluntary contributions in columns 5 to 8. As one would expect, we find no evidence of an impact on individuals ages 65 and over (a test does not allow us to reject that all three coefficients are jointly equal to zero in columns 4 and 8). Note that in general the access-

---

<sup>1</sup>For example, according to the National Occupation and Employment Survey (ENOE) carried out by the National Institute of Statistics (INEGI), in the first trimester of 2013, 30.3% of women were employed in the informal market relative to 27.6% of men.

only coefficients are not significant (except for the youngest group), and that there are strong persistent effects in the post-campaign months.

A test of coefficient sizes across equations allows us to see that the effects for the youngest group are significantly larger than the effects for any other age group. We also find evidence of a declining magnitude of the effects with age, especially for the time periods corresponding to during and after the campaign. This indicates that the treatments induced voluntary savings in the youngest individuals.

## **Year of Affiliation**

Table [D3](#) stratifies the sample based on workers' year of affiliation. Recall that year of affiliation refers to the first time that the worker registered with the social security system, highly correlated with the first time the worker entered the formal labor force. Workers in the informal market need not affiliate. Since the new pension system based on individual retirement accounts began in 1997, we classify workers as those that registered with the social security system before and after 1997. Figure [D1a](#) shows the distribution for the full population. All workers that registered in 1997 and after will retire under the new individual accounts system. However, workers that registered prior to 1997, with a few caveats, will mostly retire under the prior pay-as-you-go system, even though they possess an individual retirement account.

The results in Table [D3](#) show that the effects are largest for workers that affiliated in 1997 or after. All coefficients corresponding to this group are positive, large and significant. There is also strong evidence of a persistent effect post-campaign of a larger magnitude than the effect experienced throughout the campaign months. The estimates for workers that affiliated prior to 1997 are about half the magnitude of the other workers, and are only significant during and after the campaign. We can reject that the magnitudes across equations are the same.

This result is consistent with the incentives that different workers face given their retirement plan. Workers retiring under the pay-as-you-go system do not depend on their own savings account for their pension. However, note that the main results are not all driven by the more recent affiliates, meaning that even workers retiring under the old system found it beneficial to increase their savings. Although there is a correlation between age and year of affiliation, tying these results to those in Table D2, there is still considerable variation in a worker's age by year of affiliation. Figure D1b shows the relationship between year of affiliation and age. Therefore, these effects are not merely mimicking the strong impacts that we found for the youngest workers.

## Account Balance

Next, we present separate results by quartile of the pre-treatment balance of the main retirement account. This classification is based on the full distribution of the pre-treatment main balance, using all workers and adjusting with sampling weights. Figure D2 shows the full distribution. This measure captures a worker's number of years contributing to the system (that is, time in the formal economy), labor income, and base salary reported to the government (which may be lower than actual wages). Note that although a negative correlation may exist between year of affiliation and number of years contributing, this is not a purely mechanical relationship, since many workers drop out of the formal labor force. Consider also that even though a positive relationship may exist between labor income and contribution salary, employers may be reporting different shares of total wages for the base salary used to determine mandatory contributions.

Table D4 shows the results from this exercise. The point estimates are largest for the first quartile, with the second quartile effects being slightly smaller. The effects for quartiles three and four are much smaller. All quartiles show significant effects, especially for the campaign and post-campaign periods, with significantly larger point estimates in the latter

period. We can reject that all three coefficients are jointly zero across all columns, indicating a response to the treatments across the board.

In general, we can reject that the effects for the bottom two quartiles are of the same magnitude as the top two quartiles, but we cannot reject that the effects in the first two quartiles and in the last two quartiles are the same. We find that the effect is generally declining with account balance, with larger impacts for those with a balance below the median. While the account balance may be a reflection of various things, as noted above, this does suggest that workers with lower income are driving the effects, which in turn may explain the negative impact on contribution sizes.

## **AFORE Voluntary Savings**

For our last exploration of heterogeneity, we consider the initial voluntary savings rate of workers' AFORES. First, for each worker we assign the first AFORE that we observe in our dataset. Note that we only observe the AFORE for each date that workers make voluntary transactions. For the set of workers with voluntary transactions prior to the treatment, we do not observe any changes in AFORE during the pre-treatment period for 94% of them. For the remaining 6%, we assign the first AFORE we observe between January 2013 and September 2014. For the set of workers that only began having voluntary savings after the treatment, we assign the first AFORE we observe, even if this may not be the AFORE they began with in the pre-treatment period. Lastly, for workers without any voluntary contributions we directly observe their AFORE in the pre-treatment period for 99.5% of our sample.

We then use this assignment of AFORES (mostly pre-treatment) as well as the number of workers with at least one voluntary contribution before October 2014 to construct the share of workers for each AFORE that had voluntary savings pre-treatment. Figure [D3](#) shows the distribution of this variable across AFORES. We use the median of this measure to classify workers into those that were registered with an AFORE that had high or low baseline

voluntary savings rates. We then obtain municipality-AFORE aggregates and estimate a regression similar to equation 1, adding AFORE fixed effects.

Table D5 presents these results. All estimates are positive and significant. However, coefficients for workers registered with an AFORE with below median voluntary savings prior to treatment are three to four times larger than the estimates for workers in AFORES with high baseline voluntary savings rates. This holds across both outcomes. Furthermore, we only find evidence of a persistent effect post-campaign (that is larger in magnitude than the campaign effect) for workers in AFORES with below median voluntary savings at baseline.

We can reject that the magnitudes are the same across both groups. It is hard to provide a rationale for why the effects are significantly larger for workers in AFORES with low voluntary contributions at baseline. It may simply reflect scope for behavioral change, or may have something to do with selection into AFORES. Perhaps workers that care less about savings or that have more volatile work histories are the ones that more likely chose AFORES with low voluntary contributions rates (worker sorting by AFORE). If this is the case, then these results suggest an important compositional change in types of workers making voluntary contributions with the treatments.

Table D1:  
Effect of treatments on voluntary contributions: Heterogeneous effects by gender

	Voluntary savers		Voluntary contributions	
	(1)	(2)	(3)	(4)
7-Eleven $\times$ access only	0.0374 (0.030)	0.0664*** (0.022)	0.0111 (0.031)	0.0528** (0.021)
7-Eleven $\times$ media campaign	0.105*** (0.035)	0.155*** (0.027)	0.0829** (0.041)	0.144*** (0.027)
7-Eleven $\times$ post-campaign	0.125*** (0.043)	0.202*** (0.034)	0.0860* (0.050)	0.179*** (0.035)
Observations	90,257	96,879	90,257	96,879
R-squared	0.982	0.984	0.979	0.981
Sample	Women	Men	Women	Men
Coefficient tests:				
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.02	0.00
$H_0 : \beta_1 = \beta_2$	0.00	0.00	0.00	0.00
$H_0 : \beta_2 = \beta_3$	0.33	0.00	0.90	0.07
Mean dep. variable	46.92	64.30	76.76	103.36

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, stratifying by workers' gender. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table D2:  
Effect of treatments on voluntary contributions: Heterogeneous  
effects by age

	Voluntary savers				Voluntary contributions			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
7-Eleven $\times$ access only	0.151*** (0.041)	0.0383* (0.022)	0.0308 (0.024)	0.00719 (0.043)	0.115*** (0.042)	0.0211 (0.022)	0.0273 (0.026)	0.0133 (0.048)
7-Eleven $\times$ media campaign	0.248*** (0.045)	0.121*** (0.027)	0.103*** (0.030)	-0.0300 (0.042)	0.221*** (0.050)	0.103*** (0.030)	0.111*** (0.034)	-0.0198 (0.051)
7-Eleven $\times$ post-campaign	0.339*** (0.057)	0.154*** (0.034)	0.138*** (0.036)	-0.0871 (0.058)	0.285*** (0.064)	0.125*** (0.036)	0.138*** (0.040)	-0.0751 (0.068)
Observations	94,686	93,826	79,206	47,687	94,686	93,826	79,206	47,687
R-squared	0.964	0.986	0.978	0.906	0.959	0.983	0.975	0.902
Age group	< 30	30-49	50-64	> 64	< 30	30-49	50-64	> 64
Coefficient tests:								
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.52
$H_0 : \beta_1 = \beta_2$	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.38
$H_0 : \beta_2 = \beta_3$	0.00	0.05	0.08	0.18	0.05	0.24	0.24	0.24
Mean dep. variable	15.08	65.11	27.14	4.00	25.48	108.94	40.83	5.04

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, stratifying by age groups. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table D3:  
Effect of treatments on voluntary contributions: Heterogeneous effects by year of affiliation

	Voluntary savers		Voluntary contributions	
	(1)	(2)	(3)	(4)
7-Eleven × access only	0.0133 (0.023)	0.0917*** (0.027)	0.00132 (0.022)	0.0605** (0.027)
7-Eleven × media campaign	0.0780*** (0.028)	0.180*** (0.033)	0.0671** (0.030)	0.154*** (0.036)
7-Eleven × post-campaign	0.103*** (0.034)	0.231*** (0.042)	0.0780** (0.036)	0.198*** (0.047)
Observations	88,021	96,320	88,021	96,320
R-squared	0.986	0.980	0.983	0.977
Year of affiliation	< 1997	≥ 1997	< 1997	≥ 1997
Coefficient tests:				
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.00
$H_0 : \beta_1 = \beta_2$	0.00	0.00	0.00	0.00
$H_0 : \beta_2 = \beta_3$	0.13	0.01	0.56	0.06
Mean dep. variable	71.89	39.33	115.24	64.88

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, stratifying by year of affiliation. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table D4:  
Effect of treatments on voluntary contributions: Heterogeneous effects by pre-treatment balance of main account

	Voluntary savers				Voluntary contributions			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
7-Eleven $\times$ access only	0.177*** (0.030)	0.132*** (0.035)	0.0492 (0.038)	0.0371 (0.025)	0.212*** (0.038)	0.0989** (0.040)	0.0304 (0.038)	0.0221 (0.024)
7-Eleven $\times$ media campaign	0.292*** (0.032)	0.222*** (0.037)	0.135*** (0.044)	0.107*** (0.031)	0.371*** (0.042)	0.185*** (0.046)	0.120** (0.049)	0.0913*** (0.033)
7-Eleven $\times$ post-campaign	0.397*** (0.044)	0.335*** (0.045)	0.214*** (0.054)	0.132*** (0.037)	0.464*** (0.058)	0.290*** (0.054)	0.191*** (0.061)	0.113*** (0.039)
Observations	93,955	88,494	84,925	80,109	93,955	88,494	84,925	80,109
R-squared	0.945	0.956	0.969	0.988	0.938	0.949	0.965	0.986
Balance quartile	1	2	3	4	1	2	3	4
Coefficient tests:								
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
$H_0 : \beta_1 = \beta_2$	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
$H_0 : \beta_2 = \beta_3$	0.00	0.00	0.00	0.07	0.02	0.00	0.01	0.21
Mean dep. variable	11.09	11.22	18.80	70.11	14.44	17.21	30.92	117.55

Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, stratifying by quartiles of the main account balance prior to treatment. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality and month-year FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

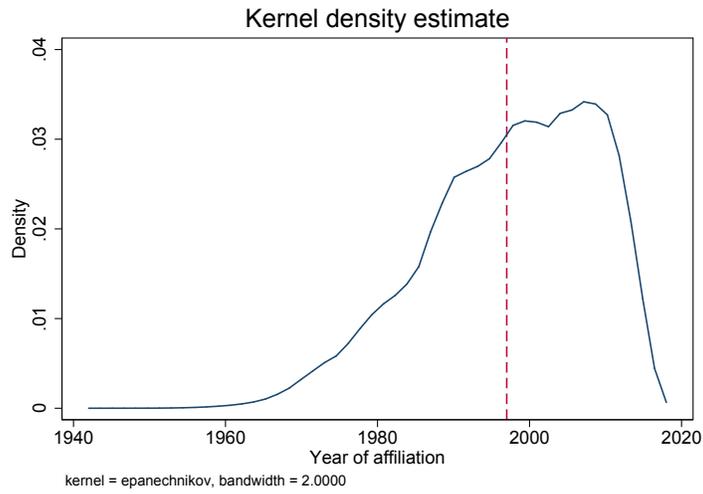
Table D5:  
Effect of treatments on voluntary contributions: Heterogeneous effects by initial voluntary savings rate of AFORE

	Voluntary savers		Voluntary contributions	
	(1)	(2)	(3)	(4)
7-Eleven $\times$ access only	0.554*** (0.079)	0.182*** (0.028)	0.651*** (0.091)	0.192*** (0.032)
7-Eleven $\times$ media campaign	0.768*** (0.099)	0.224*** (0.035)	0.888*** (0.112)	0.243*** (0.043)
7-Eleven $\times$ post-campaign	0.989*** (0.110)	0.227*** (0.039)	1.124*** (0.122)	0.244*** (0.045)
Observations	494,070	592,884	494,070	592,884
R-squared	0.655	0.751	0.657	0.744
AFORE VCs with respect to median	Below	Above	Below	Above
Coefficient tests:				
$H_0 : \{\beta_j\} = 0, \forall j = 1, 2, 3$	0.00	0.00	0.00	0.00
$H_0 : \beta_1 = \beta_2$	0.00	0.01	0.00	0.02
$H_0 : \beta_2 = \beta_3$	0.00	0.87	0.00	0.98
Mean dep. variable	1.67	13.45	2.40	22.15

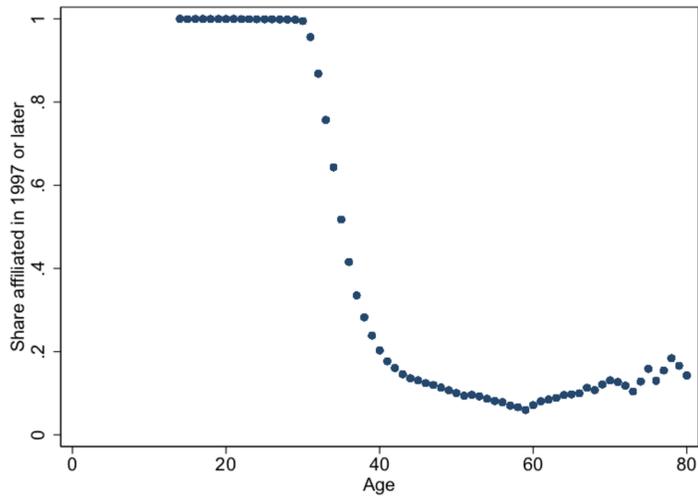
Notes: This table shows the main results from expanding 7-Eleven access before, during, and after the media campaign, stratifying by voluntary savings rates pre-treatment for each AFORE (above and below the median), considering only the individuals' pre-treatment AFORE. Observations are at the municipality-month level. Voluntary savers are the total number of accounts in a municipality-month with at least one voluntary contribution. Voluntary contributions are the total number of contributions to voluntary accounts. Outcome variables are measured in logs for the estimation. The mean of the dependent variable for the treatment municipalities at baseline is shown. Regressions include municipality, month-year, and AFORE (as registered in 2013) FE, and are weighted by the number of accounts pre-treatment. Robust standard errors clustered by municipality in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure D1:  
Workers' year of affiliation



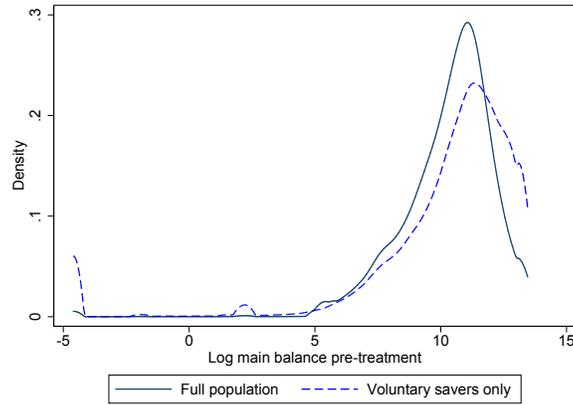
(a) Distribution



(b) Relationship with age

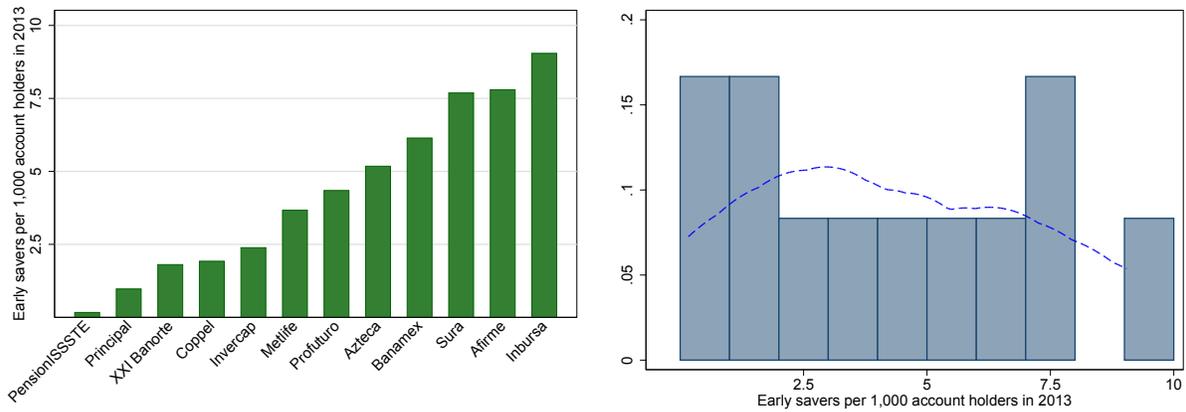
Notes: The plot on the top shows the density of the year of affiliation of workers. All workers are included, using survey weights. The dashed line shows 1997, the year when the new individual retirement accounts system began. The plot on the bottom shows the share of workers affiliated in 1997 or after by age.

Figure D2:  
Distribution of pre-treatment main account balance



Notes: This plot shows the density of the main account balance of workers prior to October 2014, measured in logs. All workers are included in the solid line, using survey weights. The dashed line considers only the workers that ever made a voluntary contribution, regardless of the timing of their first contribution.

Figure D3:  
Voluntary contributions by AFORE pre-treatment



(a) Rate of early savers

(b) Distribution of early savers rate

Notes: The plot on the left shows the number of early savers (before October 2014) per 1,000 worker accounts in the pre-treatment period by AFORE. The plot on the right shows a histogram for these data.