Public Administration Review

How Reducing Documentation Burdens Impacts Equity in Access to Small Business COVID-19 Relief Funding

--Manuscript Draft--

Manuscript Number:	PAR-D-22-00251R2
Full Title:	How Reducing Documentation Burdens Impacts Equity in Access to Small Business COVID-19 Relief Funding
Short Title:	How Reducing Documentation Burdens Impacts Equity
Article Type:	Research Article
Keywords:	Administrative Burden; social equity; program access
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Manuscript Region of Origin:	UNITED STATES
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Response to Reviewers:	

How Reducing Documentation Burdens Impacts Equity in Access to Small Business COVID-19 Relief Funding

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Key Words: administrative burden; COVID-19; public administration; local discretion

Acknowledgements: We thank our city partners who were kind enough to share data to build evidence on equity in small business relief funding, and the staff in other cities who took the time to talk about their programs and applicant challenges. We thank Ryan Moore, Jasper Cooper, Mattie Toma, David Schwegman, Rebecca Johnson, Kelly Bidwell, and so many others on the Office of Evaluation Sciences team for helpful feedback in the development of this project.

Bios

Elizabeth Bell is an Assistant Professor in the Lyndon B. Johnson School of Public Affairs at The University of Texas at Austin. Her research seeks to enhance the ability of government to meet equity-enhancing policy goals. Her research examines the equity implications of citizens' experiences of administrative burdens, bureaucrats' uses of discretionary power, and the politics of policy design.

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Abstract

Scholars have unveiled how and why administrative burdens perpetuate inequity in access to government benefits. However, less is known about the tools public managers can use to reduce burdens and disparities in program access. We partner with a local government in the U.S. to investigate whether a reduction in documentation requirements increased equity by promoting access for “underserved” small business owners (i.e. racial/ethnic minorities, women, people with disabilities, and veterans). Specifically, we analyze outcomes for more than 8,500 businesses in a COVID-19 small business relief fund before and after a reduction in documentation requirements. Utilizing an interrupted time series design, we find increased application success for underserved small businesses, but other applicants benefitted more from the program change, calling into question whether the policy change advanced equity. Our findings suggest that even well-intentioned interventions can perpetuate disparity if targeted supports for marginalized communities are not implemented.

Evidence for Practice:

1) Documentation requirements for federal funding can impose administrative burdens that disproportionately prevent marginalized communities from accessing public programs.
2) Local governments can leverage alternative funding streams to reduce the number of documentation requirements.
3) Reducing documentation requirements increased access to COVID-19 relief funds for small businesses owned by individuals from historically underserved communities.
4) Small businesses owners from non-underserved communities benefitted more from the reduction in documentation requirements than business owners from historically underserved communities.

For decades, public administration scholars have sought to establish social equity as a foundational anchor for good governance (Blessett et al. 2019; Frederickson 1980; 1990; Gooden 2015; 2014; Johnson and Svara 2011; Svara and Brunet 2005). However, inequities still abound across policy areas and have been exacerbated by the COVID-19 pandemic (Wright and Merritt 2020; Alon et al. 2020; Baker 2020). We draw on the National Association for Public Administration's definition of social equity to inform our work, which states that social equity is "the fair, just and equitable management of all institutions serving the public directly or by contract, and the fair and equitable distribution of public services, and implementation of public policy, and the commitment to promote fairness, justice, and equity in the formation of public policy" (Svara and Brunet 2005 p. 256; Johnson and Svara 2011). A key mechanism by which the administrative state has perpetuated and exacerbated inequities is the imposition of administrative burdens on marginalized communities seeking access to government support; these burdens range from a lack of information or clarity on eligibility, complex and demanding paperwork, and psychological burdens like stigma, frustration, and loss of autonomy (Herd and Moynihan 2018; Christensen et al. 2020; Keiser and Miller 2020; Chudnovsky and Peeters 2020; Peeters and Campos 2021). These state-imposed administrative burdens reduce equity in program access, hinder program effectiveness, and diminish the political efficacy that forms the foundation of a democratic society (Herd and Moynihan 2018; Christensen et al. 2020; Soss, Fording, and Schram 2011; Heinrich 2016; Barnes 2020; Baekgaard et al. 2021). Given the charge of public administration scholars to treat social equity as a central pillar of good governance (Blessett et al. 2019; Frederickson 2010; Wright and Merritt 2020), better understanding the causes, consequences, and solutions for addressing administrative burdens in government programs is of paramount importance to public administration research, theory, and practice (Biden 2021; Office of Management and Budget 2021). In fact, in countries around the world, scholars and policymakers have begun conceptualizing, measuring, and attempting to reduce administrative burdens on the public (e.g., SCM Network 2004; Arendsen et al. 2014; Herd and Moynihan 2018; Nielsen et al. 2017). Concerns about equity were heightened by the COVID-19 pandemic, as racial disparities in illness and death became apparent (Shah, Sachdeva, and Dodiuk-Gad 2020).

While extant literature has significantly developed our ability to diagnose the causes and consequences of administrative burden (Peeters 2019; Chudnovsky and Peeters 2020; Masood and Nisar 2021; Heinrich 2016), less attention has been paid to the solutions that policymakers can use to alleviate administrative burden and enhance social equity. Prior literature has identified two dominant approaches to reducing administrative burden. First, at the front-lines of government, when administrative capacity is not too constrained and there is sufficient discretionary power, street-level bureaucrats and third-party organizations can cut red tape on behalf of their clients (Bell and Smith 2021; Watkins-Hayes 2011; Wiley and Berry 2018; Heinrich 2016; Heinrich et al. *Forthcoming*). However, street-level bureaucrats act based on cognitive biases that leave room for discrimination in the allocation of benefits and sanctions, especially when capacity is constrained (Soss, Fording, and Schram 2011; Andersen and Guul 2019; Olsen, Kyhse-Andersen, and Moynihan 2020; Guul, Pedersen, and Petersen 2021; Guul, Villadsen, and Wulff 2019). Therefore, this reduction in administrative burden may be inequitably applied in cases where implicit bias prevails (Andersen and Guul 2019; Assouline, Gilad, and Ben-Nun Bloom 2021). Second, moving away from the street-level to public managers, scholars have examined whether structural changes to program requirements (i.e., enrollment mechanisms), and behaviorally informed communications interventions (i.e., nudges)

(Linos, Quan, and Kirkman 2020; Linos and Riesch 2020; Pepin, O'Leary, and Oberlee 2021; Lopoo, Heflin, and Boskovski 2020; Herd et al. 2013; Hattke, Hensel, and Kalucza 2020; Baekgaard et al. 2021; Larsson 2021) reduce administrative burden and improve program access. Some studies find that nudges improve program take-up (Lopoo, Heflin, and Boskovski 2020; Linos et al. 2022; Marx and Turner 2019; DellaVigna and Linos, 2021), but others find this approach insufficient for addressing deep-rooted structural inequities (Linos et al. 2022; Weimer 2020; de Ridder, Kroese, and van Gestel 2021), and many studies do not examine *for whom* take-up improves (Frederickson 1990; Guy and McCandless 2012).

In this paper, we investigate how reductions in documentation requirements influence *equity* rather than overall program take-up for a unique target population that has yet to be explored in the literature—small business owners. Prior work focuses on relatively homogenous disadvantaged communities in means-tested programs, whereas our work leverages variation across advantaged and disadvantaged business owners. To advance the theoretical foundations of the administrative burden literature, we utilize recent conceptualizations of social equity in public administration to form expectations for what an "equity-enhancing" policy would look like in practice. In doing so, we depart from prior literature by examining whether the policy change closed the *equity gaps* in access and outcomes rather than just providing a subgroup analysis, which more effectively accounts for historical and present-day bias in the administration of public programs. Specifically, we measure whether the burden reduction effort disproportionately benefited underserved small businesses applicants, which would close the pre-existing equity gap in the proportion of applicants from underserved communities.

We partnered with a local government, which wished to remain anonymous, in the U.S. during the COVID-19 pandemic in 2020 to evaluate a structural policy change that reduced documentation requirements for a city small business relief fund. We chose to study these questions in the context of the U.S. because the Biden administration established social equity as a key goal for all bureaucratic agencies, and also encouraged agencies to document and reduce administrative burdens in public programs (Biden 2021). As part of an executive order, the Biden administration established that "affirmatively advancing equity, civil rights, racial justice, and equal opportunity is the responsibility of the whole of our government. Because advancing equity requires a systematic approach to embedding fairness in decision-making processes, executive departments and agencies (agencies) must recognize and work to redress inequities in their policies and programs that serve as barriers to equal opportunity" (Biden 2021). This executive order added to a context in which heightened concerns about racial inequities of COVID-19 were becoming apparent (Shah, Sachdeva, and Dodiuk-Gad 2020), and where the murder of George Floyd produced a sense of urgency around addressing racism (Meikle and Morris 2022; Nguyen et al. 2021). Although similar issues were raised across the world, government officials in the U.S. were particularly interested in partnering with researchers to document the ways in which they were adhering to calls to action from the White House.

We leverage an interrupted time series approach to examine the impacts of reducing documentation requirements on equity in access to small business COVID-19 relief funding, which we conceptualize as improving outcomes for underserved[i] communities (minority-owned, women-owned, disabled-owned, and veteran-owned small businesses[ii]) more than non-underserved communities (White, Male, non-Disabled, non-Veterans). After all, if the policy change helped non-underserved communities more than underserved communities, this would serve to perpetuate inequity in the absence of other targeted supports for underserved business owners. We hypothesized that reductions in documentation requirements would increase the likelihood that businesses owned by members of historically underserved groups gain access to critical financial support to help weather the COVID-19 pandemic. Results of the interrupted time series analysis support this hypothesis, showing that the reduction in administrative burdens led to substantial increases in the likelihood that underserved small businesses submitted complete applications, went under review, and were funded. However, we also find that at the time of the policy change, the reduction in documentation requirements helped non-underserved small businesses more than underserved small businesses. This differential effectiveness calls into question whether the policy change was “equity-enhancing.” In the Discussion section, we propose some explanations for why this policy solution may have helped non-underserved small businesses more. We conclude by proposing research which could identify scenarios in which reductions in administrative burden may enhance social equity.

Our findings contribute to the growing literature on solutions to administrative burden in two ways. First, we provide some of the only evidence examining whether reducing compliance demands increases equity in outcomes. While other studies have examined inequities (either disparities or disproportions) in process, access, and quality caused by administrative burden, the studies on unburdening the public focus on overall program take-up rather than closing the disparities in outcomes across marginalized and non-marginalized clients. We contribute to this literature by drawing from the rich body of work on social equity in public administration—which recognizes the historical and present-day injustices in administration—to inform both our conceptualization and measurement of the impact of burden reduction on disparities in outcomes. Second, in response to the growing body of literature showing the limitations of nudges in producing improvements in longer term outcomes of interest, we examine a heavier-handed, structural policy solution that impacted *all applicants* unlike more targeted policy changes. In this way, we provide evidence to public managers interested in reducing administrative burdens on how reducing documentation requirements may impact the success of underserved applicants.

Administrative Burden and Social Equity

Administrative burdens impose multiple costs for citizens attempting to access government benefits, including learning, compliance, redemption, and psychological costs (Moynihan, Herd, and Harvey 2015; Barnes 2020). When applying for public programs, clients must spend substantial time and effort learning about program eligibility (learning costs), compiling complex paperwork and attending required meetings with government officials (compliance costs), redeeming benefits with third party vendors (redemption costs), and overcoming negative emotional responses such as stress, fear, stigma, shame, and loss of autonomy (psychological costs) (Hattke, Hensel, and Kalucza 2020; Baekgaard et al. 2021; Daigneault and Macé 2019; Reijnders, Schalk, and Steen 2018). Other conceptualizations of administrative burden on businesses rather than individuals have measured the price, time, and quantity of additional “administrative activities businesses conduct because regulation requires it" (SCM Network 2004). This standard cost model, developed by the OECD enables a generalizable measure of the informational obligations and administrative activities of regulations, but neglects learning and psychological costs, which we find are also present for businesses applying for public programs (SCM Network 2004). Regardless of the measurement, experiences of costly encounters with government undermine program take-up (Heinrich 2016; Heinrich 2018; Nisar 2017; Brodkin and Majmundar 2010; Homonoff and Somerville 2020; Gray et al. 2021; Carey, Malbon, and Blackwell 2021), especially when there are no supportive street-level bureaucrats or third-party organizations to take on the burden of applying (Wiley and Berry 2018; Bell and Smith 2021; Heinrich et al. *Forthcoming*).

To make matters worse, administrative burdens are not equally distributed; they undermine program access for marginalized communities the most (Herd and Moynihan 2018; Ray, Herd, and Moynihan 2022; Blume 2022; Masood and Nisar 2021). This creates a catch-22 wherein those individuals who need the most help from government are often the least able to access critical support from street-level bureaucrats (Bell and Smith 2021) and gain access to public benefits (Christensen et al. 2020; Masood and Nisar 2021; Döring 2021; Hattke, Hensel, and Kalucza 2020). Underlying causes of the unequal distribution of burdens may be explained by both citizen (i.e., disparities in human/social capital) and state factors (Christensen et al., 2020; Chudnovsky & Peeters, 2021) but regardless of the cause administrative burdens have serious consequences for policy outcomes. These inequities in the distribution of administrative burden have undermined outcomes for LGBTQA+ communities in Pakistan (Nisar 2017), impoverished adolescents in South Africa (Heinrich and Brill 2015), racially minoritized communities in the U.S. (Soss, Fording, and Schram 2011; Watkins-Hayes 2009; Ray, Herd, and Moynihan 2022), people with less administrative literacy/capital (Masood and Nisar 2021; Döring 2021), and people struggling with physical or mental health issues (Christensen et al. 2020; Bell et al. 2021). For example, when administrative burdens are increased—like when social security offices in the U.S. that provide application assistance close—take-up of disability benefits is significantly reduced, especially for those with moderately severe conditions and low education levels (Deshpande and Li 2019). Even when a tool such digitalization and automation are deployed in efforts to make child benefit decisions automatic and less burdensome in Norway, scholars find that inequities still persist for lower income families who are disproportionately forced to apply manually (Larsson 2021). Moreover, recent scholarship demonstrates that on top of administrative burdens not being equally distributed, the assistance necessary to overcome burdens is also unequally distributed (Bell and Smith 2021; Heinrich et al. 2022). In impoverished communities, there is less support and capacity to enhance access to programs that promote the health and educational opportunities of children (Heinrich et al. 2022).

Tools for Unburdening the Public

While these inequities in the effects of administrative burdens are well documented, less is known about the policy tools that public managers and street-level bureaucrats can leverage to reduce burdens for marginalized communities and enhance social equity. Instead of focusing on tools to advance *social equity,* recent scholarship has focused on tools to increase overall take-up without regard to specific marginalized communities. There are two distinct approaches to the reduction in administrative burden in the literature on policy solutions: 1) structural changes to program design and enrollment mechanisms, and 2) behaviorally informed communications interventions, or nudges, that influence citizen behavior and resilience to burden rather than the structure of government programs.[iii] In the first approach, which examines structural changes to program rules governing the documentation and verification processes in applications, scholars have found that reducing compliance demands can reduce psychological costs and shifting burden onto the state can increase take-up (Herd et al. 2013; Baekgaard et al. 2021; Fox, Stazyk, and Feng 2020; Gray et al. 2021). Specifically, in Denmark, decreasing compliance demands for unemployment insurance applicants during COVID-19 reduced psychological costs, in the form of stress and loss of autonomy (Baekgaard et al. 2021). In Wisconsin, the BadgerCare program increased enrollment in Medicaid by implementing auto-enrollment, using marketing to encourage people to apply, and putting the burden of verification on the state (Herd et al. 2013). Moving beyond just Wisconsin as a case, scholars have found that states that eased the administrative burden in Medicaid applications following the Affordable Care Act saw the largest increases in Medicaid uptake, even after adjusting for changes in eligibility requirements (Fox, Stazyk, and Feng 2020). Therefore, reducing administrative burden in the applications processes for public programs translates to increases in overall take-up, but whether take-up increases for the most marginalized communities is still up for debate. In fact, none of these studies investigating the impacts of structural changes examine *equity* in outcomes[iv], which is a key oversight given the substantial evidence demonstrating that increases in administrative burden impact marginalized communities the most. We build on this work by investigating whether structural policy changes that reduce compliance demands can enhance equity in citizen outcomes.

Rather than focusing on structural changes that reduce burdens, other scholars have taken a different approach, highlighting the impacts of nudges—typically in the form of behaviorally informed communications interventions that shift choice architecture—on experiences of administrative burden, compliance with regulations, and program take-up (Thaler and Sunstein 2009). In the U.S., nudges such as targeted text messages, personalized phone calls, and personalized letters have increased take-up of programs like Supplemental Nutrition Assistance Program (SNAP) and Earned Income Tax Credit (EITC) (Lopoo, Heflin, and Boskovski 2020; Bhargava and Manoli 2015) and enhanced compliance with municipal housing codes (Linos, Quan, and Kirkman 2020). Overall, nudges have been shown to produce behavior change in target populations (Mertens et al. 2022), but whether those behavioral changes are enough to impact program take-up and overcome structural barriers is still unclear (Linos, Reddy, and Rothstein 2022; Linos et al. 2022). Recent attempts to implement nudges in the Temporary Assistance for Needy Families (TANF) program (Pepin, O’Leary, and Oberlee 2021) and a replication of the EITC nudge experiment failed to produce the same positive effects on overall take-up (Linos et al. 2022). Ultimately, in some cases nudges may serve to increase take-up, but whether nudges can increase outcomes for the most marginalized communities who often need more personalized, hands-on support to overcome administrative burdens is still unclear (Weimer 2020; de Ridder, Kroese, and van Gestel 2021). This makes our investigation into structural changes even more important, as it presents a departure from the emphasis on nudges as a policy solution to administrative burden.[v]

Taken together, while the literature on administrative burdens has employed an equity lens to provide insight into the disparities caused by burdens, the next area for development concerns how to alleviate those inequities. In this new area of scholarship, researchers should strive to not only theorize how to increase overall take-up of public programs but how to "reduce (and ultimately eliminate) disparity, marginalization, and discrimination while increasing social and political inclusion" (Blessett, Fudge, and Gaynor 2017, p. 11). While there is some agreement on general principles and moral imperative of social equity in public administration (Guy and McCandless 2012), there are multiple components to this concept (Allbright et al. 2018) and multiple theoretical perspectives on what it means to advance social equity in public administration. In terms of the components, scholars have argued that public administrators should follow the following commitments to social equity: "(1) procedural fairness, meaning due process, equal protection and equal rights; (2) equity in the availability of service and benefits; (3) equity in the process of providing services and benefits; (4) an equal level of outcomes for all groups; and (5) a guarantee of a place at the table to express views on policy choices and service delivery" (Guy and McCandless 2012, S12). Moving to the theoretical perspectives, a *libertarian* view of equity emphasizes equal rules for everyone and an equal distribution of inputs (also referred to as procedural justice by Stivers et al. (2023)) which echoes the Weberian "neutrality" that more recent scholarship has called into question (Portillo, Humphrey, and Bearfield 2022). On the other hand, a *transformative* view of equity and social justice takes an antithetical approach that emphasizes challenging racism and classism through structural changes that take into account the intersectionality of marginalized identities (Allbright et al. 2018; Stivers et al. 2023; Trochmann et al. 2022). In this paper, we employ a transformative social equity lens in the context of administrative burden that acknowledges the inequities administrative burdens and the pandemic create for marginalized communities (Harper-Anderson, Albanese, and Gooden 2023). In turn, we argue that policy solutions reducing burdens must address the disparities caused by government policies that impose disproportionate burdens on marginalized communities. This lens highlights a previously overlooked flaw in the literature on solutions to administrative burden. Namely, we argue that to understand whether a policy change aimed at reducing burdens is "equity-enhancing," we must understand *who benefits* from the policy change in question (Frederickson 2010; Berry-James et al. 2021; Guy and McCandless 2012). Thus far, administrative burden literature has yet to thoroughly address what combination of policy solutions reducing burdens would serve to benefit marginalized communities. Therefore, existing policy solutions identified in the literature could be benefitting relatively advantaged communities more than those facing intersectional structural disadvantage (i.e. helping White low-income applicants, but not low-income people of color), serving to perpetuate existing disparities rather than diminish them. For instance, if a reduction in documentation requirements primarily helps those with high levels of administrative capital/literacy or those that have more financial resources, the policy could be increasing take-up but perpetuating existing inequity. To create a policy tool that reduces burden and is "equity-enhancing"—that diminishes or eliminates disparities in access and outcomes—we argue that the policy change would have to not only impact take-up among relatively advantaged groups but also for the most severely disadvantaged who face intersectional systems of exclusion and marginalization (Wright and Merritt 2020; Blessett et al. 2019; Berry-James et al. 2020). This could necessitate a combination of both structural changes to the program that impact all applicants, and targeted communications interventions and support programs that help marginalized communities navigate the application process. In the remaining sections, we present our specific case—access to small business COVID-19 relief funds—and how administrative burdens caused striking disparities in funding receipt. We also present the policy solution we evaluate, which sought to increase social equity by reducing compliance demands. Then, we evaluate whether the policy closed equity gaps, or whether disparity prevailed.

Administrative Burden and Equity in Access to Small Business COVID-19 Relief Funds

Historical discrimination has created inequities in small business ownership and growth in the U.S. For instance, in 2016, women were 51% of the U.S. population but 33% of the small business owners; racial and ethnic minorities were 40% of the U.S. population but 20% of the business owners (Liu and Parilla 2020). The disproportionate underrepresentation of underserved communities in the small business community is likely due to multiple reasons including **process**: discrimination among loan officers reviewing loan applications and **fairness:** a lack of engagement with underserved communities in traditional economic development offices in local and state governments, which result in the disparities we see in **access** and **outcomes** (Perry 2020; Guy and McCandless 2012)**.** Businesses owned by Black and Latino Americans have less working capital than White-owned businesses, and women-owned businesses have less working capital than men-owned businesses (Robb, 2013). Indeed, compared to White business owners, Black and Hispanic business owners are less likely to start their business with a loan from a bank or financial institution, more likely to start business with less than $5,000, more likely to report unmet credit needs, twice as likely to not receive the full amount of funding requested from the bank, and more likely not to apply for loans due to rejection fears (Robb 2018; Fairlie and Robb 2010). In addition to the street-level discrimination at the micro-level, there are also meso-level factors such as intergenerational wealth differences that drive disparities as underserved businesses face disproportionate barriers in credit verification and the provision of collateral for loans to start businesses (Perry 2020). In sum, inequities stem not only from active bias and discrimination, but also from systems that reproduce and exacerbate disparities between groups.

Emerging evidence suggests that these underserved communities, which were already underrepresented in small business ownership and growth opportunities, were particularly vulnerable during the COVID-19 pandemic beginning in 2020 (Harper-Anderson, Albanese, and Gooden 2023). Compared to the 22% decrease in active business ownership across all U.S. businesses early in the pandemic, declines were larger for Black (41%) and Latinx (32%) owners, and slightly larger for female (25%) owners (Fairlie, 2020). By the end of March 2020, Black-owned businesses had cash balances 26% lower than the year before, compared to a 12% decrease for all firms (Farrell, Wheat, and Mac 2020). Although we are not aware of data on pandemic impacts specific to disabled or veteran-owned small business owners, veterans with physical and mental health challenges[vi] and people with disabilities were vulnerable during COVID-19 and faced disproportionate challenges in the workforce (National Council on Disability 2021). In sum, the early indications of disparate negative impacts for underserved business owners, on top of existing disproportionate barriers for these businesses, gave rise to pressing questions about how to target recovery efforts in a way that reduced rather than widened disparities.

Study Setting

To study the impacts of burden reduction efforts on equity in program access, we focus on a policy change that reduced the number of required documents applicants had to provide to access one city's small business COVID-19 relief fund. This work was initiated as part of a collaboration between the Office of Evaluation Sciences and the Small Business Administration to build evidence on measures to advance equity as part of the effort to implement the Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (Biden 2021). This policy established advancing equity as a key priority and required that "executive departments and agencies (agencies) must recognize and work to redress inequities in their policies and programs that serve as barriers to equal opportunity" (Biden 2021). In this way, the pursuit of social equity was legally required for all federal agencies in the U.S., which is a unique element of the policy context that may not translate to other settings. As part of these efforts in the U.S., federal agencies were required to identify methods to assess equity, conduct equity assessments of key programs, allocate resources to advance fairness, promote the equitable delivery of government benefits, engage with members of underserved communities, and establish an Equitable Data Working Group.

The Executive Order on racial equity contributed to a context in which cities were also guided by federal, state, and local legislation on the use of COVID-19 funding. For instance, one state legislature allocated money to support hospitality-industry businesses, specifying priority to businesses with a 50% revenue reduction. This requirement meant that counties disbursing the funds had to require applicant businesses to submit Profit and Loss statements, even though local officials knew many businesses struggled to provide these (Office of Evaluation Sciences 2021).

This city we focus on created an Emergency Microloan program in March 2020 to distribute $11 million to small businesses located in the city shortly after the city was put under lockdown because of COVID-19. The program was implemented by the city's Economic Development Department (EDD) and built on an existing microloan framework but had lower interest rates (either 0% for a term of six months to one year, or 3% to 5% for a term of up to five years) and a lower loan limit ($5000 - $20,000) than the standard Microloans offered by the EDD (which range from $5000 - $50,000 at 7-9% interest over 1-5 years). Funds were distributed on a first-come, first-served basis, meaning that program staff processed applications in the order they were received, until funding was exhausted. In December 2020, the City Council approved the conversion of loans to grants if businesses complied with the provisions of the loan agreement (i.e. spending the funds in accordance with The Coronavirus Aid, Relief, and Economic Security Act or, CARES Act requirements). These requirements included not relocating the business outside the city and submitting a certificate of compliance with all provisions.

To be eligible for the program, businesses had to have 100 or fewer employees, be negatively impacted by the COVID-19 pandemic, and try to continue or re-establish business operations after lockdown subsided. Businesses needed a tax registration certificate with the city and had to demonstrate sufficient credit and cash flow, and if the credit was insufficient the applicant needed a co-signer. For eligible businesses to receive an emergency microloan, they had to submit an online application to the EDD, along with supporting documentation ("submitted" stage). The application was reviewed by program staff, who conducted a preliminary review to highlight potential ineligibilities or aspects where further documentation was required. Once program staff deemed the application complete and likely eligible for funding, it joined a pool of "under review" applications, which were processed roughly in order of receipt, then undergoing further review by loan officers and with funding awarded until the pool was depleted ("funding awarded" stage).

If applicants progress through the application stages with equal probability, then an intervention that increases the likelihood of submission should have a persistent effect on outcomes at later stages, although the effect may be smaller as the outcomes become progressively less likely. However, given that progression through these application stages remained somewhat opaque even after repeated conversations with program staff it is worth examining effects at each stage empirically. We return to this point below.

Diagnosing Key Barriers in the Process of Applying for COVID-19 Small Business Relief

To better understand the challenges small businesses faced in accessing relief funds in the U.S., we spoke with around 15 people in a variety of roles across the country including community nonprofits, small business development centers, chambers of commerce, and city program directors. These informal interviews highlighted barriers in two categories: behavioral and structural. For more details on this data collection effort, see Appendix A.

The most notable behavioral barriers were: 1) lack of awareness 2) confusion and uncertainty and 3) distrust of local governments. Many small business owners from underserved communities were unlikely to know about the programs; those who did learn about the programs were frequently confused about how to fill out required financial documents. For example, Profit & Loss statements and Balance sheets were required by many grant and loan programs; these documents were particularly burdensome for low-volume cash businesses without a staff accountant, such as those with sole proprietors, to generate. These businesses are disproportionately owned by those from racially minoritized groups and socioeconomically disadvantaged individuals (Morel, Al Elew, and Harris 2021). This confusion and uncertainty, on top of the time and resources it took to compile and submit documentation, appeared to be particularly burdensome for racial and ethnic minorities and women, who were hit harder by the COVID-19 pandemic (i.e. sick friends and family, demands for child care, job losses, and other caring responsibilities during the COVID-19 pandemic) (Alon et al. 2020; Sevilla and Smith 2020). Interviewees also described uncertainty regarding how many businesses would be funded and the likelihood that a potential applicant would benefit. This uncertainty was compounded by a lack of trust in government due to historical and contemporary discrimination in local government policies and practices. Many underserved small business owners believed that application hurdles were indicative of the city trying to exclude people "like them" from getting help. For it to seem worthwhile to put in the time and effort to provide application documentation, small business owners had to believe that the government would fund someone "like them".

The most important structural barriers that were mentioned in the interviews were: 1) disparities in digital access, 2) disparities in access to capital for collateral, and 3) disparities in technical business knowledge. Putting together a profit and loss statement or a balance sheet requires some level of technical business knowledge, which is usually provided by an accountant. According to our interviews, U.S. small business owners in underserved communities were less likely to have digital access and access to technical business knowledge and support. Moreover, small business owners from underserved communities were less likely to have access to working capital that may be required for collateral for loans. In light of these behavioral and structural barriers faced by small businesses in underserved communities, identifying policy solutions that reduce administrative burden in applications for small business funding is a key priority for the advancement of equity in the small business community after the COVID-19 pandemic.

Policy Background and Theoretical Hypotheses

The emergency microloan program in the city we studied initially required a long list of documentation, as shown in table 1 below. These requirements were driven in part by the strict verification required for the use of Community Development Block Grant (CDBG) funding, which is a federal program administered by the U.S. Department of Housing and Urban Development that supports infrastructure, economic development, and housing services. After realizing that the extensive documentation requirements shut out underserved small business owners who were disproportionately *more likely to need support* and *less likely to have the resources needed to overcome administrative burdens*, city officials made substantial changes. Specifically, the city officials decided not to utilize CDBG funding and to instead leverage sources of funding within the city budget that did not require stringent documentation. As a result of this change in the source of funding, the mayor announced on Wednesday May 21, 2020 (in the middle of program implementation) that the EDD relaxed documentation requirements for the emergency microloans. No other major change was made to the evaluation of applicants or the publicization of the program, and all eligibility requirements were the same for all businesses.

As seen in the table below, after May 21st the documentation requirements were significantly less burdensome. By making the profit and loss statement optional, for instance, the city removed the most significant documentation barrier that we identified in our interviews. We leverage this major program change to build evidence on the impact of documentation burdens on equity in access to small business COVID-19 relief funding.

[Insert table 1 here]

With less documentation required, we predict that underserved business owners, who were already facing unprecedented challenges in the COVID-19 pandemic, would likely have faced less confusion and paperwork hurdles that led many to give up on the application process. Therefore, reducing the documentation requirements should increase the likelihood that underserved businesses make it through each stage of the application process.

H1: Reducing documentation requirements will increase the likelihood that underserved businesses (a) that initiate an application go on to submit an application; (b) advance to "under review;" and (c) are awarded relief funding.[vii]

In Hypothesis 2, we propose two possible scenarios: H2a) a reduction in documentation burdens may have a bigger impact on underserved business owners, and could narrow disparities in application and award rates between underserved and non-underserved businesses and H2b) a reduction in documentation burdens widens disparities because non-underserved businesses are better able to take advantage of the program after the policy change. In H2a, we test whether the policy change accomplished the policy goals and could be considered "equity-enhancing" as we conceptualize in the theoretical framework above. It could be the case that reducing documentation requirements will be particularly influential for underserved businesses, relative to non-underserved businesses because of the disproportionate challenges that underserved businesses reported in filling out the application requirements prior to the program change.

Therefore, once there are less documentation requirements, disparities in social and human capital could become less important and underserved small businesses that previously did not apply for the program may be significantly more likely to apply for and access the program benefits.

H2a: Reducing documentation requirements will have a larger impact on underserved small businesses relative to non-underserved businesses in the likelihood (a) that they submit an application; (b) advance to "under review;" and (c) are awarded relief funding.

However, we also recognize that historically underserved businesses could face several barriers prior to the documentation phase such as a lack of trust or not being plugged into the network that the city department reaches out to, which could put them at a disadvantage and result in the policy aiding non-underserved businesses more (H2b). Moreover, underserved businesses may have disproportionately lower administrative and human capital, which may make navigating even a more limited number of documentation requirements insurmountable, especially when compared to non-underserved businesses who do not face structural disadvantages (Masood and Nisar 2021; Bell et al. 2023; Chudnovsky and Peeters 2021; Barnes 2020; Heinrich et al. 2022).

H2b: Reducing documentation requirements will have a larger impact on non-underserved small businesses relative to underserved businesses in the likelihood (a) that they submit an application; (b) advance to "under review;" and (c) are awarded relief funding.

Methods

We test our theoretical hypotheses using data from the city emergency microloan/grant program. Program administrators provided us with this data (in spreadsheet form). Our raw data contained all the businesses that initiated applications (opened the online application)[viii] with multiple rows for each small business that depicted the status of the application as well as the date that the application status changed.[ix] For the interrupted time series analysis, we follow our pre-analysis plan and transform the raw data into a dataset that includes a row for each day in the application period for underserved and non-underserved businesses (2 rows per day) with columns that capture the number of applications reaching each stage of the application process. For the businesses that initiate or submit multiple applications, we take the time stamp of the first application initiation but fill in any missing variables using the most recent version of the application to reduce missingness.[x] This ensures that we are not double counting single businesses in our outcome variables, which would introduce bias in the estimation of treatment effects and standard errors.

For the underserved status variables there was substantial missingness, most of which is driven by applications that were initiated but never submitted.[xi] We address this missingness in our robustness checks section, where we empirically test whether imputation significantly changes the results. For the business applicants who have missing information on control variables, we do not impute any of the other information— in constructing the analytical dataset, we simply take the average on each day for the businesses whose information is not missing. We summarize the measurement of each key variable in table 2 below. Our outcome measures are proportions (e.g., the proportion advancing to the next stage), in line with the social equity literature's focus on disproportions as indicators of inequities (Guy and McCandless 2012).

[Insert Table 2 here]

We imported data from the American Community Survey on neighborhood characteristics including the percentage of the block group that is considered low or moderate income, and the percentage of the Census block group that is Black or Hispanic. This data allows us to compare the businesses in the pre- and post-change time-period to enhance our understanding of whether the applicants are systematically different in ways that could bias the estimation of treatment effects in the interrupted time series model. We also pulled data from the County Health Dashboard on COVID-19 daily cases and deaths to account for this potentially confounding time-varying factor.

Descriptive Statistics

In table 3, we present the descriptive statistics for the business-level and analytical day-level dataset before and after the policy change. The most important takeaway from table 3 is the change in the composition of businesses in the pre- and post-program change periods. For instance, the average number of employees at an applicant business as well as the loan amount requested decreased after the program change, which likely indicates that there were more very small businesses and potentially even sole proprietorships that were initiating applications after the documentation requirements were reduced. These very small businesses and sole proprietorships face the largest challenges compiling documentation because they often do not have accountants on staff or do not have the revenue to support hiring additional staff to help with the application process. The community characteristics of businesses also changed between the pre- and post-program change period; businesses initiating in the post-program change period were located in areas with higher Black, Hispanic, and low-income residents. This suggests that the program reached a broader set of small businesses in the city, in communities of color and lower income areas that may have initially not known about the program or did not think that the program was worth applying to. With regard to the outcome measures, there were less applications that went under review but around the same proportion of businesses applying made it to the submitted and funded phase. Finally, another factor changing over time was the COVID-19 cases and deaths, which markedly increased in the post-program change period.

[Insert table 3 and 4 here]

In table 4, we present the mean outcome measures, business characteristics, and community characteristics before and after the program change separately for underserved and non-underserved small business applicants. Before the program change, there was a significant disparity in the application success of underserved relative to non-underserved small business owners. In the post-program change period, this disparity disappears or shrinks for the outcome measures. However, these are only descriptive statistics that fail to capture the localized effect of the program change immediately before and after its implementation. While illuminating, they do not on their own count as statistical evidence for or against our hypotheses regarding the impact of program change.

As a supplement to these descriptive statistics tables, we visualize the number of businesses from underserved and non-underserved groups at each of the four stages of the application process, in the pre- versus post-May 21st periods in figure 1. One of the takeaways from these graphs is that it appears non-underserved businesses were quicker in submitting applications and given that the program administrators used a first-come first-served disbursement policy, this likely contributed to inequity before the program change. The second takeaway is that there is a significant jump in the number of submitted applications immediately after the program change, providing some face validity to our hypotheses.

[Insert Figure 1]

Statistical Models and Hypothesis Tests

In the absence of random assignment, we employ an interrupted time series design to obtain plausibly causal estimates that reduce the potential for omitted variable bias. Specifically, we leverage the discontinuity in time created by the program change to estimate the effect of reducing documentation requirements on the number of underserved small business applicants successfully completing an application and acquiring funding prior immediately prior to and after the implementation of the program change. By leveraging variation over time, we provide a model that is unaffected by typical time invariant confounding variables, as these characteristics are taken into account when modelling the underlying long-term trend. However, time-varying confounders, such as seasonality or a COVID-19 outbreak, may introduce bias in the results. For this reason, we include a vector of observable characteristics that are unaffected by the treatment that vary over time to better isolate the treatment effect of reducing documentation burdens. We estimate the following models for each key outcome in a Generalized Linear Regression model:

$$Y_{it} = \beta 0 + \beta 1 After_{it} + \beta 2 T_{it} + \beta 3 NonUnderserved_i + \beta 4 (After_{it} * T_{it}) + \beta 5 (NonUnderserved_i * T_{it}) + \beta 6 (After_{it} * NonUnderserved_i) + \beta 7 (After_{it} * NonUnderserved_i * T_{it}) + \beta 8 X_{it} + \varepsilon_{it}$$

- where i is an indicator for whether the unit of observation is for underserved or non-underserved businesses and t represents each day in the application period;
- Y_{it} is an indicator of our three outcomes of interest on each day for non-underserved and underserved business applicants;
- $After_{it}$ is a dichotomous indicator of whether the day is before or after May 21st 2020 (date the program changed)
- T_{it} is the time elapsed (i.e. days) since the start of the application period;
- $NonUnderserved_i$ is a dichotomous indicator for whether the row is capturing the outcome for non-underserved businesses (1) on each day or underserved businesses (0);
- X_{it} is a vector of observable characteristics observed over time, including day of the week fixed effects to capture seasonality, and COVID-19 deaths and cases in the county on each day;
- ε_{it} is a robust idiosyncratic error term, clustered by day.

In the equation above,

- $\beta 0$ represents the baseline level at T = 0 when every other quantity is also set equal to zero,
- $\beta 1$ is the level change following the program change for underserved businesses,
- $\beta 2$ is the change in application and funding rates associated with a time unit increase (which represents the underlying pre-intervention trend),
- $\beta 3$ indicates the difference in the outcome for non-underserved businesses compared to underserved businesses,
- $\beta 4$ indicates the slope change in the number of business applicants making it to each stage of the application process following the intervention (for underserved businesses),
- $\beta 5$ indicates how the time trend for non-underserved businesses differs compared to the time trend for underserved businesses,
- $\beta 6$ indicates the level change in the outcome of interest for non-underserved businesses, relative to underserved businesses after the program change, and
- $\beta 7$ indicates how the slope change in the outcome of interest after the program change differs for non-underserved businesses, compared to the slope change for underserved businesses

For Hypothesis 1, our coefficient of interest is $\beta 1$ which captures the level change in the outcome for underserved businesses right after the program change. H1 will be supported by a positive and significant $\beta 1$. For Hypothesis 2, our main coefficient of interest is $\beta 6$ which captures the level change in the outcome for non-underserved businesses, relative to underserved businesses right after the program change. H2a will be supported by a negative and significant $\beta 6$, and H2b will be supported by a positive and significant $\beta 6$. In our pre-registered analysis plan, we specified the level change as the main test of H2 and H1 rather than the slope change as the localized effects are more likely to be attributable to the program change and not other unobservable phenomena. To correct for multiple tests, we use the Holm-Bonferroni method[xii]. We also estimate a secondary analysis for Women-owned and Minority-owned businesses, as these are the only subgroups for which we have sufficient statistical power. These heterogeneous treatment effects help us identify the type of businesses that may have been most affected by the program change.

Results

Our main analysis, presented in table 5, provides support for our first hypothesis. For underserved businesses, the proportion of initiated applications that were submitted increased by 26.1 percentage points right after the program changed ($p < 0.001$, 95% CI [19.64, 32.56]).[xiii] However, we do not find support for our second hypothesis. The reduction in documentation requirements was not associated with a larger increase in completed applications for underserved businesses, relative to non-underserved businesses. Instead, we find that right after the program changed, the proportion of non-underserved businesses completing applications increased by an additional 15.7 percentage points ($p = 0.049$, 95% CI [7.74, 23.66]), relative to underserved small businesses.

For our secondary outcomes, we find the proportion of underserved businesses with applications under review increased by 8.4 percentage points right after the program changed ($p = 0.032$, 95% CI [4.50, 12.26]) and the proportion of underserved businesses that were funded increased by 3.8 percentage points right after the program change ($p = 0.017$, 95% CI [2.23, 5.41]). Nevertheless, non-underserved businesses still saw larger increases in downstream outcomes. Right after the program changed, the share of non-underserved businesses that went under-review increased by an additional 24.9 percentage points ($p < 0.001$, 95% CI [19.33, 30.47]) and the share that were funded increased by an additional 10.3 percentage points ($p < 0.001$, 95% CI [7.82, 12.78]) on top of the increases experienced by underserved businesses. Therefore, across all outcomes of interest, we find support for Hypothesis 1 but do not find support for Hypothesis 2a.

[Insert table 5]

Subgroup Analysis

In line with our pre-analysis plan and focus on outcomes for specific marginalized communities, we also investigate whether there were particularly large impacts on women-owned businesses or minority-owned businesses in Tables 6-7. For minority-owned businesses, there was a large and statistically significant impact on the likelihood of submitting applications and being funded, but no statistically significant impact on the likelihood of going under review (though the coefficient is substantively large and positive). Moreover, in line with the main findings, minority-owned businesses did not benefit more from the program change than non-underserved businesses on any of the key outcomes.

[Insert table 6]

For women-owned businesses, the overall trends that we present in the main analysis hold. We find support for Hypothesis 1, with women-owned businesses benefitting from the program change, but we do not find that they benefitted more than non-underserved businesses.

[Insert table 7]

Discussion

Administrative burdens contribute to persistent disparities in program access, which threaten the foundational commitment of public administrators to advance social equity (Guy and McCandless 2012; Johnson and Svara 2011; Bell et al. 2023; Herd and Moynihan 2018). Efforts to reduce administrative burden have been found to improve program take-up, but extant literature has yet to thoroughly explore *for whom* take-up improves. We conceptualize an equity-enhancing intervention as that which benefits marginalized communities and diminishes disparities, which we test empirically in the context of small business COVID-19 relief funds. In our analysis, we leverage a policy change that reduced the documentation requirements for the small business COVID-19 relief program in the middle of program implementation to estimate an interrupted time series analysis. Our findings have multiple implications for future research.

First, we find that reducing documentation requirements increased access to small business COVID-19 relief funding for historically underserved business owners, but that the increase in the success of applications was larger for non-underserved businesses after the policy change. This finding suggests that a reduction in administrative burdens can enhance outcomes for marginalized communities, while at the same time perpetuating existing disparities if the set of policy tools do not provide targeted supports to those at the largest disadvantage. These findings are in line with the research on administrative burden, which shows that those with greater administrative capital are better able to capitalize on public benefits and overcome burdensome application processes (Masood and Nisar 2021). Even with the reduction in documentation requirements, applicants still faced substantial compliance demands, which ultimately may have been the catalyst for the prevailing disparity in application success. Moreover, our work also contributes to the literature that has examined whether structural changes that reduce compliance costs can increase citizen outcomes. While prior research has observed increases in access among Medicaid beneficiaries (Herd et al. 2013), SNAP recipients (Lopoo, Heflin, and Boskovski 2020), many have not incorporated analyses that take into account multiple axes of marginalization. Therefore, while these changes may be increasing access to public programs among low-income clients, they may not translate to increases in access for racially minoritized low-income clients or clients with low levels of administrative or human capital, or those that have had negative experiences with government in the past that fuel mistrust (Bell et al. 2023; Döring 2021; Masood and Nisar 2021; Christensen et al. 2020).

It is possible that closing equity gaps would have required more intensive support to underserved applicants throughout the application process, or communication targeted specifically to underserved communities. It is also possible that using a first-come first-served disbursement model made reducing documentation less equity enhancing than what otherwise would have been possible in a lottery or points system that considered and weighted applicant disadvantage (Johnson et al., 2021). Our findings have important implications for theory and practice on administrative burden, suggesting that even well-intentioned interventions can perpetuate disparity if there are not targeted supports for marginalized communities put in place.

Second, the nature of this policy change is of theoretical interest to scholars investigating citizen-state interactions. A key source of administrative burden comes from federal accountability pressures and regimes that impose documentation requirements on local or state governments in exchange for federal funding. Specifically, we study a setting in which local administrators changed the funding stream for the small business COVID-19 relief program from the Federal Community Development Block Grant (CDBG) funding to local government funds which offered more flexibility in documentation requirements. By utilizing their discretionary power to change the funding streams, administrators were also able to reduce the number of required documents that small business owners had to submit to apply for small business relief funds. A key cause of onerous encounters with the state in this context was federal documentation mandates on funding streams, and an overlooked policy solution could be to use local discretion to counteract these onerous top-down policies with local innovation. In the future, public managers could consider applying for a waiver from federal documentation requirements so that they can assess the extent to which documentation reduces equity and the extent to which these changes would impact fraud/program integrity.

Finally, the reduction in documentation requirements reduced barriers for all types of businesses, and regardless of the inability to alleviate pre-existing disparities, it may be worthwhile to pursue these burden reduction efforts to improve the public's experience of government. Moreover, it is worth noting that the intervention appeared to reach a different set of small businesses that were applying for smaller loan amounts after the reduction in documentation requirements, which may indicate a level of disadvantage, regardless of underserved status. In this way, there may be other axes of marginalization that we were unable to capture, like socioeconomic disadvantage, where we might have seen more equity enhancing effects. Ultimately, we conclude that this burden reduction effort was unable to disproportionately enhance access among underserved small businesses; however, all small businesses in the city benefitted from the reduction in burdens which is a notable achievement that likely enhanced clients experience of government during a time of crisis.

Limitations and Future Directions

One limitation of this study is our inability to say why progression through the application pipeline differed before and after the documentation requirement change. Reduced application burdens may have coincided with increased awareness of the program, may have led different businesses to apply, and/or may have made the same sort of businesses more likely to progress through the application stages. For example, we observe an influx of smaller businesses asking for lower loan amounts, suggesting that the businesses in the post-program change time period are more disadvantaged relative to those in the pre-program change period. This compositional change could downwardly-bias the treatment effect, making our estimates a conservative proxy for the true treatment effect. On one hand, policymakers may not be overly concerned about which of these possibilities accounts for the differences we observed—they may simply want to know how such a change is likely to impact equity in outcomes. However, future research may be able to disentangle these potential mechanisms.

In considering the generalizability of these results, it is worth noting that applicant businesses are not necessarily a random sample of eligible businesses. Experts we spoke to before conducting this study reminded us that business owners' beliefs about the motives of program administrators (e.g., were they trustworthy, was the program designed "for someone like me") shape their applications. In a place where mistrust is high, reduced administrative burdens may not achieve effects like those we observed. However, this need not detract from the theoretical importance of the effects identified in this study. As Mook (1983, 380) notes, when the goal is "not making *generalizations*, but *testing* them," generalizability takes on a different meaning. Our goal is not to generalize to a larger population, but to test whether a generalized theory when applied to a set of subjects holds up.

In our data, differences between underserved and non-underserved businesses were larger at the submission stage than the funding stage. Diminishing effect sizes associated with progression through the pipeline may just reflect greater distance from the intervention. However, it may also be due to motivation among staff at this program to support underserved business owners in their community. A similar intervention in a program whose staff and local officials are *not* so motivated may be less effective.

Conclusion

As public administration scholars and practitioners strive for social equity in citizen-state interactions, future researchers should continue to take up the challenge of imagining and evaluating what it would take to diminish disparity in access to government programs. To find the appropriate set of policy tools for public managers to craft “equity-enhancing” interventions, future research should examine how various efforts to reduce administrative burden impact underserved and marginalized communities. Our study is one step toward this goal, and future researchers should build on our work by evaluating whether a policy change like the one we study—in which documentation burdens are reduced for all applicants—will perpetuate disparity only in the absence of other targeted support for marginalized communities seeking access to public programs.

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Tables and Figures

Table 1. Documentation Requirements Before and After Policy Change

Document	Required before May 21st	Required after May 21st
Business Tax Registration Certificate (valid prior to March 2020)	Yes	Yes
Breakdown of Sources and Uses (budget) to check whether they were authorized expenses	Yes	Yes
Business Tax Returns	Yes, for 1-2 years if available	Yes, for 1-2 years if available
Business Financial Statements	Yes, for 3 months	Yes, for 1 month
Business Bank Statements	Yes, for most recent 3 months	Yes, for most recent 3 months
Personal Bank Statement	Yes, for most recent 1 month	Yes, for most recent 1 month
Credit check authorization	Yes	No
Profit and Loss statement	Yes	No
Business Plan	Yes	No
Projections	Yes (3-5 years)	No
Commercial Lease Agreement	Yes	No
Commercial Liability Insurance	Yes	No
Workers Comp Insurance (if applicable)	Yes, if applicable	No
Personal Financial Statement	Yes	No
Personal Income Tax Returns	Yes, for 2 years	No
Resumes	Yes	No

Note. After May 21st, documents that were not required were optional; provision of these documents had no effect on the **probability** of obtaining assistance.

Table 2. Measurement of Key Variables

Independent Variables	Description
Non-Underserved business[xiv]	Dichotomous indicator coded as 1 for businesses that were **not** classified as Women-owned, Minority-owned, Disabled-owned or Veteran-owned. Otherwise, the variable is coded as 0. Therefore, this variable captures White, male, non-disabled, non-veteran business owner.
After	A dichotomous variable for whether the day in question is before (coded as 0) on or after (coded as 1) the documentation requirements changed on May 21, 2020.
Time trend	Measured as the days since the program change.
Derived Control Variables	**Description**
Day of the Week	An indicator for day of the week, which will help account for potential idiosyncratic temporal variation.
COVID-19 rates	Calculated as the number of new COVID-19 cases and deaths in the County for each day in the application period.
Outcome Variables	**Description**
Proportion making it to the submitting phase	Calculated as the proportion of applications initiated on each day in the application period that ever make it to "submitted" status (within the pre- and post-period).[xv]
Proportion making it to the "under review" phase	Calculated as the proportion of applications submitted on each day in the application period that ever make it to "under review" status (within the pre- and post-period).
Proportion making it to the funded phase	Calculated as the proportion of applications "under review" on each day in the application period that ever make it to funded status (within the pre- and post-period).

Table 3. Descriptive Statistics

Variable	Before Program Change N	Before Program Change Mean	After Program Change N	After Program Change Mean
Business-Level				
Outcomes				
Initiated, but never submitted	6,715	0.52	2,004	0.65
Submitted	6,715	0.48	2,004	0.35
Under Review	6,715	0.36	2,004	0.12
Funded	6,715	0.10	2,004	0.06
Business Characteristics				
Women-owned	6,715	0.24	2,004	0.29
Minority-owned	6,715	0.23	2004	0.34
Disabled-owned	6,715	0.00	2004	0.01
Veteran-owned	6,715	0.01	2,004	0.01
Jobs retained	6,715	4.52	2,004	3.85
Number of employees	6,585	424087.20	1,893	5.29
Loan amount	6,103	$19,864.99	1,777	$17,288.87
Community Characteristics				
Covid Cases and Deaths	6,714	668.71	1,988	1770.49
Percent Black in Census Block	5,038	0.08	1,402	0.10
Percent Hispanic in Census Block	5,038	0.36	1,402	0.39
Percent Low or Moderate Income (LMI) in Census Block	5,062	0.55	1,408	0.56
Day-Level				
Outcomes				
Initiated, but never submitted	129	0.57	271	0.67
Submitted	129	0.42	271	0.33
Under Review	129	0.25	271	0.09
Funded	129	0.07	271	0.05
Business Characteristics				
Jobs retained	129	3.99	271	3.80
Number of employees	129	321787.50	268	5.99
Loan amount	128	$19,060.38	268	$17,129.98
Community Characteristics				
Covid Cases and Deaths	128	747.30	270	1649.00
Percent Black in Census Block	129	0.09	258	0.10
Percent Hispanic in Census Block	129	0.35	258	0.38
Percent Low or Moderate Income (LMI) in Census Block	129	0.55	258	0.56

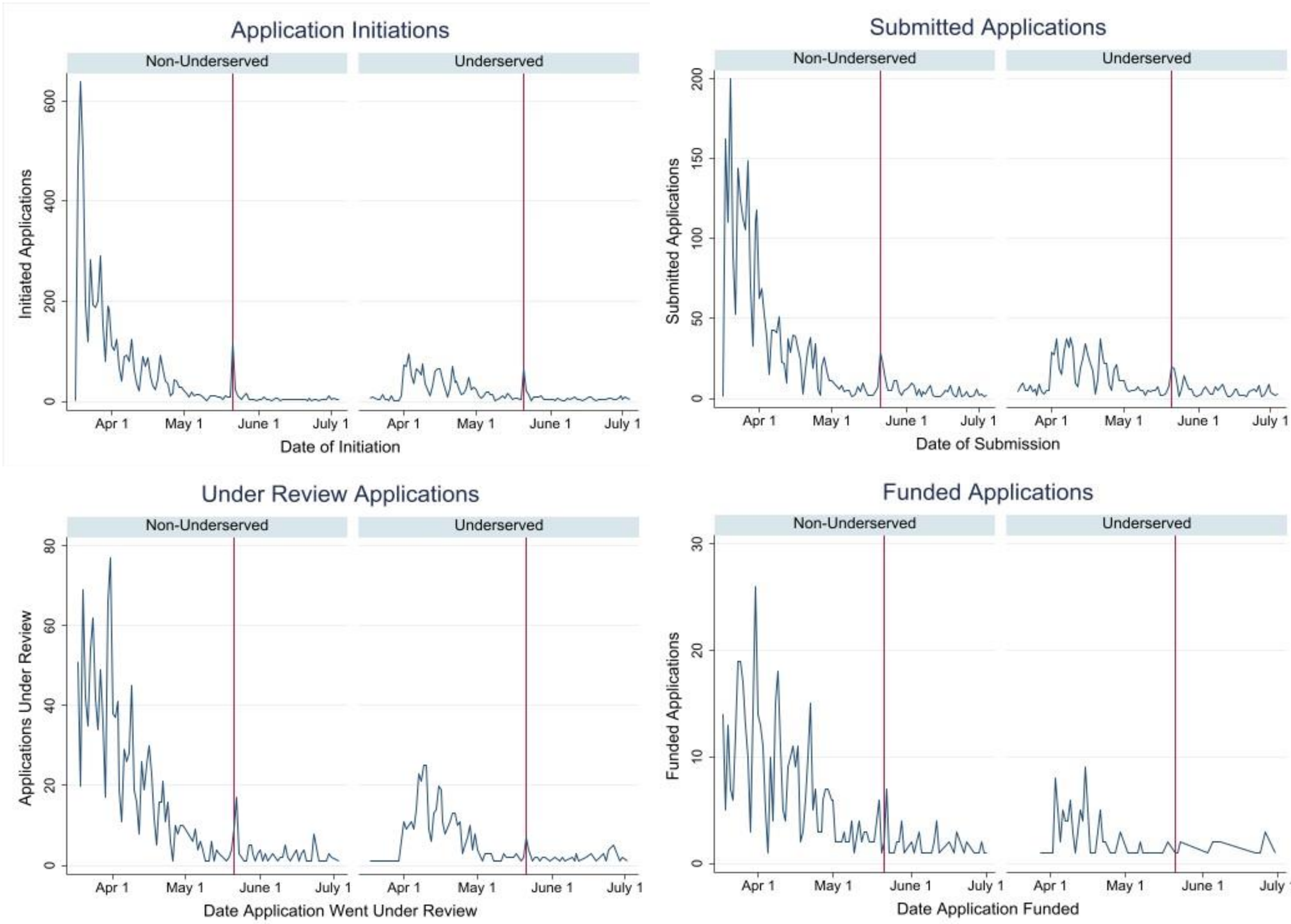
Note: The panel is unbalanced because on some days in the application period, there were no initiations among underserved or non-underserved businesses. In other cases, there is missing data due to an inability to match businesses based on addresses to census data. N is the number of non-missing observations; for each variable, 0=no, 1=yes, so the Mean is the proportion of observations in the "yes" category

Table 4. Descriptive Statistics, by Underserved Status

	Before Program Change				After Program Change			
	Underserved		**Non-Underserved**		**Underserved**		**Non-Underserved**	
Variable	N	Mean	N	Mean	N	Mean	N	Mean
	Business-Level Dataset							
Initiated, never submitted	2,179	0.64	4,536	0.46	915	0.65	1,089	0.65
Submitted	2,179	0.36	4,536	0.54	915	0.35	1,089	0.35
Under Review	2,179	0.21	4,536	0.42	915	0.09	1,089	0.13
Funded	2,179	0.05	4,536	0.13	915	0.04	1,089	0.09
Business Characteristics								
Jobs retained	2,179	3.55	4,536	4.98	915	3.70	1,089	3.99
Number of employees	2,134	394675.10	4451	438188.60	879	4.60	1014	5.88
Loan amount	2,108	$18,918	3995	$20,364	878	$16,720	899	$17,843
Women-owned	2,179	0.67	4,536	0.03	915	0.62	1,089	0.02
Minority-owned	2,179	0.64	4,536	0.03	915	0.69	1,089	0.04
Disabled-owned	2,179	0.01	4,536	0.00	915	0.01	1,089	0.00
Veteran-owned	2,179	0.03	4,536	0.00	915	0.03	1,089	0.00
Community Characteristics								
Covid Cases and Deaths	2,308	750.62	4,406	625.80	948	1805.36	1,040	1738.70
Percent Black in Census Block	1,682	0.09	3352	0.08	688	0.11	699	0.08
Percent Hispanic in Census Block	1,682	0.37	3352	0.36	688	0.40	699	0.38
Percent LMI in Census Block	1,688	0.55	3370	0.55	691	0.57	702	0.56
	Day-Level Dataset							
Initiated, never submitted	64	0.59	65	0.56	132	0.67	139	0.67
Submitted	64	0.4	65	0.43	132	0.33	139	0.33
Under Review	64	0.2	65	0.3	132	0.08	139	0.11
Funded	64	0.04	65	0.1	132	0.04	139	0.06
Business Characteristics								
Jobs retained	64	3.54	65	4.44	132	3.47	139	4.12
Number of employees	64	293,885	65	345,030	129	4.88	139	7.09
Loan amount	64	$18,536	64	$19,584	132	$16,619	136	$17,625
Community Characteristics								
Covid Cases and Deaths	64	747	64	747	132	1,661	138	1,636
Percent Black in Census Block	64	0.09	65	0.08	130	0.11	128	0.08
Percent Hispanic in Census Block	64	0.35	65	0.35	130	0.39	128	0.36
Percent LMI in Census Block	64	0.56	65	0.55	130	0.57	128	0.54

Note: The day-level panel dataset is unbalanced because on some days in the application period, there were no initiations among underserved or non-underserved businesses. In other cases, there is missing data due to an inability to match businesses based on addresses to census data. N is the number of non-missing observations; for each variable, 0=no, 1=yes, so the Mean is the proportion of observations in the "yes" category

Figure 1. Descriptive graphs showing changes over time, by underserved status



Note: the Y-axis scale changes across the different outcomes based on the distribution of the data.

Table 5. Change in Probability of Application Success for Underserved and Non-Underserved Businesses

	Submit Application	Under Review	Funded Application
After (Underserved Businesses)	0.261***	0.0838**	0.0382**
	(0.06)	(0.04)	(0.02)
Non-underserved Business	-0.177***	-0.154***	-0.03
	(0.06)	(0.04)	(0.02)
After*Non-underserved Business	0.157**	0.249***	0.103***
	(0.08)	(0.06)	(0.02)
Time	-0.00450***	-0.00397***	-0.00162***
	(0.00)	(0.00)	(0.00)
After*Time	0.00	0.00309***	0.00167***
	(0.00)	(0.00)	(0.00)
Non-underserved Business*Time	-0.00619***	-0.00741***	-0.00232***
	(0.00)	(0.00)	(0.00)
After*Non-underserved Business*Time	0.00663***	0.00656***	0.00162**
	(0.00)	(0.00)	(0.00)
New COVID Cases and Deaths	-4.06e-05**	-2.37e-05*	0.00
	(0.00)	(0.00)	(0.00)
Constant	0.216***	0.05	-0.0543***
	(0.06)	(0.04)	(0.01)
Day of the Week Fixed Effects	X	X	X
Observations	398	398	398
R-squared	0.238	0.469	0.25

Note. The coding scheme (Table 2) means that the coefficient for After is the effect of the program change in non-underserved businesses (i.e., an increase of 26.1 percentage points in submissions), which tests H1. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 6. Change in Probability of Application Success for Minority-Owned vs. Non-Underserved Businesses

	Submit Application	Under Review	Funded Application
After (Minority-owned Business)*	0.329***	0.07	0.0463**
	(0.08)	(0.04)	(0.02)
Non-underserved Business	-0.148**	-0.165***	-0.02
	(0.07)	(0.04)	(0.02)
After*Non-underserved Business	0.08	0.257***	0.0941***
	(0.09)	(0.06)	(0.03)
Time	-0.00567***	-0.00400***	-0.00190***
	(0.00)	(0.00)	(0.00)
After*Time	0.00326*	0.00318***	0.00197***
	(0.00)	(0.00)	(0.00)
Non-underserved Business*Time	-0.00524***	-0.00745***	-0.00205***
	(0.00)	(0.00)	(0.00)
After*Non-underserved Business*Time	0.00585***	0.00658***	0.00135**
	(0.00)	(0.00)	(0.00)
New COVID Cases and Deaths	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Constant	0.162**	0.05	-0.0611***
	(0.07)	(0.04)	(0.01)
Day of the Week Fixed Effects	X	X	X
Observations	393	393	393
R-squared	0.211	0.447	0.22

Note: The coefficient for After is the effect of the program change in minority-owned businesses relative to non-underserved businesses. Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7. Change in Probability of Application Success for Women-Owned vs. Non-Underserved Businesses

	Submit Application	Under Review	Funded Application
After (Women-Owned Business)	0.249***	0.0833**	0.0340**
	(0.07)	(0.04)	(0.02)
Non-underserved Business	-0.174***	-0.150***	-0.01
	(0.05)	(0.04)	(0.02)
After*Non-underserved Business	0.176**	0.254***	0.104***
	(0.08)	(0.06)	(0.03)
Time	-0.00518***	-0.00453***	-0.00227***
	(0.00)	(0.00)	(0.00)
After*Time	0.00263*	0.00373***	0.00237***
	(0.00)	(0.00)	(0.00)
Non-underserved Business*Time	-0.00559***	-0.00689***	-0.00164**
	(0.00)	(0.00)	(0.00)
After*Non-underserved Business*Time	0.00619***	0.00588***	0.00
	(0.00)	(0.00)	(0.00)
New COVID Cases and Deaths	-3.98e-05**	-2.43e-05*	1.25e-05*
	(0.00)	(0.00)	(0.00)
Constant	0.180***	0.05	-0.0642***
	(0.05)	(0.04)	(0.02)
Day of the Week Fixed Effects	X	X	X
Observations	385	385	385
R-squared	0.257	0.477	0.282

Note: The coefficient for After is the effect of the program change in women-owned businesses relative to non-underserved businesses. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 8. Change in Probability of Application Success for Underserved and Non-Underserved Businesses, with Additional Control Variables

	Submit Application	Under Review	Funded Application
After (Underserved Business)	0.211***	0.0733**	0.0331**
	(0.06)	(0.04)	(0.01)
Non-underserved Business	-0.214***	-0.162***	-0.0300*
	(0.06)	(0.04)	(0.02)
After*Non-underserved Business	0.170**	0.252***	0.106***
	(0.08)	(0.06)	(0.02)
Time	-0.00368***	-0.00382***	-0.00158***
	(0.00)	(0.00)	(0.00)
After*Time	0.00	0.00305***	0.00169***
	(0.00)	(0.00)	(0.00)
Non-underserved Business*Time	-0.00691***	-0.00757***	-0.00239***
	(0.00)	(0.00)	(0.00)
After*Non-underserved Business*Time	0.00749***	0.00675***	0.00167**
	(0.00)	(0.00)	(0.00)
New COVID Cases and Deaths	0.00	-2.06e-05*	0.00
	(0.00)	(0.00)	(0.00)
Loan Amount	-1.01e-08**	0.00	-3.73e-09**
	(0.00)	(0.00)	(0.00)
Number of Employees	1.33e-05***	0.00	0.00
	(0.00)	(0.00)	(0.00)
Constant	0.00	0.00	-0.0713***
	(0.08)	(0.05)	(0.02)
Day of the Week Fixed Effects	X	X	X
Observations	392	392	392
R-squared	0.288	0.471	0.254

Note. The coding scheme (Table 2) means that the coefficient for After is the effect of the program change in non-underserved businesses (i.e., an increase of 26.1 percentage points in submissions), which tests H1. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Appendix A. Semi-Structured Interview Protocol

As part of our work with the Small Business Administration, we used these informal interviews to identify barriers to accessing small business relief funds during the COVID-19 pandemic, as well as scope out opportunities to build evidence on tools for reducing barriers either in experimental or quasi-experimental interventions. We partnered with colleagues at the Office of Evaluation Sciences and the Brown Policy Lab to identify city contacts and contacts working on small business development in the nonprofit sector in cities. We sent out an email to the contacts in the What Works Cities network, which is a consortium of city officials committed to evidence building efforts.

Questions for City Partners

1. When you gave out grants and loans to small businesses before, how oversubscribed was it?
2. When are they planning to give out more relief?
3. Have they already decided on amount, grant/loan, allocation method, etc.?
4. Do they already have outreach programs for businesses? Is the outreach targeted to underserved communities?
5. Which underserved communities are a focus for your city?
6. How busy were they with application assistance during previous rounds of funding? Were they able to support everyone who needed help?
7. Guesstimate: What number/percentage of businesses failed to submit adequate documentation? What were the key barriers for underserved businesses in the process of applying?
8. Did they advertise third-party assistance? How does this work?
9. What kind of data do they collect on applicants?
10. Do they have a checklist/template for documentation requirements?
11. What are you hoping to learn related to small business recovery and equitable access to small business loans and grants?
12. Do you have any current evaluations ongoing in this space? How would this complement or add to those efforts?

Based on the answers to questions 4-8, we constructed the following behavioral map shown in Figure A1 below that specifies the different burdens and barriers in the process of trying to access small business relief funds during COVID-19, and why these barriers disproportionately fell on underserved communities.

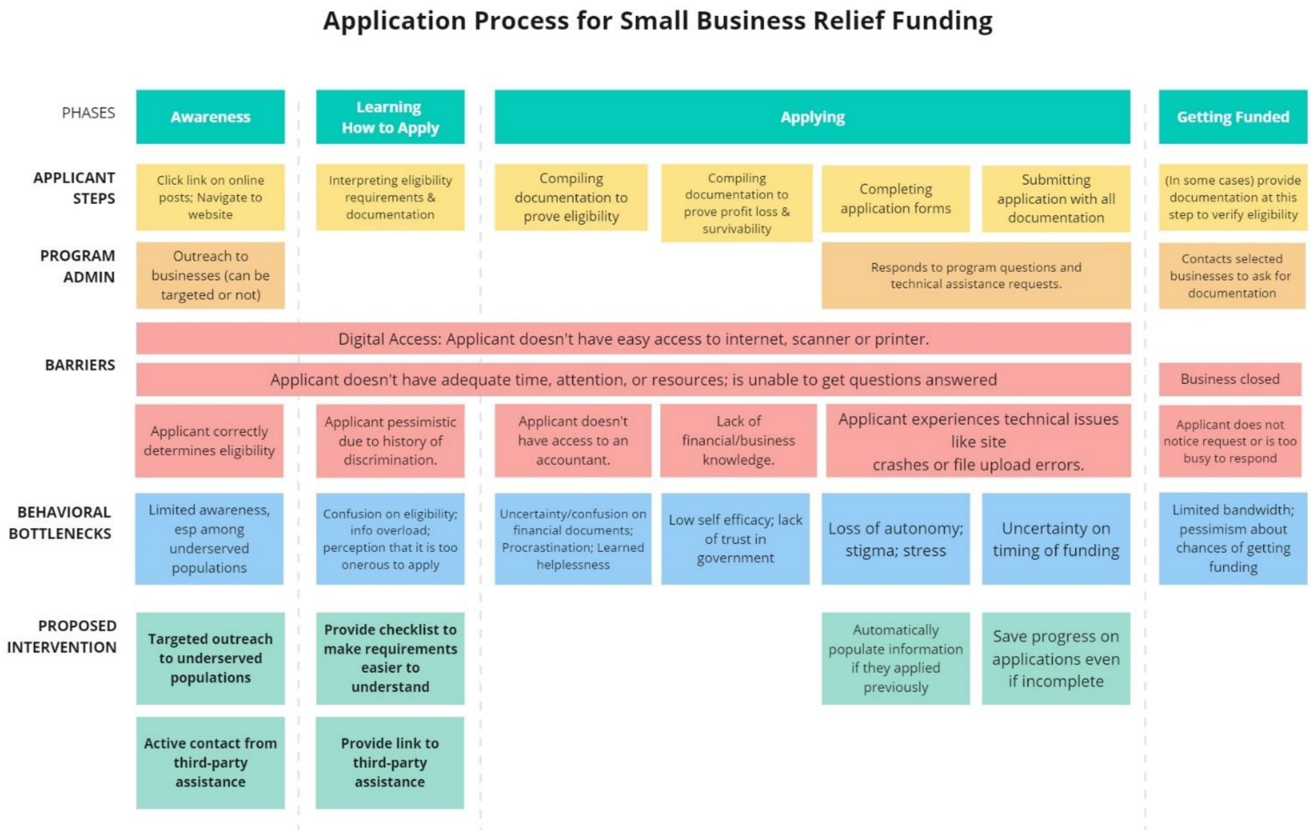


Figure A1. Structural Barriers, Behavioral Bottlenecks, and Proposed Interventions for Small Business Relief Funding

[i] We utilize this term to align with the recent Executive Order on Advancing Racial Equity and Support for Underserved Communities. The executive order defines underserved communities as “populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life” (Biden 2021). This includes “Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality” (Ibid., 2021).

[ii] We include veteran-owned small businesses in the “underserved” category because they are frequently prioritized for government services and are disproportionately likely to face mental health challenges. For instance, the 2021 $28.6 billion Restaurant Revitalization Fund prioritized the processing of applications veterans. Administrators in the city we studied similarly included veterans in their list of underserved small business owners. This categorization aligns with the high prevalence of disabilities, substance abuse disorders, and mental health conditions in veterans, including conditions that often go undiagnosed and therefore would not be captured in the disability category (Sobota 2017; Teeters et al. 2017; Burnam et al. 2009; Merikangas and Conway 2021).

[iii] Another approach to burden reduction is the provision of personalized assistance, but this is a less prominent intervention partially because of the substantial cost of these programs relative to nudges (especially when considered at scale).

[iv] Some scholarship in specific fields of policy, such as the work of Janet Currie, does examine heterogeneous effects but this does not transfer over to public administration scholarship.

[v] It is also worth noting that the interventions outlined above were generally tested in the context of entitlement programs with benefits available to all eligible applicants, rather than oversubscribed benefit programs, such as subsidized housing with long waiting lists, or small business grants and loans. For oversubscribed programs, efforts to improve equity could take the form of compensating for unequal administrative burdens in application by giving preference to applicants from underserved groups. However, that approach is typically seen as illegally discriminatory (at least in the United States) (Cowley 2021). Since policymakers are largely blocked from using explicit preferences to enhance equity for oversubscribed programs, it is particularly important to understand how a general approach to easing administrative burdens for all applicants may affect equity.

[vi] Veteran-owned small businesses have similar financing patterns and access to capital as other businesses (Sobota 2017), but given the service contributions veterans have made and the additional physical and mental health challenges they face, the US government has prioritized support to these businesses, even creating set-aside programs for service-disabled veteran-owned small businesses (Small Business Administration 2022).

[vii] We preregistered all hypotheses in a pre-analysis plan posted prior to obtaining outcome data. The pre-analysis plan is available upon request, but due to anonymity requirements, we exclude this link.

[viii] Therefore, we only have information about businesses which at least start an application and are unable to capture equity gaps prior to starting an application.

[ix] There were additional statuses recorded by city employees, but we collapse the submission stages into 4 main stages: initiated, submitted, under review, and awarded funding. This is for ease of interpretation, and because these are the main stages where there is likely drop-off in the application process. In line with our pre-analysis plan, we exclude data that does not include the timing of any application status, as this is essential to the analysis. Less than one percent of the data was missing this information.

[x] For example, if the first submission was after the policy change, this would be classified as After (see Table 2), regardless of whether the first initiation was prior to or after the policy change. However, if they submitted prior to and after the change, we would take the first submitted date, which would mean they are in the Before (pre-treatment) group because they submitted an app when there was the longer list of documentation requirements.

[xi] Approximately 30 percent or 5,000 out of 15,000 applications have missing data on these variables.

[xii] We will reject the null hypothesis for the analysis that produces the smaller of the two p-values when that value is $< .025$ (.05/2). If the smaller p-value is $< .025$ and the larger is $< .05$, we will also reject the null hypothesis for the analysis that produced the larger of the two p-values.

[xiii] All of the results reported are statistically significant after controlling for the familywise error rate using the Holm-Bonferroni procedure.

[xiv] We chose this coding approach so that the other coefficients (e.g, After) would represent the effect for the Underserved businesses, the group of particular interest.

[xv] Therefore, for any business initiating in the pre-period, we would be capturing the likelihood that they submit, go under review, or are funded JUST in the pre-period. This means that for businesses that initiate in the pre-period, but submit/go under review/are funded in the post period, they are not counted in the outcome variable. Only 16 businesses were in this category.