CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

EFFECTS OF SUSPENDING IN-PERSON SERVICES AT SOCIAL SECURITY ADMINISTRATION FIELD OFFICES ON DISABILITY APPLICATIONS AND ALLOWANCES

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Abstract

In this study, we examine the effect of the suspension of in-person services at Social Security Administration (SSA) field offices during the COVID-19 pandemic on applications and the characteristics of applicants to see if certain groups of beneficiaries were disproportionately affected. We examine how applicant characteristics vary by the mode of application—in-person, phone, or online—to understand what groups of applicants were most likely to use in-person services prior to the suspension. We use a difference-in-differences empirical approach that enables us to estimate the impact of the suspension of in-person services on the volume of applications and the demographic composition of applicants while controlling for other pandemic-related factors. Our analysis data consists of application information from SSA's Structured Data Repository, combined with applicant work history information from the Electronic Claims Analysis sTool. We combined the administrative data with location information of SSA field offices and county information from the *American Community Survey* and the New York Times COVID-19 repository.

The paper found that:

- There were systematic differences in the characteristics of applicants by mode of application. In-person applicants were older, less likely to have completed high school, and less likely to speak English compared to phone or online applicants.
- The suspension caused a 6-percent decrease in the volume of applications, implying that not everyone who wanted to apply in-person was able to apply using other modes. The effect was larger for Supplemental Security Income (SSI) applications compared to Social Security Disability Insurance (DI) applications.
- The suspension of in-person services caused some would-be in-person applicants to apply by phone, but it did not cause an increase in the volume of online applications.
- We did not find evidence that the suspension disproportionately affected groups of applicants defined by educational attainment, age, or English-speaking status.
- Our estimates imply that in-person service suspensions explain more than 50 percent of the decline in SSI and DI applications during the pandemic.

The policy implications of the findings are:

- Policies that aim to raise awareness and use of online services could significantly reduce application barriers to eligible individuals; however, they may help some types of eligible individuals more than others.
- Understanding the characteristics of applicants who use the different modes of application could be useful in helping the government efficiently allocate resources to support access to the application process.
- Our results indicate that a better understanding of how application mode affects the completeness and quality of SSI or DI applications could ultimately lead to potential application supports (such as access to an online chat with an SSA representative) for modes of application that tend to be associated with relatively lower application quality.

Introduction

Federal disability programs in the United States provide needed supports to millions of people with disabilities each year. Social Security Disability Insurance (DI), the insurance program for disabled workers, provided benefits to 9.2 million people[1] with severe disabilities at the end of 2021. The Supplemental Security Income program (SSI), a means-tested program for adults and children with a disability, provided benefits to 7.7 million people at the end of 2021 (some of whom were concurrently entitled to DI benefits). People with disabilities determined eligible for these programs receive a monthly cash benefit and become eligible for Medicare[2] (if enrolled in DI) or Medicaid[3] (if enrolled in SSI).

The application process for the DI and SSI programs is not trivial. As part of the initial application, individuals must complete a lengthy application, submit extensive supporting documents, and provide medical records, and they are typically required to attend an interview. Certain groups of applicants, such as older applicants or those from minority groups, may experience greater barriers to completing an application for DI or SSI, and some may not ultimately receive benefits that they are entitled to (Morris 2023).

During the COVID-19 pandemic, the Social Security Administration (SSA) suspended in-person services at SSA field offices. After the suspension of in-person services, the overall number of applications fell, and the proportion of DI online applications jumped to almost 60 percent.[4] The loss of the option of interacting face-to-face with a field office representative to negotiate the application process may have prevented some potential applicants from completing the application process.

In this study, we investigate the effects of the suspension of in-person services on the volume of DI and child and adult SSI applications and the characteristics of applicants to see if certain groups of beneficiaries were disproportionately affected by the suspension. To understand what groups of applicants were most likely to use in-person services prior to the suspension, we examine how applicant characteristics vary by the mode of application: in-

[1] This includes disabled workers, disabled adult children and disabled widowers.
[2] People with disabilities must first receive Social Security Disability Insurance (SSDI) for 24 months before gaining Medicare eligibility.
[3] In most states, SSI eligibility automatically confers Medicaid eligibility, however, in a few states the SSI applicant must file a separate Medicaid application and Medicaid eligibility is not guaranteed.
[4] Monthly data on initial DI applications is available at https://www.ssa.gov/open/data/initial-disability-insurance-online-apps-2012-onward.html

person, phone, or online. We then estimate the impact of the suspension of in-person services on the volume of applications and the demographic composition of applicants while controlling for other pandemic-related factors.

Our research goals are two-fold. The first is to better understand the effect of the COVID-19 pandemic on applications and applicants, contributing to our understanding of the experiences of people with disabilities during the pandemic. Eligible individuals who could not access the SSI or DI program during the pandemic due to substantially reduced access to in-person services could experience important short- and long-term consequences for their well-being. Receiving disability benefits reduces financial distress such as bankruptcy, foreclosures, and home sales (Deshpande et al. 2021) and may reduce criminal charges and incarceration among youth (Deshpande and Mueller-Smith 2022). The second research goal is to use the suspension of in-person services to gain insight into questions about barriers to access and program participation more generally, which could help inform SSA policy with regards to minimizing access barriers and promoting equitable access.

Our results show that prior to the suspension of in-person services, there were systematic differences in the characteristics of applicants by mode of application. In particular, in-person applicants were older, less likely to have completed high school, and less likely to speak English compared to phone or online applicants. We also found that people who applied in-person were more likely to meet the entitlement criteria than those who applied online or by phone. Additionally, the suspension of in-person services caused a 6-percent decrease in the volume of applications, and that effect was larger for SSI applications compared to DI applications. Together, these findings motivate the question of whether applicants with certain characteristics were affected by the suspension of in-person services more than others. We did not find evidence that the suspension disproportionately affected applicants with less than a high school education, those who do not speak English, or those who were age 50 or older. Furthermore, our results indicate that initial allowance rates increased very slightly after the suspension of services, which is not consistent with the idea that those who would have met the eligibility criteria were disproportionately affected by the suspension.

The paper proceeds as follows. Section I reviews the literature on the barriers or costs to applying to public programs and on how COVID-19 affected SSI and DI applications. In Section II, we describe the institutional context of the DI and SSI application process and the

changes in application supports that went into effect at the start of the pandemic. We also describe SSA administrative data and the publicly available data used for these analyses. Section III outlines the empirical strategy, Section IV presents estimates of the effect of in-person service suspensions on applications and the applicant pool, and Section V shares our conclusions.

Contribution to the Literature

Our work contributes to the literature on how transaction costs (such as the difficulty of completing and submitting an application) affect access to public benefit programs. Public programs, like SSA's disability benefit programs, must balance maximizing program efficiency (targeting services to those truly eligible) with ensuring that eligible individuals are not screened out from participation due to barriers to entry. A review by Currie (2006) studied participation across a wide range of public programs and concluded that low take-up is a problem in many public programs. Recent research using the Health and Retirement study linked to SSA administrative data found that fewer than half of older adults of working age with work-disabilities received disability benefits (Morris 2023). Currie (2006) also found that administrative barriers (that is, transaction costs) reduced participation of eligible individuals in programs such as Medicaid and the Supplemental Nutrition Assistance Program.

In line with this finding, prior studies using quasi-experimental approaches have found that reducing information costs and increasing access to new modes of application increases the probability of applying for benefits. Conversely, reducing access to a mode of application reduces applications. For example, Armour (2018) found that the introduction of automatic mailing of personalized Social Security Statements showing the monthly disability benefit a person is entitled to substantially increased the likelihood of an application among older adults who reported having work limitations. Foote et al. (2018) studied the introduction of a portal allowing DI applicants to submit their initial application online and found that the introduction of the new mode for application contributed to the increase in DI application rates between 2008 and 2011. They concluded that some people experienced barriers that prevented them from applying in-person or by phone, which were eased by the introduction of the option to file online. Recent work by Hemmeter et al. (2020) focused on low take-up of SSI among individuals ages 65 or older. They found that the act of notification of potential eligibility, via a mailed

communication, caused a substantial increase in applications among individuals deemed likely to be eligible for SSI based on SSA administrative data.

Deshpande and Li (2019) studied the effects of field office closures that occurred between 2000 and 2015 on DI and SSI applications in areas surrounding the closed offices. They used variation in the timing of closures comparing outcomes in zip codes with a current field office closure to outcomes in zip codes in which a field office closure occurred at least two years in the future. They found that field office closures led to a 10 percent decline in applications and a larger persistent decline in the number of disability recipients in surrounding areas. Deshpande and Li conclude that the closure of field offices reduced targeting efficiency because it resulted in disproportionately fewer applications from people who would ultimately have been awarded benefits. The largest effect was among individuals with moderately severe conditions and lower education levels.

We extend the work by Deshpande and Li in several ways. First, we have access to information on application mode, and therefore we can document how applicant characteristics vary by mode of application and whether mode of application is associated with likelihood of allowance. Factors such as having staff guidance through the application process and limitations on staff time could lead to differences in the quality of in-person applications compared to other modes of application for applicants that are similar. Second, we investigate the causal impacts of a universal, nationwide suspension of in-person services in a more recent time period. The SSA field office closings that Deshpande and Li studied were disproportionately located in the Midwest, where relatively few SSA offices were located at baseline (Deshpande and Li 2019, Figure 2). Our work provides information on the effects of reducing in-person services at a more representative set of field offices.

Our work also contributes to the literature examining how the COVID-19 pandemic affected SSI and DI application rates. Several studies find that DI and SSI applications fell during the pandemic compared to trends in the period prior to the pandemic (Goda et al. 2023; Government Accountability Office [GAO] 2022; Pohl and Mann 2022). Compared to two years prior to the pandemic, average monthly claims between March 2020 and December 2021 declined by 12 percent for DI, 18 percent for SSI based on disability, and 8 percent for SSI based on old-age (GAO 2022). These declines are in stark contrast to the large increases in

unemployment during the pandemic[5] and a literature that indicates that increases in unemployment rates are linked to increases in disability applications (Maestas et al. 2015). However, other factors such as stimulus payments and government unemployment insurance programs could also have affected the propensity of application (Mullen and Maestas 2022). Hereth et al. (2022) note another demand-side factor: long COVID (long-term effects resulting from a COVID infection) may lead to increased eligibility for SSI and DI.

Our work relates most closely to Pohl and Mann (2022), which examines how county-level factors affected by the pandemic are associated with changes in SSI and DI application and award rates. Pohl and Mann find that counties closer to an SSA field office experienced a greater decline in SSI and DI applications than those who were further away, and that counties with a large increase in unemployment had greater DI application rates. While both Pohl and Mann (2022) and GAO (2022) analyzed data over the same time period we do, these analyses were descriptive, not causal. Our study builds on this work by employing an empirical strategy that isolates the effect of in-person service suspensions from other pandemic-related factors that could have affected applications.

Institutional Context and Data

DI and SSI Application Process and Modes

Entitlement to SSA disability benefits as an adult requires inability to work above a threshold level due to a physical or mental impairment that has lasted, or is expected to last, at least one year or result in death.[6,7] Applicants to disability programs primarily make their claim at an SSA field office, over the phone, or via the internet. SSA field offices are distributed throughout the U.S. (see Figure 3). Approximately one-quarter of counties have a SSA field office location. In counties without a field office, the average driving distance to the nearest field office is 34 miles (Pohl and Mann 2022). Compared to other applicants, those who apply with help from a field office representative, either in-person or on the phone, may lack access to

[5] The civilian unemployment rate rose from 3.5% in February 2020 to almost 15% in April 2020. It recovered fairly quickly, reaching pre-pandemic levels in early 2022; https://www.bls.gov/charts/employment-situation/civilian-unemployment-rate.htm

[6] SSA's definition of disability can be accessed in the online publication: Disability Evaluation Under Social Security: https://www.ssa.gov/disability/professionals/bluebook/general-info.htm.

[7] Children are entitled to SSI if they are blind or have a medically determinable physical or mental impairment which result in significant functional limitations and has lasted or is expected to last one year or result in death.

the online process or be unable to navigate the application process without guidance from a claims representative. In addition, filings made with assistance from SSA staff offer the option to develop a more detailed personal narrative in the application compared to online filings. Applicants may also receive help filling out the form from a family member or a third-party representative.

The determination process for whether a person meets SSA's definition of disability involves a comprehensive review process that can be costly to applicants. Applicants must provide a range of documentation potentially including medical records, doctors' reports, and test results, as well as completion of the Adult Disability Report (SSA Form 3368). The Adult Disability Report is a 15-page form that collects information about an applicant's medical conditions, work activity, education and training, job history, medications, history of medical treatment, and tests. Applicants face search and information costs associated with gaining an understanding of how to apply, time costs of preparing application materials, and possibly travel costs to SSA field offices or to doctor appointments for supporting information. Finally, many applicants choose to engage representation, particularly at higher adjudicative levels (GAO 2007), which may be associated with a monetary cost.

Suspension of In-Person Services during COVID-19 Pandemic

SSA suspended in-person services in all field offices on March 17, 2020, to reduce the risk of COVID-19 transmission for people using field office services (whose ages and disability put them at higher risk of severe illness) and for the safety of SSA employees (SSA 2020). Limited in-person services remained available for people with particular critical needs. Field offices remained closed for in-person services for approximately 24 months before reopening for in-person services on April 7, 2022 (SSA 2022a). During the period in which in-person services were suspended, SSA expanded remote service delivery options (GAO 2022). For example, in 2020, local field office phone numbers were published online, and in 2021, SSA installed drop boxes at most field office locations.

Unsurprisingly, the suspension of in-person services led to an immediate increase in the share of DI applications filed online (SSA n.d.). That share increased from 49 percent in the month prior to the suspension up to 57 percent in April 2020, the first month after the suspension. The share of applications filed online continued to trend upwards, reaching a high of

66 percent in early 2022. After the field offices reopened for in-person services, the share of applications filed online fell to around 60 percent.

Data

For this analysis, we used application data from the Structured Data Repository (SDR) for applications filed in 2019–2021. The SDR is a relational database used to collect disability data during the processing and development of disability claims. These data include information on application mode and applicants' education, age, disabling condition, and determination outcomes. One limitation of the SDR is that it does not include all applications that were denied based on a non-medical eligibility requirement, known as technical denials.[8] In 2019, technical denials comprised about 1 percent of applications in the SDR, whereas the true proportion of technical denials in 2020 was 15 percent for SSI applications (SSA 2022b) and 38 percent for DI applications (SSA 2022c). Another source of information on applications and applicant characteristics is the Disability Research File (DRF). Compared to the SDR, the DRF contains more complete information because it does not omit technical denials. However, the DRF does not contain information on application mode, a key variable for our analysis. For this reason, we used the SDR as the primary data source on applications and provide the caveat that our statistics on applications filed yearly between 2019 and 2021 do not represent the full universe of applications.

We linked applicant work history from SSA's Electronic Claims Analysis Tool (eCAT) to the application-level data from the SDR. While the SDR contains some data on applicant work history, the eCAT includes richer information on work history and variables, such as detailed information on an applicant's past relevant work, their residual functional capacity to perform past relevant work, and their history with unskilled work or physical labor.[9]

To identify field office locations, we used information on field office addresses from SSA.gov.[10] SSA maintains a field office locator and a downloadable data set which includes field

[8] Non-medical eligibility requirements for DI benefits include sufficient work credits and sufficiently recent work history. For SSI, applicants do not have work history requirements but do have income and asset tests.
[9] SSA defines past relevant work as work done within the past 15 years, for which earnings were above a given threshold, and that lasted long enough for the worker to learn to perform the job.
[10] Field office location information is available at https://www.ssa.gov/open/data/FO-RS-Address-Open-Close-Time-App-Devs.html.

office names, their full address locations, phone and fax numbers, and opening hours. As of June 2022, there were 1,193 field offices.

We obtained county-level information on population, urbanicity, demographic composition, insurance rates, education, disability rates, and economic conditions (including unemployment rates, share of the population under the federal poverty line, and median income) from the 2015–2019 five-year American Community Survey (ACS). We used the five-year ACS file and selected the 2015–2019 file to capture county characteristics in the period before the suspension of in-person services in 2020. Finally, we obtained information on COVID-19 cases and deaths from the New York Times COVID-19 repository. The repository contains data on the number of cases and deaths each month at the county level since the start of the pandemic.

Methods

We classified applications into four modes: (1) online, (2) with assistance of an SSA representative in-person, (3) with assistance of an SSA representative by phone, and (4) using another mode. We defined online applications as those with a non-missing internet submission date in the SDR. We defined in-person applications as those that were not submitted online and the interview type recorded in the SDR indicated "with assistance, in-person." We defined phone applications as those not submitted online and the interview type in the SDR indicated "with assistance, teleclaim." We classified the mode of applications that did not fall into one the categories defined above as "other." Applications with mode in the "other" category (which amount to approximately 13 percent of all applications) may have been filed by mail, or it is possible that they were filed in-person or by phone but the administrative data for interview type was incomplete. In addition, a disproportionate share of applications classified as "other" are Quick Disability Determinations or Compassionate Allowances. In certain instances, such as low birth weight or congenital defects, the medical evidence is sufficient for the adjudicator to make an allowance without conducting an interview with the claimant.[11]

We classified applications into the relevant program: SSI or DI. Concurrent applications are classified under both categories. We mapped applicant zip code to their county of

[11] We find high allowance rates for applications classified as "other" (Table 1).

residence.[12] About 11 percent of applications were missing a zip code; we dropped these applications from our analysis because our empirical approach requires that we link applications to county. We assigned the 2019–2021 applications to one of 12 quarters based on the case establishment date. We considered applications filed through the first quarter of 2020 to be in the pre-pandemic period[13] and applications filed in the second quarter of 2020 through the end of 2021 to be during the pandemic period.

Access to and preference for using different modes of applications could vary by individual characteristics. For example, applying online requires easy access to the internet and facility navigating online forms. Applying in-person requires proximity to a field office or a means of transportation to the nearest field office. Understanding who uses the different modes of applications provides insight on who would be most affected if access to some modes were expanded or reduced. We began our analysis by investigating how applicant characteristics varied by mode of application prior to the start of the pandemic. We limited our analysis sample to applications filed prior to the start of the pandemic, because the pandemic might have affected the composition of applicants using each mode and our goal was to understand patterns of application before access to one mode, applying with in-person assistance, was drastically reduced.

Key applicant characteristics included age, gender, disabling condition (physical versus mental), education, work history, and local area characteristics (such as the urbanicity, demographic composition, and baseline economic conditions of the applicant's county of residence). We included applications classified as "other" in our analysis for completeness. However, we focus our discussion on in-person, online, and phone applications because applications in the "other" category could comprise a mix of different modes.

In the second stage of the analysis, we examined how initial allowance rates varied by application mode prior to the pandemic, controlling for applicant and local area characteristics. Ideally, likelihood of allowance should not depend on the mode of application used; all modes of

[12] Some zip codes span multiple counties. For these zip codes, we used probabilistic assignment to assign applicants to counties based on the share of the zip code resident population that resides in the counties associated with the zip code. For example, if zip code A spans county 1 and county 2, and if 30 percent of zip code A residents live in county 1 while 70 percent live in county 2, we probabilistically assign applicants who live in zip code A to county 1 and county 2 using the 30 and 70 percent zip code resident shares.

[13] Since field offices suspended in-person services on March 17, 2023, there are about two weeks in our pre-period that were actually treated. Therefore, we may slightly underestimate the impacts of the suspension of in-person services.

application require the same application forms and supporting documents and are reviewed using the same rules. However, it is possible that mode affects likelihood of allowance even after controlling for differences between applicants using the different modes. Factors such as having staff guidance through the application process could lead to differences in the quality of in-person applications in relation to other modes of application for applicants that are similar. For this analysis, we limited our sample once more to pre-pandemic applications to understand how mode was associated with allowance at baseline. We estimated a linear probability model[14] on the universe of applications from the SDR, using an indicator for "initial allowance" as our dependent variable and a categorical variable for mode of application as our main independent variable. Control variables included the full set of applicant characteristics (age, gender, disabling condition, education, work history) as well as county fixed effects. County fixed effects allowed us to control for a range of factors that may lead to differences across counties in initial allowance rates, such as average unemployment rates, poverty, urbanicity, internet access, public supports, and demographics.

The first two stages of analysis provide suggestive evidence on the characteristics of applicants screened out by field office closures during the pandemic and how the mode of application itself could affect likelihood of initial allowance. To rigorously investigate the causal impact of field office closures, we used 2019–2021 SDR data and implemented a difference-in-differences approach. Specifically, we compared the county-level application volume, initial allowance rates, and demographic composition (age, education level, and disabling condition) of applicants each quarter in counties with a field office to a matched set of counties without a field office before and after the start of the second quarter of 2020. We assume that counties with a local field office were affected more by the closure of in-person services at SSA field offices than counties without a local field office. This empirical approach enables us to isolate the effects of the suspension of in-person services on the application pool from other aspects of the pandemic. For example, higher unemployment rates resulting from pandemic-related shutdowns could result in higher SSI and DI application rates and change the demographic composition of applicants. Our approach allows us to difference out the effect of the change in unemployment on our outcomes of interest.

[14] In contexts where treatment status is binary, linear probability models yield estimates of impacts that are just as accurate as those estimated by logistic regression and are easier to interpret (Deke 2014)

An important note is that our analysis sheds light on the effect of not being able to go into a field office, all else held constant. Even if in-person services were not suspended during the pandemic, applications may have decreased more in counties with a field office relative to counties without a field office because people who would have applied in-person might have worried about coming into a crowded field office due to risk of contracting COVID. Therefore, the results of our analysis should be viewed as being informative about the effects of increasing or reducing access to in-person services at a field office all else constant, rather than as providing evidence with regards to counterfactual application rates if office closures had not occurred during the pandemic.

Counties without a local field office may be different from those with a field office. For example, they may be more rural or may have experienced different trends in COVID-19 burden, which could mean that, in general, they had different trends in applications, allowance rates, and other outcomes that make them not comparable to treatment counties. We used propensity score matching with replacement to identify a comparison group from the pool of counties without a local field office. In particular, we used county-level information from the ACS to match counties with a field office to those without a field office based on the county population size, urbanicity, average demographic characteristics, insurance coverage, education, baseline economic conditions, and state.[15] Each treatment county was matched with up to five counties in the potential control group. We conducted balance tests (comparing the characteristics of counties with a field office to those without a field office) before and after matching.

After identifying the matched set of counties, we estimated the difference-in-differences model on our county-quarter level analysis data set:

$$Y_{it} = \beta_0 + \sum_{T} \beta_t (Quarter_t \; x \; Field\; office_i) + \beta_2 Quarter_t + \beta_3 County_i + \beta_4 COVID_{it} + \epsilon_{it}$$

In the model above, Y_{it} refers to the outcome for county *i* in quarter *t*. $Field\; office_i$ is a dummy variable that equals 1 if the county has a field office and equals 0 otherwise. $Quarter_t$ are quarter fixed effects for the first quarter of 2019 through the fourth quarter of 2021, allowing us to control for secular time trends in our outcomes—for example, trends in

[15] Several of these area-level characteristics are also predictive of COVID-19 burden, and their inclusion can help ensure that the selected comparison group had similar pandemic experiences.

application rates due to changing economic conditions. $County_i$ are county fixed effects which capture time-invariant county characteristics (such as size, urbanicity and demographics) that could affect application rates and other outcomes of interest. $COVID_{it}$ are COVID-19 indicators at the county-quarter level, such as county-level COVID-19 cases and deaths per 10,000 residents in each quarter. Prior to the second quarter of 2020, these variables equal 0. We set our reference or baseline quarter to be the first quarter of 2020, during which field offices remained open. The coefficients of interest are β_t; they describe how outcomes in other quarters diverge relative to outcomes in the first quarter of 2020. If the matched comparison group has similar trends as the treatment group (counties with a field office) prior to the start of the pandemic, the coefficients on quarters prior to the pandemic (that is, each quarter of 2019) should not be statistically different from 0. The coefficients on the quarters after the reference quarter are the estimated effects of suspending in-person services. We clustered standard errors at the county level.

Results

Applicant Characteristics by Mode

We examined how applicants' demographic characteristics and the demographic and socioeconomic characteristics of the counties in which they reside differ by application mode prior to the pandemic (Table 1). The second through fifth columns of Table 1 show the column percentages or means for in-person, online, phone, and other applicants respectively, while the sixth column shows the percentages among all applications. As noted above, the actual mode of application is unknown for applications in the "other" category. Because of this, we focus the discussion below on in-person, online, and phone applicants and include "other" applicants in Table 1 for completeness. We summarize our findings below.

Compared to online or phone applicants, in-person applicants were most likely to be male, least likely to have finished high school, least likely to speak English, and least likely to have a physical disability. In-person applicants also lived in counties with lower shares of White residents.

About 56 percent of in-person applicants were male, compared to 49 and 51 percent of phone and online applicants, respectively. This may reflect a range of factors, such as potential gender differences in application mode preferences, in physical disability (which could make applying in-person more challenging), and in other factors correlated with preferring to apply in-person. In-person applicants were least likely to have finished high school and were least likely to speak English. Thirty percent did not complete high school compared to 20 and 27 percent of online and phone applicants, respectively. While the majority of all applicants speak English (over 90 percent), a larger share of in-person applicants did not speak English compared to applicants using other modes (9 percent versus 3 and 4 percent among online and phone applicants, respectively).

In-person applicants also lived in counties with lower shares of White residents; on average, 59 percent of the residents in the in-person applicants' county were White compared to 63 and 66 percent of residents in online and phone applicants' counties, respectively. Finally, in-person applicants were least likely to have a physical disability; 70 percent of in-person applicants had a physical disability compared to 76 percent and 74 percent of online and phone applicants, respectively.

Compared to other modes, applying in-person could provide the greatest opportunity for receiving assistance, making it a more attractive option to groups of applicants whose disability or background make it more challenging to apply using other modes. However, because it requires leaving one's home and using private or public transportation to get to a field office, it may not be the best option for those with a physical disability, and indeed, in-person applicants are less likely to have a physical disability compared to applicants using other modes.

Online applicants were most educated and were most likely to speak English. They also lived in counties with higher median income.

Eighty percent of online applicants had completed high school or some postsecondary education, and 97 percent speak English. These shares were lower among applicants using phone and in-person modes. Applying online requires familiarity with navigating online forms, which may be correlated with relatively higher levels of education. Online applicants were also much more likely to have an appointed representative; 43 percent of online applicants had an

appointed representative compared to only 6 and 11 percent of in-person and phone applicants, respectively.

Compared to applicants using other modes, online applicants also lived in counties with relatively higher median income and a relatively lower share of the population under 100 percent of the Federal Poverty Level. The median household income of online applicants' county of residence was more than $64,000, while median county household income was between $57,000 and $61,000 among online and phone applicants.

Phone applicants were most likely to live in rural counties with relatively lower median income and a higher White share of the population. They were also least likely to live in a county with a field office.

Only 74 percent of phone applicants lived in a mostly urban county, compared to 83 and 90 percent of in-person and online applicants, respectively. Phone applicants were at least 10-percentage points less likely to live in a county that has a field office compared to applicants using other modes, likely because they disproportionately live in rural locations and field offices tend to be located in urban and high-density areas. Phone applicants' counties of residence also had relatively higher White shares of the population compared to other applicants' counties of residence (66 percent compared to 59 and 63 percent among in-person and online applicants, respectively). A lower share of phone applicants (and in-person applicants) had past relevant work relative to online applicants; 6 percent of phone and in-person applicants had past relevant work compared to 8 percent among online applicants.

Phone applicants had the lowest county median household income and the highest county disability rates. In phone applicants' counties of residence, 15 percent of the population reported having a disability, compared to 14 and 13 percent in in-person and online applicants' counties of residence, respectively.

Table 1. *Applicant Characteristics by Mode of Application between January 2019 and March 2020*

Characteristics (in percentages unless otherwise indicated)	**In-person (N=712,618)**	**Online (N=1,657,271)**	**Phone (N= 759,432)**	**Other (N= 485,105)**	**Total (N=3,614,426)**
Applicant characteristics					
Allowance rates	33.5	26.0	28.8	46.7	30.8
Male	56.3	50.9	48.5	60.8	52.8
Age at application					
< 2	0.4	0.9	0.1	11.0	2.0
2–5	0.8	1.7	0.2	15.0	3.0
6–10	0.6	1.7	0.2	19.7	3.6
11–18	1.4	1.5	0.5	16.9	3.3
18–29	20.9	13.6	18.6	11.7	15.9
30–39	14.4	14.8	17.7	6.6	14.2
40–49	17.5	19.0	21.3	5.8	17.4
50–54	13.1	16.7	13.8	4.2	13.7
55–59	16.5	19.1	15.7	4.8	16.0
60–64	14.4	10.9	11.7	4.4	10.9
Educational attainment at application					
Less than high school	30.0	19.9	27.1	31.3	24.9
High school or GED	48.4	49.4	49.4	51.6	49.5
Some postsecondary education	21.5	30.7	23.5	17.0	25.6
Past relevant work (PRW)	6.3	7.9	5.7	4.6	6.7
Limited to unskilled work due to impairments	21.2	18.6	20.5	18.6	19.5
Primary disabling condition is physical	69.7	76.0	74.3	51.1	71.1
Speaks English	90.8	96.9	96.5	93.1	95.1
County non-institutionalized population (count)	1,056,214	1,018,786	674,760	992,733	950,385
Urban status	82.9	89.5	74.4	83.9	84.3
Median household income (dollars)	60,885	64,723	57,827	60,721	60,885
Unemployment rate	5.9	5.4	5.8	5.8	5.6

Share of the population below 100 percent of Federal Poverty Level	15.0	13.6	15.2	15.0	14.4
Share of county population with any disability	13.6	12.7	14.5	13.4	13.4
White share of county population	59.3	62.6	65.6	58.9	62.1
Black share of county population	14.9	13.6	14.3	16.0	14.3
Asian share of county population	4.7	4.7	3.5	4.4	4.4
Has an appointed representative	5.8	42.8	10.6	10.7	24.4
Reside in county with a field office	82.4	84.2	72.1	81.7	81.0

Note: The first four columns show the mean applicant and local area characteristics for applications filed in-person, online, by phone, or via an alternative or unknown mode.
Source: Authors' calculations using the January 2019 through March 2020 application information from the Social Security Administration's Structured Data Repository, the Social Security Administration's Electronic Claims Analysis Tool and information on county characteristics from the 2015–2019 American Community Survey five-year file.

Predictors of Initial Allowance

Next, we investigated whether the mode by which the individual applied to SSI or DI was associated with their likelihood of receiving an initial allowance, after controlling for applicant and local area characteristics. In theory, a person's likelihood of allowance should not depend on the mode of application they used. In practice, it is possible that mode affects likelihood of allowance; factors such as having staff guidance through the application process could lead to differences in the quality of applications across different modes for applicants that are similar. It may be that online applicants, not having the benefit of a direct conversation with an SSA representative, may not know to include certain important details and, as a result, will therefore be less likely to have an allowance at the initial level. During in-person applications, field office staff also have an opportunity to add personal observations, such as "problems with mobility" and "difficulty breathing."

Beyond whether direct support was provided by an SSA representative, there are other potential mechanisms related to application mode that could affect application quality. Phone applications might also promote application quality for some groups of applicants if applicants can be more at ease at home or if the incognito aspect alleviates embarrassment and makes it easier to ask or respond to personal questions that are helpful for the application. Online applicants who do not interact with an SSA representative may feel a level of anonymity or confidentiality that has been shown in social science research to result in more honest responses to survey questions (Keeter 2015).

After controlling for observable applicant characteristics in our linear probability model, we found that phone and online applications were 1- and 3-percentage points less likely to result in an initial allowance relative to in-person applications, respectively (Table 2). Our control variables are also correlated with allowance rates in ways that are closely aligned with the factors often associated with greater need. Older applicants, those with no past relevant work and those with a mental disability were more likely to receive an initial allowance. Disability determinations that progress past step 3 of the sequential determination process[16] take into account vocational factors (in addition to medical factors), and vocational factors favor those who are older; furthermore, older people are also more likely to have severe disabilities.

[16] A description of each step in the sequential evaluation process can be found here: SSA - POMS: DI 22001.001 - Sequential Evaluation of Title II and Title XVI Adult Disability Claims - 02/16/2018.

Applicants who have been assessed to be limited to unskilled work due to their impairment were less likely to have received an initial allowance. This is counterintuitive because applicants who are not able to perform skilled work would have less ability to engage in work than those who are able to perform skilled work in addition to unskilled work. We hypothesize that this unexpected finding is related to the order of the determination process. Prior to examining capacity for work, applicants are screened to determine if their impairment is severe enough for an allowance based on medical grounds alone. Only those applicants whose impairments do not meet that criteria are assessed for the ability to perform work. We believe that the indicator "limited to unskilled work" is acting as a proxy in the regression for not having an impairment that is severe enough for an allowance based on medical grounds alone. These applicants are much more likely to be denied than applicants who are allowed or denied at an earlier stage in the determination process (Wixon and Strand 2013).

Applicants who used an appointed representative were less likely to have received an initial allowance. This is consistent with recent work that shows a higher rate of use of appointed representatives among SSDI applicants with lower allowance rates (Hoynes et al. 2022). Importantly, our results show the correlation between use of an appointed representative and initial allowance, not the causal effect of representation on allowance. An applicant's decision to engage an appointed representative, and the representative's decision about which applicants to serve is complex and many factors that relate to those decisions are not observable in administrative data. The analysis by Hoynes and coauthors uses a theoretical model and an empirical approach that accounts for selection into representation and find that representation increases the likelihood of initial allowance.

Our findings suggest that applying by phone or in-person is more likely to lead to a more complete and higher quality application than applying online. It is possible that online applicants do not provide complete answers to questions or may not understand a question correctly; without in-person or phone assistance, this could hurt an online applicant's chances of an initial allowance. However, as noted above, these results are descriptive and not causal; there may be differences between the applicant groups that we have not controlled for and that may be driving the differences in allowance rates. Online applicants have the lowest unadjusted rates of allowance (Table 1), likely because they tend to have higher incomes and higher education levels on average and may have less severe needs. It is possible that even after adjusting for the

applicant characteristics that we observe in the data, people who apply online are less likely to meet eligibility criteria due to factors we could not observe and control for.

Table 2. *Predictors of Initial Allowance between January 2019 and March 2020*

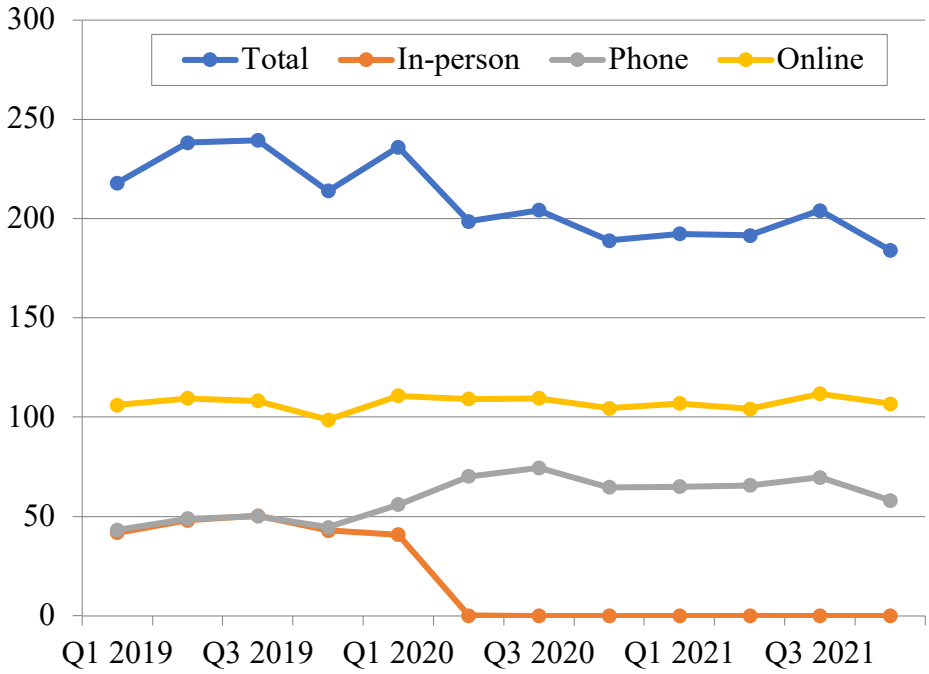
Likelihood of initial allowance	**Coefficient**	**Standard error**	***p*-value**
Mode of application			
In-person (left out)			
Online	-0.03	0.00	0.00
Phone	-0.01	0.00	0.00
Other	0.16	0.00	0.00
Male	0.03	0.00	0.00
Age at application			
11–17	-0.20	0.01	0.00
18–29	-0.23	0.00	0.00
30–39	-0.28	0.00	0.00
40–49	-0.27	0.00	0.00
50–54	-0.19	0.00	0.00
55–59	0.04	0.00	0.00
60–64 (left-out)			
Educational attainment at application			
Less than high school	0.01	0.00	0.00
High school or GED	0.00	0.00	0.00
Some postsecondary education (left out)			
Any past relevant work (PRW)	-0.74	0.00	0.00
Highest skill level of past relevant work			
Unskilled	0.52	0.00	0.00
Semi-skilled	0.49	0.00	0.00
Skilled	0.46	0.00	0.00
Limited to unskilled work due to impairments	-0.19	0.00	0.00
Primary disabling condition is physical	-0.08	0.00	0.00
Speaks English	-0.05	0.00	0.00
Has an appointed representative	-0.02	0.00	0.00
County fixed effects (absorbed)			

Notes: This table shows the coefficients, standard errors, and *p*-values of a regression of initial allowance rates on mode of application, applicant characteristics, and county fixed effects. Applicants who were missing work history information were not included in the regression, primarily younger applicants.
Source: Authors' calculations using the January 2019 through March 2020 application information from the Social Security Administration's Structured Data Repository, the Social Security Administration's Electronic Claims Analysis Tool and information on county characteristics from the 2015–2019 American Community Survey five-year file.

Application Volume Prior to and Post Pandemic

The COVID-19 pandemic had substantial impacts on the health, health care use, and economic and financial well-being of households, which in turn might have impacted applications to DI and SSI. In this section, we document the changes in application volume overall and by the different modes. Average applications per county per quarter declined by about 15 percent after the first quarter of 2020 (**Figure 1**). In-person applications decreased sharply in the second quarter of 2020 and remained near zero throughout the pandemic period. Conversely, both online and phone applications increased; online applications only increased slightly (by approximately 1 percent), while phone applications increased much more (by approximately 38 percent). We found that the share of online applications increased by 8-percentage points between the pre-pandemic period and the pandemic period; however, this is almost entirely driven by the fact that total applications fell rather than the number of online applications increased.

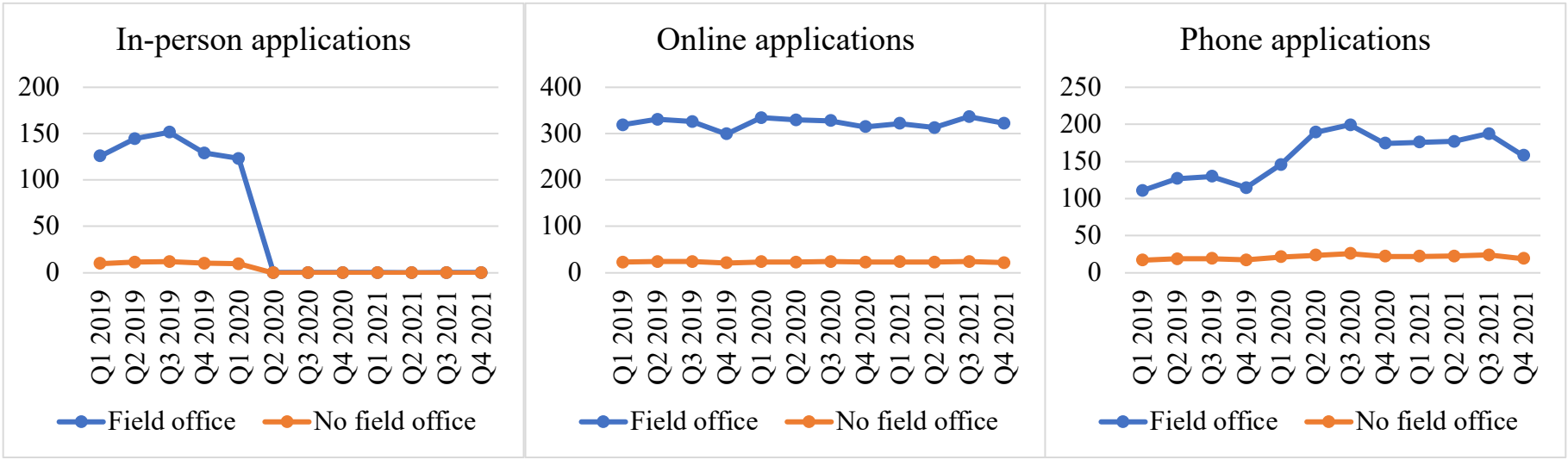
Figure 1. *Volume of Applications Overall and by Mode of Application from 2019 to 2021*



Notes: This figure shows the average total, in-person, online, and phone applications per county per quarter between the first quarter of 2019 and the fourth quarter of 2021. Q = quarter; SSA = Social Security Administration.
Source: Application information from January 2019 through March 2020 from SSA's Structured Data Repository.

Figure 2 shows how the volume of applications changed during the pandemic within counties with or without a field office. Counties with a field office tend to have a much larger application volume, and therefore these counties experienced larger absolute changes in application counts during the pandemic period. However, even in terms of relative rates, counties with a field office experienced larger changes than counties without a field office. For example, during the pandemic period, phone applications increased by 48 percent in counties with a field office compared to 27 percent in counties without a field office, and online applications increased by 2 percent in counties with a field office and 1 percent in counties without a field office.

Figure 2. *Volume of Applications by Mode of Application among Counties with and without a Field Office, 2019 to 2021*



Notes: This figure shows the average in-person, online, and phone applications per county per quarter for counties with a field office and counties without a field office between the first quarter of 2019 and the fourth quarter of 2021. Q = quarter; SSA = Social Security Administration.
Source: Application information from January 2019 through March 2020 from SSA's Structured Data Repository.

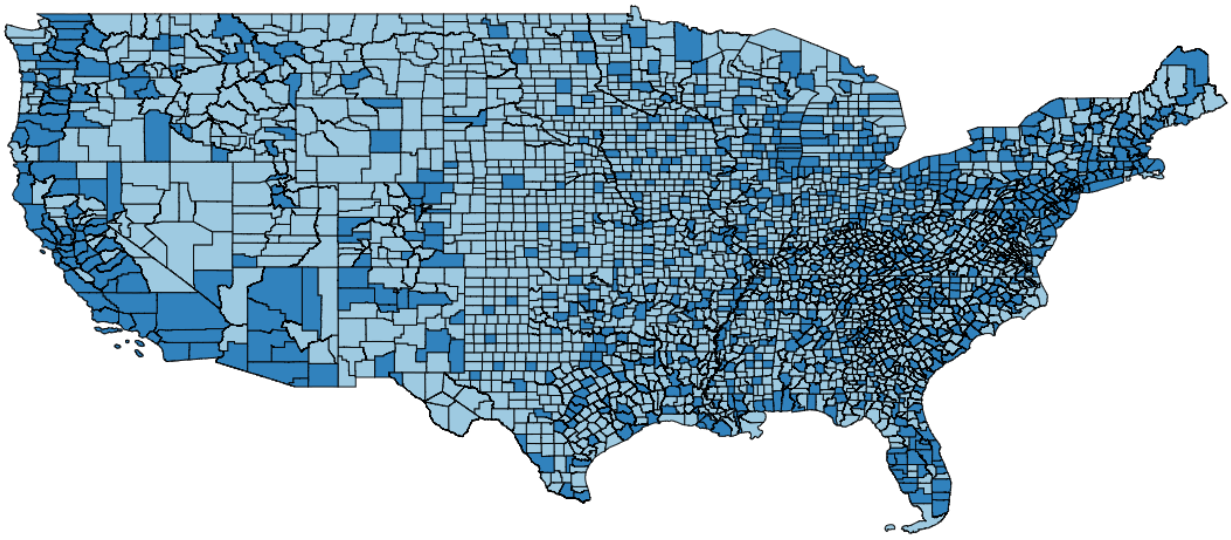
Causal Effect of the Suspension of In-Person Services

Our approach for estimating the effect of in-person service suspensions involves comparing counties with a field office to those without a field office before and after the start of the pandemic. A concern with this approach is that counties without a field office could differ in other important ways from counties that do have a field office, potentially biasing our results. For example, counties in the coastal regions are more likely to have a field office (shaded in dark blue) than counties in the Central U.S. and the Midwest (Figure 3).

The locations of these two sets of counties indicate that there could be important differences in their demographic composition and baseline economic conditions. Indeed, we found that relative to counties without a field office, counties with a field office are more populated and more urban. They also have populations that are younger, less White, more educated, and with a higher median household income (Appendix Table 1). To identify a suitable comparison group, we used propensity score matching to identify a set of counties without a field office that are similar in observable characteristics to those with a field office. The rows labeled "M" in Appendix Table 1 show the average county characteristics post matching. After matching, the differences in the demographic compositions, urbanicity, and baseline economic conditions between the two sets of counties were not statistically significant or were significant but not meaningfully large.

Even after matching, our selected comparison group could be different from the treatment group (counties with a field office) in ways we cannot observe and which could make the parallel trends assumption implausible. In our analysis, we estimate a fully-specified difference-in-differences model (that is, we show the treatment effect for each quarter between the first quarter of 2019 and the fourth quarter of 2022) to allow us to observe how treatment counties trend with respect to the matched comparison group in the period prior to the pandemic. If we observe treatment effects (that is, that treatment and matched control counties have different outcome trends) in the period prior to the pandemic, this would indicate that the parallel trend assumption does not hold.

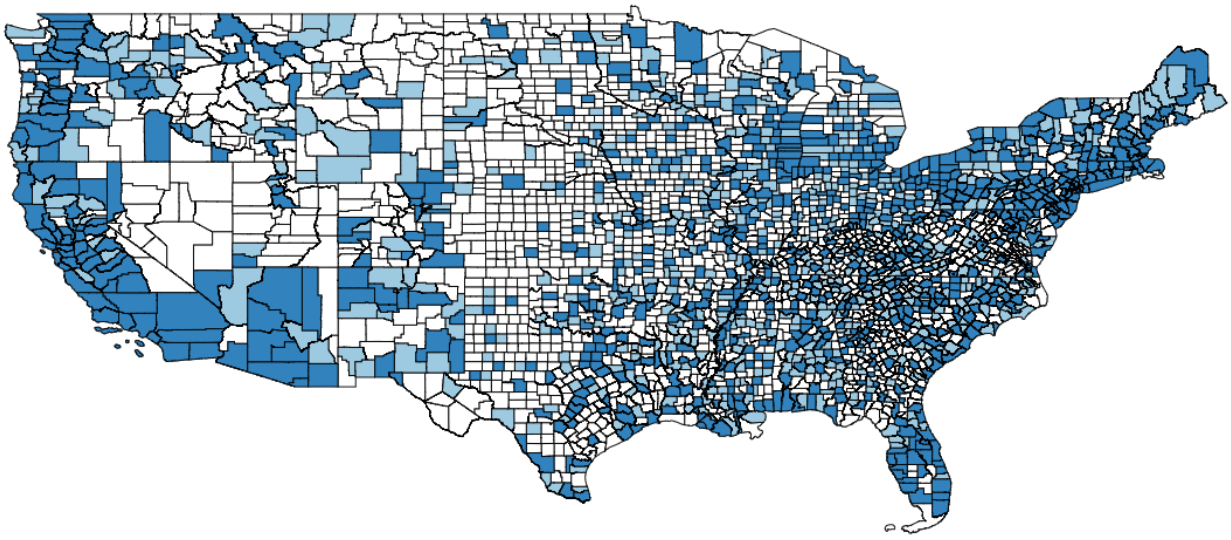
Figure 3. *Counties with and without a Field Office*



Notes: Counties shaded in dark blue have at least one Social Security Administration field office and counties shaded in light blue do not have a field office. The map excludes Hawaii and Alaska for better visualization.
Source: Authors' mapping of Social Security Administration field office addresses obtained from SSA.gov to counties.

Figure 4 shows counties with a field office (dark blue) and the *matched* set of counties without a field office (light blue). Unshaded counties are counties without a field office that are not included in the matched comparison group. Figure 4 indicates that the matched set of counties tend to be geographically close to counties with a field office. In the Central and Midwest regions, where fewer counties have field offices, few counties without a field office were included in the matched comparison group. The proximity of the matched set of counties provides some added reassurance that the selected set of counties represents a suitable comparison group. However, to the extent that SSA field offices serve not just counties in which they are located but also surrounding counties, the comparison group may also have been affected by in-person suspensions at SSA field offices. If this is the case, our difference-in-differences results likely represent a lower bound of the true impact of in-person service suspension on application volume and on the applicant pool.

Figure 4. *Counties with a Field Office and the Matched Set of Counties without a Field Office*



Notes: Counties shaded in dark blue have at least one Social Security Administration field office and counties shaded in light blue are the matched set of counties that do not have a field office. Unshaded counties do not have a field office and are not part of the matched comparison group. The map excludes Hawaii and Alaska for better visualization.
Source: Authors' mapping of Social Security Administration field office addresses obtained from SSA.gov to counties.

Figures 5, 6, and 7 show our difference-in-differences results. Specifically, they show the difference between counties with a field office and the matched set of counties without a field office, relative to the difference between these two groups of counties in the first quarter of 2020. With few exceptions, the impacts in each of the four quarters of 2019 are not statistically distinguishable from zero at the 5 percent level.[17] This is expected given that the suspension of in-person services started in the second quarter of 2020. The lack of statistically significant impact estimates in quarters prior to the suspension of in-person services indicates that any difference in outcomes between counties with versus without a field office remained constant in this time period. This is evidence that a fundamental requirement of our empirical approach is satisfied: that the two groups of counties were on parallel trends before the closure of field offices.

[17] The exceptions are the coefficients on the third quarter of 2019 for the number of in-person applications per 10,000 county residents, the second quarter of 2019 for share of applicants who did not complete high school, and the first and fourth quarter of 2019 for the share of applicants who speak English. In all but the first case, the estimated coefficient is very close to zero.

Unsurprisingly, we found that the suspension of in-person services caused a reduction in the number of in-person applications. In the first quarter during which the suspension was in effect, the number of in-person applications fell by two applications per 10,000 county residents (a 34 percent decrease), and this effect persisted through all of the post-period quarters (Figure 5). That per-capita in-person applications did not fall by 100 percent indicates that our comparison group was also affected by the suspension of in-person services: prior to the suspension, some people who lived in counties without a field office traveled to a field office in a different county to apply. [18] Indeed, Figure 2 shows that counties without a field office in our matched comparison group tend to be close to counties that had a field office. This result illustrates that our impact estimates should be considered lower bounds of the true effect of the suspension of in-person services, depending on the extent to which applicants residing in counties without field offices were affected.

We did not find a statistically significant impact of the suspension on online applications. However, the suspension caused an increase in the number of phone applications of 0.5 applications per 10,000 residents in the second quarter of 2020, a 7 percent increase. The effect increased to about 1 applications per 10,000 residents in subsequent quarters on average, a 12 percent increase. The increase in phone applications after the second quarter of 2020 could have been a result of SSA having published all local field office phone numbers online in June of 2020, potentially facilitating access to phone applications. All together, these results indicate that people who could no longer apply in-person either applied by phone or did not apply at all. About 45 percent of would-be in-person applicants appear to have switched to phone. We did not find evidence that a significant share of would-be in-person applicants chose to apply online instead (Figure 5).

The increase in per-capita phone applications (0.9 applications per quarter) did not fully offset the decline in per-capita in-person applications (2 applications per quarter) in the pandemic period. Indeed, we found that the suspension caused a 8 percent decrease in the total number of applications per capita in the second quarter of 2020 (Figure 6). The effect on total applications became smaller after the second quarter of 2020, coinciding with the increase of

[18] The mean number of in-person applications per quarter prior to pandemic was 135 in counties with a field office and 20 in the matched set of counties without a field office. Our comparison group therefore included counties in which people applied in-person, though the volume of in-person applications was much lower.

online applications. Starting in the third quarter of 2020, the effect on the total number of applications per capita attenuated to 1.3 applications per quarter on average, or about 5 percent. Across all post-period quarters, the total number of applications declined by 1.6 applications per 10,000 county residents, or about 6 percent (Table 4). As noted above, this is likely an underestimate of the true effect of the suspension on application volume, given that some residents of counties without a field office would likely have applied in-person in a neighboring county if the suspension had not occurred. The impact that we estimated is of similar magnitude, though somewhat smaller, than the impact estimated by Deshpande and Li (2019), who found that the closing of SSA field offices led to a 10 percent decline in applications in the surrounding areas.

Deshpande and Li also found that the closure of SSA field offices increased congestion at neighboring field offices and that increased wait times for either in-person or phone assistance at neighboring field offices was one of the main mechanisms through which applications fell. We find that suspension of in-person services resulted in an increase in phone applications. It is possible that it also increased wait times for phone assistance and that some potential applicants whose first choice would have been to apply in-person attempted to apply by phone but were discouraged from doing so by the long wait times. Further work could investigate the extent to which any increased wait times for assistance by phone limited the ability of this mode to fully absorb the new demand—ultimately resulting in a fall of overall application volume.

The suspension of in-person services affected both SSI applications and DI applications, but the relative effects were larger for SSI applications (Figure 6); SSI applications per 10,000 county residents declined by 9 percent in the first quarter of the suspension while DI applications declined by 6 percent. This finding is also consistent with Deshpande and Li (2019), who estimated the effect of field office closure was twice as large for SSI applications compared to DI applications. It is possible that SSI applicants had less awareness of the other application modes available to them or more difficulty navigating a phone or online-based application process. On average, DI and SSI applications declined by 5 and 7 percent, respectively, across all quarters in which in-person services were suspended (Table 4). Effects on the raw numbers of applications per county (that is, not normalized by the county population) showed similar patterns (Appendix Table 2).

Given that we found that the suspension of in-person services caused a reduction in the number of applications, a natural follow-up question is whether certain groups of potential applicants were affected more than others. We investigated whether the suspension of in-person services affected the share of applicants who did not complete high school, the share who were older than age 50, and the share of applicants who speak English (Figure 7; Table 4). Unlike Deshpande and Li (2019), we did not find a statistically significant effect on the share of applicants without a high school degree. We also did not find statistically significant effects on the share of applicants above 50 years of age. Our estimates for the share of applicants who speak English was statistically significant but so small in magnitude as to be indistinguishable from zero. In summary, we did not find evidence that the national suspension of in-person services during the pandemic changed the composition of the applicant pool.

Finally, we examined the effect of the suspension on allowance rates (Figure 7; Table 4). Given that the suspension of in-person services caused the number of applications to decrease, an increase in allowance rates would indicate that the suspension disproportionately discouraged applicants who were less likely to be eligible. This scenario would represent an increase in targeting efficiency. This is, in fact, what we find: our estimate indicates that the suspension of in-person services resulted in a 1percentage point increase in allowance rates in the period after the suspension. It is possible that the pandemic itself impacted allowance rates through delays in processing or other pandemic-related factors that affected processing. Therefore, our estimated effects on allowance rates may not represent the causal effect of in-person suspension. However, this seems unlikely. Field offices do not make disability determinations; rather, they transfer applications that meet non-medical requirements to the Disability Determination Services office, where disability examiners determine if the application meets the medical requirements. To the extent the pandemic caused delays in processing applications which affected allowance rates, a priori there are no reasons to believe this would have differentially affected counties with a field office.

Our allowance rates results are notable given that in-person applicants had higher unadjusted allowance rates compared to online and phone applicants in the period prior to the suspension of in-person services.[19] Our findings imply that high-needs applicants, who would

[19] If all the applicants who would have applied in-person if in-person services were available did not apply when in-person services were suspended, then allowance rates would have decreased.

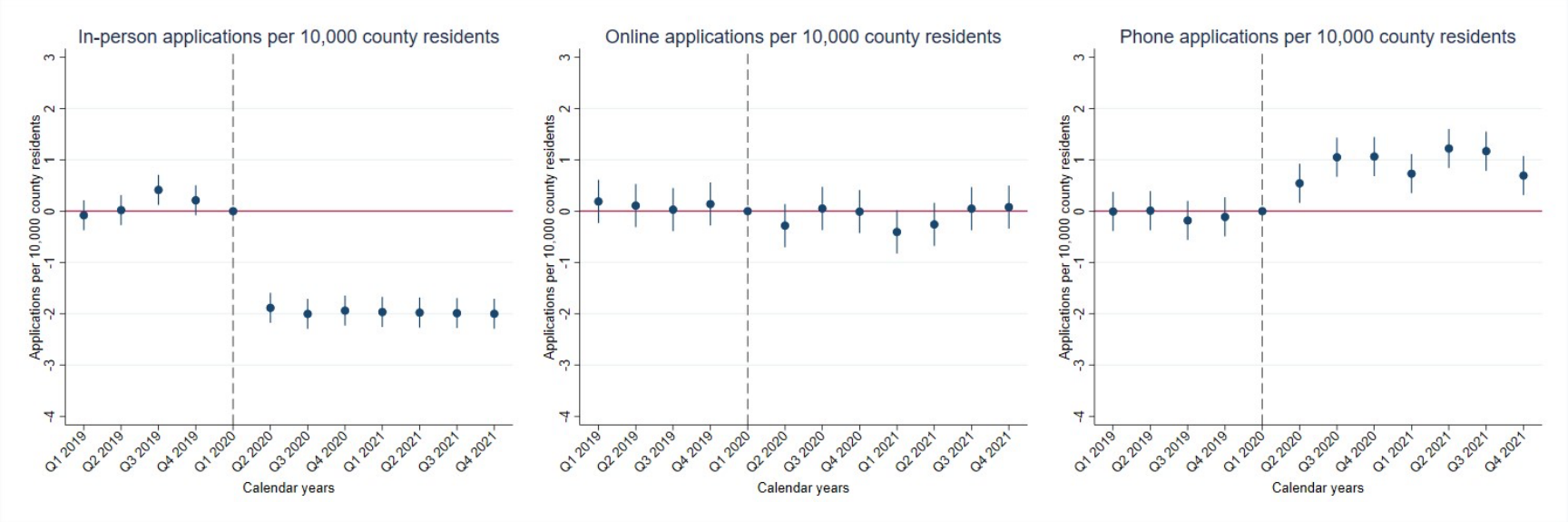
have applied in person if the offices were open, were able to apply through other modes when in-person services were suspended.[20] This finding is in contrast to prior work by Deshpande and Li (2019), who found that reducing access to in-person services (in the pre-pandemic period) disproportionately screened out applicants who would have been allowed had they applied.

There could be several reasons for the difference in findings with regards to allowance rates. First, Deshpande and Li studied the effect of field office closures, which represents both a reduction in in-person and on-the-phone assistance through the local office phone number. Second, measures taken during the pandemic to expand awareness and access to alternative modes of applications may have helped ensure that higher needs applicants were not screened out more than other applicants. Third, Deshpande and Li studied the effects on a select number of areas where field offices closed; effects estimated among these areas may not be representative of the effect across the whole country.

Altogether, our results indicate that the suspension of in-person services causally reduced applications. Not everyone who wanted to apply was able to, and those who were screened out may have experienced socioeconomic hardship. Those who were able to switch modes switched to a phone application; virtually no would-be in-person applicants switched to an online application. In-person service suspension disproportionately affected SSI applicants, who typically have lower incomes. We did not find evidence that the suspension of in-person services affected groups defined by age or English-speaking status more than others.

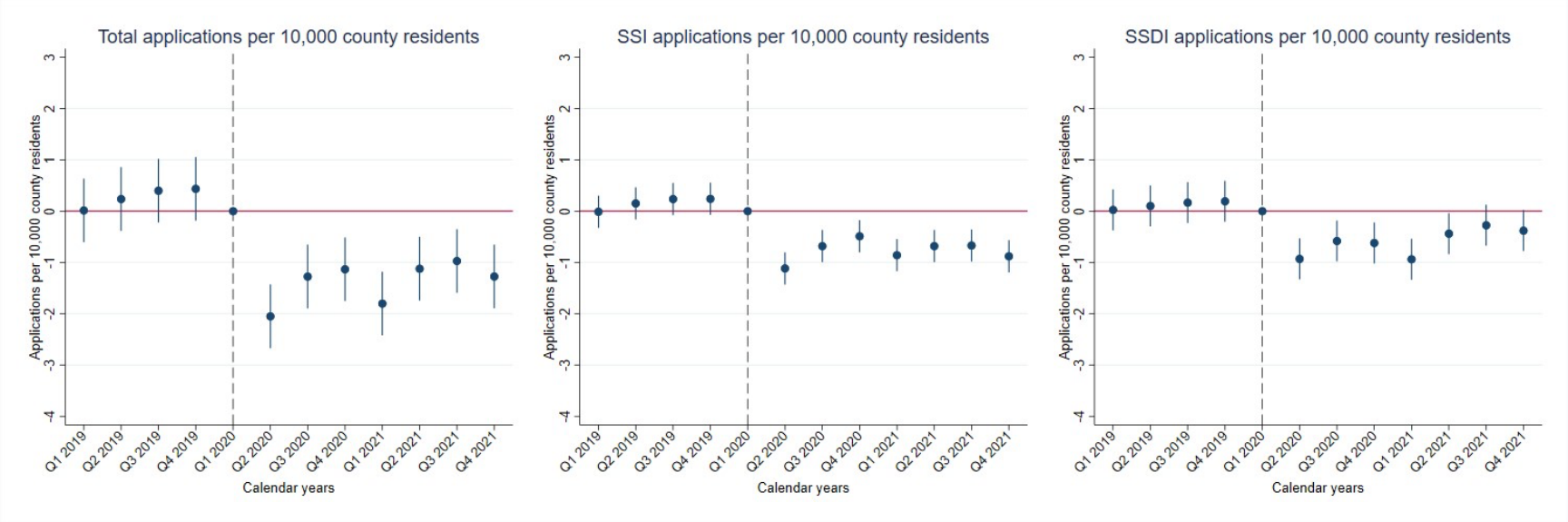
[20] Alternatively, any increased congestion on phone services might have disproportionately dissuaded lower needs applicants, potentially mitigating the effects of reducing access to would-be in-person applicants.

Figure 5. *Impact of In-Person Service Suspensions on In-Person, Phone, and Online Applications; Regression Estimates*



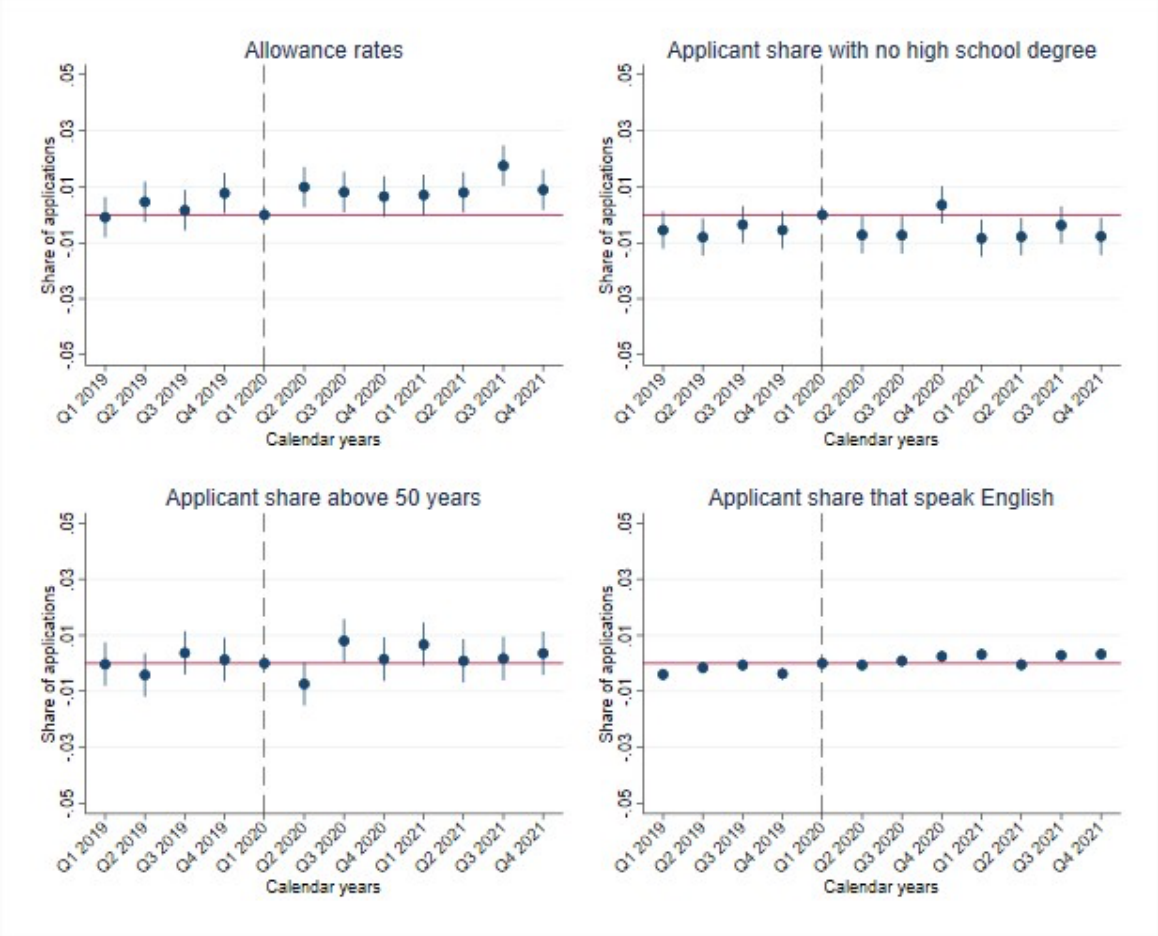
Notes: These figures show the difference in the number of in-person, online, and phone applications between counties with a field office and the matched set of counties without a field office, relative to the difference in the first quarter of 2020. The bars extending from the coefficient estimates indicate the 95 percent confidence interval. Q = quarter; SSA = Social Security Administration.
Source: Application information from January 2019 through March 2020 from SSA's Structured Data Repository, SSA field office address locations from SSA.gov, and information on county characteristics from the 2015–2019 American Community Survey five-year file.

Figure 6. *Impact of In-Person Service Suspensions on Number of Applications; Regression Estimates*



Notes: These figures show the difference in the number of total, SSI, and DI applications between counties with a field office and the matched set of counties without a field office, relative to the difference in the first quarter of 2020. The bars extending from the coefficient estimates indicate the 95 percent confidence interval. Q = quarter; SSA = Social Security Administration; DI = Social Security Disability Insurance; SSI = Supplemental Security Income.
Source: Application information from January 2019 through March 2020 from SSA's Structured Data Repository, SSA field office address locations from SSA.gov, and information on county characteristics from the 2015–2019 American Community Survey five-year file.

Figure 7. *Impact of In-Person Service Suspensions on Allowance Rates and Applicant Characteristics*



Notes: This figure shows the difference in the share of allowances, the applicant share who did not complete high school, the applicant share who were older than age 50, and the applicant share who speak English between counties with a field office and the matched set of counties without a field office, relative to the difference in the first quarter of 2020. The bars extending from the coefficient estimates indicate the 95 percent confidence interval. V Q = quarter; SSA = Social Security Administration.
Source: Application information from January 2019 through March 2020 from SSA's Structured Data Repository, SSA field office address locations from SSA.gov, and information on county characteristics from the 2015–2019 American Community Survey five-year file.

Table 4. *Impact Of In-Person Service Suspensions On Applications, Allowance Rates, and Applicant Characteristics (Pooled)*

	All apps per 10,000 county residents	SSI apps per 10,000 county residents	DI apps per 10,000 county residents	Allowance rates	Applicant share with no high school degree	Applicant share older than 50	Applicant share who speak English
Post x has field office	-1.59***	-0.89***	-0.69***	0.01***	0.00	0.00	0.00***
Constant	25.2	11.4	13.8	0.33	0.20	0.36	0.97
Pre-period mean	26.3	12.2	14.1	0.32	0.21	0.36	0.97
Relative change	-6.1%	-7.3%	-4.9%	2.2%	-0.5%	0.6%	0.4%

Notes: This table shows the pooled results of the difference-in-differences comparing outcomes in counties with a field office to those of the matched set of counties without a field office before and after the second quarter of 2020. Coefficients on county fixed effects, year fixed effects, and county-quarter trends in COVID-19 cases and deaths are not shown. */**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01). Apps = applications; SSA = Social Security Administration; DI = Social Security Disability Insurance; SSI = Supplemental Security Income.
Source: Authors' calculations using the January 2019 through March 2020 application information from SSA's Structured Data Repository, SSA field office address locations from SSA.gov, and information on county characteristics from the 2015–2019 American Community Survey five-year file.

Sensitivity Analysis

To test the robustness of our findings, we considered a different definition of areas most likely to be affected by in-person service suspensions. Instead of counties that had a field office, we identified counties with a high number of in-person applications prior to the pandemic and considered these the treatment group. Specifically, we assigned counties into the treatment group if their baseline in-person number of applications was above the 66th percentile across all counties. One of the advantages of using volume of in-person applications to define areas of high field office coverage is that, unlike our primary definition, it considers counties that are very close to a field office but do not have a field office as part of the treatment group.

Among counties not classified as treatment counties (those with a baseline in-person share of applications below the 66th percentile), we identified a matched comparison group for the treatment counties using the same matching methods we used for our primary analyses. Then we estimated our regression models on the sample of treatment counties and the matched comparison group. As before, we found that prior to the pandemic, treatment counties had similar trends to counties in the matched comparison group with respect to application outcomes. Using this alternative definition, we find similar results though slightly smaller effects: total applications fell per 10,000 county residents by 5 percent across all post-period quarters, and DI and SSI applications fell by 3 percent and 7 percent, respectively. One of the reasons our effect sizes could be smaller is that, because we required common support[21], we tended to exclude larger counties with multiple field offices. There were no or very small statistically significant impacts on allowance rates, and the share of applicants who have not completed high school, the share who are above age 50 and the share who speak English (Appendix Table 3).

Discussion

Our study analyzed how applicant characteristics vary by mode of application and how allowance rates are associated with mode prior to the pandemic. We documented the pandemic's effects on application volume and on applicant characteristics and then investigated the impact of in-person service suspension itself on application outcomes, isolated from other pandemic-

[21] That is, we required an overlap in the distribution of propensity scores between the treated and untreated group, or alternatively, we excluded treated counties with a propensity score that has no counterpart among the untreated group.

related factors (such as an increase in the unemployment rate, stimulus checks, changes in access to representation, changes in the nature or work and remote work opportunities) that could have affected the volume of applications and the applicant pool. We found that different groups of applicants used different modes of application and that, after controlling for both applicant and local area characteristics, the mode of application was associated with the likelihood of allowance. Our difference-in-differences results show that not being able to access in-person services affected application volume and disproportionately screened out SSI applicants. However, we did not find evidence that the suspension of in-person services disproportionately affected potential applicants with lower education, those who do not speak English, those age 50 and older, or those with a physical versus a medical impairment. We did find that the suspension caused a small increase in allowance rates, indicating the reduction in total applications disproportionately affected potential applicants who would not have been allowed benefits if they had applied. Sensitivity analyses using an alternative definition of "high field office coverage" areas produced similar findings. Our estimates imply that the reduced access to in-person assistance explains 61 percent of the decline in SSI and DI applications during the pandemic.[22] This estimate is likely a lower bound because, as discussed in the previous section, the comparison counties used for our analyses were also affected by the suspension of in-person services, though to a much smaller degree. It implies that more than half of the decline in SSI and DI applications was due to applicants not being able to use in-person services.[23]

Our results have several policy implications. That different groups of applicants use different modes of applications could reflect differing ability to access some modes of application and geographic differences in the accessibility of some modes. Aligned with this, when access to in-person assistance was substantially reduced, we find that almost no would-be in-person applicants switched to applying online, indicating that those who apply in-person face high barriers to completing an online application. These findings have access and equity

[22] We find that in-person service suspensions reduced the raw number of applications by 76 applications per county per quarter (Appendix Table 2). Multiplied by the number of counties with a field office, this implies a reduction of 65,436 applications per quarter. In our full analysis sample, we find that applications per quarter fell by 107,601 on average between Q1 2020 and Q4 2021. This therefore implies that the suspension of in-person services accounted for 61 percent (65,436/107,601).

[23] As noted earlier, our study investigates the effects of having almost no access to in-person assistance regardless of the reason. While the suspension of in-person services was binding and ensured that extremely few people received in-person services, in the absence of the suspension, people would still have faced barriers to accessing in-person services—namely fear of COVID-19 infection.

implications for policies that aim to expand or reduce the use and take-up of certain application modes. Indeed, we find that the suspension of in-person services causally reduced disability applications, implying that not everyone who wanted to apply was able to. The larger effect on SSI applicants provides suggestive evidence that lower-income applicants were disproportionately affected. Policies that aim to raise awareness and use of online services could significantly reduce application barriers to many eligible individuals; however, they may help some types of eligible individuals more than others.

Second, understanding the characteristics of applicants who use the different modes of application could also be useful in helping the government allocate resources efficiently. For example, if applicants in one county have characteristics that are correlated with applying in-person while applicants in another county have characteristics that are correlated with applying online, the information can be helpful to the government in allocating staff and resources effectively.

Third, our results indicate that the mode of application could be related to application quality. We find that after controlling for a range of applicant and local area characteristics, online applicants have lower allowance rates relative to applicants using other modes. However, as described above, differences in applicant characteristics that we could not observe and control for could also explain the differences in allowance rates. Further work could be undertaken to better understand how mode affects the completeness and quality of SSI or DI applications and whether some modes are best suited to some types of applicants more than others. This could ultimately inform potential application supports (such as access to an online chat with an SSA representative) for modes of application that tend to be associated with relatively lower application quality.

Our study had several limitations. First, as described above, our matched comparison group was likely affected by the suspension of in-person services, albeit to a much smaller extent. To the extent this occurred, our estimates represent a lower bound on the true causal impact of the suspension of in-person services. Second, we estimate the causal effect of suspending in-person services during a very particular time, the COVID-19 pandemic. Although our empirical strategy controls for pandemic-related factors that could have affected our outcomes of interest, our results may not be generalizable to all other time-periods—in the same way that the causal effect of suspending in-person services would be different during times of

high unemployment relative to times of low unemployment. Third, to avoid potential bias due to delays associated with the determination process for appeals, we focused on initial decisions and therefore cannot provide information on how the pandemic affected final allowance rates. Fourth, our application sample does not represent the universe of applications between 2019-2021 because the SDR does not include technical denials. However, this does not pose a threat to our empirical strategy unless trends in the number of technical denials in counties with a field office diverged from those in counties without a field office post pandemic, which we have no reason to believe is likely. Fifth, our empirical strategy relies on the assumption that the trends in outcomes of the matched comparison group represent the counterfactual trends of counties with a field office had the pandemic not occurred. We observed no differences in outcome trends between the two groups prior to the start of the pandemic, providing confidence that the selected set of counties is a suitable comparison group.

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Appendix Table 1. *Differences between Counties with and without a Field Office Prior to and Post Matching*

Variable	Unmatched	Mean		*t*-test	
	Matched	Treated	Control	*t*	$p > \|t\|$
Female	U	50.7	49.6	12.1	0.000
	M	50.7	50.2	6.0	0.000
Age: 0–19	U	25.2	24.7	3.6	0.000
	M	25.2	26.3	-7.8	0.000
Age: 20–44	U	32.1	28.6	21.0	0.000
	M	32.1	33.4	-5.5	0.000
Age: 45–64	U	25.9	27.2	-11.3	0.000
	M	25.9	25.1	5.5	0.000
Age: 65+	U	16.8	19.5	-15.4	0.000
	M	16.8	15.2	7.5	0.000
White	U	70.2	78.6	-10.5	0.000
	M	70.2	69.2	1.0	0.297
Black	U	11.8	7.8	6.9	0.000
	M	11.8	11.5	0.5	0.656
Asian	U	3.0	0.9	18.1	0.000
	M	3.0	3.4	-2.0	0.043
Other race	U	1.2	2.3	-3.6	0.000
	M	1.2	1.0	1.1	0.288
Hispanic	U	11.4	8.7	5.1	0.000
	M	11.4	12.3	-1.2	0.214
Speaks English	U	87.2	91.7	-9.7	0.000
	M	87.2	86.5	1.0	0.300
HS graduate or more	U	88.1	86.5	6.5	0.000

Variable	Unmatched	Mean		*t*-test	
	Matched	Treated	Control	*t*	$p > \|t\|$
	M	88.1	88.6	-2.1	0.038
Has health Insurance	U	91.4	90.0	7.2	0.000
	M	91.4	91.3	0.6	0.545
Disability rate	U	14.6	16.5	-10.6	0.000
	M	14.6	14.0	3.0	0.002
County population	U	296,378	27,624	22.0	0.000
	M	296,378	196,776	4.7	0.000
Median household income	U	57,374	51,971	9.7	0.000
	M	57,374	61,760	-4.9	0.000
Unemployment rate	U	5.6	5.2	4.5	0.000
	M	5.6	5.6	0.1	0.912
Below 100 percent FPL	U	15.1	15.1	0.1	0.908
	M	15.1	14.0	3.6	0.000
Large fringe metro[a]	U	17.4	9.5	6.2	0.000
	M	17.4	32.4	-7.3	0.000
Medium metro	U	20.1	8.7	8.9	0.000
	M	20.1	6.9	8.2	0.000
Small metro	U	20.8	7.8	10.4	0.000
	M	20.8	21.1	-0.2	0.868
Micropolitan	U	29.2	17.1	7.5	0.000
	M	29.2	35.4	-2.8	0.006
Noncore	U	5.0	56.7	-29.6	0.000
	M	5.0	4.2	0.8	0.449
Alaska	U	0.3	1.1	-2.1	0.038
	M	0.3	0.1	1.3	0.206

Variable	Unmatched	Mean		*t*-test	
	Matched	Treated	Control	*t*	$p > \|t\|$
Arizona	U	1.0	0.3	2.8	0.005
	M	1.0	1.1	-0.1	0.962
Arkansas	U	1.7	2.6	-1.5	0.144
	M	1.7	1.7	0.0	0.971
California	U	4.9	0.7	7.8	0.000
	M	4.9	3.2	1.8	0.074
Colorado	U	1.6	2.2	-1.0	0.314
	M	1.6	6.2	-4.9	0.000
Connecticut	U	0.8	0.0	3.8	0.000
	M	0.8	0.1	2.2	0.026
Delaware	U	0.0	0.0	.	.
	M	0.0	0.0	.	.
District of Columbia	U	0.0	0.0	.	.
	M	0.0	0.0	.	.
Florida	U	3.6	1.6	3.5	0.000
	M	3.6	1.2	3.2	0.001
Georgia	U	3.7	5.6	-2.1	0.034
	M	3.7	2.8	1.1	0.290
Hawaii	U	0.5	0.0	2.6	0.008
	M	0.5	0.0	1.9	0.063
Idaho	U	0.8	1.6	-1.7	0.084
	M	0.8	0.9	-0.2	0.835
Illinois	U	3.4	3.2	0.2	0.819
	M	3.4	2.2	1.4	0.152
Indiana	U	2.6	3.1	-0.8	0.442
	M	2.6	1.8	1.1	0.292

Variable	Unmatched	Mean		*t*-test	
	Matched	Treated	Control	*t*	$p > \|t\|$
Iowa	U	2.0	3.6	-2.3	0.020
	M	2.0	1.6	0.6	0.561
Kansas	U	1.3	4.1	-4.0	0.000
	M	1.3	0.9	0.8	0.428
Kentucky	U	2.9	4.2	-1.7	0.098
	M	2.9	2.4	0.7	0.489
Louisiana	U	2.2	2.0	0.4	0.684
	M	2.2	0.8	2.4	0.018
Maine	U	0.8	0.4	1.5	0.143
	M	0.8	0.3	1.4	0.155
Maryland	U	1.7	0.4	3.9	0.000
	M	1.7	0.7	2.1	0.037
Massachusetts	U	1.2	0.2	3.7	0.000
	M	1.2	0.2	2.4	0.017
Michigan	U	3.4	2.4	1.6	0.121
	M	3.4	1.4	2.7	0.006
Minnesota	U	1.6	3.2	-2.4	0.016
	M	1.6	7.7	-6.1	0.000
Mississippi	U	2.7	2.6	0.1	0.900
	M	2.7	2.7	0.0	0.976
Missouri	U	3.0	3.9	-1.2	0.237
	M	3.0	2.7	0.4	0.664
Montana	U	0.8	2.2	-2.5	0.011
	M	0.8	0.2	1.9	0.065
Nebraska	U	0.7	3.8	-4.6	0.000

Variable	Unmatched	Mean		*t*-test	
	Matched	Treated	Control	*t*	$p > \|t\|$
	M	0.7	0.6	0.4	0.714
Nevada	U	0.2	0.7	-1.5	0.147
	M	0.2	0.0	1.4	0.157
New Hampshire	U	0.6	0.2	1.6	0.109
	M	0.6	0.2	1.4	0.154
New Jersey	U	2.1	0.1	6.0	0.000
	M	2.1	0.2	3.6	0.000
New Mexico	U	1.2	1.0	0.4	0.711
	M	1.2	0.8	0.8	0.433
New York	U	4.2	1.1	5.5	0.000
	M	4.2	3.2	1.1	0.296
North Carolina	U	4.3	2.8	2.2	0.029
	M	4.3	11.2	-5.4	0.000
North Dakota	U	0.5	2.2	-3.3	0.001
	M	0.5	0.2	1.0	0.310
Ohio	U	4.8	2.1	4.1	0.000
	M	4.8	2.8	2.1	0.036
Oklahoma	U	2.0	2.6	-1.1	0.286
	M	2.0	1.3	1.1	0.271
Oregon	U	1.7	0.9	1.9	0.054
	M	1.7	1.1	1.1	0.273
Pennsylvania	U	4.6	1.2	6.0	0.000
	M	4.6	2.2	2.8	0.006
Rhode Island	U	0.3	0.1	1.6	0.103
	M	0.3	0.3	0.4	0.726

Variable	Unmatched	Mean		*t*-test	
	Matched	Treated	Control	*t*	$p > \|t\|$
South Carolina	U	2.0	1.3	1.5	0.145
	M	2.0	2.4	-0.6	0.532
South Dakota	U	0.7	2.6	-3.4	0.001
	M	0.7	1.6	-1.7	0.091
Tennessee	U	2.9	3.1	-0.3	0.804
	M	2.9	2.0	1.2	0.238
Texas	U	5.6	9.0	-3.2	0.001
	M	5.6	7.7	-1.8	0.078
Utah	U	0.5	1.1	-1.7	0.098
	M	0.5	0.4	0.2	0.825
Vermont	U	0.3	0.5	-0.5	0.614
	M	0.3	0.1	1.3	0.206
Virginia	U	3.4	4.6	-1.5	0.137
	M	3.4	12.1	-6.9	0.000
Washington	U	1.9	1.0	1.9	0.056
	M	1.9	1.0	1.6	0.121
West Virginia	U	1.7	1.8	0.0	0.978
	M	1.7	1.3	0.7	0.480
Wisconsin	U	2.7	2.2	0.9	0.386
	M	2.7	2.3	0.5	0.643
Wyoming	U	0.3	0.9	-1.6	0.121
	M	0.3	0.7	-1.1	0.290

Notes: This table shows balance tests between the counties with a field office and (i) all counties without a field office (rows labeled "U") and (ii) the matched subset of counties without a field office (rows labeled "M").
[a] We used the National Center for Health Statistics' 2013 Urban-Rural Classification scheme to classify counties into six categories: large central metro (left out), large fringe metro, medium metro, small metro, micropolitan, and noncore. FPL = Federal Poverty Level; HS = high school; SSA = Social Security Administration.
Source: Authors' calculations using the January 2019 through March 2020 application information from SSA's Structured Data Repository, SSA field office address locations from SSA.gov, and information on county characteristics from the 2015–2019 American Community Survey five-year file.

Appendix Table 2. *Pooled Impacts of the Effect of In-Person Service Suspensions on Number of Total, SSI, and DI Applications*

	All applications per 10,000 county residents	SSI applications per 10,000 county residents	DI applications per 10,000 county residents
Post x Treated	-76.0	-41.1	-34.8
Constant	527.0	232.5	294.2
Pre-period T mean	672.8	306.9	365.5
Relative Change	-11.3%	-13.4%	-9.5%

Notes: This table shows the pooled results of the difference-in-differences comparing outcomes in counties with a field office to a matched set of counties without a field office before and after the second quarter of 2020. Coefficients on county fixed effects, year fixed effects, and county-quarter trends in COVID-19 cases and deaths are not shown. */**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01). SSA = Social Security Administration.

Source: Authors' calculations using the January 2019 through March 2020 application information from SSA's Structured Data Repository, SSA field office address locations from SSA.gov, and information on county characteristics from the 2015–2019 American Community Survey five-year file.

Appendix Table 3. *Pooled Impacts: Impact of in-Person Service Suspensions on Applications, Allowance Rates and Applicant Characteristics, Sensitivity Analysis*

	All apps per 10,000 county residents	SSI apps per 10,000 county residents	DI apps per 10,000 county residents	Allowance rates	Applicant share with no high school degree	Applicant share older than 50	Applicant share who speak English
Post x Treated	-1.42***	-1.03***	-.40***	-0.01***	-0.01**	0.01***	0.00
Constant	27.7	12.9	14.8	0.31	0.22	0.36	0.99
Pre-period T mean	30.7	14.6	16.1	0.30	0.22	0.35	0.99
Relative Change	4.6%	7.1%	2.5%	2.4%	-1.7%	2.3%	0.0%

Notes: This table shows the pooled results of the difference-in-differences comparing outcomes the top third of counties in terms of in-person applications prior to the pandemic to matched set of counties not in the top third before and after Q2 of 2020. Coefficients on county fixed effects, year fixed effects and county-quarter trends in COVID-19 cases and deaths are not shown. */**/*** Difference is significantly different from zero (*p*-value is less than .10/.05/.01).

Source: Authors' calculations using the January 2019 through March 2020 application information from SSA's Structured Data Repository, SSA field office address locations from SSA.gov and information on county characteristics from the 2015-2019 American Community Survey five-year file.

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