# Non-Take-Up of Social Benefits: Experimental Evidence from In-Person and Digital Outreach

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## Abstract

A key challenge in social benefit systems worldwide is the Non-Take-Up (NTU) phenomenon, where eligible individuals do not claim the benefits to which they are entitled. This study evaluates the impact of two policy interventions—an in-person outreach program and a social media campaign—on reducing NTU through a large-scale randomized controlled trial involving 400 low-income neighborhoods in Spain. The interventions, targeted at reducing the NTU for the national minimum income scheme, were designed to address key informational and logistical barriers. The in-person treatment offered tailored support with application procedures and administrative coordination, while the social media campaign provided targeted information via Facebook and Instagram. We find that both interventions significantly increased application rates, though the temporal patterns differed—effects from in-person outreach were immediate, while those from social media emerged with a delay. However, neither intervention led to a substantial increase in benefit approvals, suggesting that while the interventions reduced initial frictions, persistent logistical barriers continue to hinder successful take-up. The results underscore the dual importance of informational and procedural hurdles in explaining NTU and point to the need for sustained, hands-on support to convert applications into successful claims.

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**Keywords:** Non-take-up, social benefits, minimum income scheme, randomized controlled trial, social media campaign, in-person intervention.

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## 1. Introduction

Social benefit programs for low-income individuals are a central component of virtually all modern welfare systems. Yet, a surprisingly large share of eligible individuals fail to apply—a phenomenon referred to as non-take-up (NTU). For national minimum income schemes, recent estimates put NTU rates at 56% in Germany, 62% in Belgium, 34% in France, 29% in Finland, and 27% in the UK (Marc et al., 2022). Such high rates of NTU undermine the effectiveness, efficiency, and equity of social policy. The literature identifies three main categories of explanations (Ko and Moffitt, 2024; Moffitt, 1983): (i) informational barriers, such as lack of awareness of program existence or eligibility; (ii) logistical barriers, including burdensome application procedures, the digital divide, or limited access to in-person support; and (iii) willingness-related factors, such as stigma, or participation in the informal economy that generates mistrust of public authorities. Understanding which mechanisms dominate is essential for designing policies that effectively reduce NTU.

In this paper, we study to what extent informational and logistic issues are relevant to explaining the NTU. To this end, we conducted a randomized control trial including both in-person and online outreach campaigns aimed at providing information and administrative support in the application process for the Spanish minimum income scheme (MIS). In May 2020, the Spanish government introduced a MIS aimed at supporting low-income individuals. Despite its broad eligibility, approximately 57% of qualifying households had not applied for the benefit as of the time our study was designed (AIReF, 2022). Our study randomly allocated 400 low-income census tracts (neighborhoods) to one of the following possible treatments: an in-person intervention, a social media intervention, or both. A fourth group served as pure control. The in-person intervention was implemented over 13 weeks and included five standardized components: community outreach, individualized advisory services, administrative support, institutional guidance, and coordination with public administration. The social media campaign—delivered via Facebook and Instagram—lasted ten weeks and targeted residents in treated areas with tailored advertisements addressing informational gaps and barriers to application. The interventions were implemented in partnership with the Spanish branch of the European Anti-Poverty Network (EAPN-ES), a prominent coalition of non-governmental organizations (NGOs) committed to combating poverty and social exclusion.[2]

We use administrative data at the census tract level to estimate the impact of the interventions on the number of submitted applications and the number of applications approved. We find that the in-person campaign generated an immediate and sizable increase in applications—about 17% above the control group during the intervention period—but the effect dissipated afterward, consistent with offsetting harvesting and spillover forces. By contrast, the social media campaign had no short-run impact but produced large and persistent increases in applications—23% to 28% relative to the control group—emerging one to six months after the intervention ended, likely reflecting both the independent nature of the application process and richer informational content.

[2] Funding was provided by the Spanish Ministry of Inclusion, Social Security, and Migration, which allocated funds from the European Union's NextGenerationEU initiative to implement several social policy interventions and evaluate their results rigorously through randomized controlled trials (RCTs). See more information on this initiative at: https://www.inclusion.gob.es/web/policy-lab/laboratorio

The combined intervention closely mirrored the in-person pattern, with no sustained post-intervention effects, suggestive of harvesting. When turning to approvals, however, none of the interventions generated robust increases. For the in-person campaign, the surge in applications did not translate into approvals, plausibly because applicants lacked support in navigating follow-up requests. The social media intervention yielded only weak evidence of increased approvals, and the combined intervention showed no effects. Overall, while interventions expanded applications, they did not meaningfully improve approval outcomes, highlighting the critical role of ongoing support beyond initial outreach.

In addition, we conducted a telephone survey in both treated and control census tracts to study the mechanisms behind the results of the program. We asked respondents about the information received about the MIS, their knowledge of the benefit, their opinions about it, the difficulty of the application process, and their trust in public institutions. The results indicate that the interventions modestly increased reported exposure to MIS information but did not improve knowledge, perceptions, or trust in institutions. Specifically, the in-person and combined campaigns raised the probability of individuals reporting receipt of MIS information via mail, posters, or leaflets by about 2 percentage points—large relative to low baseline levels (2–5%) but still resulting in only 8% of respondents in treated tracts acknowledging exposure. No significant effects were detected for information obtained through other channels like neighbors. Moreover, the interventions did not shift respondents' knowledge of or opinions about the MIS, nor did they affect broader measures of institutional trust. Overall, while outreach efforts modestly increased reported informational exposure, they had no discernible impact on substantive understanding, attitudes, or institutional confidence.

Our paper contributes to the literature evaluating policies to address the NTU of social benefits (see Goedemé and Janssens, 2020, and Ko and Moffitt 2024 for a more comprehensive literature review). A first strand of the literature focused on interventions aimed at reducing application costs (Kopczuk and Pop-Eleches, 2007; Aizer, 2007; Ganong and Liebman, 2018; Deshpande and Li, 2019). Our paper is more closely related to more recent work studying the importance of the informational and logistic issues. Bettinger et al. (2012) find that providing improved information together with personalized application assistance significantly increases financial aid applications and receipt, whereas information alone has no impact. Finkelstein and Notowidigdo (2019) develop a welfare framework for evaluating interventions that reduce the NTU of safety net programs, calibrated with a field experiment involving 30,000 elderly individuals likely eligible for Supplemental Nutrition Assistance Program in the USA. They find that while information and assistance substantially raise enrollment, the marginal enrollees induced by these interventions are healthier and better off than average, implying optimization frictions and weak targeting that limit welfare gains. Wright et al. (2017) implemented a randomized controlled design to estimate the impact of improved communication to reduce Medicaid NTU among eligible populations in Oregon, and found that interventions substantially increased enrollment. Castell et al. (2025) provide evidence from two experiments with job seekers in France. They show that a meeting with social services to assess eligibility and help with application to social benefits increased new benefit take-up but an online simulator that gave personalized information on benefit eligibility did not reduce NTU. Our paper contributes to this literature by providing the first experimental evidence on policies to reduce NTU in the Spanish MIS, a major national program with very high

NTU. Unlike much of the prior work, we directly compare in-person assistance and digital outreach at scale, showing that while both interventions increased applications, only the social media campaign produced persistent effects, and neither improved approval rates. Another contribution is to combine administrative outcomes with a mechanism survey, which highlights the importance of sustained assistance throughout the application process, and reveals that information exposure is not enough to meaningfully affect understanding of the policy or confidence in institutions or the political process.

The rest of the paper is organized as follows. Section 2 provides background and context. Section 3 describes the interventions. Section 4 lays out the data. Section 5 describes the empirical design. Section 6 presents the results. Section 7 concludes.

## 2. Background and Context

In 2020, 12.5 million people in Spain, 26.4% of the total population, were at risk of poverty and social exclusion. 21% of the population were at risk of poverty, 9.5% were affected by severe poverty, and 7% suffered from severe material deprivation. Moreover, 45.2% of the Spanish population had some difficulty making ends meet. In terms of inequality, the income of the richest 20% of the population was 5.8 times higher than that of the poorest 20%.These indicators placed Spain as the fifth country in the EU with the highest percentage of the population at risk of poverty, and the sixth with the highest levels of inequality (EAPN, 2021).

Before the COVID-19 pandemic, Spain was one of the few EU countries without a nation-wide minimum income scheme. Regional minimum income schemes, varying in terms of size and scope, provided unequal financial support across regions, and only reached an average of 8% of people living below the poverty line in the country. Since 2014, in its Country Specific Recommendations for Spain, the Council of the European Union had systematically pointed out the large disparities in the access conditions across regions caused by various minimum income schemes targeting different groups and managed by different administrations. These recommendations highlighted the need to enhance the effectiveness of minimum income schemes by addressing their coverage gaps, streamlining the complex system of regional schemes, and reducing disparities in the access conditions (Council of the European Union, 2019; Council of the European Union, 2018; Council of the European Union, 2017; Council of the European Union, 2014).

In May 2020, in the context of the COVID-19 pandemic, the Spanish Government introduced a nation-wide MIS aimed at preventing the risk of poverty and social exclusion of those who lack the basic economic resources to meet their essential needs. The MIS offers cash transfers to individuals and households depending on their income and size. As of 2025, the MIS guarantees a monthly income of around €660 for a single individual and €1450 for a 5-member household, with a complement for each under-18 child. The cash transfer corresponds to the difference between the guaranteed income and other households' income (La Moncloa, 2025). The MIS provides a country-wide base benefit that regional governments can complement through the pre-existing transfer programmes.

In 2021, the Spanish Ministry of Inclusion, Social Security and Migration, through the General Secretariat for Inclusion (SGI), launched the Inclusion Policy Lab as part of the Recovery, Transformation and Resilience Plan. The Lab aimed at evaluating innovative interventions that could complement the MIS and increase its effectiveness to promote social inclusion. The Lab evaluated 32 social inclusion programs through randomized controlled trials in collaboration with implementing partners (autonomous communities, local entities and third sector organizations), a team of researchers coordinated by CEMFI, and J-PAL Europe.

This paper builds on the results of the Lab's randomized evaluation of the program ACCESO VITAL implemented by EAPN-ES (Red Europea de Lucha contra la Pobreza y la Exclusión Social en el Estado Español). EAPN-ES is an independent coalition of NGOs and other groups involved in the fight against poverty and social exclusion in the Member States of the European Union. The program ACCESO VITAL aimed to understand the causes of the non-take-up of the MIS and evaluate the effectiveness of strategies designed to increase its take-up.

In December 2022, around 283,800 households were recipients of the MIS, but 58% of eligible households had not applied for it (AIREF, 2023). The NTU rate varied across types of households, regions and potential income gains. The NTU was higher in those households composed of adults only and, in particular, those with a single member. The take-up also varied significantly across regions, which may reflect a gradual and differential transition from the previous regional minimum incomes to the new national MIS. In addition, a significant proportion of the NTU cases had income close to the MIS threshold or faced temporary poverty, which may impact on the motivation to claim (SGI, 2024).

## 3. Study Design

This study is based on a four-armed randomized controlled trial, conducted across 400 census tracts in Spain that were randomly assigned to receiving an in-person intervention (henceforth, IP), a social media intervention (henceforth, SM), a combination of both (henceforth, IPSM), or none. Assignment into groups followed a stratified randomization procedure, and the census tracts were selected based on poverty levels, the presence of relevant facilities, and minimum geographic separation to reduce contamination. The project lasted from September 2022 to December 2023.

### 3.1. Selection of Census Tracts

The unit of randomization is the census tract. Census tracts were selected based on two key eligibility criteria: (i) a high concentration of low-income households, defined as the share of households residing in the census tract with income below 40% of the national median in 2020;[3] and (ii) the availability of a network of collaborating institutions and a physical location at the census tract or nearby—referred to as a "contact point" or "point"—suitable for hosting the

[3] 40% of the median household income corresponds to approximately 535 euros a month in 2020. As can be seen in Appendix Table A.1, census tracts in our sample have on average 22% of the population below this threshold.

intervention.[4] Among 510 eligible census tracts proposed by EAPN-ES that satisfied both criteria, we selected 400 census tracts which were at least 300 meters of distance from any other selected census tract and that did not share a postal code with them to minimize the risk of contamination.[5]

### 3.2. Experimental Design and Randomization

This experiment uses a design with three treatment arms and a pure control group, using stratified randomization at the census-tract level. The 400 selected census tracts were randomly assigned in equal numbers to one of four groups using stratified randomization. Group 1 received an IP intervention; Group 2 received a SM intervention through Facebook and Instagram; Group 3 received both IP and SM interventions; and the control group (CG) received no intervention (see Figure A1).

Stratification variables included geographic location, type of contact point and poverty level. Location takes 22 categories, one for each of the 17 autonomous communities (CCAA) in Spain, except for Andalucía where location can take three different values, and Comunitat Valenciana and Canarias, where it can take two different values for logistical reasons. Contact points can be either public or private. While public points include centers from regional or local administration, education centers, social services centers and other public buildings, private contact points include civic associations, foundations, NGOs, religious centers, day centers, soup kitchens, and other private associations. There are 106 public points and 294 private ones associated with the 400 selected census tracts. Finally, two categories are created depending on whether the census tract is above or below the median level of poverty in the sample. As explained before, poverty in each census tract is measured by the fraction of households with income below 40% of the median income in 2020. For the census tracts in which the point is outside the census tract, we computed a weighted average of poverty indicators, assigning 80% weight to the census tract and 20% to the census tract where the point is located.

**Interventions**

The IP intervention was delivered over 13 weeks by local teams under the central coordination of EAPN-ES, following a standardized structure across all census tracts in terms of both team organization and the activities carried out. It included five components. First, outreach activities aimed to raise awareness about the MIS, inform and identify potential beneficiaries who are in a situation of NTU. This involved distributing flyers and placing posters throughout the selected

[4] To verify the second criterion, the partner consulted through their network of NGOs if they had a local NGO or organization that could lend appropriate facilities to conduct the intervention. In particular, some indoor private office space to help with the applications was necessary. Note that, while the presence of local organizations was important, the treatment was provided in a centralized manner by the partner organization EAPN-ES. A contact point could be, for example, a social center, a day center, a soup kitchen, an association, a reception center, or a homeless shelter.

[5] There are two exceptions of pairs of census tracts that share zip codes. One of the pairs contained a control census tract and a census tract assigned to a combination of in-person and social media interventions. This was solved by implementing only the face-to-face intervention in the treatment census tract, but not the social media campaign in order to not contaminate the control census tract. In the case of the second pair, as they were two census tracts assigned to both interventions , there was no problem in implementing both the in-person and social media interventions.

census tracts. Second, advisory services were provided at the contact points. These services included information provision, guidance, and individualized advice to potentially eligible individuals, as well as initial eligibility assessments and resolution of issues related to NTU. Third, support activities focused on helping individuals obtain the necessary administrative documentation, including assistance with navigating the bureaucratic procedures. Fourth, guidance activities informed individuals about the relevant institutions and government offices where they could complete documentation or submit benefit applications. Local teams also assisted applicants with completing and submitting their forms. Fifth, coordination activities facilitated communication between individuals and public administration—typically through mediation by a local field technician. At least one field officer was assigned to each census tract, and a regional coordinator supervised every three to four census tracts. All local teams operated under the supervision and support of the central team at EAPN-ES.

The SM intervention consisted of a ten-week social media campaign delivered through Facebook and Instagram. The campaign targeted individuals residing in the postal codes corresponding to the treated census tracts and was implemented by Meta on behalf of the study team.[6] It featured three distinct advertisements that varied in both content and format, developed to address different barriers to take-up. The first message combined carousel images and in-text information emphasizing material hardship and potential eligibility. The ad also provided a link to the Social Security website which contains a simulator in which potential applicants can self-assess their eligibility. The second ad was an informational message clarifying rules and compatibilities with employment and other benefits. The ad included a promotional video of the project, with a link to the Social Security Website that provides information on the MIS. The third message combined a fixed image and messages, aimed at reducing stigma by emphasizing that many households are already recipients of the benefit. The ad also provided a link to the application website of the benefit. The ten-week campaign was divided into three stages, during which one type of ad was delivered: stage one lasted until the third week, stage two covered weeks four to seven, and stage three from weeks 8 to 10. The ad delivered at each stage depended on the assignment into group A or B. Group A received ad 1, followed by ad 2 and finally ad 3, whereas group B received ad 2, ad 3, ending with ad 1. Appendix A.2 provides further details on the content, design, and timeline of the social campaign, including the exact text of each ad and a breakdown by treatment subgroup.

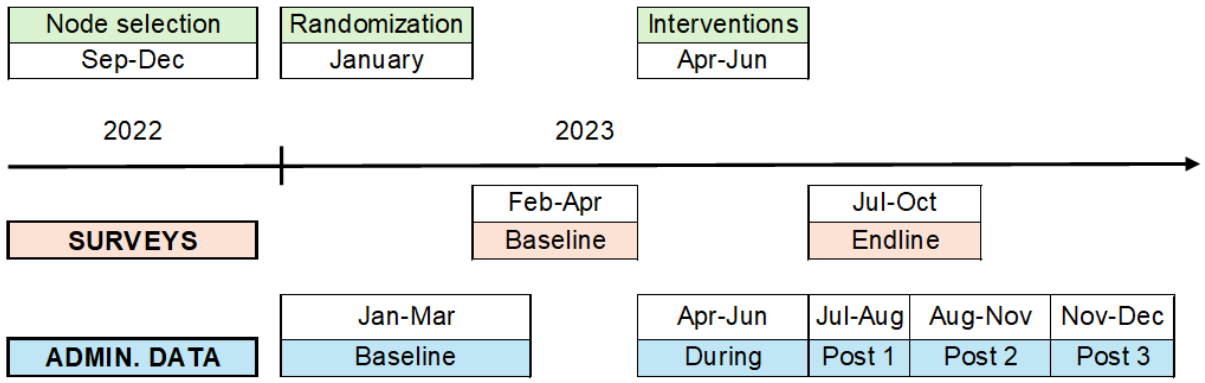
### 3.3. Timeline

Figure 1 details the timeline in this study, which spans from September 2022 to December 2023. Between September and December 2022, 510 eligible census tracts were identified based on the criteria described above, and 400 of them were selected for participation in the study. Randomization into treatment arms was conducted in January 2023 by the SGI. The interventions were implemented from April to June 2023: IP intervention lasted 13 weeks, whereas SM

[6] While the selection and randomization was done at the census tract level, it was impossible to restrict the social media campaign to the census tract level. Therefore, this intervention was done at the zip code level corresponding to the selected census tract.

intervention was delivered for ten weeks (see details about the social media timeline in Figure A.3). The timeline of the surveys and administrative data is described in the next section.

Figure 1: Timeline




## 4. Data

This paper relies on two main datasets. First, we created a dataset at the census tract level using administrative data on applications to the MIS provided by the MISSM, aggregated at the census tract level. The analysis period is divided into four phases, for which we compute the indicators described in Section 4.1. As shown in Figure 1, the baseline period covers the three months prior to the start of the intervention (from January to March). The period during the interventions spans the three months during which they were implemented (from April to June). The Post 1 period refers to the month immediately following the end of the intervention (from July to August 5), the Post 2 period covers the subsequent three months (from August 6 to November 4), and the Post 3 spans for two months until the end of December 2023.

We complement the administrative data with two additional sources from the National Institute of Statistics (INE). The 2023 Population and Housing Census (INEb, 2023) provides information on demographic composition, educational attainment, and labor market outcomes at the census tract level. In addition, we use the Income Distribution Atlas (INEa, 2023), which reports income levels and distribution for each census tract.

Second, we use data from two rounds of telephone surveys conducted with a sample of residents in the selected census tracts. A total of 12,419 individuals completed the baseline survey between February and April 2023, and 9,256 of them were successfully recontacted for the endline survey, conducted between July and October 2023. To mitigate attrition and bolster statistical power, additional 748 respondents were recruited at endline and completed an adapted version of the survey, which included key questions from both the baseline and endline instruments. As a result, the surveys reached a total of 13,167 individuals. In addition to collecting socio-demographic

information, the surveys gather data on participants' knowledge and perceptions of the MIS, as well as their attitudes toward public administration.[7]

### 4.1. Main Outcomes

This section describes the outcome indicators used to evaluate the research questions in this paper. We focus on two types of outcomes: (i) aggregate indicators at the census tract level based on administrative records of MIS applications, and (ii) individual-level indicators derived from survey data.

First, we compute two main indicators from the administrative data for each of the five periods described earlier. These include the total number of MIS applications submitted at the census tract level, as well as the number of approved applications. The last indicator reflects the final stage of the resolution process. Specifically, during the first phase, applications are screened based on income and asset criteria considering the household composition. If these criteria are not met, the application is not admitted, meaning it does not proceed further. Only those that pass this initial screening continue to a second phase, where the household unit composition is assessed. At that stage, applications may be approved or rejected. Lastly, we measure the average resolution time, in days, for applications submitted during the three months of intervention that were approved.

Second, using individual-level survey data, we construct indicators related to knowledge and perceptions of the MIS, views on the application and resolution process and trust in institutions. Knowledge is measured with a scale from one to four, equal to one if the respondent reports not knowing the MIS and to four if the respondent reports being aware of how it works. A binary variable indicates whether the respondent considers the MIS appropriate for themselves or their family, and three variables that take values from 0 to 10 measure ease of the application process, satisfaction with the MIS resolution process (of those who had applied), and a general assessment of the MIS. Trust in institutions is assessed using survey questions on confidence in various levels of government (e.g., central administration, Social Security, regional governments). We aggregate these responses by constructing a composite index following Anderson (2008). All variables related to knowledge, perceptions, and trust are standardized to have mean zero and variance one.

Appendix A.3.1 provides a detail of the survey questions and calculation procedure from the administrative data used to construct the outcome variables.

[7] While the additional respondents at endline lacked actual baseline data, their socio-demographic characteristics that were invariant with treatment were used as baseline information for them.

### 4.2. Intermediate Outcomes

The effectiveness of the interventions depends on whether the relevant individuals were actually reached by the information campaigns. To assess this, we examine a set of intermediate outcomes derived from the endline survey that measure exposure to MIS-related information.

Specifically, we analyze whether individuals in treatment census tracts were more likely than those in control census tracts to report receiving information about the MIS in the past month, and through which channels. In particular, we analyze the probability of receiving information about the MIS in the last month through leaflets in mailboxes, posters, leaflets in shops, people informing in the street, social centers, neighbours, the MIS bus, and social networks. Whereas social networks are associated with the social media campaign, the other channels are related to the IP treatment.

### 4.3. Sample Description

In this section, we present an overview of the characteristics and outcomes from the data at the census tract and individual levels, measured at baseline. Additionally, we compare the characteristics of the sample contacted through the surveys, with the average population living in these census tracts, obtained from aggregate data sources.

Table 1 presents the descriptive statistics of the 400 census tracts that are part of this experiment, including sociodemographic characteristics and outcomes. On average, each census tract comprises 1,600 individuals, with women representing 50% of the population. The average age is 42 years, with 17% of the population under 16 years old, 66% between 16 and 64, and 18% over 64.

Labor market and income indicators reflect that these census tracts host disadvantaged populations. Average unemployment rate is 30%, with an average of 46% inactive population. Among individuals aged 16 and older, 4% receive disability pensions, 15% are retired, 23% are inactive for other reasons, and 6% are students. Regarding income, 22% of the population in the average census tract lives below 40% of the national median income, 31% below 50%, and 40% below 60%. Conversely, 12% of the population exceeds 140% of the median income, 7.8% exceed 160%, and 3.4% exceed 200%. Geographically, 21% of the census tracts are in rural areas, 50% in urban agglomerations, and 29% in urban centers.[8]

Regarding outcomes, there were on average 11 MIS applications per census tract during the three months prior to the start of the intervention (as can be seen in the second panel of Table 1). On average, four of these applications submitted at baseline were approved.

[8] This classification has been created by EAPN-ES based on the Eurostat proposal (explained here) and harmonized with the definition of urban municipality by INE. The criteria are the following: (i) Rural areas: cells located outside urban agglomerations (inhabited or not); (ii) Urban agglomerations: cells with a minimum density of 300 inhabitants per km2 and/or a minimum population size of 10,000 inhabitants; and (iii) Urban centers: cells with a minimum density of 1,500 inhabitants per km2 and a minimum population of 50,000 inhabitants.

Table 1: Summary Statistics of the Census Tracts

| | Mean | Std. Dev. | Min. | Max. | N |
|---|---|---|---|---|---|
| **Demographic variables (Census, 2021)** | | | | | |
| Total Population | 1608.13 | 759.70 | 357.00 | 6536.00 | 400 |
| % Female population | 0.50 | 0.02 | 0.40 | 0.56 | 400 |
| % Male population | 0.50 | 0.02 | 0.44 | 0.60 | 400 |
| Mean Age | 41.61 | 4.12 | 26.87 | 59.57 | 400 |
| % Population Younger than 16 | 0.17 | 0.04 | 0.07 | 0.37 | 400 |
| % Population of Age 16 up to 64 | 0.66 | 0.04 | 0.44 | 0.82 | 400 |
| % Population Older than 64 | 0.18 | 0.06 | 0.04 | 0.49 | 400 |
| % Population with Foreign Nationality | 0.19 | 0.14 | 0.00 | 0.72 | 400 |
| % Population Born Abroad | 0.22 | 0.15 | 0.01 | 0.78 | 400 |
| **Education level (Census, 2021)** | | | | | |
| % People Pursuing Higher Education | 0.03 | 0.01 | 0.00 | 0.08 | 400 |
| % People Pursuing University Education | 0.02 | 0.01 | 0.00 | 0.06 | 400 |
| % People with Higher Education | 0.18 | 0.08 | 0.02 | 0.52 | 400 |
| **Employment (Census, 2021)** | | | | | |
| Unemployment Rate | 0.30 | 0.10 | 0.10 | 0.73 | 400 |
| Employment Rate | 0.38 | 0.07 | 0.17 | 0.60 | 400 |
| Activity Rate | 0.54 | 0.06 | 0.28 | 0.73 | 400 |
| % Disability Pensioner over Population aged 16 and older | 0.04 | 0.02 | 0.00 | 0.11 | 400 |
| % Retirement Pensioner over Population aged 16 and older | 0.15 | 0.05 | 0.04 | 0.40 | 400 |
| % Other inactive population over Population aged 16 and older | 0.23 | 0.06 | 0.09 | 0.42 | 400 |
| % Student Population over Population aged 16 and older | 0.06 | 0.02 | 0.03 | 0.16 | 400 |
| **Income (Income distribution atlas, 2020)** | | | | | |
| % Population with Income Below 40% Median | 22.14 | 6.68 | 10.20 | 37.80 | 393 |
| % Population with Income Below 50% Median | 31.02 | 8.26 | 14.10 | 49.50 | 393 |
| % Population with Income Below 60% Median | 40.46 | 9.43 | 20.50 | 61.20 | 393 |
| % Population with Income Above 140% Median | 12.00 | 7.19 | 0.60 | 41.80 | 393 |
| % Population with Income Above 160% Median | 7.82 | 5.57 | 0.20 | 35.10 | 393 |
| % Population with Income Above 200% Median | 3.45 | 3.14 | 0.00 | 23.30 | 393 |
| **Rurality (EAPN-ES, based on Eurostat and INE)** | | | | | |
| Rural area | 0.21 | 0.41 | 0.00 | 1.00 | 400 |
| Urban agglomeration | 0.50 | 0.50 | 0.00 | 1.00 | 400 |
| Urban area | 0.29 | 0.45 | 0.00 | 1.00 | 400 |
| **Outcomes (Administrative data)** | | | | | |
| Number of applications (3 months before intervention) | 11.09 | 7.59 | 0.00 | 55.00 | 382 |
| Number of approved applications (3 months before intervention) | 3.88 | 3.55 | 0.00 | 29.00 | 382 |

Table A.2 shows the descriptive statistics derived from the telephone survey. On average, respondents are 48 years old, 59% are women, and 93% hold Spanish nationality. Households consist of three members on average, including two adults. The family member with the highest level of education has, on average, completed 11 years of schooling (above the level of mandatory primary and secondary education.

In terms of labor market status, 46% of respondents are employed, 9% are self-employed, 25% are unemployed and 16% are retired. Economic status is categorized into four income levels based on household size and monthly income, with higher levels indicating higher income (see Appendix A.3.2). Notably, 75% of the sample falls into the fourth income bracket, which corresponds to more than €900 per month for the average household of three members with two adults. In contrast, 3% belong to the lowest bracket (below €370/month), and 7% to the second (€370–€640/month), for the same household composition.

Regarding digital skills, scores range between one ("None") to five ("High"). Internet use displays the highest average competence (3.77), followed by social networks (3.37), on-line shopping (3.19) and administrative procedures (3.07).

Based on the survey data, the majority of respondents do not meet the eligibility criteria for the MIS. EAPN used the self-reported information on income, household composition, and MIS-related status to classify participants. According to these criteria, 77% of the respondents are unlikely to be eligible for the MIS, 12% exhibit characteristics of NTU, and 11% appear eligible without being classified as NTU.

The second panel of Table A.2 summarizes baseline outcomes from the survey, as detailed in Appendix A.3.1. Average MIS knowledge scores around two on a 0-4 scale, indicating that most respondents have merely heard of the MIS, without knowing how it works. 61% of the respondents think the MIS is appropriate for individuals in similar circumstances to their own.

Among those who applied for the MIS, live in a household where someone applied, or know a household that has applied, perceptions of the application process and satisfaction with the result are low (scoring 4.5 and 4.3, respectively, on a 0-10 scale).[9] However, the overall evaluation of the MIS is more favorable, with a mean score of 6.7, which includes the views of non-applicants. Lastly, general trust in institutions averages 5.4, while confidence in their problem-solving capacity is lower, at 4.5. (both measured on a 0-10 scale).

To assess the representativeness of the telephone survey sample relative to the population in the selected census tracts, we aggregate the survey data to the tract level and compare key means with those from census data.[10] As reported in Table 2, all differences are statistically significant, suggesting that the sample is not fully representative of the population in the 400 census tracts considered. Specifically, the survey sample includes a lower share of males, a higher number of individuals with Spanish nationality, and older respondents on average. It also exhibits higher education levels and employment rates.[11]

The higher prevalence of individuals with Spanish nationality, higher education, and stronger labor market attachment suggests that the sample is more advantaged and further removed from the MIS's core target population. In particular, the overrepresentation of older individuals and employed respondents may imply reduced exposure to key components of the intervention—such as the social media campaign and in-person support, respectively. Taken together with the earlier

[9] The question about satisfaction with the result is only asked to those living in a household where any member tried to apply for the MIS (even themselves). Whereas the question about the ease of application is also asked to respondents living in a household where nobody tried to apply, but they know other households who applied.

[10] We consider the characteristics that are directly comparable from the two data sources.

[11] The comparison between census and survey data is more difficult for the last two variables, as the survey and the census measure education and employment in different ways. In the census the shares are already defined, while in the survey, they have been constructed. Higher education has been defined as having attended university programs, either bachelor or masters/doctorate, but not high school. The employment rate instead, is defined as the share of people employed or self-employed, over the number of people above 16 years old.

finding that most respondents are neither eligible for the MIS nor in a NTU situation, these deviations suggest that findings on treatment effects derived from the survey data should be interpreted with caution. The sample's demographic and socioeconomic profile differs from the intended beneficiaries of the program, which may limit the extent to which estimated effects reflect the true impact of the intervention. These observations reinforce the need to contextualize survey-based results and interpret them with appropriate caveats.

Table 2: Comparison of census and survey data

| | Mean survey | Mean census | P-value (diff in mean) |
|---|---|---|---|
| % Male | 0.413 | 0.501 | 0.000 |
| Age | 48.279 | 41.614 | 0.000 |
| % Spanish nationality | 0.927 | 0.813 | 0.000 |
| % Higher education | 0.256 | 0.177 | 0.000 |
| Employment rate | 0.547 | 0.377 | 0.000 |
| % People income below 40% median | 37.382 | 22.141 | 0.000 |

## 5. Empirical Design

### 5.1. Specification

In our main econometric specification, we examine the effects of the different interventions i.e., the effects depending on whether individuals (or census tracts) received treatments IP, SM or IPSM. Specifically, we run:

$$Y_{ic,post} = \alpha + \beta_1 IP_c + \beta_2 SM_c + \beta_3 IPSM_c + \gamma Y_{ic,pre} + X_{ic}' \delta + u_{ic}, \quad (1)$$

where *i* denotes an individual living in census tract *c*, $Y_{ic,post}$ is the outcome of interest measured at endline, $Y_{ic,pre}$ is the outcome measured at baseline, $IP_c$ is a dummy indicating whether census tract *c* was assigned to the IP intervention, $SM_c$ is a dummy indicating whether census tract *c* was assigned to the SM intervention, $IPSM_c$ is a dummy indicating whether census tract *c* was assigned to the IP and the SM intervention, and $X'_{ic}$ is a vector of controls that includes strata fixed effects and unbalanced covariates.

In regressions with data at census tract level, $X'_{ic}$ includes average age, share of population older than 64, share of population younger than 16, share of retired population over population aged 16 and older, and share of student population over population aged 16 and older. In regressions with survey data at the individual level, we control for age, number of children and adults in the household, working status and income level. The inclusion of controls allows us to improve the accuracy of the estimates, as well as to avoid that imbalances across groups bias our estimated effects. We will also show results without adding any control in the appendix. We cluster the standard errors at the census tract level.

$\beta_1$ will capture the impact of being assigned to only IP intervention, β2 the impact of SM intervention only, and $\beta_3$ the effect of both interventions jointly. The comparison between $\beta_3$ and $\beta_1 + \beta_2$ will allow us to analyze if there are complementarities or synergies in offering both interventions together.

Our analysis focuses on the intent to treat (ITT) estimate, which compares those individuals or census tracts *assigned* to treatment with those assigned to control, irrespective of whether the treatment was eventually received. This is generally the policy-relevant estimate of the program's impact since, in most cases, compliance with the program cannot be enforced.

### 5.2. Baseline Balance

To assess the comparability of the treatment and control groups, we conduct balance tests on pre-intervention covariates and outcomes described earlier. Tables A.3 and A.4 report the results using administrative and survey data, respectively. Each table presents the mean value of each variable by experimental group, along with the p-value from mean comparison tests.

Table A.3 shows the balance tests for the census tract level data. Overall, balance across groups is strong, with no statistically significant differences for most variables. The only exceptions are age, the share of the population under 16 and over 64, and the proportion of retirement pensioners relative to the working-age population, which are significant at the 1% and 5% levels. Pairwise comparisons suggest that these differences are primarily between the control and IPSM groups.

Table A.4 presents balance tests based on socio-demographic characteristics and baseline outcomes from the telephone survey. The treatment and control groups appear broadly comparable, with few statistically significant differences. Specifically, there are minor differences in the share of retired individuals and the proportion of respondents in the lowest income bracket. Pairwise comparisons show that the SM group differs slightly from the control group in terms of age, household size, and the share of retirees; the IPSM group differs in household size and number of children; and the IP group differs only in the share of respondents in the first income bracket. While these differences are statistically significant, they are small in magnitude.

Crucially, all baseline outcomes from both the survey and census data are balanced across experimental groups. This balanced distribution of covariates and outcomes strengthens the validity of our analysis and supports the credibility of our causal estimates. To account for any imbalance, the unbalanced covariates are included as controls in the main regression specifications.

### 5.3. Sample Attrition

Only 9,256 of the 12,419 respondents to the baseline survey could be contacted at the endline. This means an attrition rate of 25.5% in the survey data.

To analyze whether attrition introduces bias to our estimations, we explore two key aspects: (i) whether attrition varies between the intervention groups, termed differential attrition, and (ii) whether characteristics of the individuals who dropped out differ significantly between the groups, referred to as selective attrition. We study the first point by estimating the following equation:

$$Attrition_i = \alpha + \beta_1 IP_i + \beta_2 SM_i + \beta_3 IPSM_i + \varepsilon_i \quad (2)$$

where $Attrition_i$ is an indicator variable that takes the value 1 if an individual *i* has attrited and 0 if has not. The standard errors are clustered at the census tract level.

Column (1) in Table A.6 presents the results of equation (2). Attrition rates are 25% in the control group, 26% in IP, 25% in SM and 24% in IPSM, but these differences are not statistically significant.

Next, we study selective attrition by estimating:

$$Attrition_i = \alpha + \beta_1 IP_i + \beta_2 SM_i + \beta_3 IPSM_i + \Sigma_k \beta_k X_{ik} + \Sigma_k \delta_k X_{ik} \times IP_i + \Sigma_k \delta_k X_{ik} \times SM_i + \Sigma_k \delta_k X_{ik} \times IPSM_i + \varepsilon_{i,} \quad (3)$$

where $X_{ik}$ are observable characteristics and $\delta_k$ are the parameters of interest. A significant $\delta_k$ coefficient would indicate that attritors from the control and the treatment group significantly differ in characteristics $X_k$.

Column (2) in Table A.6 shows the estimation results of equation (3). We do not observe any significant interaction term, indicating no selective attrition.

In the case of administrative records, data is not available for the 18 census tracts in the Basque Country and Navarra. Therefore, we perform the equivalent analysis as for the survey data in Table A.5. The missing data represent 4.5% of observations, 4% in GC and IPSM groups, 5% in IP and in SM groups, but differences are not statistically significant (column (1)). The fact that the region was one of the stratification variables has been determinant to avoid differential attrition. Column (2) reveals there is no selective attrition, except in terms of the share of population with income below 40% of the median.

## 6. Results

### 6.1. Effects on Applications and Approvals

We first use the administrative data at the census tract level in order to estimate the effects of the interventions on the number of applications submitted and approved.

***Effects on applications.*** Columns 1-4 of Table 3 show the results when the dependent variable is the number of applications.[12] The results imply that the IP intervention led to 1.35 additional applications per census tract during the three months that the intervention was on-going (column 1). Given the average of 7.76 applications per census tract in the control group in this period, this represents a 17.4% increase. This effect is significant at the 5% level. After the intervention finished, however, the effects are close to zero and insignificant for the rest of the periods (columns 2-4). There are potentially two opposing forces at play for effects after the intervention period. On the one hand, there could be a harvesting effect, whereby the pool of eligible or interested applicants diminishes after the initial intervention. This force would lead to a *negative* effect of the intervention in subsequent periods. On the other hand, the intervention may generate spillover effects which take time to take off (e.g., potential beneficiaries disseminating information about the MIS). This force would lead to a *positive* effect of the intervention in subsequent periods. The fact that we see close to zero effects suggests that these two forces are of similar magnitude.[13]

The SM intervention shows a different pattern. In columns 1 and 2 we see that this intervention had a close to zero, insignificant effect while the intervention lasted and in the first month after. However, it increased the number of applications thereafter, up to 6 months after the intervention finished (the last period for which we have available data). Specifically, the intervention increased the number of applications per census tract by 1.11 one to four months after the intervention (column 3), and by 0.84 four to six months after (column 4). These effects are significant at the 5% level and are quantitatively large: 22.7% and 28%, respectively, relative to the control group. There are two reasons why the effects may take longer to happen in the SM intervention vis-a-vis the IP intervention. First, in the SM intervention, individuals need time to gather the necessary documentation and complete the application independently. By contrast, the IP intervention incentivizes immediate application, as it includes support for the application process that is only available during the intervention period. Second, the SM intervention may generate stronger post-information treatment effects than the in-person campaign. After the IP intervention ended, remaining applicants may have been influenced by general information distributed through leaflets and posters. However, the social media campaign provided richer content, including direct links to the MIS website and simulator, potentially offering more actionable guidance.

Finally, the combined intervention exhibits a pattern that closely resembles that of the IP intervention. The magnitude of the effects is very similar and there is no statistically significant difference between the two. Given that the SM intervention does not cause any significant effect during the intervention, it is intuitive that the effect that we observe for the combined intervention closely mirrors that of the IP intervention during that period of time. It is perhaps less intuitive that the combined intervention does not cause an increase in the number of applications one to six months after the end of the intervention, unlike the SM intervention. We interpret this as

[12] Table 3 shows our results for our pre-specified specification including controls. Table A.7 shows that results with no controls are very similar. See also Table A.8, which shows cumulative effects over time.

[13] We cannot directly test the magnitude of these two forces. That is, the evidence is consistent with both forces being strong and of similar magnitude, or the two forces being non-existent. However, as we discuss below, there is some evidence supporting the existence of non-negligible harvesting effects.

suggestive evidence for a harvesting effect. In other words, the in-person component of the combined intervention generated some additional applications, reducing the pool of potential applicants that the SM intervention may have attracted.

***Effects on approvals.*** Columns 5-8 lay out the results for the number of approved applications. The results refer to the applications submitted in the corresponding time period. For example, the outcome for column 5 (during intervention) is defined as the number of approved applications submitted during the intervention, irrespective of when the applications were approved.

We find that the IP intervention did not cause an increase in the number of approved applications. This is also the case during the intervention period, in which there was a large increase in the number of applications. Hence, the results suggest that the additional applications that the intervention generated did not end up being approved. Our preferred explanation is a lack of support after the intervention period ended. During the approval process, applicants are often required to submit additional documentation or respond to follow-up requests. Individuals who received in-person support may not have been able to respond to these requests without continued assistance. This underscores the importance of continued assistance.

The results for the SM intervention also do not reveal clear effects on the number of approved applications. For the 1-4 months after the intervention period (column 7), the estimate does suggest an increase in the number of approved applications of 0.44, but the effect is only significant at the 10% level. For the other time periods (columns 5, 6, and 8) the effects are not statistically significant. In contrast to the IP intervention, individuals from census tracts assigned to the SM intervention completed their initial applications independently. This suggests they may have been better equipped to handle subsequent administrative requirements on their own. However, unlike applicants from the IP intervention, SM participants may not have been able to assess their eligibility independently, leading to more applications by individuals that do not meet the eligibility criteria.

Finally, consistent with the previous results, the combined intervention also did not lead to any significant effect on the number of approved applications.

Table 3: Impact on number of applications and approved applications

| | Number of applications | | | | Number of approved applications | | | |
|---|---|---|---|---|---|---|---|---|
| | During (3 mo.) | 1 mo. after | 1-4 mo. after | 4-6 mo. after | During (3 mo.) | 1 mo. after | 1-4 mo. after | 4-6 mo. after |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| IP | 1.35** | -0.10 | 0.04 | 0.16 | 0.16 | -0.17 | -0.08 | -0.01 |
| | (0.53) | (0.22) | (0.36) | (0.31) | (0.30) | (0.14) | (0.25) | (0.19) |
| SM | -0.18 | -0.12 | 1.11** | 0.84** | -0.27 | -0.05 | 0.44* | 0.21 |
| | (0.53) | (0.24) | (0.44) | (0.36) | (0.31) | (0.15) | (0.27) | (0.21) |
| IPSM | 1.17* | -0.06 | 0.19 | 0.15 | -0.29 | -0.10 | -0.15 | -0.13 |
| | (0.59) | (0.23) | (0.41) | (0.35) | (0.32) | (0.16) | (0.26) | (0.20) |
| Observations | 382 | 382 | 382 | 382 | 382 | 382 | 382 | 382 |
| $R^2$ | 0.65 | 0.50 | 0.63 | 0.55 | 0.56 | 0.36 | 0.48 | 0.44 |
| Mean dep. var. CG | 7.76 | 2.17 | 4.88 | 3.00 | 3.04 | 0.80 | 1.91 | 1.20 |
| IP=IPSM | 0.75 | 0.87 | 0.70 | 0.98 | 0.15 | 0.65 | 0.79 | 0.53 |
| SM=IPSM | 0.03 | 0.81 | 0.06 | 0.06 | 0.95 | 0.72 | 0.05 | 0.11 |
| IP=SM=IPSM | 0.01 | 0.97 | 0.05 | 0.09 | 0.25 | 0.68 | 0.10 | 0.28 |
| IPSM=IP+SM | 1.00 | 0.62 | 0.11 | 0.07 | 0.68 | 0.58 | 0.19 | 0.24 |

Note: Robust standard errors in parentheses. Regressions include strata fixed effects, and controls for the indicator at baseline (3 months before the intervention), and unbalanced covariates: average age, share of population older than 64, share of population

younger than 16, share of retired population over population aged 16 and older, and share of student population over population aged 16 and older.. Significance: * p < 0.1, ** p < 0.05, *** p < 0.01.

Table A.7 shows the results for the number of applications and the number of approved applications when no controls are added to the regressions. Results confirm our findings, with the exception of the IP intervention effect on the number of applications during the intervention, and the SM intervention impact on approved applications for the 1-4 months after the intervention period. In both cases, the treatment effects remain positive, but are not statistically significant.

***Effects on resolution time.*** Table A.8 shows the results when the dependent variable is the resolution time of the applications submitted during the three months of the intervention, measured in days. Results do not confirm the hypothesis that assistance during the application process could increase application quality and reduce resolution time. The in-person and the combined intervention did not cause a reduction in the resolution time. While the coefficients of the two interventions are negative, the effects are not statistically significant. Our preferred explanation is the lack of support after the intervention. As mentioned before, during the approval process, applicants are often required to submit additional documentation or respond to follow-up requests, and individuals may have had difficulties to respond to these requests without continued assistance. The results for the SM intervention also do not reveal a significant effect on resolution time, as individuals did not receive any support during the application process. An important consideration is that all the applications that we observe have been already resolved.

### 6.2. Effects on Information, Knowledge, and Trust

Using the survey data, we first study whether the interventions had an effect on individuals' having been exposed to information on the MIS. The results are reported on Table 4. Columns 1-3 show that the IP and the IPSM interventions increased the probability that individuals reported having received information on the MIS via mail, posters, or leaflets in shops. The effects are significant at the 1% or 5% levels, and are around 2 p.p. in magnitude. Given the levels in the control group of around 2-5%, this amounts to effects from 20-100%. While these are large effects, note that the share of respondents in the treated census tracts that reported having received information in one of the treated census tracts is low, at most 8%. By contrast, the treatments did not lead to any significant effects on the probability of having obtained information from other workers, social centres, neighbours, the MIS bus, or Instagram (columns 4-7 and 10). For social networks and Facebook (columns 8 and 9), there is a negative and significant effect of 3 p.p. for the IPSM intervention. One possible explanation is that survey respondents might classify the information they received according to the most salient source. If they were contacted in person or saw posters, they may no longer recall or attribute social networks or Facebook as a relevant source, even if they were exposed to it.

Table 4: Impacts on Information

| | (1) Mail | (2) Posters | (3) Leaflets in shops | (4) Workers | (5) Social centres | (6) Neighbours | (7) MIS bus | (8) Social networks | (9) Facebook | (10) Instagram |
|---|---|---|---|---|---|---|---|---|---|---|
| IP | 0.02*** | 0.02** | 0.01** | -0.00 | 0.00 | -0.01 | -0.01 | -0.01 | 0.01 | 0.01 |
| | (0.01) | (0.01) | (0.01) | (0.00) | (0.01) | (0.01) | (0.01) | (0.02) | (0.01) | (0.01) |
| SM | -0.00 | -0.01 | 0.00 | -0.00 | -0.00 | -0.02* | 0.00 | -0.01 | -0.01 | -0.00 |
| | (0.00) | (0.01) | (0.00) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| IPSM | 0.02*** | 0.03*** | 0.02*** | 0.00 | 0.01 | 0.01 | 0.00 | -0.03** | -0.03** | 0.01 |
| | (0.01) | (0.01) | (0.00) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| Observations | 8886 | 8844 | 8885 | 8862 | 8719 | 8873 | 8885 | 8821 | 8884 | 8884 |
| $R^2$ | 0.03 | 0.02 | 0.01 | 0.01 | 0.04 | 0.06 | 0.02 | 0.08 | 0.06 | 0.03 |
| Mean dep.var. control | 0.02 | 0.05 | 0.02 | 0.03 | 0.18 | 0.20 | 0.03 | 0.33 | 0.21 | 0.07 |

Note: Standard errors in parentheses have been clustered at the census tract level. Regressions include strata fixed effects and controls for unbalanced variables: age, number of children and adults in the household, working status and income level. The number of observations varies due to missing information or "Don't Know/No Answer" responses. $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01.

Second, we study the effects of the intervention on the knowledge about the MIS (column 1 in Table 5) and on the opinion about it (columns 2-5). We find that the interventions did not have any effects on any of these outcomes.

Finally, we study the effects of the intervention on our two variables capturing trust in institutions: the Anderson Index (column 6), and whether individuals believe that institutions have the capacity to solve problems (column 7). The results reveal no statistically significant effects.

A plausible explanation for the lack of effects on the knowledge and trust outcomes is that, since most respondents are neither eligible for the MIS nor in a NTU situation, the additional exposure to MIS-related information may not have captured their attention or motivated them to engage with the material, thereby leading to no observable changes in either knowledge or opinions about the policy, or trust institutions.

Table 5: Impacts on Knowledge, Opinion, and Trust

| | (1) Knowledge of MIS | (2) MIS appropiate | (3) Ease application process | (4) Satisfaction result | (5) MIS general assessment | (6) Trust in institutions | (7) Institutions capacity to solve problems |
|---|---|---|---|---|---|---|---|
| IP | -0.01 | -0.01 | -0.05 | 0.00 | -0.04 | 0.02 | -0.03 |
| | (0.03) | (0.04) | (0.05) | (0.05) | (0.03) | (0.02) | (0.02) |
| SM | -0.03 | -0.02 | -0.05 | -0.03 | 0.01 | -0.01 | -0.04 |
| | (0.03) | (0.04) | (0.04) | (0.05) | (0.03) | (0.02) | (0.03) |
| IPSM | 0.01 | -0.01 | -0.04 | -0.02 | -0.00 | 0.01 | -0.02 |
| | (0.02) | (0.04) | (0.04) | (0.05) | (0.03) | (0.02) | (0.02) |
| Observations | 8305 | 5106 | 3800 | 3129 | 7430 | 8293 | 8293 |
| $R^2$ | 0.29 | 0.32 | 0.16 | 0.25 | 0.31 | 0.47 | 0.33 |
| Mean dep. var. control | 0.09 | 0.02 | 0.07 | -0.04 | 0.04 | 0.03 | 0.05 |

Note: Standard errors in parentheses have been clustered at the census tract level. Regressions include strata fixed effects and controls for unbalanced variables: age, number of children and adults in the household, working status and income level. All dependent variables have been standardized. The number of observations varies due to missing information, "Don't Know/No Answer" responses, and filter questions. Significance: $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01.

## 7. Conclusions

This paper assesses whether information provision and administrative support can help reduce the non-take-up of social benefits. We evaluate two large-scale interventions aimed at increasing take-up of Spain's minimum income scheme: a personalized in-person campaign and a social media outreach campaign. Using a randomized controlled trial across 400 low-income census tracts and linked administrative data, we show that both interventions significantly increased application rates but had limited success in improving benefit approvals.
The in-person campaign produced an immediate 17% increase in applications relative to the control group during the intervention period, but this effect dissipated soon after it ended, consistent with offsetting harvesting and spillover dynamics. By contrast, the social media campaign generated delayed yet persistent effects, increasing applications by 23% to 28% one to six months post-intervention (with no effect during the intervention). We argue that this is likely reflecting both the independent nature of the application process and richer informational content. The combined intervention closely mirrored the in-person pattern, with no post-intervention effects, suggesting harvesting.

Despite these increases in application activity, none of the interventions led to robust gains in the number of approved applications, underscoring that reducing NTU requires more than raising awareness and stimulating applications. Persistent logistical and administrative hurdles, including complex documentation requirements and limited institutional support during follow-up stages, continue to prevent eligible households from successfully claiming benefits. For the in-person campaign, our preferred explanation is that applicants lacked support in navigating follow-up requests. For the social media campaign, we argue that participants may not have been able to assess their eligibility independently, leading to more applications by non eligible individuals.

Findings from our complementary survey show that modest increases in reported exposure to MIS information did not translate into improved knowledge, more favorable perceptions of the program, or greater trust in public institutions. This suggests that while outreach efforts successfully drew attention to the program and encouraged applications, they fell short of building meaningful understanding or confidence in the system.

From a policy perspective, these results underscore three main lessons. First, outreach interventions are valuable for boosting initial engagement and can be scaled cost-effectively, particularly via social media. Second, converting interest into benefit receipt requires ongoing, personalized support and simplification of application and follow-up processes. Finally, efforts to reduce NTU should complement information campaigns with administrative reforms that lower procedural complexity, enabling vulnerable households to access support more effectively.

While the study provides robust evidence on the effects of informational outreach and in-person support on benefit take-up, several limitations warrant consideration. First, the administrative data used do not provide insight into the eligibility status or post-application progression of individuals. This restricts our ability to distinguish between procedural hurdles after application and ineligibility as explanations for the lack of impact on benefit approvals. Second, the interventions were

implemented over a limited time frame. Especially in the case of the social media campaign, the observed delayed effects suggest that longer or repeated exposure may produce different dynamics than those captured in this study. Third, the survey data used to explore perceptions and awareness, though informative, are not fully representative of the target population, as explained in Section 4.3. Finally, while the results are internally valid for the Spanish context, the generalizability of our findings beyond the Spanish context should be approached with care. The design of the Spanish MIS and administrative procedures may vary significantly across countries, and similar interventions may yield different results elsewhere. Despite these limitations, the study offers valuable lessons on the effectiveness and design of outreach interventions, and highlights where additional support is needed to convert interest into actual benefit receipt.

Future research should explore how to more effectively bridge the gap between increased applications and successful benefit receipt. In particular, interventions that combine informational outreach with personalized follow-up support—such as case management or digital assistance tools—may help address persistent procedural barriers. Additionally, further work is needed to test the effectiveness of these strategies over longer time horizons and in different institutional contexts. Improving the representativeness of survey data and deepening our understanding of applicant behavior could also enhance the design of targeted, high-impact interventions.

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## Appendix

### A.1 Randomization

The randomization was conducted in four stages. Figure A.1 illustrates the experimental design. In the first stage, the sample was stratified by geographic location, type of contact point and poverty level. Within each stratum, census tracts were randomly ordered and then sequentially assigned to the four groups (IP, SM, IPSM, and CG). When the stratum size was a multiple of four, all units were assigned in this way. When the stratum size exceeded four but was not a multiple of four, the largest multiple of four was identified, and a sub-sample of that size was randomly selected within the stratum. The same assignment procedure was applied to this sub-sample, while the remaining units (the “leftovers”) were set aside for assignment in the second stage.

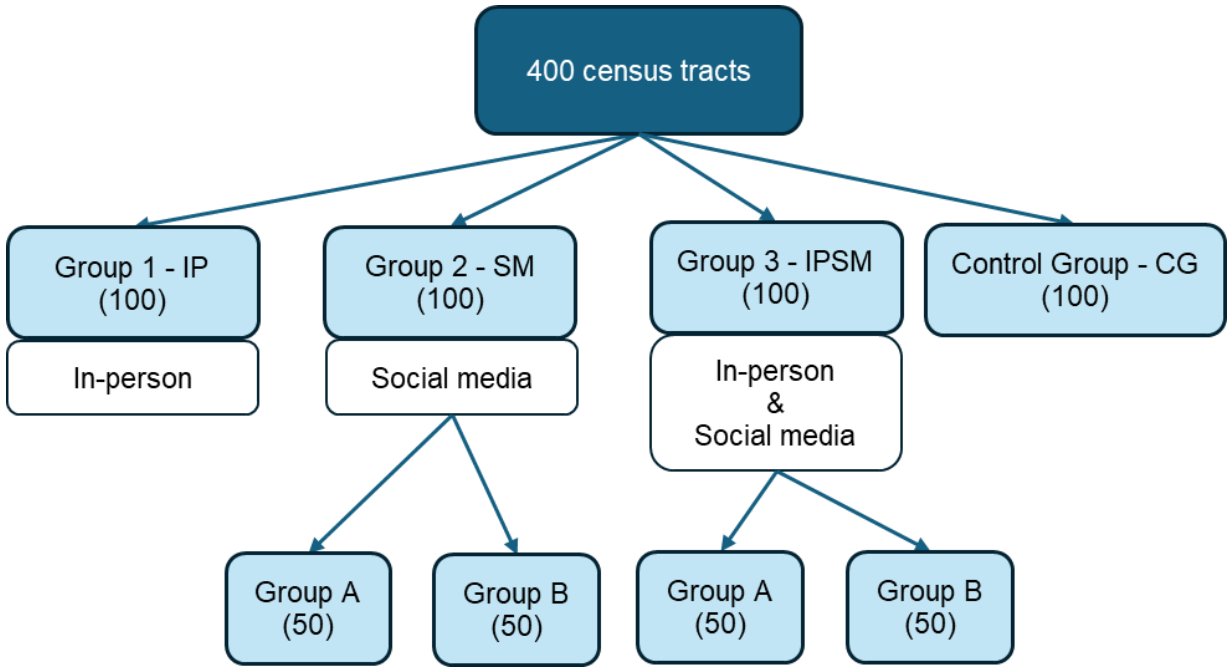
In the second stage, the leftovers from stage one, together with all units belonging to strata of fewer than four observations, were pooled and re-stratified by location only. The same randomization procedure was applied, and any new leftovers were passed on to stage three.

In the third stage, the remaining strata consisted of pairs of units within a location. One unit in each pair was randomly assigned to IP or IPSM, while the other was randomly assigned to SM or CG, ensuring that one quarter of the sample was assigned to each of the four experimental arms.

In the fourth and final stage, the census tracts that were assigned to SM or IPSM were further randomly assigned to group A or group B in the same proportion. Randomization was stratified by autonomous community (17 strata) and treatment group (SM or IPSM), yielding 34 possible strata. Within each stratum, units were randomly ordered, and assignment alternated between Group A and Group B.

For the implementation of the SM intervention, each census tract assigned to SM or IPSM was linked to the corresponding postal code. In cases where a census tract was close to multiple zip codes, additional codes were included. To avoid contamination, postal codes located within 200 meters of a control census tract were excluded. We identified nine census tracts where SM intervention would not be implemented in practice to avoid contamination with census tracts in the control group.

Figure A.1: Experimental Design




*Notes: Details about the in-person and social media interventions, as well as the differences between groups A and B is provided in Section 3.*

## A.2 Content and Structure of Social Media Advertisements

The SM intervention consisted of a ten-week campaign delivered on Facebook and Instagram, targeting individuals living in the zip codes corresponding to treatment groups 2 and 3. This Appendix details the three types of ads featured during the campaign, as well as the timeline followed with each of the subgroups A and B.

Figure A.2 depicts each of the three ads designed for the intervention. The first ad was a motivational message, aimed to increase the perceived relevance of the MIS by highlighting economic need. It consisted of a carousel image with the following text: “If you don’t have enough for the basics. If you struggle to make ends meet at the beginning of the month. If you have difficulties filling your grocery cart or providing for your family’s needs… This benefit is for you: Minimum Income Scheme”. It also included a link to the Social Security’s MIS eligibility simulator.

The second ad was designed to clarify eligibility rules and address misconceptions, particularly regarding employment and compatibility with other benefits. It consisted of a video with the following text: “Did you know you can apply for the MIS even if you are employed? Or that you can receive it along with other benefits? Are you aware of the child supplement for the MIS? It aims to provide additional support to individuals with children. Access all the information about the MIS and check if you meet the requirements. Because this is truly vital.” It included a link to the general MIS information page

Finally, the third ad aimed to reduce psychological barriers by normalizing benefit use and emphasizing legitimacy. It consisted of a static image with the following message: “Over 1,500,000 people are already receiving the MIS. This assistance can also be for you. If you lack the basics, if you struggle to make ends meet: claim what is rightfully yours.” It also included a link to the general MIS information page.

Figure A.2: Social Media Ads

**Ad 1**




**Ad 2** **Ad 3**

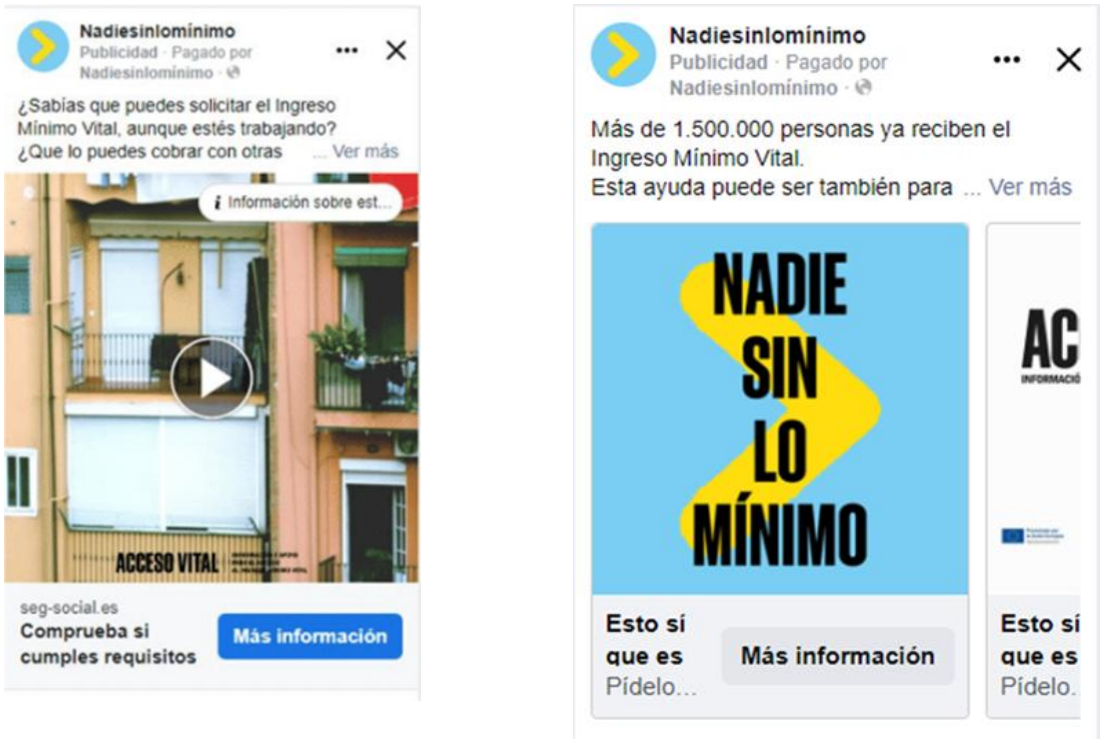
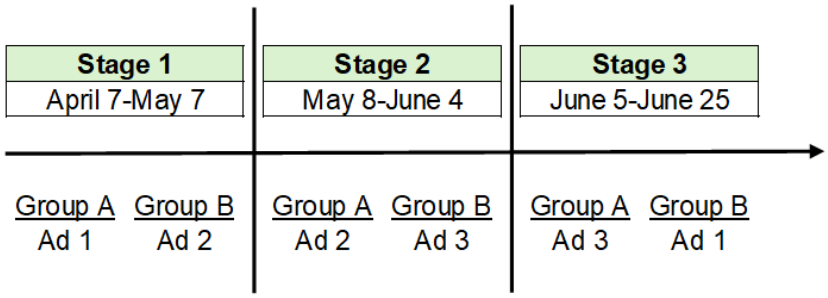



Figure A.3 shows the timeline and advertisement shown during each of the stages of the social media campaign for groups A and B.

Figure A.3: Social Media Campaign Timeline



## A.3 Variables Description

### A.3.1 Outcomes Description

(i) Aggregate indicators at the census tract level based on administrative records of MIS applications:

- Number of MIS applications submitted at the census tract level.
- Number of approved applications submitted at the census tract level.
- Average resolution time, in days, for applications submitted during the three months of intervention that were approved.
- Calculation procedure: Each of these three indicators is computed by the SGI using administrative records of MIS management applications microdata. Calculations are performed for each of the five periods. The computation method is based on frequency summarization for the first two indicators, while the third indicator is derived through average calculations.

(ii) Individual-level indicators derived from survey data.

1. Knowledge of the MIS (1-4)

- Calculation procedure: Question C2 with inverted order. Those who answered “No” in C1 are assigned a 4 in question C2.
- C1. Do you know about the Minimum Income Scheme, a social benefit that was created to help people in a situation of economic vulnerability? Values*:*
  - *1 = Yes*
  - *2 = No*
  - *3 = I am not sure*
  - *4 = I don’t know*
- C2. And how much detail do you know about the benefit? Values*:*
  - *1 = I am aware of how it works*
  - *2 = I know about the benefit, but only superficially/superficially*
  - *3 = I have only heard about it*
  - *4 = I don't know. I have not heard of it*

2. Perceptions of the MIS: Indicator of opinion on whether the MIS is appropriate (0-1):

- Calculation procedure: Those who answer "Yes" to C5.5 are assigned a 1 and those who answer "No" are assigned a 0.
- C5.5 Do you think this help is appropriate for people in the same situation as you or your family? Values:

- 1 = Yes
- 2 = No
- 3 = I don't know

3. Views and opinion on the application and resolution process. Three different indicators are described:

- Indicator of opinion on the ease of the application process (0-10)
  - Calculation procedure: question C5.1.
  - C5.1 What is your opinion of the administrative procedures for applying for aid (based on your experience or that of people you know)? Values*:*
    - *0 = Very difficult*
    - *…*
    - *10 = Very easy*

- Indicator of satisfaction with the resolution process (0-10)
  - Calculation procedure: question C5.3.
  - C5.3 How would you rate the process of resolving the aid (are we talking about whether it took a long time, whether it was clear...)? Values*:*
    - *0 = Very unsatisfied*
    - *…*
    - *10 = Very satisfied*

- Indicator of general assessment of the MIS (0-10)
  - Calculation procedure: question C8
  - C8. How would you rate the Minimum Income or other similar benefits? Values:
    - 0= Very bad
    - …
    - 10= Very good

4. Trust in institutions. Two different indicators are described:

- Indicator on trust in institutions (average) (0-10).
  - Calculation procedure: average of questions I1.1-I1.7
  - I1. On a scale of 0 to 10 where 0 means very little confidence and 10 means a lot of confidence, how much confidence do you have in... ?:
    - I1.1. The central administration:
    - I1.2. Social Security:
    - I1.3. The administration of your Autonomous Community:
    - I1.4. The administration of your local council:
    - I1.5. The Institutions of the European Union:
    - I1.6. Third sector entities/NGOs:

- I1.7. The Media:

- Indicator of opinion on institutions' capacity to solve problems (0-10)
  - Calculation procedure: question I2.
  - I2. How would you rate the capacity of public institutions to provide solutions to citizens' main problems? *Values:*
    - *0 = Very low*
    - *…*
    - *10 = Very high*

### A.3.2 Income levels

Table A1. Income Levels by Household Composition and Monthly Income

| Household composition | | | Monthly income level by household composition (euros) | | | |
|---|---|---|---|---|---|---|
| Number of people | Number of adults | Number of minor children | Level 1 | Level 2 | Level 3 | Level 4 |
| 1 | 1 | 0 | Under 230 | 230-400 | 400-570 | Above 570 |
| 2 | 1 | 1 | Under 350 | 350-610 | 610-860 | Above 860 |
| 3 | 1 | 2 | Under 420 | 420-730 | 730-1030 | Above 1030 |
| 4 | 1 | 3 | Under 490 | 490-850 | 850-1200 | Above 1200 |
| 5 or more | 1 | 4 or more | Under 560 | 560-970 | 970-1370 | Above 1370 |
| 2 | 2 | 0 | Under 300 | 300-520 | 520-740 | Above 740 |
| 3 | 2 | 1 | Under 370 | 370-640 | 640-900 | Above 900 |
| 4 | 2 | 2 | Under 440 | 440-760 | 760-1070 | Above 1070 |
| 5 or more | 2 | 3 or more | Under 510 | 510-880 | 880-1240 | Above 1240 |
| 3 | 3 | 0 | Under 370 | 370-640 | 640-900 | Above 900 |
| 4 | 3 | 1 | Under 440 | 440-760 | 760-1070 | Above 1070 |
| 5 or more | 3 | 2 or more | Under 510 | 510-880 | 880-1240 | Above 1240 |
| 4 | 4 | 0 | Under 440 | 440-760 | 760-1070 | Above 1070 |
| 5 | 4 | 1 | Under 510 | 510-880 | 880-1240 | Above 1240 |
| Other cases | | | Under 510 | 510-880 | 880-1240 | Above 1240 |

### A.4 Appendix Tables

Table A2: Summary Statistics: Survey

| | Mean | Std. Dev. | Min. | Max. | N |
|---|---|---|---|---|---|
| **Socio-demographic variables** | | | | | |
| Male | 0.41 | 0.49 | 0.00 | 1.00 | 13164 |
| Age | 48.34 | 13.44 | 21.00 | 95.00 | 13160 |
| Spanish nationality | 0.93 | 0.26 | 0.00 | 1.00 | 13167 |
| **Household composition** | | | | | |
| Household size | 2.96 | 1.32 | 1.00 | 18.00 | 13167 |
| Number of adults in the household | 2.18 | 0.91 | 1.00 | 14.00 | 13167 |
| Number of children in the household | 0.80 | 1.00 | 0.00 | 7.00 | 13167 |
| **Household highest education level** | | | | | |
| Years of education | 11.13 | 4.37 | 0.00 | 19.00 | 12834 |
| **Employment status** | | | | | |
| Employed | 0.46 | 0.50 | 0.00 | 1.00 | 13167 |
| Self-employed | 0.09 | 0.29 | 0.00 | 1.00 | 13167 |
| Unemployed | 0.25 | 0.43 | 0.00 | 1.00 | 13167 |
| Retired/pensioner | 0.16 | 0.37 | 0.00 | 1.00 | 13167 |
| Student | 0.00 | 0.06 | 0.00 | 1.00 | 13167 |
| Informal economy | 0.00 | 0.07 | 0.00 | 1.00 | 13167 |
| Other | 0.04 | 0.19 | 0.00 | 1.00 | 13167 |
| **Income level** | | | | | |
| First income level | 0.03 | 0.18 | 0.00 | 1.00 | 11594 |
| Second income level | 0.07 | 0.25 | 0.00 | 1.00 | 11594 |
| Third income level | 0.15 | 0.36 | 0.00 | 1.00 | 11594 |
| Fourth income level | 0.75 | 0.43 | 0.00 | 1.00 | 11594 |
| **Digital skills** | | | | | |
| Internet use competences | 3.77 | 1.41 | 1.00 | 5.00 | 12419 |
| Social networks competences | 3.37 | 1.48 | 1.00 | 5.00 | 12419 |
| On-line shopping competences | 3.19 | 1.65 | 1.00 | 5.00 | 12419 |
| Administrative procedures competences | 3.07 | 1.53 | 1.00 | 5.00 | 12419 |
| **MIS and NTU profile** | | | | | |
| Non MIS profile | 0.77 | 0.42 | 0.00 | 1.00 | 11060 |
| NTU profile | 0.12 | 0.33 | 0.00 | 1.00 | 11060 |
| Non NTU profile | 0.11 | 0.31 | 0.00 | 1.00 | 11060 |
| **Characteristics of nodes** | | | | | |
| Rural area | 0.22 | 0.41 | 0.00 | 1.00 | 13167 |
| Urban agglomeration | 0.50 | 0.50 | 0.00 | 1.00 | 13167 |
| Urban area | 0.29 | 0.45 | 0.00 | 1.00 | 13167 |
| Total Population | 1610.53 | 760.33 | 357.00 | 6536.00 | 13167 |
| **Outcomes** | | | | | |
| Knowledge of MIS | 2.33 | 1.07 | 1.00 | 4.00 | 12419 |
| MIS appropiate | 0.61 | 0.49 | 0.00 | 1.00 | 8413 |
| Easy application process | 4.48 | 2.97 | 0.00 | 10.00 | 6645 |
| Satisfaction application result | 4.26 | 3.04 | 0.00 | 10.00 | 5653 |
| MIS general assessment | 6.71 | 2.73 | 0.00 | 10.00 | 11471 |
| Trust in institutions | -0.00 | 1.00 | -2.51 | 2.17 | 12374 |
| Institutions capacity to solve problems | 4.53 | 2.68 | 0.00 | 10.00 | 12370 |

Table A.3: Balance test across experimental groups: Census Tracts

| Variable | (1) CG Mean/(Var) | (2) IP Mean/(Var) | (3) SM Mean/(Var) | (4) IPSM Mean/(Var) | F-test for balance across all groups F-stat/P-value | (2)-(1) Pairwise t-test P-value | (3)-(1) Pairwise t-test P-value | (4)-(1) Pairwise t-test P-value |
|---|---|---|---|---|---|---|---|---|
| Total Population | 1540.82 | 1520.21 | 1691.84 | 1679.64 | 1.40 | 0.84 | 0.15 | 0.19 |
| | (454427.87) | (593144.37) | (612804.58) | (641078.21) | 0.24 | | | |
| % Female population | 0.50 | 0.50 | 0.50 | 0.50 | 0.19 | 0.53 | 1.00 | 0.94 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.91 | | | |
| % Male population | 0.50 | 0.50 | 0.50 | 0.50 | 0.19 | 0.53 | 1.00 | 0.94 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.91 | | | |
| Mean Age | 42.11 | 42.10 | 41.87 | 40.38 | 3.87*** | 0.98 | 0.66 | 0.00*** |
| | (15.32) | (17.29) | (15.37) | (18.29) | 0.01 | | | |
| % Population Younger than 16 | 0.16 | 0.16 | 0.16 | 0.18 | 3.43** | 0.64 | 0.53 | 0.00*** |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.02 | | | |
| % Population of Age 16 up to 64 | 0.66 | 0.65 | 0.66 | 0.66 | 0.66 | 0.27 | 0.81 | 0.86 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.58 | | | |
| % Population Older than 64 | 0.18 | 0.19 | 0.18 | 0.16 | 2.98** | 0.65 | 0.79 | 0.02** |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.03 | | | |
| % Population with Foreign Nationality | 0.18 | 0.19 | 0.19 | 0.19 | 0.13 | 0.80 | 0.53 | 0.72 |
| | (0.02) | (0.02) | (0.02) | (0.02) | 0.94 | | | |
| % Population Born Abroad | 0.22 | 0.22 | 0.23 | 0.22 | 0.10 | 0.87 | 0.60 | 0.91 |
| | (0.02) | (0.02) | (0.02) | (0.02) | 0.96 | | | |
| % People Pursuing Higher Education | 0.03 | 0.03 | 0.03 | 0.03 | 0.37 | 0.31 | 0.48 | 0.64 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.78 | | | |
| % People Pursuing University Education | 0.02 | 0.02 | 0.02 | 0.02 | 0.43 | 0.26 | 0.48 | 0.59 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.73 | | | |
| % People with Higher Education | 0.19 | 0.17 | 0.18 | 0.17 | 1.03 | 0.13 | 0.36 | 0.12 |
| | (0.01) | (0.01) | (0.01) | (0.01) | 0.38 | | | |
| Unemployment Rate | 0.29 | 0.29 | 0.29 | 0.31 | 0.56 | 0.89 | 0.86 | 0.29 |
| | (0.01) | (0.01) | (0.01) | (0.01) | 0.64 | | | |
| Employment Rate | 0.38 | 0.37 | 0.38 | 0.38 | 0.31 | 0.34 | 0.76 | 0.69 |
| | (0.00) | (0.00) | (0.00) | (0.01) | 0.82 | | | |
| Activity Rate | 0.54 | 0.53 | 0.53 | 0.54 | 1.78 | 0.14 | 0.34 | 0.53 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.15 | | | |
| % Disability Pensioner over WAP | 0.04 | 0.04 | 0.04 | 0.04 | 0.92 | 0.36 | 0.60 | 0.50 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.43 | | | |
| % Retirement Pensioner over WAP | 0.15 | 0.16 | 0.15 | 0.14 | 3.22** | 0.52 | 0.50 | 0.02** |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.02 | | | |
| % Other inactive population over WAP | 0.22 | 0.23 | 0.23 | 0.23 | 0.78 | 0.34 | 0.14 | 0.38 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.51 | | | |
| % Student Population over WAP | 0.06 | 0.06 | 0.06 | 0.07 | 2.28* | 0.33 | 0.51 | 0.15 |
| | (0.00) | (0.00) | (0.00) | (0.00) | 0.08 | | | |

Table A.3: Continued from previous page

| Variable | (1) CG Mean/(Var) | (2) IP Mean/(Var) | (3) SM Mean/(Var) | (4) IPSM Mean/(Var) | F-test for balance across all groups F-stat/P-value | (2)-(1) Pairwise t-test P-value | (3)-(1) Pairwise t-test P-value | (4)-(1) Pairwise t-test P-value |
|---|---|---|---|---|---|---|---|---|
| % Population with Income Below 40% Median | 21.92 | 22.06 | 22.01 | 22.57 | 0.17 | 0.88 | 0.92 | 0.51 |
| | (43.85) | (42.77) | (41.19) | (51.52) | 0.91 | | | |
| % Population with Income Below 50% Median | 30.73 | 30.84 | 30.80 | 31.72 | 0.28 | 0.92 | 0.95 | 0.42 |
| | (64.15) | (63.03) | (63.51) | (83.20) | 0.84 | | | |
| % Population with Income Below 60% Median | 40.03 | 40.29 | 40.19 | 41.31 | 0.33 | 0.84 | 0.90 | 0.36 |
| | (84.60) | (81.63) | (82.85) | (107.90) | 0.80 | | | |
| % Population with Income Above 140% Median | 12.65 | 11.78 | 12.07 | 11.51 | 0.40 | 0.40 | 0.57 | 0.30 |
| | (62.43) | (42.55) | (44.21) | (58.42) | 0.75 | | | |
| % Population with Income Above 160% Median | 8.53 | 7.53 | 7.78 | 7.46 | 0.63 | 0.22 | 0.37 | 0.22 |
| | (41.08) | (24.00) | (24.75) | (34.54) | 0.60 | | | |
| % Population with Income Above 200% Median | 4.00 | 3.25 | 3.35 | 3.22 | 1.02 | 0.11 | 0.17 | 0.13 |
| | (14.77) | (6.72) | (7.15) | (10.73) | 0.38 | | | |
| Rural area | 0.22 | 0.27 | 0.23 | 0.14 | 2.02 | 0.41 | 0.87 | 0.14 |
| | (0.17) | (0.20) | (0.18) | (0.12) | 0.11 | | | |
| Urban agglomeration | 0.50 | 0.45 | 0.49 | 0.55 | 0.68 | 0.48 | 0.89 | 0.48 |
| | (0.25) | (0.25) | (0.25) | (0.25) | 0.57 | | | |
| Urban area | 0.28 | 0.28 | 0.28 | 0.31 | 0.11 | 1.00 | 1.00 | 0.64 |
| | (0.20) | (0.20) | (0.20) | (0.22) | 0.96 | | | |
| Number of applications (Pre) | 11.03 | 9.65 | 11.65 | 12.03 | 2.09 | 0.18 | 0.58 | 0.38 |
| | (56.83) | (41.72) | (64.72) | (65.71) | 0.10 | | | |
| Number of approved applications (Pre) | 3.68 | 3.52 | 3.89 | 4.44 | 1.00 | 0.74 | 0.64 | 0.16 |
| | (10.14) | (11.89) | (9.92) | (18.25) | 0.39 | | | |

Note: Robust standard errors. Significance: $*$ $p < 0.1$, $**$ $p < 0.05$, $***$ $p < 0.01$

Table A.4: Balance test across experimental groups: Individual Survey

| Variable | (1) CG Mean/(Var) | (2) IP Mean/(Var) | (3) SM Mean/(Var) | (4) IPSM Mean/(Var) | F-test for balance across all groups F-stat/P-value | (2)-(1) Pairwise t-test P-value | (3)-(1) Pairwise t-test P-value | (4)-(1) Pairwise t-test P-value |
|---|---|---|---|---|---|---|---|---|
| Male | 0.42 | 0.42 | 0.40 | 0.42 | 0.61 | 0.95 | 0.26 | 0.77 |
| | (8.09) | (8.20) | (7.98) | (8.00) | 0.61 | | | |
| Age | 48.91 | 48.31 | 47.92 | 48.24 | 1.11 | 0.32 | 0.07* | 0.24 |
| | (6161.55) | (6045.64) | (5799.79) | (5993.63) | 0.34 | | | |
| Spanish nationality | 0.93 | 0.94 | 0.92 | 0.92 | 1.29 | 0.40 | 0.32 | 0.45 |
| | (2.20) | (2.01) | (2.49) | (2.39) | 0.28 | | | |
| Household size | 2.90 | 2.95 | 2.99 | 3.01 | 1.77 | 0.37 | 0.05* | 0.05* |
| | (56.13) | (57.22) | (55.63) | (63.47) | 0.15 | | | |
| Number of adults in the household | 2.16 | 2.16 | 2.20 | 2.19 | 1.00 | 0.92 | 0.18 | 0.43 |
| | (27.87) | (25.38) | (26.79) | (29.47) | 0.39 | | | |
| Number of children in the household | 0.76 | 0.80 | 0.82 | 0.84 | 1.63 | 0.37 | 0.14 | 0.03** |
| | (31.41) | (33.43) | (32.87) | (35.61) | 0.18 | | | |
| Years of education | 11.17 | 11.09 | 11.24 | 11.01 | 0.60 | 0.70 | 0.69 | 0.42 |
| | (634.97) | (630.61) | (596.71) | (617.48) | 0.62 | | | |
| Employed | 0.45 | 0.47 | 0.46 | 0.45 | 1.11 | 0.11 | 0.56 | 0.90 |
| | (8.20) | (8.39) | (8.25) | (8.14) | 0.35 | | | |
| Self-employed | 0.09 | 0.08 | 0.09 | 0.09 | 0.84 | 0.25 | 0.89 | 0.93 |
| | (2.80) | (2.53) | (2.84) | (2.80) | 0.47 | | | |
| Unemployed | 0.24 | 0.24 | 0.26 | 0.25 | 0.91 | 0.72 | 0.22 | 0.83 |
| | (6.09) | (6.08) | (6.42) | (6.09) | 0.44 | | | |
| Retired/pensioner | 0.17 | 0.16 | 0.14 | 0.16 | 2.21* | 0.36 | 0.02** | 0.39 |
| | (4.76) | (4.54) | (4.06) | (4.46) | 0.09 | | | |
| Student | 0.00 | 0.00 | 0.00 | 0.00 | 0.31 | 0.67 | 0.86 | 0.56 |
| | (0.13) | (0.11) | (0.14) | (0.16) | 0.82 | | | |
| Informal economy | 0.00 | 0.00 | 0.01 | 0.01 | 0.65 | 0.87 | 0.34 | 0.26 |
| | (0.12) | (0.13) | (0.17) | (0.18) | 0.58 | | | |
| Other | 0.04 | 0.04 | 0.04 | 0.04 | 0.39 | 0.65 | 0.77 | 0.51 |
| | (1.21) | (1.30) | (1.18) | (1.30) | 0.76 | | | |
| First income level | 0.04 | 0.02 | 0.03 | 0.04 | 2.72** | 0.02** | 0.98 | 0.83 |
| | (0.98) | (0.70) | (0.99) | (1.01) | 0.04 | | | |
| Second income level | 0.07 | 0.06 | 0.07 | 0.07 | 0.28 | 0.59 | 0.73 | 0.80 |
| | (1.82) | (1.75) | (1.91) | (1.77) | 0.84 | | | |
| Third income level | 0.15 | 0.15 | 0.15 | 0.16 | 0.55 | 1.00 | 0.68 | 0.26 |
| | (3.68) | (3.74) | (3.83) | (3.96) | 0.65 | | | |
| Fourth income level | 0.75 | 0.76 | 0.74 | 0.74 | 1.03 | 0.37 | 0.66 | 0.44 |
| | (5.46) | (5.33) | (5.64) | (5.64) | 0.38 | | | |
| Internet use competences | 3.76 | 3.76 | 3.83 | 3.73 | 1.29 | 0.95 | 0.20 | 0.62 |
| | (62.61) | (63.66) | (58.68) | (63.66) | 0.28 | | | |

Table A.4: Continued from previous page

| Variable | (1) CG Mean/(Var) | (2) IP Mean/(Var) | (3) SM Mean/(Var) | (4) IPSM Mean/(Var) | F-test for balance across all groups F-stat/P-value | (2)-(1) Pairwise t-test P-value | (3)-(1) Pairwise t-test P-value | (4)-(1) Pairwise t-test P-value |
|---|---|---|---|---|---|---|---|---|
| Social networks competences | 3.35 | 3.39 | 3.42 | 3.33 | 1.43 | 0.47 | 0.15 | 0.64 |
| | (70.31) | (68.25) | (66.01) | (70.63) | 0.23 | | | |
| On-line shopping competences | 3.17 | 3.18 | 3.23 | 3.18 | 0.53 | 0.82 | 0.27 | 0.88 |
| | (84.17) | (86.42) | (83.14) | (86.70) | 0.66 | | | |
| Administrative procedures competences | 3.07 | 3.07 | 3.10 | 3.06 | 0.19 | 0.93 | 0.60 | 0.86 |
| | (74.12) | (74.30) | (71.19) | (75.68) | 0.90 | | | |
| Non MIS profile | 0.77 | 0.78 | 0.77 | 0.76 | 0.32 | 0.72 | 0.81 | 0.55 |
| | (4.89) | (4.83) | (5.00) | (5.03) | 0.81 | | | |
| NTU profile | 0.12 | 0.12 | 0.12 | 0.13 | 0.32 | 0.66 | 0.81 | 0.58 |
| | (2.94) | (2.87) | (3.02) | (3.06) | 0.81 | | | |
| Non NTU profile | 0.11 | 0.11 | 0.11 | 0.11 | 0.10 | 0.91 | 0.89 | 0.71 |
| | (2.66) | (2.65) | (2.73) | (2.75) | 0.96 | | | |
| Rural area | 0.22 | 0.28 | 0.23 | 0.14 | 2.06 | 0.36 | 0.90 | 0.15 |
| | (5.67) | (6.71) | (5.83) | (3.98) | 0.10 | | | |
| Urban agglomeration | 0.50 | 0.45 | 0.49 | 0.55 | 0.73 | 0.48 | 0.92 | 0.45 |
| | (8.30) | (8.32) | (8.32) | (8.14) | 0.53 | | | |
| Urban area | 0.28 | 0.28 | 0.28 | 0.31 | 0.09 | 0.92 | 1.00 | 0.71 |
| | (6.73) | (6.73) | (6.75) | (7.00) | 0.97 | | | |
| Total Population | 1546.88 | 1520.41 | 1693.67 | 1682.76 | 1.39 | 0.80 | 0.16 | 0.20 |
| | (1.52e+07) | (1.98e+07) | (2.01e+07) | (2.10e+07) | 0.25 | | | |
| Knowledge of MIS | 2.35 | 2.34 | 2.35 | 2.29 | 1.14 | 0.85 | 0.97 | 0.12 |
| | (36.20) | (36.02) | (35.03) | (36.22) | 0.33 | | | |
| MIS appropiate | 0.61 | 0.60 | 0.62 | 0.62 | 0.69 | 0.50 | 0.59 | 0.54 |
| | (5.06) | (5.18) | (5.12) | (4.81) | 0.56 | | | |
| Easy application process | 4.56 | 4.45 | 4.46 | 4.45 | 0.35 | 0.40 | 0.39 | 0.39 |
| | (140.29) | (151.92) | (154.86) | (144.02) | 0.79 | | | |
| Satisfaction application result | 4.21 | 4.24 | 4.24 | 4.34 | 0.45 | 0.84 | 0.82 | 0.27 |
| | (123.39) | (128.68) | (138.48) | (135.67) | 0.72 | | | |
| MIS general assessment | 6.76 | 6.66 | 6.65 | 6.76 | 1.35 | 0.25 | 0.13 | 0.96 |
| | (213.77) | (220.65) | (215.50) | (212.75) | 0.26 | | | |
| Trust in institutions | 0.02 | -0.02 | -0.02 | 0.01 | 0.92 | 0.16 | 0.16 | 0.55 |
| | (30.49) | (30.81) | (30.80) | (32.85) | 0.43 | | | |
| Institutions capacity to solve problems | 4.56 | 4.55 | 4.50 | 4.51 | 0.33 | 0.93 | 0.41 | 0.50 |
| | (217.68) | (228.99) | (221.18) | (226.68) | 0.80 | | | |

Note: Robust standard errors. Significance: $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01

Table A5: Attrition in Administrative Data

| | Missing administrative data | |
|---|---|---|
| | (1) | (2) |
| IP | 0.01 | |
| | (0.03) | |
| SM | 0.01 | |
| | (0.03) | |
| IPSM | -0.00 | |
| | (0.03) | |
| IP | | 0.52* |
| | | (0.28) |
| SM | | 0.27 |
| | | (0.25) |
| IPSM | | 0.22 |
| | | (0.36) |
| IP × Total Population | | 0.00 |
| | | (0.00) |
| SM × Total Population | | -0.00 |
| | | (0.00) |
| IPSM × Total Population | | -0.00 |
| | | (0.00) |
| IP × Mean Age | | -0.01 |
| | | (0.01) |
| SM × Mean Age | | -0.01 |
| | | (0.01) |
| IPSM × Mean Age | | -0.00 |
| | | (0.01) |
| IP × % Population with Foreign Nationality | | -0.17 |
| | | (0.20) |
| SM × % Population with Foreign Nationality | | -0.03 |
| | | (0.19) |
| IPSM × % Population with Foreign Nationality | | 0.15 |
| | | (0.21) |
| IP × % People with Higher Education | | -0.53 |
| | | (0.35) |
| SM × % People with Higher Education | | 0.30 |
| | | (0.49) |
| IPSM × % People with Higher Education | | 0.32 |
| | | (0.56) |

Table A5: Continued from previous page- Attrition in Administrative Data

| | Missing administrative data | |
|---|---|---|
| | (1) | (2) |
| IP × Unemployment Rate | | 0.16 |
| | | (0.35) |
| SM × Unemployment Rate | | -0.15 |
| | | (0.29) |
| IPSM × Unemployment Rate | | 0.24 |
| | | (0.27) |
| IP × % Population with Income Below 40% Median | | -0.01* |
| | | (0.01) |
| SM × % Population with Income Below 40% Median | | -0.00 |
| | | (0.01) |
| IPSM × % Population with Income Below 40% Median | | -0.01 |
| | | (0.00) |
| IP × Rural area | | 0.05 |
| | | (0.08) |
| SM × Rural area | | 0.07 |
| | | (0.08) |
| IPSM × Rural area | | 0.09 |
| | | (0.09) |
| IP × Urban agglomeration | | 0.10 |
| | | (0.07) |
| SM × Urban agglomeration | | 0.09 |
| | | (0.07) |
| IPSM × Urban agglomeration | | 0.12 |
| | | (0.08) |
| Observations | 400 | 393 |
| $R^2$ | 0.00 | 0.11 |
| Mean dep. var. CG | 0.04 | 0.03 |

Note: Robust standard errors in parentheses. Significance: $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01

Table A6: Attrition in Survey data

| | Missing endline survey data | |
|---|---|---|
| | (1) | (2) |
| IP | 0.01 | |
| | (0.01) | |
| SM | 0.00 | |
| | (0.01) | |
| IPSM | -0.01 | |
| | (0.01) | |
| IP | | 0.01 |
| | | (0.02) |
| SM | | 0.00 |
| | | (0.02) |
| IPSM | | -0.02 |
| | | (0.02) |
| IP× Knowledge of MIS | | -0.01 |
| | | (0.02) |
| SM× Knowledge of MIS | | 0.02 |
| | | (0.02) |
| IPSM × Knowledge of MIS | | 0.01 |
| | | (0.02) |
| IP × MIS appropiate | | -0.00 |
| | | (0.01) |
| SM × MIS appropiate | | 0.01 |
| | | (0.01) |
| IPSM × MIS appropiate | | 0.00 |
| | | (0.01) |
| IP × Trust in institutions | | -0.00 |
| | | (0.02) |
| SM × Trust in institutions | | -0.00 |
| | | (0.02) |
| IPSM × Trust in institutions | | 0.01 |
| | | (0.02) |
| IP × Institutions capacity to solve problems | | 0.01 |
| | | (0.02) |
| SM × Institutions capacity to solve problems | | 0.01 |
| | | (0.02) |
| IPSM × Institutions capacity to solve problems | | -0.00 |
| | | (0.02) |
| Observations | 12419 | 8384 |
| $R^2$ | 0.00 | 0.01 |
| Mean dep. var. CG | 0.25 | 0.22 |

Note: Standard errors in parentheses have been clustered at the census tract level. Significance: $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01

## Table A7: Impact on number of applications and approved applications: No controls

| | Number of applications | | | | Number of approved applications | | | |
|---|---|---|---|---|---|---|---|---|
| | During (3 mo.) | 1 mo. after | 1-4 mo. after | 4-6 mo. after | During (3 mo.) | 1 mo. after | 1-4 mo. after | 4-6 mo. after |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| IP | 0.62 | -0.19 | -0.19 | -0.06 | 0.11 | -0.11 | -0.03 | 0.03 |
| | (0.77) | (0.28) | (0.49) | (0.37) | (0.40) | (0.14) | (0.28) | (0.20) |
| SM | 0.26 | 0.05 | 1.22** | 0.86** | -0.15 | 0.04 | 0.47 | 0.32 |
| | (0.81) | (0.29) | (0.60) | (0.42) | (0.38) | (0.15) | (0.31) | (0.22) |
| IPSM | 2.11** | 0.26 | 0.98* | 0.66 | 0.41 | 0.14 | 0.26 | 0.15 |
| | (0.83) | (0.28) | (0.57) | (0.42) | (0.40) | (0.16) | (0.30) | (0.23) |
| Observations | 382 | 382 | 382 | 382 | 382 | 382 | 382 | 382 |
| $R^2$ | 0.02 | 0.01 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| Mean dep. var. | 7.76 | 2.17 | 4.88 | 3.00 | 3.04 | 0.80 | 1.91 | 1.20 |
| IP=IPSM | 0.06 | 0.10 | 0.03 | 0.07 | 0.47 | 0.12 | 0.36 | 0.62 |
| SM=IPSM | 0.03 | 0.47 | 0.71 | 0.64 | 0.17 | 0.55 | 0.54 | 0.48 |
| IP=SM=IPSM | 0.07 | 0.26 | 0.02 | 0.04 | 0.38 | 0.27 | 0.28 | 0.40 |
| IPSM=IP+SM | 0.28 | 0.32 | 0.95 | 0.80 | 0.43 | 0.35 | 0.68 | 0.51 |

Note: Robust standard errors in parentheses. Significance: * p < 0.1, ** p < 0.05, *** p < 0.01

## Table A8: Impact on resolution time (days)

| | During (3 mo.) |
|---|---|
| | (1) |
| IP | -14.83 |
| | (11.64) |
| SM | 3.85 |
| | (11.27) |
| IPSM | -4.07 |
| | (10.49) |
| Observations | 382 |
| $R^2$ | 0.28 |
| Mean dep. var. CG | 207.46 |
| IP=IPSM | 0.34 |
| SM=IPSM | 0.48 |
| IP=SM=IPSM | 0.29 |
| IPSM=IP+SM | 0.67 |

Note: Robust standard errors in parentheses. Regression include strata fixed effects, a dummy that takes value 1 for census tracts where there were no applications during the corresponding period , and unbalanced covariates: average age, share of population older than 64, share of population younger than 16, share of population with income above 200% of the median income, share of retired population over population aged 16 and older and share of student population over population aged 16 and older. Significance: * p < 0.1, ** p < 0.05, *** p < 0.0