When NGOs Disappear: Evidence from the Forced Closure of NGOs in Pakistan

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ABSTRACT. Despite the growing presence of non-governmental organizations (NGOs) in developing countries, there remains a critical gap in empirical evidence regarding their effectiveness. This study addresses that gap by leveraging a natural experiment: the forced shutdown of 25 percent of NGOs operating in Punjab, Pakistan. Using an event study design, we compare regions with higher versus lower NGO closures to assess how NGO presence shapes key economic and social outcomes at the household, firm, and regional level. We find that NGO closures reduce household investment in education and health, with the decline in health service use particularly pronounced among rural households and girls. At the firm level, NGO closures weaken the local business environment, leading to more frequent power outages, higher sales losses, and lower labor costs, especially among smaller firms. When it comes to the government's response, we find that public service provision expands temporarily but does not fully replace the withdrawn NGOs. At the regional level, reduced NGO presence lowers economic activity, as measured by night-time light intensity, while increasing public discontent and violence against women. Overall, our findings show that NGOs are essential to household welfare, firm resilience, and broader community stability.

Keywords: Non-governmental organizations, state effectiveness, economic development, human capital, firms, natural experiment, health, education, gender

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1 Introduction

Over the past three decades, non-governmental organizations (NGOs) have gained significant attention in development discussions. There has been a *shift* from government-led development to private-led efforts (Brass et al., 2018; Kamat, 2017). Underlying this shift is an implicit assumption that NGOs can step in where states fail to provide sufficient goods or services and help reduce poverty (Edwards & Hulme, 1996). This has been coupled with a massive increase in NGO presence, with their numbers experiencing exponential growth in the developing world (Werker & Ahmed, 2008; Aldashev & Navarra, 2018; Bandiera et al., 2023). For example, in Kenya, registered NGOs surged from a few hundred to over 8,000 between 1990 and 2012 (Brass, 2012), in Bangladesh, NGOs reached 90 percent of villages by 2005 (Fruttero & Gauri, 2005), and in India, one million NGOs in 2002 grew to 3.3 million by 2009 (McGann & Johnstone, 2005; Lewis et al., 2020). This rapid expansion has not been without controversy: countries like India, Rwanda, and Uganda have begun tightening regulations for NGOs, requiring them to align with centralized priorities (Economist, 2024; Musila, 2019).

Amid the rapid expansion of NGOs and concerns over increasing government regulation, causal evidence of NGO effectiveness is still remarkably limited. This paper aims to bridge this gap in the existing literature by investigating the causal effect of NGOs on several development outcomes in the context of Pakistan, a lower-middle-income country. We examine individual-level outcomes, such as children's education, vaccinations, prenatal care, and annual income; firm-level outcomes, including sales, labor costs, and perceptions of the local business environment; and community-level outcomes, such as economic activity, public (dis)contentment, and violence against women. These outcomes are motivated by the core missions of NGOs, which often focus on improving human capital, stimulating economic activity, and promoting social well-being within the communities they serve. Ex-ante, it is unclear if NGOs succeed in improving these outcomes. On the one hand, they may be hindered by coordination challenges in agenda setting, decision-making, and resource allocation. On the other hand, NGOs could play a pivotal role in addressing development challenges precisely where government and market-based solutions have failed.[1]

Identifying the causal impact of NGOs on local economic and social outcomes is inherently challenging. There may be concerns around the direction of causation and NGOs' potential correlation with unobservable regional characteristics. For instance, NGOs

[1]Note that we are not focusing on international NGOs that operate on a very large scale, such as Save the Children or BRAC. Instead, we examine locally established NGOs that serve their communities and rely primarily on local donations. We provide two examples of these NGOs in Figure 1.

target areas that are economically disadvantaged and have poorer welfare outcomes, therefore poorer regions will have more NGOs than their wealthier counterparts. To overcome such selection issues, we leverage a natural experiment: an exogenous 25% decrease in the number of NGOs operating in Punjab, Pakistan. This decrease was driven by the government's efforts to comply with the Financial Action Task Force's (FATF) action plan to remove the country from its "grey list." The FATF is an intergovernmental organization that uses the grey list to identify countries with inadequate measures to combat money laundering and terrorist financing, requiring them to address these deficiencies or be subject to global financial sanctions and economic isolation.

In June 2018, the FATF placed Pakistan on the grey list. As part of its compliance efforts, the Pakistani government required all NGOs to submit their financial records to ensure the organizations were not being misused. NGOs that did not submit these records would be deregistered by the government. However, many NGOs were unaware of this requirement, as the government requested this information through a one-off newspaper advertisement instead of sending formal letters.[2] Compliance was further reduced by the fact that NGOs typically rely on registers for record-keeping rather than formal audit reports (Dawn, 2020). Consequently, the government deregistered a large number of NGOs that did not comply (henceforth, "deregistration shock"). In the Punjab province, 1,298 out of 5,156 NGOs (25%) were deregistered. We exploit quasi-random variation in this deregistration across regions (tehsils) and over time to identify the causal effect of NGOs on various outcomes.[3]

We begin by constructing a novel dataset that captures NGO presence in each tehsil. This dataset is built from multiple sources, including non-digitized reports detailing information on NGOs prior to the deregistration shock in May 2018, and proprietary data on the NGOs that were deregistered in 2019. Additionally, we used the Google API to geocode the NGO addresses, enabling us to map them to their respective tehsils. This dataset allows us to quantify each tehsil's exposure to the deregistration shock by calculating the proportion of NGOs deregistered in that tehsil. On average, each tehsil had 35 NGOs in 2018, of which 14 were deregistered (SD of 16.5) in mid-2019.[4]

To complement the administrative data, we conducted a survey in September 2025

[2]Figure 2 shows the newspaper advertisement.

[3]Tehsils are administrative divisions in Pakistan, comparable to townships or cities in the United States, and represent the fourth level of administrative hierarchy, below districts. As per the 2017 Census, there are 144 tehsils in Punjab, with populations averaging 750,000. We focus on Punjab due to our access to detailed NGO data for this province.

[4]We also have information on NGO characteristics, such as their year of registration, size, and annual budget. Using this data, we know that the majority of deregistered NGOs are small, rely on local donations, have been around for an average of 26 years, and operate with an average annual budget of approximately $5,500. Furthermore, 64% report owning assets and mostly work in sectors such as education, health, women's welfare, and skill development.

with a random sample of deregistered and functional NGOs, approximately six years after the closures. The survey firm contacted 260 NGOs (87 functional and 173 deregistered) and completed 40 interviews, with lower response rates among deregistered NGOs due to invalid or inactive contact information. The results confirm the accuracy of administrative records: every deregistered NGO reached was inactive, and all but one functional NGO remained operational. When asked about the 2019 newspaper advertisement requesting submission of registration documents, only 5% of deregistered NGOs recalled seeing it compared with 45% of functional NGOs. This difference indicates that deregistered NGOs were less aware of the requirement, consistent with anecdotal evidence from media reports. Several deregistered NGOs reported handing over their assets to the government, while others sold or donated them. Respondents also emphasized NGOs' central role in community development, describing them as *"the eyes and ears of society"* that deliver essential services, improve access to education and health, and support local businesses.

To identify the causal impact of NGOs, we exploit the variation in each tehsil's exposure to the deregistration shock. Using an event study approach, we estimate the treatment effect by comparing more-exposed tehsils to less-exposed tehsils (henceforth, "more-treated" and "less-treated" tehsils) over time.[5] The identifying assumption of our event study design is *not* random assignment to "more-treated" and "less-treated" groups, but rather that potential outcomes would have trended similarly in these tehsils in the absence of NGO deregistration. We present three facts to support this assumption. First, NGOs are not disproportionately deregistered in areas with specific baseline characteristics (e.g., poorer regions or those with opposition political leaders). Second, "more-treated" and "less-treated" tehsils have similar baseline levels of information access, NGO presence, and remoteness (distance from the capital city), reducing concerns that any post-shock differences stem from pre-treatment characteristics. Third, and most importantly, key outcomes show similar trends across these tehsils prior to deregistration, indicating parallel pre-trends and supporting our assumption of no differential post-shock trends in potential outcomes.

We first verify that the deregistration shock substantially affected NGO presence and consequently NGO activity in more-treated tehsils. We find that tehsils more affected by the shock have 10 fewer NGOs relative to less-treated tehsils. This is a 28 percent decrease in the number of NGOs.[6] This decrease in NGO presence translates into lower NGO activity. We find that the decrease in NGOs results in fewer individuals receiving

[5]More-treated tehsils are where the proportion of NGOs deregistered is higher than the overall median, and less-treated tehsils are where the proportion of NGOs deregistered is equal to less than the median.

[6]While this effect is mechanical and expected due to the construction of the treatment variable, it provides a useful measure of the shock's magnitude.

monetary benefits, particularly in rural areas. Specifically, those in more-treated rural areas are 0.8 percentage points less likely to receive any monetary benefits immediately after the deregistration shock.[7] This represents a 61.4 percent decrease in the likelihood of receiving monetary benefits. As for the intensive margin, we find that there is a PKR 750 ($5) or 48.5 percent decrease in the amount of monetary benefits received by individuals in more-treated rural areas. We also find evidence of a lower likelihood of NGOs installing household's water delivery systems. This evidence clearly indicates that NGO activity significantly decreased post-shock in more-treated tehsils compared to less-treated ones.

After establishing the deregistration shock's impact on NGO presence and activity, we examine downstream effects on households, firms, and communities. We develop a model in which households maximize utility based on consumption, leisure, and investments in essential services such as education and healthcare. The model predicts that a decrease in NGO presence lowers household investment in these services, with the magnitude of the effect depending on the availability and substitutability of government provision. We test four predictions: (1) NGO closures disproportionately affect girls' human capital investments;[8] (2) urban households experience larger declines in education, while rural households face larger declines in healthcare;[9] (3) governments attempt but fail to fully substitute for NGOs; and (4) firms are indirectly affected through local demand, labor, and business environment channels.[10]

Our empirical results broadly support these predictions. Starting with education outcomes, we find that a decrease in NGO activity leads to a reduction in household investment in education: children in more-treated tehsils are 4 percentage points less likely to attend non-government schools than those in less-treated tehsils. However, the expected larger effect for girls is not confirmed; both boys and girls experience similar declines, suggesting that NGO withdrawal broadly affects school attendance rather

[7]Monetary benefits refer to income-related assistance, such as charity and pensions. This variable is relevant because it captures the financial support and donations typically provided by NGOs to the community.

[8]NGOs often target barriers faced by girls – such as restrictive norms and mobility constraints – lowering their effective cost of accessing education and health services. When NGOs withdraw, these costs rise disproportionately, leading to larger declines for girls than boys.

[9]In urban areas, where education demand and returns are higher (Nazar & Chaudhry, 2017), NGOs lower costs by providing affordable schools. Their closure thus reduces education use more in urban areas. In contrast, rural areas have lower-cost schooling but limited access to healthcare facilities (Awoyemi et al., 2011); 92% of rural households in Punjab live over 5 km from the nearest hospital (Andrabi et al., 2020). NGO withdrawal therefore has stronger effects on rural healthcare.

[10]NGOs can affect firms through three indirect pathways. The *household demand channel* operates when NGO closures lower household income and consumption, reducing demand for locally produced goods. The *labor market channel* reflects firms' response to reduced productivity and lower wages following dampened labor demand. The *business environment channel* captures the loss of NGO advocacy and coordination roles that previously helped resolve local issues such as power outages and government responsiveness.

than widening gender gaps. Urban households experience a larger decline in education use than rural households, consistent with the higher baseline cost and demand for education in urban areas. Moreover, while primary and middle school-aged children often substitute to government schools, secondary school-aged children who drop out do not, particularly in urban areas. For those who do substitute, learning quality may suffer (Banerjee & Duflo, 2011). Thus, although government schools absorb some of the displaced students, they fall short of fully compensating for the services previously provided by NGOs, especially at the secondary level.

Next, we examine household healthcare choices to understand how the reduction in NGO activity affects maternal and child health outcomes. We find that a decrease in NGO presence leads to lower prenatal care in more-treated tehsils, particularly among rural households, where pregnant women are 10 percent less likely to receive prenatal care. This decline has meaningful implications: reduced prenatal visits are associated with higher risks of maternal and infant mortality, preterm births, and developmental challenges (Vintzileos et al., 2002). We also observe lower immunization rates for girls in more-treated tehsils relative to less-treated ones, especially in rural areas. Although the government initially increases the number of health centers to offset the closure of NGO-run facilities, this response is temporary and not sustained over time. These findings highlight the government's limited capacity to permanently substitute for NGOs, underscoring the critical role NGOs play in ensuring the health and well-being of mothers and children in underserved communities.

At the firm level, NGO closures lead to a deterioration in the local business environment. Firms in more-affected tehsils report more frequent power outages and higher sales losses due to these disruptions. The effects are concentrated among small firms, which are more vulnerable to local shocks and lack financial buffers. We also observe a decline in labor costs among small firms, consistent with weaker labor demand in areas with fewer NGOs. Although the coefficient on firm sales is negative, it is not statistically significant, suggesting that NGO closures did not directly reduce firm revenues but likely increased operational challenges. Taken together, these results indicate that NGO activity helps sustain a stable business environment by facilitating coordination and prompting government responsiveness, and that NGO withdrawal leaves firms more vulnerable to local disruptions.

Turning to community-level outcomes, we examine three key dimensions: economic development, public (dis)content, and violence against women. We measure economic development using night-time light intensity and find that reduced NGO presence leads to slower local growth. Five years after the closures, more-treated tehsils record a 0.09 standard deviation decline in night lights intensity—equivalent to an 8 percent drop in economic activity. This effect remains robust to the Rambachan–Roth sensitivity analy-

sis, which confirms that the estimated decline persists even under moderate deviations from parallel pre-trends (Rambachan & Roth, 2023). We also observe a corresponding reduction in household incomes: annual income in more-treated tehsils falls by PKR 6,800 (about $48), or roughly 8 percent, relative to less-treated areas.

To assess public (dis)content, we use data on demonstrations and riots and find an increase in protest activity following NGO closures, suggesting growing local dissatisfaction. Finally, we measure violence against women using the number of female admissions to government-run shelter homes. Admissions rise notably in more-affected areas, particularly during and immediately after the COVID-19 lockdown in 2020, pointing to the protective role NGOs often play in supporting women's safety and welfare.

Bringing the results together, a clear pattern emerges. NGO closures first affect households by reducing access to education and healthcare, particularly for girls and rural families. These declines at the household level feed into the local economy, where weaker household demand and reduced service provision translate into lower labor costs and a more fragile business environment, especially among small firms. At the community level, these localized disruptions accumulate into broader economic slowdown and social strain: night-time light intensity declines, annual incomes fall, and public unrest and violence against women increase. Taken together, the evidence shows that NGOs play a critical role in sustaining household welfare, firm stability, and overall community well-being.

Our findings are robust to several checks, including randomization inference and alternative treatment definitions. Most notably, we conduct a placebo test that provides strong validation of our causal interpretation. In this test, we intentionally redefine the treatment variable to include the deregistration of NGOs unrelated to the outcome sector – for instance, linking education outcomes to the deregistration of non-education NGOs, and health outcomes to the deregistration of non-health NGOs. Since these unrelated NGOs should not directly affect education or health outcomes, significant effects would indicate spurious correlations. Instead, we find no significant effects across all specifications, confirming that our main results are indeed driven by the reduction in education- and health-related NGO activity. We further test for correlations between NGO deregistration and other time-varying region characteristics, such as total COVID-19 cases, and find no systematic relationship.

Our work relates to and builds on several literatures. First, we contribute to the literature on NGOs. Descriptive studies often document the activities, resources, governance structures, and location choices of NGOs (Barr et al., 2005; Fruttero & Gauri, 2005; Gauri & Galef, 2005). Other qualitative studies explore the challenges faced by NGOs (Jamali et al., 2003) or address whether NGOs alleviate poverty and contribute to sus-

tainable community development (Banks & Hulme, 2012; Williams, 2010; Nikkhah & Redzuan, 2010). We provide novel quantitative causal evidence on the effectiveness of NGOs, thereby complementing these qualitative studies.

We also add to an emerging body of literature comparing the effectiveness of interventions delivered by NGOs versus governments. For example, post-disaster rebuilding quality in Indonesia is found to be lower when implemented by the government rather than by donors (Henderson & Lee, 2015). Similarly, NGOs are more likely than the government to target the hardest-hit areas following a hurricane in Nicaragua (Fitch-Fleischmann & Kresch, 2021). In the education sector, a study of primary rural schools in China finds that a computer-assisted learning program increased students' achievement when implemented by NGOs, but not by the government (Mo et al., 2020). Similarly, a contract teacher program is found to be more effective when implemented by an NGO (Bold et al., 2013). A sanitation intervention in Indonesia yielded positive health benefits when implemented by World Bank contractors, but not by local governments (Cameron et al., 2019). Usmani et al. (2022) find that prior engagement with target communities enhances the effectiveness of interventions, such as cooking stove adoption. Vivalt (2020) examines impact evaluations to find that government-implemented programs have smaller effect sizes than those implemented by NGOs. While these studies focus on specific interventions, our paper takes a broader approach by evaluating NGOs that provide a wide range of services, including operating schools, running health centers, and delivering essential services like medicine and ambulance support in resource-constrained communities.

To our knowledge, ours is one of the first papers to estimate the causal impact of NGOs on fostering development and improving welfare in the communities they serve. Unlike previous studies that focus on individual projects, we analyze outcomes at the regional level, comparing development outcomes in areas with more and fewer NGOs. This larger unit of analysis allows us to capture the net effect, including both the direct effects of NGO withdrawal and any indirect responses from the government or other NGOs. Instead of directly comparing NGOs and government interventions, we examine how overall development is influenced when NGOs exit, thus capturing the broader impact of their withdrawal on development outcomes in the affected regions.

We also contribute to the literature on the interrelated roles of governmental and non-governmental institutions, which examines whether governments and NGOs act as collaborators, substitutes, or contractors (Makoba, 2002; Batley & Larbi, 2004; Brass, 2016; Rajabi et al., 2021; Soeters & Griffiths, 2003). Deserranno et al. (2024) provide evidence from rural communities, showing that NGO entry reduces the supply of government workers and health services in areas where the government presence was initially strong, but increases health services in areas lacking government provision.

Their work suggests that NGOs can crowd out government efforts.

Our paper extends this discussion by examining the effects of NGO exit on government activity, thereby shedding light on the ability or lack thereof of governments to fill the gap left by NGO closure. Our findings indicate that while there is an initial rise in government activity following NGO exit, particularly in the health sector, this increase is not sustained in the long term. Similarly in education, government schools fail to absorb the students who drop out of NGO-run secondary schools. Thus, contrary to the idea that NGOs crowd out government efforts, our findings suggest that the government, with limited financial resources and perhaps weak governance, lacks the capacity to permanently substitute for NGO services, making NGOs an essential part of the development process.

The rest of the paper is structured as follows. In Section 2, we provide the background and context of the study. Section 4 outlines our conceptual framework and presents the hypotheses derived from our model. Section 5 describes the data sources and key variables. Section 6 explains our empirical strategy. Section 7 presents the empirical findings. Finally, Section 9 summarizes the main conclusions and discusses policy implications.

2 Context

Our goal is to understand whether NGOs are effective in improving households' access to essential services and fostering economic development in the regions they serve. It is important to highlight the type of NGOs we discuss in our paper. We are not focusing on international NGOs, such as Save the Children or BRAC. Instead, we are examining small-scale NGOs that are established locally to serve their communities. These NGOs typically rely on donations from community members, and bridge the gaps left by lack of government services, operating in diverse sectors including education, healthcare, women's rights, and disaster relief.

To estimate the impact of NGOs, a naive approach would be to regress the outcome of interest on the number of NGOs operating in a region. However, ordinary least squares (OLS) estimates will be biased due to reverse causality, simultaneity, and nonrandom selection. Specifically, regions with more NGOs might differ systematically from those with fewer NGOs. NGOs might be more concentrated in poorer areas with greater needs, or in regions with better infrastructure that facilitates their operations, both of which would lead to selection bias. To address these issues, we leverage an exogenous change in NGO presence across tehsils in Punjab, Pakistan. There are 144 tehsils in Punjab, and these tehsils have populations ranging from tens of thousands to several

hundred thousand people (an average population of 750,000). The change in NGO presence across the tehsils was driven by the Pakistani government's efforts to comply with the Financial Action Task Force's (FATF) action plan, in order to be removed from the grey list.

2.1 Financial Action Task Force (FATF)

Established in 1989 by the G7, the FATF is an inter-governmental body dedicated to combating money laundering. In 1990, the FATF issued a comprehensive report with recommendations to fight money laundering. In 2001, the mandate of the FATF expanded to include combating terrorist financing. Since then, the FATF has continuously revised its recommendations to strengthen global measures against money laundering, terrorist financing, and the proliferation of weapons of mass destruction.[11]

FATF Grey and Black Lists. The FATF identifies countries with inadequate measures to combat money laundering and terrorist financing and places them on a grey list. Grey-listed countries formally commit to rectifying their deficiencies in cooperation with the FATF. Failure to meet these commitments can lead to the country being blacklisted, resulting in potential economic sanctions imposed by the FATF member nations. As of June 2023, 26 countries, including Tanzania, Uganda, Nigeria, Yemen, and Syria, were on the grey list. Iran, North Korea, and Myanmar were on the black list.

FATF and NGOs. One of the key recommendations for grey-listed countries is to ensure that NGOs are not being used to finance terrorism or being exploited by terrorist organizations. For instance, NGOs may raise funds that are diverted to terrorist groups instead of being used for development efforts. Some NGOs may even have operational ties with terrorist entities or support terrorist recruitment efforts through their programs or activities. These risks underscore the need for strict oversight and regulation of NGOs, as emphasized by the FATF.

2.2 Pakistan's Action in Response to FATF's Grey-Listing.

In June 2018, Pakistan was placed on the grey list by the FATF.[12] In response, Pakistan required all NGOs to submit their financial records. NGOs that failed to submit

[11] The FATF has 37 countries and two regional organizations as members. Countries include Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, India, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, Portugal, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Türkiye, United Kingdom, and the United States. The European Commission and the Gulf Cooperation Council (GCC) are member organizations.

[12] The FATF grey-listed Pakistan in previous years as well, specifically from 2008-2010 and 2012-2015. However, during those periods, Pakistan did not respond as rigorously by deregistering NGOs.

financial reports on time were deregistered. However, many NGOs were unaware of this requirement because provincial governments requested this information through a one-off newspaper advertisement rather than through official letters.

Figure 2 shows the newspaper advertisement printed by the Punjab government. It was published in the leading newspaper in Punjab, Dawn News, on June 30, 2019. As highlighted in the red box, the advertisement was confined to a small corner on one of the last pages of the newspaper. It was in Urdu, the local language, and gave all NGOs two weeks to submit their financial documents to the registration authority. The notice warned that failure to comply would result in deregistration. This advertisement appeared only in this single edition of the newspaper and was not published in any other newspaper. We know this because the registration authority, the Social Welfare Department, follows a government policy that advertisements of local interest, such as public notices, can only be published in one Urdu national newspaper and one regional newspaper (Government of Punjab, 2024). In this case, Dawn was chosen as both the national and regional newspaper. We confirmed this by reviewing online newspaper archives and found no evidence of the notice being printed on any other date. This inadequate dissemination of information led to significant non-compliance among NGOs.

Additionally, local NGOs typically rely on registers for record-keeping rather than maintaining formal audit reports. So even if they were aware of the newspaper advertisement, it was challenging for them to comply with the government's requirements (Dawn, 2020). Between July and August 2019, the provincial governments deregistered NGOs that did not comply. Once deregistered, the NGOs were formally notified to not continue their activities, their bank accounts were frozen and premises locked: 1,298 out of 5,156 (25%) NGOs were deregistered across 144 tehsils in Punjab, which is the focus of our paper.

Refer to Figure 3 for a timeline of these events. Figure 4 maps the proportion of NGOs deregistered across 144 tehsils in Punjab, Pakistan, where the considerable variation across tehsils is evident. This variation is what we leverage in to estimate the causal impact of NGOs on development outcomes.

3 Survey with Non-Governmental Organizations

To complement the administrative data and better understand what occurred on the ground after the NGO closures, we conducted a targeted phone survey of both deregistered and functional NGOs in Punjab in September 2025. The survey aimed to document how the government's regulatory actions affected NGO operations and how organizations responded. This exercise moves beyond anecdotal accounts and newspaper

reports, providing systematic evidence of post-closure dynamics.

We contacted 260 NGOs – 87 functional and 173 deregistered – drawn randomly from government records. Response rates were substantially lower among deregistered NGOs due to invalid or inactive contact information, consistent with their reported closure. The surveyed NGOs operated across multiple sectors, including education (40%), health (42%), and women's empowerment (25%), with several engaged in more than one area.

3.1 Verifying NGO Status and Post-Closure Outcomes for NGOs

Among the 40 NGOs that completed the survey, 21 were inactive and 19 were active at the time of the interview. All 20 NGOs listed as deregistered in government records confirmed that they were no longer active, while 19 of the 20 functional NGOs reported continued operation. The close alignment between administrative and self-reported activity status reinforces confidence in the accuracy of the administrative data.

To understand the organizational consequences of deregistration, we asked NGOs what happened to their employees, assets, and remaining funds after closure.

Workers. Among surveyed organizations, 45% reported that laid-off workers started their own businesses, 25% said their employees joined other NGOs, and 20% indicated that their staff found jobs elsewhere.

Assets. About 30% of NGOs reported having no assets at the time of closure. Among those that did, several noted that their assets were personal and remained with them, while others donated or sold them. Around 10% transferred their assets to the government, and a small share (5%) reported that their assets were rented and returned to the owners.

Funds. When asked about remaining cash or donations, 20% reported frozen bank accounts with unspent funds, while about 70% said no funds were left. This pattern is not unexpected, as NGOs may be reluctant to discuss financial matters in detail with enumerators.

3.2 Differences between De-registered and Functional NGOs

The survey collected comparable information from both deregistered and functional NGOs, allowing us to examine whether these two groups differ in their awareness, perceptions, and operations. Table 1 summarizes these differences.

Awareness of the Government Notification. Understanding NGOs' awareness of the government notification, which was issued as a small print advertisement, helps explain

why compliance varied across regions. Only 5% of deregistered NGOs recalled seeing the notice requesting submission of registration documents, compared with 45% of functional NGOs, a difference significant at the 1% level (Table 1, row 1). This sharp contrast suggests that many NGOs were removed from the registry simply because they were unaware of the government's request, consistent with anecdotal accounts and newspaper reports indicating that the notice went largely unnoticed. Among those who did recall the advertisement, all reported submitting the required documents.

Source of Funding and NGO Size. As shown in Table 1, the most common source of funding for both groups of NGOs was personal contributions from founders or staff (70% among deregistered and 65% among functional NGOs). About 20% of NGOs in each group reported raising funds through community fundraising activities or donation camps, and 10% of functional NGOs reported collecting funds directly from friends or family.

Table 1 also shows the average number of employees among functional NGOs was about 29, compared with 21 at the time of closure for deregistered NGOs, though this difference is not statistically significant.

Perceptions of NGO Effectiveness Respondents consistently emphasized the central role of NGOs in local development, describing them as *"the eyes and ears of society"* that *"listen to people's problems and help resolve them."* Several respondents underscored NGOs' ability to act as a bridge between citizens and the state, explaining that they *"raise people's voices and convey their concerns to the government."* Others highlighted their focus on empowerment, particularly of women, noting that *"through education and training, women become more self-reliant."*

As shown in Table 1, across both groups, a large majority agreed that NGOs are important for improving community development (90% of deregistered and 100% of functional NGOs) and that shutting down NGOs reduces access to education and healthcare (65% and 80%, respectively). About three-quarters of respondents in both groups believed that NGOs deliver services more effectively than the government, while roughly 70% agreed that NGO presence helps reduce social problems and local conflict. Several also noted that NGO activity supports local businesses. None of these differences between deregistered and functional NGOs were statistically significant.

Perceptions of Service Quality. When asked about preferences for essential services, most respondents believed that communities prefer NGO-run schools and clinics over government alternatives. Many attributed this to greater attention, accessibility, and accountability. One respondent summarized: *"In NGO schools, teaching quality is better, and teachers pay attention to every student."* Others pointed to inclusivity and cost, noting that *"education and books are free, and everyone can attend regardless of back-*

ground." Still, some acknowledged the advantages of public provision, for instance, one respondent mentioned that *"Government schools have better facilities and more qualified teachers."*

A similar pattern emerged in healthcare. NGO-run clinics were praised for their accessibility and care. One respondent mentioned that *"Doctors give full attention to patients and provide free medicine,"*, while others emphasized their cleanliness and responsiveness compared to public hospitals. Yet several recognized the state's broader capacity: *"Government hospitals have more facilities and better medicines."* Overall, NGO leaders described their role as complementing rather than replacing the state and that of filling critical gaps where public systems are limited.

Support for NGOs. Finally, when asked how the situation for NGOs in Pakistan could be improved, most respondents emphasized the need for government support, simpler registration procedures, and greater access to funding and training opportunities. Many echoed the view that *"the government should provide funds and projects to NGOs"* and *"make the registration process easier."* Some called for greater recognition and collaboration, urging that *"the government should appreciate and respect NGOs and work together with them."* Deregistered NGOs were significantly more likely than functional ones to emphasize these points, reflecting the barriers they faced when their registrations were canceled.

4 Conceptual Framework

In this section, we contextualize how a decrease in NGO presence would impact households' investment in essential services such as education and health, firm activity, and broader community outcomes such as economic development, public discontent, and violence against women. We then present a simple model to illustrate how NGO closures influence household decisions to use essential services and outline several testable predictions evaluated using the natural experiment in Punjab, Pakistan.

4.1 Model Overview: Contextualizing the Impact of a Decrease in NGO Presence

Impact on Households. Consider a region l with a representative household that derives utility from consumption, leisure, and investments in essential services such as education and health. Both non-governmental organizations (NGOs) and the govern-

ment supply these services.[13] However, government resources are limited and may not meet all local needs.

Suppose the region initially has x NGOs performing functions such as running schools, operating health centers, and offering financial or training support. These NGOs are altruistic, funded primarily through community donations, and aim to maximize social welfare subject to their budget constraints. Now, an external policy shock forces n NGOs to shut down, reducing their number from x to $x - n$.

We analyze how households respond to this decline in NGO presence, particularly in their investment decisions in education and health. When NGO-run schools close, children who were enrolled in them must either transfer to government schools or drop out. If the government cannot expand supply quickly or existing schools are at capacity, dropout rates increase. Similarly, when health NGOs close, the number of operating clinics falls, reducing access to healthcare. The government may attempt to fill this gap by opening additional facilities or increasing service provision, but its fiscal and administrative constraints may limit its ability to sustain these efforts over time.

Impact on Firms. Now consider a representative firm z operating in the same region. The firm is linked to households through two key markets: the *goods and services market* and the *labor market*. In the goods market, households purchase goods produced by the firm, while in the labor market, the firm hires workers from these same households and pays wages in return. When NGO activity declines from x to $x - n$, firm outcomes can be affected through three main channels:

(i) **Household Demand Channel.** NGOs lower the effective cost of accessing education and healthcare, enabling households to invest more in human capital. These investments increase productivity and income, raising local demand for goods and services. When NGOs close and these services become more costly or less accessible, households may reduce spending on education and health, slowing human capital accumulation and income growth. This decline in purchasing power reduces demand for locally produced goods, potentially lowering firm sales.

(ii) **Labor Market Channel.** A fall in household income and consumption can lead firms to scale back production, reducing labor demand and pushing wages downward. Lower wages further weaken household income and consumption, creating a feedback loop that amplifies the initial shock.

(iii) **Business Environment Channel.** NGOs also contribute to a supportive business environment by facilitating local coordination and raising operational issues with

[13] While the private sector also provides services such as education and healthcare, it operates with a profit motive, unlike NGOs and the government, which focus on community welfare. This paper focuses on non-profit and public institutions.

government authorities. Through such engagement, they can help firms access inputs like utilities or expedite bureaucratic procedures. When NGOs exit, these coordinating and advocacy roles weaken, leading firms to face higher operating costs and more frequent disruptions, such as power outages or slower government responsiveness.

Impact on Regional Economic Development. We now extend this intuition from a single household and firm to the regional level, where multiple households and firms interact. When many households reduce consumption and firms simultaneously scale back production, aggregate output declines. We capture these effects using night-time light intensity, a widely used proxy for local economic activity and development (Henderson et al., 2012).

Public (Dis)content and Violence Against Women. Beyond economic outcomes, a reduction in NGO presence may also affect social stability and well-being. When NGOs withdraw, communities lose access to the social support networks that help meet daily needs and mediate grievances. As these needs go unmet, frustration and dissatisfaction with local governance may rise, sometimes manifesting in protests or riots.[14] NGOs also play an important role in supporting women through legal aid, counseling, education, and awareness programs to combat gender-based violence (Khanam & Meem, 2018). Their closure removes these protective channels, potentially increasing women's vulnerability to violence. To evaluate these dimensions, we measure public discontent using the number of demonstrations and riots and violence against women using admissions to government-run shelter homes for female victims of abuse.

If NGOs are effective and the government cannot fully replace their role, we should observe a decline in regional economic development, an increase in public unrest, and higher rates of violence against women following their closure. Conversely, if NGOs are largely ineffective, their exit would have little impact on average outcomes. It is also possible that some NGOs were overlapping or poorly coordinated, in which case their closure could improve efficiency by reducing duplication and enabling the remaining NGOs to operate more effectively.

This context motivates our model, in which a household maximizes utility by allocating limited resources to consumption, leisure, and essential services such as education and health. Our framework builds on Usmani et al. (2022), who incorporate technology adoption (take-up of improved cookstoves) into a rural household's utility function and show how it is shaped by NGO activity. In contrast, our model focuses on how NGO activity influences household investment in essential services and extends beyond

[14]For example, in Bangladesh, protests and riots in June 2024 were triggered by frustration over economic hardship, lack of services, and unmet social needs (Amnesty International, 2024).

rural settings. We also incorporate government provision that adjusts endogenously in response to changes in NGO presence. The next section presents the details of the model.

4.2 Model Set-up

We consider a utility-maximizing household with male and female members indexed by $i \in \{m, f\}$. The household seeks to maximize its utility U, which depends on consumption c, leisure l, and the use of essential services s_i such as education and healthcare (human capital). Formally, the household's utility maximization problem is:

$$\max U = u(c, l, s_i) \tag{1}$$

subject to the budget constraint:

$$y + w \cdot (T - l) = c + p_{s_i}(\epsilon, g) \cdot s_i \tag{2}$$

where y represents the household's total exogenous income, T is the total time available to the household, l denotes leisure, w is the effective wage rate, and c is total consumption. The term s_i represents the use of essential services by individual i, where $i \in \{m, f\}$. The price of these services is denoted by p_{s_i}, which differs between males and females.[15] We assume that $p_{s_f} \geq p_{s_m}$, as there may be additional costs for females due to constraints such as restrictive social norms and safety concerns. Moreover, we assume that the price of essential services p_{s_i} is a function of both NGO activity ϵ and government activity g. The household's utility function $U(c, l, s_i)$ is assumed to be twice differentiable, continuous, and concave.

We make the following assumptions about how the price of essential services s_i changes with changes in NGO activity ϵ and government activity g, respectively:

$$\frac{\partial p_{s_i}(\epsilon, g)}{\partial \epsilon} < 0 \tag{3}$$

$$\frac{\partial p_{s_i}(\epsilon, g)}{\partial g} < 0 \tag{4}$$

Equation 3 states that, as NGO activity ϵ increases, the price of essential services p_{s_i}

[15] The price p_{s_i} reflects the *shadow price* of accessing essential services for individual i. This includes both the direct market costs and the implicit costs arising from non-market barriers, particularly for women, such as restrictive social norms and mobility constraints. The dependence of p_{s_i} on NGO and government activity (ϵ and g) implies that external interventions can influence these shadow prices by reducing the barriers to access or subsidizing the cost.

decreases. This assumption is based on the fact that NGOs typically subsidize the provision of essential services such as education and healthcare, thereby lowering the out-of-pocket costs that households face when using these services. As a result, increased NGO involvement effectively reduces the financial burden on households. Equation 4 applies the same rationale to government activity g. Government initiatives, such as the provision of public education and healthcare through government schools and health centers, enhance the accessibility and affordability of these services. Public provision typically offers a more cost-effective alternative for households compared to private sector options, where the price of services may be significantly higher. Consequently, greater government involvement decreases p_{s_i} and makes essential services more affordable for households.

The Lagrangian for the household optimization problem is as follows:

$$\max_{c,l,s_i} \mathcal{L} = u(c, l, s_i) + \lambda \left[y + w \cdot (T - l) - c - p_{s_i}(\epsilon, g) \cdot s_i \right] \tag{5}$$

where λ is the Lagrange multiplier.

Solving the model (as shown in detail in Appendix A), we arrive at the optimal level of essential services s_i^* for each household member:

$$\frac{u_{s_i}}{u_c} = p_{s_i}(\epsilon, g) \tag{6}$$

where the left-hand side is the marginal benefit (MB) of essential services and the right-hand side is the marginal cost (MC) for individual i.

Following Usmani et al. (2022), we define the household welfare function $\pi(s_i, \epsilon, g)$, such that:

$$\left. \frac{\partial \pi(s_i, \epsilon, g)}{\partial s_i} \right|_{s_i = s_i^*} = MB(s_i) - MC(s_i, \epsilon, g) = 0 \tag{7}$$

Equation 7 states that at the optimal level of essential services s_i^*, the marginal benefit (MB) of consuming more essential services exactly equals the marginal cost (MC) of obtaining them.

Further differentiating equation 7 with respect to the essential services s_i, we can write the following second-order condition:

$$\frac{\partial^2 \pi(s_i, \epsilon, g)}{\partial^2 s_i} = \frac{\partial MB(s_i)}{\partial s_i} - \frac{\partial MC(s_i, \epsilon, g)}{\partial s_i} < 0 \tag{8}$$

This second-order condition is negative due to the concavity of the household's utility function ($u'' < 0$), which implies diminishing marginal welfare from the use of essential services.

Changes in NGO Activity ϵ. Next, we analyze how changes in NGO activity ϵ affect the household's use of essential services s_i. We use equation 7 and the implicit function theorem as follows:

$$\frac{ds_i}{d\epsilon} = -\frac{\frac{\partial^2 \pi(s_i, \epsilon, g)}{\partial s_i \partial \epsilon}}{\frac{\partial^2 \pi(s_i, \epsilon, g)}{\partial s_i^2}} \tag{9}$$

Solving, we get:

$$\frac{ds_i}{d\epsilon} = -\frac{-\frac{\partial MC(s_i, \epsilon, g)}{\partial \epsilon}}{\frac{\partial^2 \pi(s_i, \epsilon, g)}{\partial s_i^2}} > 0 \tag{10}$$

The denominator in equation 10 is negative due to the concavity of the household utility function, per equation 8. The numerator is positive as we assume that the marginal cost of essential services is decreasing in NGO activity ϵ, per equation 3. Therefore $\frac{ds_i}{d\epsilon} > 0$, meaning an increase in NGO activity will lead to an increase in household use of essential services, and vice versa.

Changes in Government Activity g. A potential consequence of decreased NGO presence is a shift in government activity. Ideally, the government would step in to fill the service delivery gaps left by NGOs. In our model, we analyze how a potential change in government activity would affect a household's use of essential services. Again, we apply the implicit function theorem to understand the effects on s_i as follows:

$$\frac{ds_i}{dg} = -\frac{\frac{\partial^2 \pi(s_i, \epsilon, g)}{\partial s_i \partial g}}{\frac{\partial^2 \pi(s_i, \epsilon, g)}{\partial s_i^2}} \tag{11}$$

Therefore:

$$\frac{ds_i}{dg} = -\frac{-\frac{\partial MC(s_i, \epsilon, g)}{\partial g}}{\frac{\partial^2 \pi(s_i, \epsilon, g)}{\partial s_i^2}} > 0 \tag{12}$$

Equation 12 shows that an increase in government activity leads to greater household

utilization of essential services for both male and female members, as $\frac{ds_i}{dg} > 0$. This result holds because the denominator is negative due to the concavity of the household utility function, and the numerator is positive as government activity reduces the cost of essential services (as explained in equation 4).

4.3 Predictions

Based on our model setup, we introduce three predictions. After explaining these predictions in this section, we will test them using our natural experiment of the deregistration of approximately 25% of NGOs in Punjab, Pakistan.

Prediction 1: NGOs and Gender *Ceteris paribus, a decrease in NGO activity ϵ would lead to a larger reduction in household use of essential services (education and healthcare) for girls relative to boys. Specifically,*

$$\frac{ds_f}{d\epsilon} > \frac{ds_m}{d\epsilon}$$

where s_f and s_m represent the use of essential services by girls and boys, respectively. This prediction arises from the assumption that the marginal cost of essential services for girls is more sensitive to changes in NGO activity than it is for boys:

$$\frac{\partial MC(s_f, \epsilon, g)}{\partial \epsilon} > \frac{\partial MC(s_m, \epsilon, g)}{\partial \epsilon}$$

Referring back to equation 10, the numerator, which captures the sensitivity of the marginal cost, is larger for girls than boys, while the denominator remains the same. This implies that the overall effect of a decrease in NGO activity is more substantial for girls than for boys.

In many developing countries, including Pakistan, families tend to prioritize the education and healthcare needs of boys over those of girls (Dupas & Jain, 2021). Boys are often perceived as better economic investments, partly due to expectations of higher future earnings and the cultural norm that they will support their parents in old age (Winkvist & Akhtar, 2000). Additionally, girls face more significant barriers stemming from restrictive social norms and mobility constraints than boys.

NGOs often play a crucial role in reducing these barriers by subsidizing school fees, providing learning materials, and offering community-based education programs targeted at girls. In the healthcare sector, NGOs frequently organize door-to-door vaccination campaigns and other health services, making access easier and more affordable for girls and their families, who might otherwise face higher costs due to mobility restrictions and societal norms.

However, when NGO activity diminishes, the support provided by these organizations is significantly reduced. This withdrawal may lead to a disproportionate increase in the cost of accessing education and healthcare services for girls, as families lose the financial and logistical assistance that NGOs typically provide. Consequently, as NGO involvement decreases, the price of essential services may rise more for girls, resulting in a greater reduction in household investment in girls' education and healthcare relative to boys'.

Prediction 2: NGOs and Urban vs. Rural Households. *Ceteris paribus, a decrease in NGO activity ϵ leads to differential impacts on rural vs. urban households' investment in essential services.*

a. ***Education****: A decrease in NGO activity would lead to a larger reduction in household use of education for individuals in urban households compared to those in rural households. Specifically,*

$$\frac{ds_{i,educ,rural}}{d\epsilon} < \frac{ds_{i,educ,urban}}{d\epsilon}$$

where $s_{i,educ,rural}$ and $s_{i,educ,urban}$ denote use of education services for individuals in rural and urban households, respectively. This inequality arises from the fact that the marginal cost of education for urban households is more sensitive to changes in NGO activity than it is for rural households:

$$\frac{\partial MC(s_{i,educ,rural}, \epsilon, g)}{\partial \epsilon} < \frac{\partial MC(s_{i,educ,urban}, \epsilon, g)}{\partial \epsilon}$$

Referring back to equation 10, the numerator, which captures the sensitivity of the marginal cost, is larger for urban households than for rural households, while the denominator remains the same. Consequently, a reduction in NGO activity leads to a more significant decline in education service use for individuals in urban households than rural ones.

b. ***Healthcare****: A decrease in NGO activity would lead to a larger reduction in use of healthcare services for individuals in rural households than individuals in urban households. This relationship can be expressed as:*

$$\frac{ds_{i,hc,rural}}{d\epsilon} > \frac{ds_{i,hc,urban}}{d\epsilon}$$

where $s_{i,hc,rural}$ and $s_{i,hc,urban}$ denote use of healthcare services for individuals in rural and urban households, respectively. This is because the marginal cost of healthcare for individuals in rural households is more sensitive to changes in NGO activity than it is individuals in urban areas.

$$\frac{\partial MC(s_{i,hc,rural}, \epsilon, g)}{\partial \epsilon} > \frac{\partial MC(s_{i,hc,urban}, \epsilon, g)}{\partial \epsilon}$$

Referring back to equation 10, the numerator, which captures the sensitivity of the marginal cost, is larger for rural households than for urban households, while the denominator remains the same. The implication is that a reduction in NGO activity leads to a more significant decline in healthcare service use for individuals in rural households compared to urban ones.

We have split Prediction 2 into two parts due to the differing impacts of NGO activity on education and healthcare in urban and rural households.

In the case of education, urban areas tend to have a more established education infrastructure. However, the cost of education in urban settings can be substantial due to higher returns on investment and, consequently, greater demand (Nazar & Chaudhry, 2017). NGOs in urban areas often provide alternative schooling options by offering education at lower costs. As a result, a reduction in NGO activity would likely increase the financial burden on urban households, as they lose access to these subsidized educational services. In contrast, rural areas generally experience lower demand for education, and several low-cost options are already available – a median of five schools per village in Punjab (Andrabi et al., 2020). In such settings, an NGO-run school represents an additional low-cost alternative rather than the sole source of affordable education. Therefore, we do not expect a decrease in NGO activity to significantly raise education costs in rural areas, as the existing alternatives remain relatively inexpensive. Overall, we predict that a reduction in NGO activity will have a more pronounced impact on urban households, while rural households are less likely to experience substantial effects.

For healthcare, the expected outcome is reversed. Rural areas are often underserved in terms of healthcare infrastructure, making access to healthcare both costly and difficult due to limited availability and greater distances (Awoyemi et al., 2011). In contrast, urban areas typically have better access to established healthcare centers and services. Based on household surveys from 2019-2020, 92% of rural households in Punjab report living more than 5 kilometers from the nearest hospital, compared to only 8% of urban households. This disparity underscores the role NGOs play in rural settings by providing healthcare services that would otherwise be too distant and unaffordable. As a result, we expect a reduction in NGO activity to disproportionately impact rural households by increasing both the cost and difficulty of accessing healthcare. In urban areas, where healthcare infrastructure is more developed, the impact of reduced NGO involvement is likely to be smaller. Therefore, we predict that a decrease in NGO activity will have a more pronounced effect on healthcare use in rural areas than in urban ones.

Prediction 3: NGOs and the Government. *Ceteris paribus, the reduction in NGO sup-*

port is not fully compensated by increased government activity. That is,

$$\left|\frac{ds_i}{d\epsilon}\right| > \left|\frac{ds_i}{dg}\right|$$

which arises from the assumption that NGOs are more effective than the government in lowering the cost of essential services s_i, which can be expressed as:

$$\frac{\partial MC(s_i, \epsilon, g)}{\partial \epsilon} > \frac{\partial MC(s_i, \epsilon, g)}{\partial g}$$

Referring back to equations 10 and 12, the numerator, which represent the marginal cost sensitivity, is larger for NGOs compared to the government, while the denominator remains the same.

NGOs are often more flexible, innovative, and have focused strategies in delivering essential services. They can tailor their programs to meet the specific needs of communities and efficiently allocate resources, resulting in a greater reduction in the marginal cost (MC) of essential services when NGOs are active. Governments, while crucial in providing widespread services, may face bureaucratic inefficiencies, corruption, and slower response times. Therefore, their ability to lower the MC of essential services is less effective than that of NGOs. In fact, there is an emerging literature that highlights how NGOs are more effective than the government in implementing interventions related to education, sanitation, and mitigating the impact of natural disasters (Henderson & Lee, 2015; Fitch-Fleischmann & Kresch, 2021; Mo et al., 2020; Bold et al., 2013; Cameron et al., 2019; Vivalt, 2020). In our context, we propose that the government may initially attempt to fill the gap left by the decrease in NGO activity. However, due to its lower efficiency and potential resource constraints, the government cannot fully replicate the impact of NGOs.

Prediction 4: NGOs and Firm Outcomes. If NGO closures reduce households' use of essential services such as education and healthcare, human capital will decline over time. This decline – through both lower educational attainment and poorer health – can spill over to the local economy by weakening firm activity (Crook et al., 2011; Rettl et al., 2022; Shawa et al., 2024; Fink & Masiye, 2015; Kokkinopoulou et al., 2025; He, 2025). These effects are likely to operate through three main channels: household demand, labor market, and business environment.

a. *Household Demand Channel*: When NGOs are active, they support the development of human capital through education and health interventions, which enhance household productivity and long-term earning potential. Their closure reduces access to these services, slowing the accumulation of human capital and lowering income over time. As fewer households are able to sustain consumption, we expect firms, particularly small

consumer-facing enterprises, to experience weaker sales and reduced production.

Therefore, we expect regions that experience larger reductions in NGO activity to see declines in firm sales, with smaller and more locally oriented firms being more affected because they have a limited customer base and fewer options to reach other markets.

b. ***Labor Market Channel***: Lower household productivity and slower firm output reduce labor demand. Firms may respond by cutting back on hiring or lowering wages, which further limits local income growth and reinforces the local downturn.

Therefore, we expect that in tehsils with greater NGO closures, firms will offer lower wages, with stronger effects for small firms that lack financial buffers.

c. ***Business Environment Channel***: NGOs often act as the eyes and ears of the community. They help communicate local grievances to government authorities and advocate for improvements in public service delivery. By raising concerns about issues such as frequent power outages or delays in administrative processes, NGOs play an important role in maintaining a supportive business environment. Their presence ensures that problems affecting firms are noticed and addressed.

When NGOs exit, this channel of communication weakens. Without their monitoring and advocacy, local problems may go unreported and unresolved, leading to a deterioration in the business environment. We expect regions with greater NGO withdrawal to experience higher operational disruptions, such as longer outages and slower government responsiveness. These adverse effects are likely to be more severe for smaller firms that rely heavily on stable local conditions and have limited capacity to absorb such shocks.

5 Data

We aim to leverage the tehsil-level quasi-random variation in NGO presence generated by the grey-listing of Pakistan by the Financial Action Task Force (FATF) and the subsequent action by the Punjab government to deregister non-compliant NGOs. In this section, we first discuss how we measure the change in NGO activity across tehsils. We provide detailed information on the data sources and the definitions of our main treatment variables. Next, we discuss data sources for our outcomes.

5.1 NGOs Data

To measure tehsil-level exposure to changes in NGO activity, we use two sets of information. First, we use data on the NGOs that were deregistered in July and August 2019.

We have access to propreitary data on deregistered NGOs from the Punjab Social Welfare Department (SWD). This dataset includes detailed information such as the names of the NGOs, their addresses, registration numbers, and dates of deregistration.[16]

Second, we use data on the stock of NGOs operating in each tehsil just before FATF's grey-listing of Pakistan, i.e., in May 2018. To compile this dataset, we followed several steps. The Punjab Social Welfare Department (SWD) did not have a consolidated dataset with information on all NGOs but maintained reports of NGOs across different districts in Punjab. These reports were last updated in 2018, making them suitable for our purposes as they reflect the situation just before the deregistration shock. Additionally, we used data from the Federal Board of Revenue (FBR), which also shares information on NGOs. The reports from the Punjab SWD and the FBR mostly include similar information: the names of NGOs, their addresses, functions, geographical areas of operation, funding sources, etc.

For our analysis, we integrate three datasets: the data from SWD on deregistered NGOs, data from the reports from SWD, and data from the FBR reports. We digitized these datasets and merge them using the names of the NGOs, which we clean before merging to ensure consistency. The majority of the NGOs match; however, 11% of NGOs in the FBR data are not in the data found in the SWD reports. We include these NGOs in our consolidated dataset to have a comprehensive set of NGOs.[17]

The next step was to identify the tehsil of each NGO. We had information on the names and addresses of the NGOs, but many addresses were incomplete and did not clearly indicate the tehsil. We cleaned the names and addresses and then used the Google Geocoding API to convert these addresses into geo-coordinates (latitude and longitude).[18] We then plotted these geo-coordinates on Punjab's tehsil-level shapefile using geographic information system (GIS) software to accurately determine the tehsil of each NGO.

The steps outlined above allowed us to gather comprehensive information on the stock of NGOs operating within each tehsil in Punjab as of 2018, as well as the NGOs that were subsequently deregistered. In 2018, there were 5,156 NGOs across 144 tehsils in Punjab, Pakistan, and 1,298 (25%) of these NGOs were deregistered between July and August 2019.

Using our novel dataset, we define our tehsil-level treatment variable to capture the spatial variation in the intensity of NGO deregistration.

[16]The data on deregistered NGOs also contains information on whether the deregistered NGOs contested their closure via court cases and whether they were restored following the court trials (only 2% pursued re-registration through the courts).

[17]Our results are not sensitive to including these 11% of NGOs.

[18]The output generated by the Google Geocoding API was manually validated for accuracy.

5.1.1 Constructing the deregistration shock

The following steps allow us to calculate the intensity of NGO deregistration across tehsils. For each tehsil l, we calculate the total number of NGOs in 2018 before the FATF shock and the total number of NGOs deregistered due to the FATF shock. We then calculate the proportion of NGOs deregistered in tehsil l as:

$$Prop_dereg_l = \frac{\sum_l NGOs_{l,dereg,2019}}{\sum_l NGOs_{l,total,2018}} \tag{13}$$

Continuous Treatment Variable. In equation 13, $Prop_dereg_l$ measures the intensity of deregistration in each tehsil l. For instance, consider a tehsil with 100 NGOs in 2018. Out of these, assume the government deregistered 40 NGOs as they did not comply with the requirement of submitting their financial documents by the deadline, shutting them down in July 2019. For this tehsil, the proportion deregistered is 40%.

Binary Treatment Variable. We also construct a binary treatment measure for ease of interpretation. Tehsils above the median are classified as treated, and those below or equal to the median are classified as control tehsils (henceforth, "more-treated" and "less-treated" tehsils, respectively). Based on this classification, 69 tehsils are more-treated, and 75 are less-treated.

Treatment Variable Based on the NGO Function. In our dataset containing information on all NGOs, we also have data on the functions of these NGOs. For example, we know whether an NGO was set up to work for women's welfare, education, healthcare services, etc. We tie the treatment variable to particular NGO functions for specific outcomes. For example, if the outcome is school attendance, we consider the share of education NGOs deregistered. If the outcome is vaccination rates, the treatment variable is constructed using health NGOs only. Thus, we define these function-specific treatment variables following the same procedure outlined above. We have both a continuous measure and a binary treatment variable for each function-specific category. By linking the treatment variables to the specific functions of the NGOs, we are able to more accurately assess the impact of deregistration on relevant outcomes.

5.1.2 Summary Statistics: NGOs

Table 2 presents summary statistics for the NGOs in our sample. We categorize the NGOs into two groups: those deregistered due to the FATF shock and those that continued to operate. Column (1) provides summary statistics for the deregistered NGOs, while column (2) presents statistics for the functional NGOs that were not deregistered and are still operating in the tehsils of Punjab, Pakistan. By the end of 2019, there were

1,298 deregistered NGOs and 3,858 non-deregistered NGOs.

Deregistered NGOs. Focusing first on the deregistered NGOs in column (1), these NGOs have been established for approximately 26 years. Only 1.6% have a foreign donor base, which means that they mostly rely on local donations and charity. Additionally, 11.7% have a woman in a leadership role, indicating that the majority are led by males. Most of these NGOs operate at or below the tehsil level.

In terms of their functions, Table 2 shows the proportion of NGOs involved in different activities. NGO functions are not mutually exclusive, and each NGO can be involved in multiple activities. For example, 26.5% of deregistered NGOs focus on education, 25.7% on health welfare, and 36.1% on women's welfare. There are also NGOs dedicated to youth welfare (17.9%), skill development (14.8%), religious education (4.5%), control of narcotics (0.2%), environment (2.3%), agriculture (0.4%), and financial support/microcredit (2.9%).

We also have information on the annual budget and reported assets for a subset of deregistered NGOs. As shown in column (1), the average annual budget is $5,500 (using the 2019 exchange rate). Additionally, 64.3% of deregistered NGOs report owning any assets; 1.3% own land or buildings, 4.6% own computers, and 0.8% own vehicles.

Functional NGOs. Turning to the functional NGOs in column (2) in Table 2, these NGOs have similarly been in operational for an average of 26 years. Only 3% rely on foreign aid, and 13.2% have a woman in a leadership role. Like the deregistered NGOs, the majority operate at or below the tehsil level.

Functional NGOs also focus on education (37.8%), health (39.6%), women welfare (44.3%), youth welfare (13.7%), skill development (21.5%), religious education (7.7%), control of narcotics (1%), environment (2.4%), agriculture (0.5%), and financial support/microcredit (7.4%). Financially, the annual budget for functional NGOs is significantly higher, averaging $20,500 (using the 2019 exchange rate). Additionally, 66.4% report owning any assets; 10.6% own land or buildings, 7.9% own computers, and 4.2% own vehicles.

Comparing Deregistered and Functional NGOs. Comparing the two groups, column (3) in Table 2 highlights the differences between deregistered and functional NGOs. Note that any level differences between deregistered and functional NGOs do not threaten the validity of our design as long as more vs. less treated tehsils exhibit no differential trends in potential outcomes following the deregistration shock. We support this assumption by demonstrating parallel pre-trends later in the analysis.

To compare the two types of NGOS, we regress each variable on whether the NGOs were deregistered, controlling for tehsil-level fixed effects. We report the p-value on the difference in column (3) in Table 2. We can see that deregistered NGOs have a

slightly shorter average duration of existence by 0.66 years, though this difference is not statistically significant. The reliance on foreign donors is higher among functional NGOs (3% compared to 1.6%), but again, this difference is not statistically significant. There is a slightly higher proportion of female leadership in functional NGOs (13.2% compared to 11.7%), which is also not statistically significant.

The functions of NGOs also show statistically significant differences; functional NGOs are more likely to be involved in education, health, women welfare, skill development, religious education, control of narcotics, and financial support/microcredit. The annual budget for functional NGOs is significantly higher, highlighting their greater resource availability. Asset ownership is also higher among them, with significant differences in the ownership of land or buildings, computers, and vehicles.

These differences suggest that smaller NGOs with fewer resources are more likely to be deregistered, perhaps due to their limited capacity to comply with regulatory requirements. They may not have the resources to maintain financial records or simply know about the requirement/newspaper advertisement to submit the documentation to the registration authority. On the other hand, functional NGOs, with their higher budgets and asset ownership, appear better equipped to meet these demands.

Consequently, the treatment effects we observe primarily reflect the Local Average Treatment Effect (LATE) of smaller, resource-constrained NGOs. While the effects of larger, more resourceful NGOs may differ, our findings provide valuable insights into the specific impacts of smaller NGOs' deregistration.

5.1.3 Summary Statistics: More vs Less Treated Tehsils

In this section and table 3, we examine the summary statistics for the more-treated and less-treated tehsils, focusing on their remoteness and access to information, as well as the presence of NGOs.

More-treated Tehsils. As shown in column (1) of table 3, the more-treated tehsils are, on average, around 192 miles from the capital city. A high percentage of households have access to various sources of information. Specifically, 94% of households have access to a mobile phone, and 57% have access to a television. Smaller proportions of households also have access to radio, newspapers, landline telephones, and computers.

Examining NGO presence, we find an average of 35 NGOs in these tehsils right before the FATF shock, with around 12 of them focused on education and health. Following the shock, approximately 14 NGOs, including 4 education and health NGOs, were deregistered in these tehsils.

Less-treated Tehsils. The less-treated tehsils are approximately 165 miles away from

the capital. These tehsils also show slightly better access to information, with more households having access to television and the internet. The total number of NGOs in these tehsils is 37, and the total number of deregistered NGOs is 4.

Comparing Connectivity, Information Access, and NGO Presence Between More- and Less-Treated Tehsils. To understand the differences between more-treated and less-treated tehsils, we regress each variable on the treatment status and using robust standard errors. The p-value is reported in column (3) of table 3. As shown, we find no statistically significant differences in most variables between the two groups. Nonetheless, any initial level differences between the more-treated and less-treated tehsils are acceptable as long as the parallel trends assumption holds, which we will verify in our analysis.

5.2 Other Data Sources and Key Outcomes

Pakistan Social and Living Standards Measurement (PSLM) Survey. Our main data source for individual-level outcomes is the PSLM survey which provides detailed information on social and economic indicators from randomly sampled households across all tehsils in Punjab, Pakistan. We construct a pooled dataset by combining cross-sectional data collected over five survey waves between 2013 and 2020. The PSLM survey is nationally representative, and we use sampling weights in our analysis.

Punjab Development Statistics (PDS). Our data source for the number of health centers across tehsils is the annual reports from the PDS. These reports provide information on the health sector in Punjab, including the number of small health centers and hospitals across different tehsils. We extract data from the 2014 to 2021 PDS annual reports, which are publicly available on the PDS website, to create an original dataset. This dataset includes the tehsil-level number of small health centers, hospitals, and government-run health centers, along with the number of beds available.

World Bank Enterprise Survey. For firm-level outcomes, our main data source is the World Bank Enterprise Surveys, which provide information on formal firms operating in Pakistan. The survey covers establishments with at least five employees. We obtained access to the tehsil-level location identifiers for surveyed firms through a request to the World Bank. For Pakistan, we use data collected in 2014 and 2022, the two most recent survey years for which tehsil-level location data were available. The dataset is not structured as a panel; rather, it consists of two repeated cross-sections of firms surveyed in these years.

The Enterprise Surveys use a stratified random sampling design based on firm size, sector, and geographic region to ensure representativeness of the non-agricultural pri-

vate sector. Sampling weights account for differences in selection probabilities across these strata, and we apply these weights in all firm-level analyses to obtain estimates representative of the underlying firm population.

VIIRS Night-time Lights. We measure economic development using night-time light intensity, as there is substantial evidence that it is a reliable proxy for economic development (Henderson et al., 2012; Chen & Nordhaus, 2011). The data source for night-time light intensity is the Visible Infrared Imaging Radiometer Suite (VIIRS) satellite; VIIRS captures night-time light intensity with high spatial resolution and records the data typically around 1:30 AM local time. We download the cloud-free annual night-time light intensity data for the years 2013 to 2023 from GeoQuery, a platform provided by AidData that allows for easy access of spatial data (Goodman et al., 2019)

Armed Conflict Location and Event Data Project (ACLED) Data. To obtain data on public contentment, we use the ACLED data for the years 2013 to 2023. The ACLED dataset offers geo-coded information on various types of conflict events across tehsils in Punjab (Raleigh et al., 2023). We specifically focus on demonstrations and riots, as our goal is to understand how a decrease in NGO activity affects public contentment.

Women's Shelter Homes Administrative Data. To measure the incidence of violence against women, we use the number of admitted cases in women's shelter homes, known as Dar ul Aman (DUA). Women are often referred to these government-run shelter homes by the courts. The residents include victims of domestic violence, physical and psychological abuse, rape, vanni and sawara cases (traditional practices involving forced marriage of minor girls), forced marriage, and economic abuse. DUA offers a range of essential services such as protection and institutional care (including free room and board), free medical and legal aid, psychological support through counseling, and religious, recreational, and vocational training.

We have proprietary monthly data on the admitted cases from January 2019 to December 2021. The data is at the district level, as each district has a shelter home that serves all tehsils within the district. Therefore, for the violence against women outcome, our analysis is conducted at the district-month level, with the treatment variable constructed using the proportion of NGOs deregistered in the district.

Census Data We use the 2017 Census data to obtain the total population for each tehsil. This allows us to weight the tehsil-level regressions with tehsil population as a share of the province total as weights. These weights help ensure that our results are representative at the household level across the province by giving proportionate influence to tehsils based on their population size. Additionally, we use the Census data on households' access to information in each tehsil. The Census records household access to newspapers, television, radio, internet, and other media, which we use to

assess the level of information access in each tehsil prior to the deregistration shock.

6 Empirical Strategy

6.1 Event Study Analysis

We evaluate the impact of NGOs on our outcomes using an event-study approach. This approach allows us to test for the presence of any pre-treatment differential trends in the outcome of interest between the more-treated and less-treated tehsils. For outcomes at the individual level (using the PSLM survey data), we estimate the following regression equation for individual i in tehsil l at time t:

$$y_{ilt} = \sum_{\tau=-6}^{1} \beta_\tau [\text{NGO}_l \times \mathbf{1}t = \tau] + \delta_l + \gamma_t + \epsilon_{ilt} \tag{14}$$

where y_{ilt} is an outcome of individual i in tehsil l at time t; δ_l and γ_t are fixed effects for tehsil and year, respectively. We cluster the standard errors at the tehsil level and include survey weights in all our regressions. NGO_l measures the tehsil-level intensity of NGO deregistration.

As discussed in Section 5.1.1, we have two versions of the tehsil-level intensity of NGO deregistration: a continuous version and a binary version. The continuous version is the proportion of NGOs deregistered in tehsil l, while the binary version equals 1 if the proportion of NGOs deregistered due to the FATF shock is higher than the median and 0 otherwise.

Our preferred measure of exposure for the individual-level outcomes is the binary measure: it allows for comparison between tehsils that faced high intensity of deregistration versus those with low or no deregistration. However, we repeat the analysis using the continuous intensity measure and include the results in Appendix C.[19]

Outcomes. We can categorize our individual-level outcomes into three main categories: education, health, and income. Education outcomes include whether a child aged between 5 to 16 years is attending an NGO-run school, attending a government school, and whether the child has dropped out of school. Health outcomes include whether a child aged less than 12 months has ever been immunized and if they have received specific vaccinations such as BCG, DPT, and polio.[20] Additionally, we consider whether

[19] As shown in Appendix C, the results from both the binary and continuous treatment variables show similar directional impacts. A majority of the results are also consistent in terms of statistical significance.

[20] The Bacillus Calmette-Guérin (BCG) vaccine is often administered at birth or during the first year of life and protects against tuberculosis. The Diphtheria, Pertussis, Tetanus (DPT) vaccine is usually

pregnant women between 18 to 25 years received prenatal care. Monetary outcomes include annual income, whether the individual has received any income benefits, and the amount of income benefits.

In addition to running individual-level regressions using the PSLM survey data, we also conduct event study analysis using data with cross-sectional variation at the tehsil level. For this tehsil-level data, we estimate the following regression equation for tehsil l at time t:

$$y_{lt} = \sum_{\tau=-\underline{t}}^{\bar{t}} \beta_\tau [\text{NGO}_l \times \mathbf{1}t = \tau] + \delta_l + \gamma_t + \epsilon_{lt} \tag{15}$$

where y_{lt} is an outcome in tehsil l at time t; δ_l and γ_t are fixed effects for tehsil and time, respectively. We cluster the standard errors at the tehsil level and include tehsil population weights in all our regressions. NGO_l measures the tehsil-level intensity of NGO deregistration. Similar to the individual-level specification, we have two versions of the treatment intensity: continuous and binary.

Outcomes. For this specification, the outcomes are the number of health centers and hospitals across tehsils, economic development, measured through night-time lights intensity, public contentment, measured by the number of demonstrations, and violence against women, measured by the number of admitted cases into women's shelter homes. While the the PSLM is a repeated cross-section so we only have one observation per individual, the tehsil-level outcomes in this specification vary with t. For instance, for the night-time lights data, we have annual data from 2014 to 2023, so t ranges from -5 to 5; for the ACLED data on demonstrations, we construct bi-annual periods, so t ranges from -13 to 8; for the violence against women data, we have monthly data from 2019 to 2021, so t is from -6 to 18.

Pretrend Analysis A key assumption of the event study approach is that there are no differential trends in the outcomes between the treated and control groups after the deregistration shock (parallel trends assumption). This assumption implies that the treatment and control groups would follow similar trends in the absence of treatment, making the control group a good counterfactual for the treatment group. An advantage of the event study approach is that it allows us to visualize pre-trends in the treated and control tehsils, which provides evidence in support of the parallel trends assumption. We illustrate these pre-trends for each of our outcomes using coefficient plots.

given in a series of shots during early childhood (at 2, 4, and 6 months) and protects against three diseases: diphtheria, pertussis (whooping cough), and tetanus. The polio vaccine is given in multiple doses, typically at 2 months, 4 months, 6-18 months, and a booster at 4-6 years. For DPT and polio, we are considering the administration of the first dose only.

6.2 Firm-Level Analysis: Difference-in-Differences

To estimate the impact on firm-level outcomes, we use data from the World Bank Enterprise Surveys for Pakistan, which include two survey waves: 2014 and 2022. These correspond to one pre-treatment and one post-treatment period relative to the NGO deregistration shock. Given this two-period structure, we implement a standard difference-in-differences (DiD) specification.

The regression equation is specified as follows:

$$y_{ilt} = \beta(NGO_l \times post_t) + \delta_l + post_t + \epsilon_{ilt} \tag{16}$$

where y_{ilt} is the outcome of firm i in tehsil l at time t. The variable $post_t$ equals 1 for 2022 (after the deregistration shock) and 0 for 2014 (before the shock). We include tehsil fixed effects (δ_l) and time fixed effects ($post_t$), and cluster standard errors at the tehsil level.

The variable NGO_l captures the tehsil-level intensity of NGO deregistration. As in the event study analysis in Equation 15, we use two versions of this measure: a continuous variable representing the proportion of NGOs deregistered in a tehsil, and a binary indicator equal to 1 if the tehsil experienced deregistration above the median level and 0 otherwise. All regressions apply firm-level survey weights provided by the World Bank to ensure representativeness.

Finally, we explore heterogeneity by firm size by estimating the same specification separately for firms with fewer than 20 workers and those with 20 or more workers. When doing so, we restrict the sample accordingly.

6.3 Pooled Difference-in-Differences

When estimating treatment effects, we use a pooled difference-in-differences specification rather than an event study. Pooling across years allows us to estimate the average post-treatment effect without splitting the sample by year, which helps preserve statistical power and avoids noisy year-specific estimates.

The regression equation is specified as follows:

$$y_{ilt} = \beta(NGO_l \times post_t) + \delta_l + \gamma_t + \epsilon_{ilt} \tag{17}$$

where y_{ilt} is an outcome of individual i in tehsil l at time t; $post_t$ is a binary variable that equals 1 for the years after 2018 (after FATF shock) and 0 otherwise. We also include

tehsil and time-fixed effects. We cluster the standard errors at the tehsil level. NGO_l is as defined in Equations 15 and 16.

6.4 Establishing the Impact on NGO Presence

To establish how NGO activity changed following the deregistration policy, we construct a two-period panel dataset at the tehsil level covering the pre- and post-deregistration periods. The pre-deregistration period corresponds to 2018, and the post-deregistration period corresponds to 2019. We then estimate a difference-in-differences regression to quantify how NGO presence changed after the policy shock:

$$total_NGOs_{lt} = \beta_0 + \beta_1(treat_l \cdot post_t) + \beta_2 treat_l + \beta_3 post_t + \epsilon_{lt} \tag{18}$$

where $total_NGOs_{lt}$ denotes the total number of NGOs operating in tehsil l at time t; $treat_l$ equals 1 if the tehsil is more-treated (i.e., the proportion of deregistered NGOs is greater than the median) and 0 otherwise; and $post_t$ is a binary variable equal to 1 for the post-deregistration period and 0 otherwise.

The coefficient β_1 captures the average change in NGO activity in more-affected tehsils relative to less-affected ones after the deregistration. This analysis provides the first step in our empirical framework, confirming that the policy led to a measurable decline in NGO activity before examining its downstream effects on households and firms.

We extend this analysis to examine how the deregistration affected specific types of NGOs, focusing on those providing education and health services. For each sector, we construct separate treatment variables based on the share of education or health NGOs deregistered. Accordingly, we estimate the following model:

$$total_NGOs_{type,lt} = \beta_0 + \beta_1(treat_{type,l} \times post_t) + \beta_2 treat_{type,l} + \beta_3 post_t + \epsilon_{lt} \tag{19}$$

where $total_NGOs_{type,lt}$ represents the total number of NGOs working in education or health (denoted by the subscript *type*) in tehsil l at time t. The variable $treat_{type,l}$ indicates whether the tehsil is more-treated based on whether the proportion of education or health NGOs deregistered exceeds the median. The interaction term's coefficient, β_1, captures the effect of the deregistration shock on the number of NGOs operating in each sector.

7 Results

In this section, we present the findings of our analysis and discuss the effects of NGO deregistration on various outcomes. We begin by outlining the immediate impacts of deregistration on NGO presence and activities, followed by a detailed examination of how this shock translates into changes in service delivery, household behavior, and broader regional indicators.

7.1 Establishing a Decrease in NGO *Presence*

We first examine the reduction in the *number* of NGOs, which, while expected given the construction of the treatment variable, helps gauge the magnitude of the deregistration shock (henceforth, "first stage").[21] Columns (1)–(3) of Table 4 present the first-stage estimates based on Equations 18 and 19.

In Column (1), the dependent variable is the total number of NGOs. The results show that more-treated tehsils – those where the proportion of NGOs deregistered due to the FATF shock exceeds the median – had 10.3 fewer NGOs operating in 2019 (significant at the 1% level), representing a 28% decline in NGO presence. Column (2) focuses on education NGOs, showing that more-treated tehsils had 4.6 fewer education NGOs operating in 2019 relative to less-treated tehsils. Column (3) examines health NGOs, where the treatment variable is based on the proportion of health NGOs deregistered. We find that more-treated tehsils had 4.5 fewer health-specific NGOs operating compared to less-treated tehsils.

These first-stage results confirm that the FATF shock and the subsequent large-scale deregistration of NGOs by the Punjab government substantially reduced NGO presence across tehsils in the province. In the next section, we examine how this decline in NGO activity affected key development outcomes.

7.2 Evidence of Decrease in NGO *Activity*

After establishing a significant reduction in the number of NGOs in more-treated tehsils, we next examine whether this contraction translated into a decline in NGO *activity* in these areas. Specifically, we consider three outcomes that capture the intensity of NGO engagement at the household level: (i) whether individuals report receiving any monetary benefits, (ii) the amount of monetary benefits received, and (iii) whether an

[21] Throughout the paper, we use the term "first stage" to describe the direct impact of the deregistration policy on NGO activity. It does not refer to the first stage of an instrumental variable estimation.

NGO installed the household's water delivery system. Data on these outcomes are from the Pakistan Social and Living Standards Measurement (PSLM) surveys.

We estimate these effects using the event-study specification described in Section 6.1. Our preferred treatment variable is the binary indicator that classifies tehsils as more-treated if the proportion of deregistered NGOs exceeds the median and less-treated otherwise. The analysis includes five pre-deregistration years and two post-deregistration years, with 2018 serving as the reference year.[22]

Monetary Benefits. The "Employment" section of the PSLM Survey includes a question on whether individuals aged 10 years or older receive any monetary benefits, including charity or pensions. We use this variable as a proxy for income support provided by NGOs, which often deliver financial assistance and community-level donations. Figure 5 presents the event-study estimates for (a) the likelihood of receiving any monetary benefits and (b) the amount of monetary benefits received. Panels (a) and (b) indicate a decline in both outcomes for the full sample following the deregistration shock, although the decreases are not statistically significant. Importantly, we observe no significant differences in trends between more- and less-treated tehsils prior to deregistration, supporting the parallel trends assumption.

To explore heterogeneity, Panels (c)–(f) separate results by urban and rural areas. Panels (c) and (d) report estimates for urban areas, while Panels (e) and (f) show corresponding results for rural areas. We find that individuals in rural tehsils are significantly more affected by the deregistration of NGOs. This finding is consistent with expectations, as lower-income households—more prevalent in rural areas—are more likely to receive and depend on NGO-provided monetary support. As shown in Panel (e), individuals in rural areas are 0.8 percentage points less likely to receive any monetary benefits, corresponding to a 61.4% decline relative to the pre-deregistration mean. This reduction persists into 2020, although the magnitude of the effect diminishes compared to the immediate post-shock year (2019).

Similarly, there is a decline in the amount of monetary benefits received in rural areas. The immediate effect in 2019 shows a decrease of PKR 750 (approximately USD 5), representing a 48.5% reduction, an economically meaningful decline.

Water Delivery System Installation by an NGO. Next, we examine the treatment effect on whether an NGO installed a household's water delivery system. The results, shown in Figure 6, indicate a decline in the likelihood of NGO installation following the deregistration shock (Panel a).

A breakdown by urban and rural households reveals a statistically significant decrease in rural areas (Panel c), while no significant change is observed in urban areas (Panel b).

[22] Data for 2017 are unavailable because the PSLM survey was not conducted in that year.

This rural–urban disparity aligns with expectations: rural regions are typically underserved by public infrastructure, and NGOs or other non-state actors play a greater role in providing essential services such as water delivery systems. To illustrate this divide, only 7% of rural households have piped water compared to 25% of urban households.

Overall, the evidence in this section indicates that the reduction in NGO presence translated into a corresponding decline in service delivery – both in terms of monetary assistance and essential infrastructure such as household water systems.

7.3 Household Outcomes

Having established that the deregistration policy led to a measurable decline in NGO presence and activity, we now turn to its implications for households. We examine how reduced NGO activity affected household-level outcomes in two key domains: education and healthcare.

7.3.1 Household Education Choices

We begin with education, focusing on how households adjust their schooling decisions in response to decreased NGO activity. Specifically, we analyze the likelihood that children attend non-government schools—institutions often supported or operated by NGOs—and how this effect varies by gender, school level, and urban or rural location.

The "Education" section of the PSLM survey records the type of institution each child attends. We focus on children aged 5–16 years, corresponding to those enrolled in primary, middle, and secondary schools (grades 1–10). We then estimate the treatment effect on whether a child attends a school run by an NGO.[23]

Figure 7 presents the event-study estimates of the treatment effect on attending a non-government school. The analysis covers the period 2013–2020, with five pre-deregistration years and two post-deregistration years; 2018 serves as the base reference year, immediately preceding the deregistration shock. Data for 2017 are unavailable because the PSLM survey was not conducted that year. All specifications include tehsil and year fixed effects, with standard errors clustered at the tehsil level. PSLM sampling weights are applied in all regressions.

The event-study framework provides two advantages. First, it allows us to visually assess the validity of the parallel-trends assumption by comparing pre-treatment trajectories across more-treated and less-treated tehsils. Second, it illustrates how the treatment effect evolves over time. We find no immediate effect in 2019, but by 2020,

[23] This category includes schools operated by NGOs and excludes private for-profit schools.

the likelihood of attending a non-government school declines by 4 percentage points for children in more-treated tehsils relative to those in less-treated tehsils.

This evidence is consistent with the prediction in Equation 10: a decrease in NGO activity, driven by the closure of education-focused NGOs, reduces the likelihood that children attend NGO-run schools.

Prediction 1: NGOs and Gender. We next examine whether the treatment effect on attending a non-government school differs between boys and girls. We disaggregate the analysis by school type: primary (grades 1–5), middle (grades 6–8), and secondary (grades 9–10). Children aged 5–10 years attend primary school, those aged 11–13 years attend middle school, and those aged 14–16 years attend secondary school.

We first estimate the treatment effect by gender for all school types combined (overall) and then separately for boys and girls within each school level. The event-study results are presented in Figure 8. Panels (a) and (b) show the treatment effects on attending a non-government school for boys and girls, respectively. While the estimated decline in enrollment is slightly larger for girls (about 5 percentage points) than for boys (around 3 percentage points), the difference is modest and statistically indistinguishable. Therefore, Prediction 1 is not confirmed: the reduction in NGO activity appears to have affected both genders to a similar extent.

Additional evidence is provided in Panels (c)–(h), which show results by school type. Across levels, the decline in the likelihood of attending a non-government school is slightly larger for girls than for boys, particularly at the primary and middle school levels where NGO activity is typically concentrated. However, these gender differences are small in magnitude. For secondary schools (Panels g and h), we do not observe statistically significant effects for either gender, suggesting that NGO closures primarily influenced schooling options at lower education levels but did not generate clear gender-specific impacts.

This pattern suggests that NGO-supported schooling opportunities benefited boys and girls in roughly equal measure. The uniform decline following NGO closures implies that the deregistration shock reduced access to educational services broadly, rather than exacerbating existing gender disparities. One possible explanation is that NGOs in the education sector were not disproportionately targeting girls at the margin of closure, leading to a more uniform contraction in services.

Prediction 2a: NGOs and the Urban–Rural Divide. To test the prediction that urban households experience a larger decline in education investment following a reduction in NGO activity, we estimate a pooled difference-in-differences model as described in Section 6.3. The results are presented in Table 5, Panel A. In addition to the overall treatment effect on children's likelihood of attending non-government schools, we

separately estimate the effects for children in urban and rural households. Panel A(I) reports the results for urban areas, and Panel A(II) reports those for rural areas. The coefficient on the interaction term ($treated \times post$) measures the change in enrollment in non-government schools for children living in more-treated tehsils relative to those in less-treated tehsils after the deregistration shock.

Column (1) presents the results for all children aged 5–16, irrespective of gender or school type. We then split the sample by gender: columns (2) and (6) report results for boys and girls, respectively. For boys, columns (3)–(5) show the results for primary, middle, and secondary schools, while for girls, these estimates appear in columns (7)–(9).

Across Panels A(I) and A(II), the findings support *Prediction 2a*: urban households experience a larger decline in education investment following NGO deregistration. As shown in column (1) of Panel A(I), children in urban households living in more-treated tehsils are 2.8 percentage points less likely to attend non-government schools than those in less-treated tehsils (significant at 5%). In contrast, no statistically significant change in enrollment is observed among rural households (Panel A(II)).

Similar patterns emerge by gender. Among urban households, boys in more-treated tehsils are 2 percentage points less likely to attend non-government schools (column 2; significant at 10%), while girls are 3.7 percentage points less likely (column 6; significant at 5%). In rural areas, these effects are small and statistically insignificant.

The same pattern holds across school types. Columns (5) and (9) of Panel A(I) show that urban boys and girls are less likely to attend non-government secondary schools, by 3.1 percentage points (significant at 1%) and 2.7 percentage points (significant at 10%), respectively. No comparable effects are observed in rural areas, as shown in Panel A(II).

Finally, the urban–rural gap is particularly pronounced among girls enrolled in primary and middle schools. For girls in urban households, columns (7) and (8) of Panel A(I) show declines of 3.9 and 4.3 percentage points (both significant at 5%) in non-government school attendance. These effects are absent among rural girls, whose estimated coefficients are small and statistically insignificant.

Overall, the results highlight a clear urban–rural divide in the effects of NGO deregistration on education outcomes. Urban households—especially those with girls—exhibit a stronger decline in enrollment in non-government schools, supporting the prediction that urban households are more sensitive to changes in NGO activity related to education.

Prediction 3: NGOs and Government. *Prediction 3* posits that the reduction in NGO support is not fully offset by increased government activity. To test this, we examine

whether enrollment in government schools rises as NGO activity declines.

As before, we conduct a pooled difference-in-differences analysis described in Section 6.3. The results are presented in Table 5, Panel B. In addition to the overall treatment effect on children's likelihood of attending government schools, we separately report estimates for urban and rural households. Panel B(I) reports results for urban areas, while Panel B(II) presents those for rural areas. The coefficient on the interaction term ($treated \times post$) captures the change in enrollment in government schools among children in more-treated tehsils relative to those in less-treated tehsils after the NGO deregistration shock.

Column (1) presents results for all children aged 5–16, regardless of gender or school type. We then split the sample by gender, showing results for boys in column (2) and girls in column (6). Columns (3)–(5) and (7)–(9) further disaggregate the results by school level for boys and girls, respectively.

In testing *Prediction 2a*, we found a decrease in enrollment in non-government schools in more-treated urban tehsils (Panel A(I), column 1). These children face two main options: dropping out or switching to government-run schools. If substitution occurs, we should observe an increase in government school enrollment.

Panel B(I) shows such an increase: children in urban, more-treated tehsils are 5.5 percentage points more likely to attend government schools after the deregistration shock (significant at 1%). Similar increases are observed for boys and girls in columns (2) and (6). This indicates that some households substitute away from NGO-run to government-run schools when NGOs exit.

However, substitution is incomplete. If the government fully compensated for the withdrawal of NGOs, we would expect statistically significant increases in enrollment across all corresponding school levels. Comparing Panels A(I) and B(I), we find that while decreases in non-government school enrollment coincide with increases in government enrollment for primary and middle schools, this pattern does not hold for secondary schools (columns 5 and 9). For boys and girls in urban areas, the likelihood of attending NGO-run secondary schools declines, yet there is no corresponding rise in government school enrollment.

This suggests that government schools cannot fully replace NGO-run secondary schools. Secondary education in Pakistan (grades 9–10) involves national matriculation exams and typically requires more infrastructure and specialized teachers. Since the NGO deregistration occurred between July and August – just before the school year begins – it may have constrained students' ability to secure places in government schools. Additionally, government secondary schools face tighter capacity limits and stricter admission criteria, unlike primary and middle schools where enrollment procedures are

more flexible.

Overall, the results indicate that while government schools partially absorb students displaced by NGO closures, they do not fully compensate for the loss of NGO-run educ

7.3.2 Household Health Choices

In the previous section, we examined how households' education choices respond to changes in NGO activity. We now turn to their healthcare choices.

The health-related NGOs in our sample typically operate small community clinics or dispensaries, raise awareness about child immunizations and prenatal care, and in some cases run pharmacies or ambulance services. Such facilities are particularly important in developing countries, where obtaining medicine often does not require a doctor's prescription (Butt et al., 2005; Auta et al., 2019). As a result, individuals can visit these NGO-run health centers to purchase medicines or seek basic medical advice directly from pharmacists without formal prescriptions.

Our focus here is on how an external shock that leads to the closure of health-specific NGOs affects household health investments. As outlined in Equation 10, our conceptual framework predicts that such closures should reduce household investment in healthcare.

To test this hypothesis, we employ the event-study specification described in Section 6.1. We analyze two types of outcomes: (1) child health outcomes, measured through vaccination uptake, and (2) maternal health outcomes, measured through prenatal care. The vaccination outcomes include whether a child received any immunization, as well as specific vaccines such as BCG, DPT, and polio. The sample includes children under 12 months of age. For maternal health, we examine whether pregnant women aged 18–26 – an age range corresponding to typical marriage and first childbirth in Pakistan – received prenatal care. All outcomes are drawn from the PSLM surveys.

Figure 9 presents the event-study results for child immunization outcomes from 2013 to 2020 (excluding 2016 and 2017 due to missing data). The treatment variable identifies tehsils as more-treated if the proportion of deregistered health NGOs exceeds the median, and less-treated otherwise. Panel (a) reports results for general immunization, Panel (b) for the BCG vaccine, Panel (c) for the DPT vaccine, and Panel (d) for the polio vaccine. Across all outcomes, vaccination rates in more-treated tehsils are not significantly different from those in less-treated tehsils following the deregistration shock. This suggests that the closure of health NGOs did not substantially affect child vaccination rates.

There are several possible explanations for this null effect. First, health NGOs may not have been the primary providers of child vaccinations, even though many NGOs in developing countries are known to conduct door-to-door campaigns. Second, the government may have stepped in to offset the decline in NGO activity. In particular, Pakistan's Lady Health Workers (LHW) program plays a crucial role in community-based healthcare delivery. LHWs provide health education, promote immunizations, and in many cases administer vaccines directly (Hafeez et al., 2011). The program's wide coverage and focus on preventive care could have mitigated the potential adverse effects of NGO closures on child vaccination uptake. We return to this question when testing *Prediction 3*, which examines whether government activity substitutes for NGO withdrawal.

We next consider prenatal care, where we observe some evidence of impact. Figure 10 shows the event-study estimates for whether pregnant women receive prenatal care. Panel (a) indicates a decline in prenatal care utilization in more-treated tehsils relative to less-treated tehsils, although the estimated effects are not statistically significant. The decline becomes more pronounced when restricting the sample to rural areas (Panel c), a result we explore further in the discussion of *Prediction 2b* below.

Prediction 1: NGOs and Gender. We next examine whether the treatment effect on health outcomes differs between boys and girls. Using the same event-study framework, we restrict the sample to boys or girls when estimating the respective treatment effects. The sample of children remains the same as before: those under 12 months of age.

The event-study estimates, presented in Figure 11, consider four outcomes: receiving any immunization, the BCG vaccine, the DPT vaccine, and the polio vaccine. We detect no overall impact and no differential treatment effects between boys and girls across these outcomes.

However, pooled DiD estimates reveal some gender-specific differences. Table 6, Panel A, reports these results: columns (1)–(4) show estimates for boys and columns (5)–(8) for girls. Column (5) indicates a 2.8-percentage-point decline in the likelihood of girls being immunized in more-treated tehsils relative to girls in less-treated tehsils (significant at 10 percent), equivalent to a 3 percent decline from the control mean. No corresponding effect is observed for boys (column 1).

Vaccination rates are high overall; more than 90 percent of children are immunized, with 93 percent of girls and 92 percent of boys ever receiving vaccines. This reflects the strong public emphasis on child immunization in Pakistan.

Taken together, these findings suggest that girls are somewhat more affected by a reduction in NGO activity, lending partial support to *Prediction 1*.

Prediction 2b: NGOs and the Urban–Rural Divide. *Prediction 2b* posits that rural

households experience a larger reduction in healthcare use following declines in NGO activity. To test this, we estimate pooled DiD models separately for urban and rural households, as classified in the PSLM survey. Results are shown in Table 6, with urban households in Panel B and rural households in Panel C. The coefficient on the interaction term ($treated \times post$) captures the change in vaccination likelihood in more-treated tehsils relative to less-treated tehsils after the deregistration shock.

Consistent with *Prediction 2b*, rural households experience stronger declines. In Panel C, column (5), girls in more-treated tehsils are 4.4 percentage points less likely to be immunized than those in less-treated tehsils (significant at 5 percent). No significant change is observed among girls in urban areas, where the coefficient is negative but statistically insignificant.

A similar rural–urban pattern appears for prenatal care. Figure 10 plots these effects: panel (b) shows urban areas and panel (c) rural areas. Pregnant women in rural tehsils exhibit declines in prenatal care use in both 2019 and 2020, whereas no discernible changes occur in more-treated urban tehsils. These results further support *Prediction 2b*.

Prediction 3: NGOs and Government. Finally, we assess how the government responds to changes in health-related NGO activity. *Prediction 3* states that while the government may attempt to fill gaps left by NGO closures, it cannot fully sustain this response because of resource constraints.

To test this, we use administrative data on health facilities across Punjab from 2014 to 2021, including small health centers (fewer than 10 beds), hospitals (more than 10 beds), and government-run facilities.[24] Government facilities include basic health units, rural health centers, tuberculosis clinics, sub-health centers, and mother-and-child centers. We examine three outcomes: (1) changes in the number of small health centers and beds (Figure 12, panels a–b); (2) changes in hospitals and beds (panels c–d); and (3) changes in government-run centers (panels e–f).

Panels (a)–(b) confirm a decline in NGO activity after the deregistration shock. In more-treated tehsils, the number of small health centers decreases by one – roughly 23 percent of baseline presence – and by 1.5 centers by 2020 and 2021. This decline persists, consistent with the closure of NGO-operated dispensaries that supply basic medicines. No effects are observed for hospitals, which NGOs rarely operate.

Turning to government response, panel (e) shows a temporary rise in government-run health centers in 2019: more-treated tehsils record 2.5 additional centers (a 15 percent increase relative to baseline). Yet this increase is short-lived; by 2020 and 2021 the

[24] Small health centers include both NGO-run and government-run units; thus, the observed changes likely understate the true decline in NGO-provided services.

difference disappears.

This pattern reflects limited government capacity. Although the government initially expanded its presence following NGO closures, fiscal and administrative constraints prevented a sustained response. Unlike NGOs, which often mobilize community donations, the public sector lacks flexible funding to maintain such expansions. When surveying a small subset of deregistered NGOs, some reported transferring their assets to the government after closure. This aligns with the observed short-term increase in government health centers, as the government may have temporarily utilized existing NGO infrastructure – such as small health centers or equipment – but was unable to sustain their operation over time. The evidence therefore supports *Prediction 3*: the government partially compensates for NGO withdrawal but cannot fully replace their role in delivering local health services.

7.4 Firm-Level Outcomes

We now turn to the impact of NGO closures on firms. As outlined in Section 4.1, we expect three main channels through which NGO activity may influence firm outcomes: household demand, labor market, and business environment. Table C.4 summarizes the results.

Household Demand Channel. If NGO closures reduce households' use of essential services such as education and healthcare, human capital and income may decline over time. Lower household income and consumption can weaken local demand for goods and services, especially affecting small, consumer-facing firms. Accordingly, we expect firm performance to deteriorate in more-treated tehsils.

Column (6) of Table C.4 presents results for firm performance, measured as annual sales per worker. Although the coefficients are negative across firm size categories, they are not statistically significant, suggesting limited evidence of a direct decline in firm productivity. The negative direction of the estimates, however, is consistent with the expectation that a reduction in NGO activity may slow local demand growth and lower firm sales over time. This pattern holds across both small and medium-to-large firms.

Labor Market Channel. Reduced household demand and firm output may also translate into lower labor demand, as firms cut back production and adjust employment or wages. If NGO closures depress local economic conditions, we would expect wages to decline, particularly for small firms with limited financial buffers.

Column (7) of Table C.4 reports the estimated effect on annual cost per worker, which we interpret as a proxy for wages. Across all firms (Panel A), we find no statistically

significant effect, although the coefficients are negative. For small firms (Panel B), however, we find a decline in annual wages per worker of PKR 146,175 (approximately US$660), consistent with *Prediction 4*. This pattern is not observed for medium or large firms, which is intuitive given their greater capacity to absorb short-term shocks through retained earnings or diversified market reach.

Business Environment Channel. NGOs often serve as intermediaries between firms and local authorities, helping to communicate grievances and coordinate responses to operational challenges such as power outages. When NGOs withdraw, these coordination channels weaken, potentially worsening the local business environment.

Columns (1) and (2) of Table C.4 provide evidence consistent with this mechanism. Firms in more-treated tehsils are more likely to report experiencing power outages (0.18 percentage points higher). This effects are driven primarily by small firms, which are 35 percentage points more likely to experience power outages. Additionally, firms report greater sales losses due to power outages – 20.6 percent for all firms and 27 percent for small firms – indicating that NGO withdrawal may exacerbate infrastructure-related disruptions.

We also consider perceptions-based indicators, such as crime, theft, and inadequately educated workforces (columns 3 and 4). Although coefficients are positive, they are not statistically significant, suggesting no measurable effect on firms' subjective assessments of these obstacles. Nevertheless, the observed increase in infrastructure-related disruptions indicates a deterioration in local business conditions following NGO closures.

Overall, these findings are consistent with *Prediction 4*: NGO closures appear to worsen local business environments, particularly for smaller firms that depend on reliable local infrastructure and lack the networks or financial buffers to adapt. While the household demand and labor market channels show weaker or indirect effects, the business environment channel emerges as the dominant pathway through which NGO closures may affect firm activity.

7.5 Broader Impacts at the Tehsil Level

Having examined how a decrease in NGO presence affects household investments in education and healthcare, we now turn to the broader regional impacts. Specifically, we analyze how reduced NGO activity influences economic development, public discontent, and violence against women.

NGOs are often regarded as catalysts for local development, yet causal evidence linking NGO activity to regional economic outcomes remains limited. We contribute to this gap

by examining changes in nighttime light intensity, a widely used proxy for economic activity and development. We also assess whether reduced NGO activity increases public dissatisfaction, potentially manifesting in demonstrations and riots. Finally, given evidence that household income stress is linked to domestic violence (Porter et al., 2021), we test whether the exit of NGOs – by reducing local income support – leads to an increase in violence against women.

We present the results in Figure 13, Figure 16, and Figure 17, using both binary and continuous measures of NGO deregistration to ensure robustness.

7.5.1 Economic Development

We begin with the impact on regional economic development. Figure 13 shows the event-study estimates for nighttime light intensity using data from the VIIRS database (2013–2023). Panel (a) uses the binary treatment variable, while panel (b) uses the continuous measure of the proportion of NGOs deregistered. Nighttime light intensity is standardized to facilitate interpretation.

Both panels show a gradual post-deregistration decline in light intensity in more-treated tehsils relative to less-treated ones. For instance, in panel (b), five years after deregistration, a one–standard deviation increase in the proportion of NGOs deregistered is associated with a 0.09–standard deviation decrease in nighttime light intensity—equivalent to an approximately 8 percent reduction in local economic activity. These results suggest that the withdrawal of NGOs leads to a measurable decline in regional economic development.

Annual Income. To corroborate this finding, we analyze the treatment effect on household annual income using PSLM data. Section 9 shows a decline in annual income in more-treated tehsils after the deregistration shock, consistent with the reduction in nighttime light intensity. While the PSLM income data are only available through 2020, the VIIRS data extend to 2023, providing additional evidence on post-shock persistence.

Sensitivity to Non-Parallel Trends. A visual scan of the event-study plots in Figure 13 suggests broadly parallel pre-trends, though the 2017 dip leaves some scope for concern. We therefore use the calibrated sensitivity analysis of Rambachan & Roth (2023). The logic of this analysis is that: we take the largest absolute pre-treatment event-time coefficient as a benchmark and allow the post-treatment path to drift by a fraction M of that benchmark. By construction, $M = 0$ imposes exact parallel trends; $M = 0.1$ permits drift up to 10 percent of the benchmark; $M = 1$ permits drift as large as the benchmark itself.

We focus on the 2023 coefficient (five years after deregistration), which is the the

rightmost post point in Figure 13 (b), and report 90% identified sets as we vary $M \in \{0, 0.1, ..., 1\}$. As shown in Figure 14, we find that the effect remains negative and statistically different from zero for $M \leq 0.7$; the interval first includes zero around $M \approx 0.8$, and widens thereafter. In words: even if post-treatment paths were allowed to continue tilting by as much as 70% of the worst pre-period deviation, our 2023 estimate would still be negative; only when we allow very large tilts does the conclusion become uncertain.

7.5.2 Public Discontent

Next, we assess public discontent by examining the frequency of demonstrations and riots, using data from the Armed Conflict Location & Event Data Project (ACLED) spanning from 2013 to 2023. Figure 16 presents event study plots that depict the number of demonstrations and riots in more-treated tehsils relative to less-treated tehsils.

We use both binary and continuous treatment measures to capture the effects comprehensively. The event study plots in Figure 16 show an upward trend in the number of demonstrations and riots over time in the more-treated tehsils. This increase becomes more pronounced by 2023, indicating that the regions with a higher proportion of deregistered NGOs experience more public discontent compared to regions with fewer deregistrations over time.

For instance, in panel (a) in Figure 16, in the last six months of 2023, there was an average of one more demonstration in the more-treated tehsils compared to the less-treated ones. This represents a 62 percent increase in the frequency of demonstrations. The delayed response suggests that economic grievances accumulate over time, as the initial shock of NGO deregistration gradually translates into heightened public frustration and unrest.

Further analysis reveals that the nature of these demonstrations and riots is primarily economic. The ACLED data indicates that the protests were often against inflation, high utility prices, load shedding, and increased costs of essential goods like food and fuel. This pattern highlights the role of NGOs in mitigating economic hardship; their absence exacerbates financial stress and sparks public protests.

These findings underscore the critical role that NGOs play in maintaining social stability. Their deregistration not only hampers economic development but also leads to increased public discontent and social unrest over time.

7.5.3 Violence Against Women

Finally, we examine the impact of NGO presence on violence against women by analyzing the number of women admitted to shelter homes for victims of extreme violence using proprietary data from Dar-ul-Aman. The data spans from January 2019 to December 2021.

Figure 17 presents event study plots for admissions to shelter homes. Panel (a) shows the results using the binary treatment variable, which equals 1 for districts where the proportion of deregistered NGOs is above the median and 0 otherwise. Panel (b) uses the continuous proportion of deregistered NGOs in each district as the treatment variable.[25]

Both panels in Figure 17 show an increase in admissions to shelter homes from May to October 2020 in the more affected tehsils, which coincides with the COVID-19 lockdown in Pakistan. This rise in admissions is likely due to the effects of financial stress and restricted movement during the pandemic, compounded by lower NGO presence. The lockdown exacerbated financial difficulties for many households, leading to increased tension and frustration. With men at home and facing economic strain, the risk of domestic violence heightened. This situation was further aggravated by the absence of NGO support, which typically provides financial support and interventions to mitigate such stressors.

These findings underscore the importance of NGOs not only in promoting economic development but also in safeguarding vulnerable populations. In particular, our finding that women living in areas with fewer NGOs faced increased violence during the COVID-19 pandemic highlights the critical role of NGOs in providing essential support during such challenging times.

8 Robustness Checks

We conduct multiple robustness checks to ensure the robustness of our findings.

Randomization inference We use randomization inference (RI) to determine whether our findings could be due to random chance. We perform 500 permutations, each of which involves randomly selecting tehsils as "more-treated." This process simulates what treatment effects might look like if the treatment were assigned randomly rather than reflecting any real exposure to the deregistration shock. The goal is to create a distribution of treatment effects under the null hypothesis, which posits that there is

[25] As discussed in Section 5.2, data on violence against women is at the district level. We construct the treatment measure at the district level, i.e., the proportion of NGOs deregistered in each district.

no real effect (Blattman et al., 2017; Breza & Kinnan, 2021). By comparing our actual results to this distribution, we can assess whether the observed effects are likely due to chance or if they indicate a true causal relationship.

If the treatment effects we find are similar to those from many of the random permutations, it suggests that our findings might be attributed to random chance. On the other hand, if our observed effects fall in the extreme tails of the distribution generated by the RI procedure, the likelihood of these results occurring by chance is very low. RI provides stronger evidence that our findings are robust and not merely a result of random fluctuations.

As shown in Appendix D, our main results remain robust when subjected to randomization inference. In the event study plots, we report the p-values for the estimated treatment effects, with significance levels indicated by stars. By comparing our observed effects to the RI-generated distribution, we confirm that our results are robust and are unlikely to be driven by random chance.

Placebo Test: Not tying outcomes to NGO type For our analysis of essential services, we have previously linked outcomes to specific types of NGOs. For instance, when examining health-related outcomes, the treatment variable was constructed using the proportion of health NGOs deregistered, which measures the impact of health NGO closures. Similarly, for education outcomes, the treatment variable was based on the proportion of education NGOs deregistered, reflecting the effect of education NGO closures.

As a placebo test, we re-evaluate health and education outcomes using a different approach. Instead of focusing solely on health or education NGOs, we construct the treatment variable based on the proportion of all other types of NGOs that have been deregistered. We do not expect to observe significant effects on health and education outcomes when using this broader treatment measure, as it reflects the deregistration of all other types of NGOs, not just those specifically related to health or education.

As Appendix E shows, when outcomes are not linked to specific NGO types, the effects disappear. The lack of significant effects when using this placebo shock indicates that the observed decrease in attending a non-governmental school is truly driven by decreases in education-related NGO activity. Similarly the drop in prenatal care access is linked to reduced activity among health-focused NGOs. If these effects were due to chance, we would expect similar results across all NGO types, which is not the case.

Differences in Baseline Economic Trends While the deregistration process was quasi-random, several potential identification threats still need to be addressed. One key concern is that baseline trends in economic development across tehsils may differ. For example, if tehsils with a higher proportion of deregistered NGOs were already worse

off and on a trajectory of slower economic development, this could introduce bias into our estimates. However, as shown in Figure 13, there are no significant differences in baseline economic development or nighttime lights intensity trends between more- and less-treated tehsils, as evidenced by the parallel pre-trends.

Political Bias Another possible threat is political bias, where NGO deregistration may have been more rampant in tehsils governed by opposition party officials, implying that deregistration was not quasi-random but rather politically motivated. To address this concern, we use 2018 election data at the constituency level. Due to data limitations, we construct the treatment variable at the district level, and identify the political party that holds the majority of constituencies within each district. We then test for a correlation between the proportion of NGOs deregistered and whether the district's majority party was in opposition. As shown in Table B.1 in Appendix B, we find no statistically significant correlation. This test suggests that political factors did not influence NGO deregistration.

COVID-19 external shock Finally, we consider the possibility that external shocks occurring after the deregistration, such as the COVID-19 pandemic, could have differentially affected tehsils and confounded our results – particularly for outcomes measured over a longer time horizon such as night time lights and public discontent. Using district-level data on total COVID-19 cases from March to December 2020, we find no significant correlation between the proportion of deregistered NGOs and COVID-19 cases. Results are shown in Table B.2 in Appendix B.

9 Discussion and Conclusion

We use the FATF grey-listing of Pakistan and the subsequent deregistration of NGOs across tehsils in Punjab as a natural experiment to estimate whether NGOs are effective in improving development outcomes. The deregistration shock led to the exit of 25% of NGOs across Punjab, providing a unique context to study the effectiveness of these organizations.

Our findings reveal that the deregistration shock substantially reduced NGO activity in more-affected tehsils. Once deregistered, NGOs were formally barred from continuing operations, as confirmed by administrative data and our own survey evidence. Households in these regions were less likely to receive monetary support and received smaller amounts when they did. The likelihood of NGO-installed water delivery systems also declined, confirming that NGO activity meaningfully decreased after deregistration.

This decrease in NGO activity had multiple effects on households. Children were more likely to drop out of NGO-run schools. Pregnant women were less likely to receive pre-

natal care, particularly in rural areas. Although the government tried to fill these gaps, their efforts were limited. Children were more likely to attend government schools, but this did not extend to secondary schools, potentially due to resource constraints and the difficulty of mid-year admissions. Similarly, the government increased the number of health centers, but this was a short-term response.

At the firm level, NGO closures led to a deterioration in the local business environment. Firms in more-affected tehsils reported more frequent power outages and higher sales losses due to these disruptions. The effects were concentrated among small firms, which are typically more vulnerable to local shocks and lack financial buffers. We also find some evidence of a decline in labor costs among small firms, suggesting a contraction in wage expenditures consistent with lower local demand. However, we find limited evidence of changes in overall sales or employment across all firms, indicating that NGOs primarily influence firms through their indirect role in maintaining a stable local business environment – by supporting reliable service delivery and coordination – rather than through direct demand or wage effects.

At the regional level, the reduction in NGO presence led to measurable declines in local economic development, as measured by nighttime light intensity and annual household income. Furthermore, we find that NGOs are essential for maintaining public contentment and reducing violence against women, especially during challenging times such as the pandemic. Together, these results indicate that NGOs play a vital role not only in service delivery but also in sustaining local stability and social welfare.

Our findings underscore the importance of supporting NGOs as development actors that complement, rather than crowd out, the state. Post-FATF's grey-listing of Pakistan, it has become increasingly difficult for NGOs to register due to extensive paperwork requirements. This is particularly challenging for NGOs with international support, as they must obtain approval from the Economic Affairs Division (EAD), causing additional delays. Simplifying the registration process and facilitating donations to NGOs are crucial steps to ensure these organizations can achieve their goals effectively. Governments can also provide support by helping NGOs maintain proper financial records, reducing the risk of misuse.

In conclusion, locally established NGOs – often small, community-based, and reliant on domestic donations – play a critical role in promoting economic development and social cohesion. Their withdrawal leads to measurable declines in welfare and development outcomes, which the government alone struggles to offset. Policies that reduce unnecessary bureaucratic hurdles, while maintaining financial transparency, can help sustain NGO activity and enhance their contribution to development.

Future work will explore whether building NGO capacity through training and inter-

organizational linkages can amplify their impact. Training programs that strengthen NGOs' management, monitoring, and financial reporting practices may enhance their effectiveness and sustainability. Moreover, connecting NGOs to one another can promote collaboration and resource-sharing, generating economies of scale, lowering operational costs, and strengthening collective capacity. Understanding how such capacity-building and networking initiatives shape service delivery and community outcomes can provide valuable insights into how to maximize the developmental role of NGOs.

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Figures and Tables

Figure 1: Types of NGOs

(a) NGO-run Health Center



(b) NGO-run Health Center



(c) NGO-run Primary School



Figure notes: Panel (a) and (b) include examples of NGO-run health centers. We refer to these as health NGOs in the paper. In panel (a), the image shows a pregnant woman sitting in front of the NGO-run health center. In panel (b), the image shows a woman in the same NGO-run health center and she is in charge of prescribing medicines. We can see the record keeping is paper based and the infrastructure in the health center is not very basic. Panel (c) shows an NGO-run primary school. We refer to these as education NGOs in the paper. Images are taken from The New Humanitarian (2018a,b); Rumi (2017).



Figure 2: Newspaper Advertisement For All NGOs in Punjab

Figure notes: The figure shows the newspaper advertisement that was printed in a Sunday edition of the most frequently read national newspaper in Punjab, Pakistan. The name of the newspaper is Jang News, and it captures 65% of the total newspaper readership in Pakistan. The ad came out on 30th June 2019 and was printed on page 25 of the newspaper. The red box indicates the exact ad on this page. The ad asks the NGOs to submit their financial documents to the Social Welfare Department within two weeks time. The translation of the ad is: "**Attention: NGO Owners!** All members of NGOs registered with the Social Welfare Department under the Voluntary Social Welfare Agencies (Registration and Control) Ordinance, 1961, are hereby notified to appear at the department for the renewal of their NGOs registration. Failure to comply will result in the cancellation of the NGOs registration. Furthermore, any NGO operating without registration must immediately complete the registration process by July 15, 2019. Non-compliance will lead to serious actions by the Government of Punjab."

Figure 3: Timeline

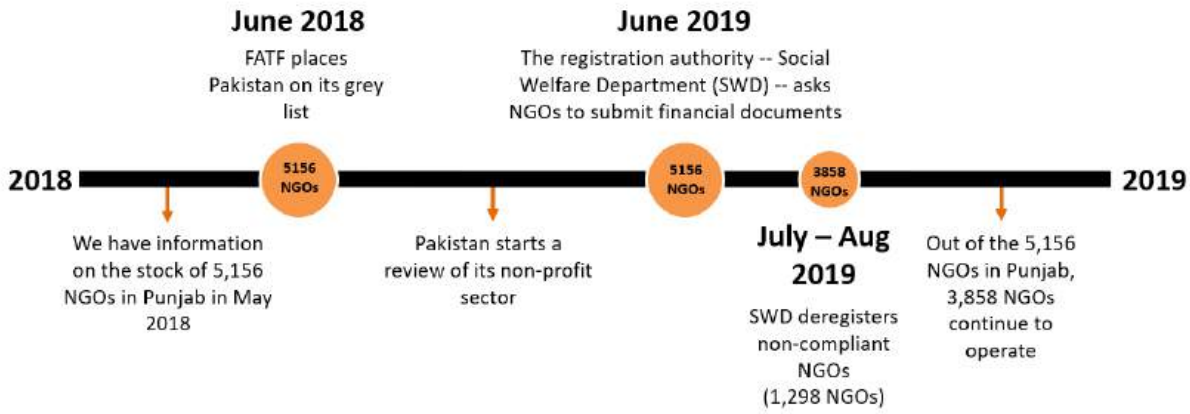


Figure notes: The figure shows the timeline of events that led up to the deregistration of NGOs across tehsils in Punjab, Pakistan. The timeline ranges between 2018 and 2019. The orange circles indicate the time of the major events: FATF grey-listed Pakistan in June 2018, the Social Welfare Department requested NGOs to submit their financial documents in June 2019 and the subsequent deregistration of non-compliant NGOs in July-August 2019. The size of the orange circle indicates the number of NGOs: a bigger circle means a higher number of NGOs. From June 2018 to July-August 2019, the size of the circle decreases indicating the decrease in NGO numbers from 5156 to 3858 in Punjab, Pakistan.

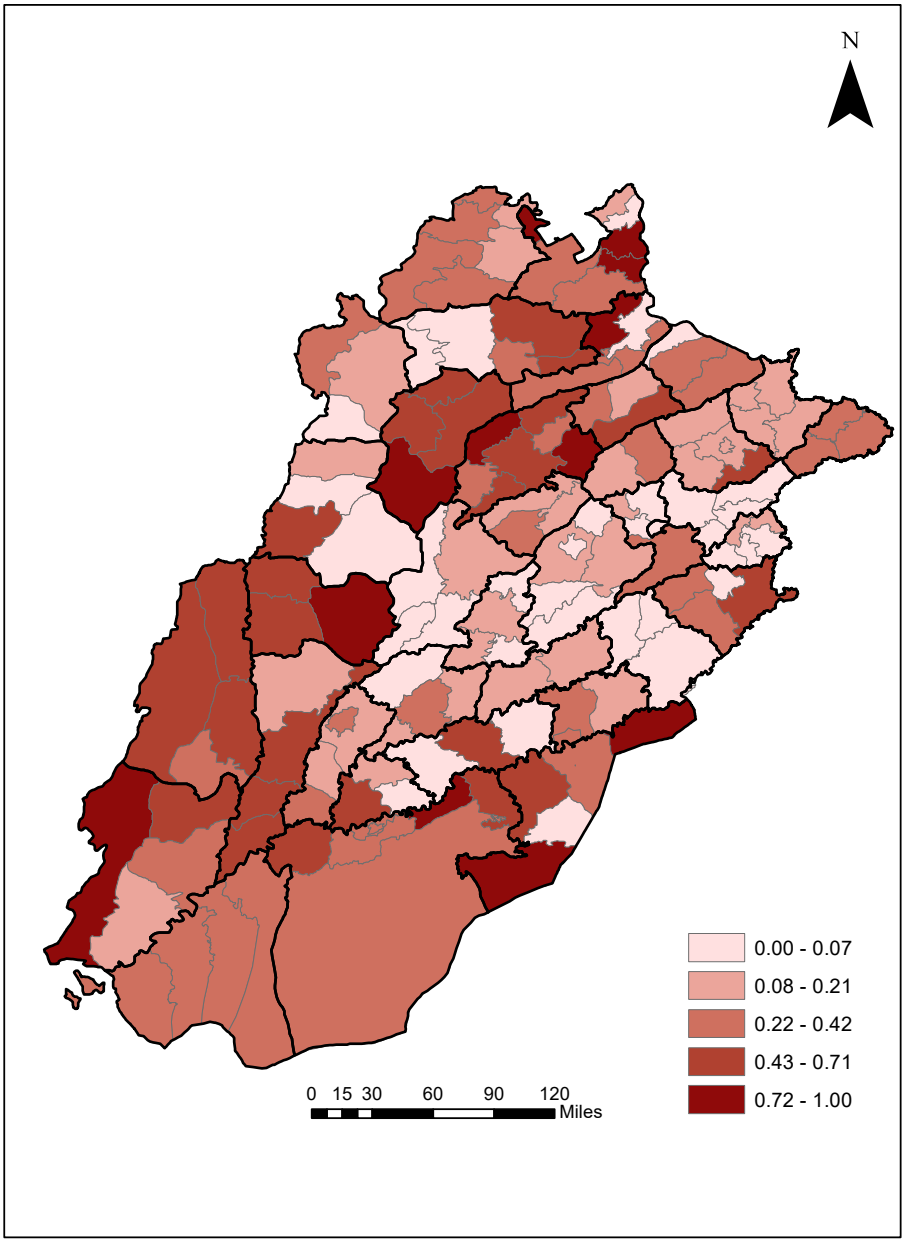


Figure 4: NGOs per capita across Tehsils in Punjab, Pakistan

Figure notes: The figure shows the proportion of NGOs deregistered across tehsils in Punjab, Pakistan. The figure shows 144 tehsils across 36 districts in Punjab. The bold boundary lines indicate the district boundaries. The numerator is the number of NGOs de-registered per tehsil in July-August 2019, and the denominator is the total number of NGOs in each tehsil in May 2019, which is right before the deregistration shock.

Table 1: Survey of deregistered and functional NGOs

	(1) Deregistered NGOs	(2) Functional NGOs	(3) P-value
Aware of print ad requesting NGOs to submit documents	0.050	0.450	0.003
Number of employees (current or when closed)	20.600	29.056	0.359
NGO Donation Collection Methods			
Use personal funds for NGO operations	0.700	0.650	0.744
Raise funds through fundraising activities e.g. donation camps	0.200	0.250	0.714
Collect funds from friends	0.200	0.100	0.389
Views on NGO Role and Effectiveness			
NGOs improve community development	0.900	1.000	0.154
NGO shutdowns reduce access to education and healthcare	0.650	0.700	0.744
NGOs deliver services more effectively than government	0.750	0.800	0.714
NGO presence reduces social problems	0.700	0.800	0.478
NGO presence reduces conflict	0.700	0.600	0.520
NGO presence supports local businesses	0.600	0.350	0.119
People prefer NGO-run schools over gov. schools	0.600	0.700	0.520
People prefer NGO-run health centers over gov. health centers	0.600	0.800	0.176
Government support needed to strengthen NGO operations	0.450	0.550	0.539
Simpler registration and regulatory support needed	0.000	0.150	0.075
Training needed to improve NGO management	0.000	0.050	0.324
More funding needed to improve NGO functioning	0.300	0.250	0.731

Notes: Column (1) includes the mean for the de-registered NGOs (N=20) and column (2) includes the mean for the functional NGOs (N=20). In column (3), we test if the differences between the means are statistically significant between the different NGOs and report the p-values on this difference. To do so, we run a regression where we regress each variable on whether the NGOs were de-registered. Data comes from surveys conducted with de-registered and functional NGOs in September 2025.

Table 2: Differences between deregistered and functional NGOs

	(1) Deregistered NGOs	(2) Functional NGOs	(3) P-value
Years since registration	25.654	26.310	0.184
Has foreign donor base	0.016	0.030	0.121
Has a woman in the leadership role	0.117	0.132	0.828
Operates at or below the tehsil level	0.882	0.898	0.006
NGO's Function			
Education	0.265	0.378	0.000
Health	0.257	0.396	0.000
Women Welfare	0.361	0.443	0.000
Youth Welfare	0.179	0.137	0.977
Skill Development	0.148	0.215	0.000
Religious Education	0.045	0.077	0.000
Control Spread of Narcotics	0.002	0.010	0.040
Environment	0.026	0.024	0.487
Agriculture	0.004	0.005	0.356
Financial Support/Microcredit	0.029	0.074	0.000
NGO's Budget and Assets			
Annual budget ('000 USD)	5,013.765	19,943.653	0.001
Report annual budget	0.389	0.554	0.000
Report any assets	0.643	0.664	0.023
Report owning any land or buildings	0.013	0.106	0.000
Report owning any computers	0.046	0.079	0.000
Report owning any vehicles	0.008	0.055	0.000

Notes: Column (1) includes the mean for the de-registered NGOs (N=1298) and column (2) includes the mean for the functional NGOs (N=3858). In column (3), we test if the differences between the means are statistically significant between the different NGOs and report the p-values on this difference. To do so, we run a regression where we regress each variable on whether the NGOs were de-registered and include tehsil level fixed effects.

Table 3: Tehsil-level differences between more- and less-treated tehsils

	More-treated tehsils	Less-treated tehsils	P-value
Economic Activity & Connectivity			
Night-lights intensity ($nW/cm^2/sr$)	2599.214	2939.800	0.481
Distance from Capital City (miles)	191.831	165.291	0.212
Information Access:			
Proportion of HHs who have access to Any source of information	0.953	0.963	0.184
Proportion of HHs who have access to Radio	0.034	0.035	0.991
Proportion of HHs who have access to Television	0.569	0.649	0.189
Proportion of HHs who have access to Newspaper	0.039	0.050	0.396
Proportion of HHs who have access to Telephone	0.027	0.039	0.280
Proportion of HHs who have access to Mobile device	0.940	0.950	0.161
Proportion of HHs who have access to Computer/Internet	0.082	0.103	0.321
NGO presence			
Total NGOs in tehsil	34.855	36.680	0.636
Total Education NGOs in tehsil	12.246	12.760	0.603
Total Health NGOs in tehsil	11.768	13.987	0.350
Total Women Welfare NGOs in tehsil	15.580	14.693	0.886
Total Skills Development NGOs in tehsil	7.841	6.413	0.544

Notes: Column (1) includes the mean for the more-treated tehsils, where the proportion of deregistered NGOs is higher than the median. Column (2) includes the mean for the less-treated tehsils, where the proportion of deregistered NGOs is less than the median. In column (3), we test if the differences between the means are statistically significant between the two groups and report the p-values. To do so, we run a regression where we regress each variable on the binary treatment variable. We get the data on distance from the capital city using GIS. Data on access to the different sources of information comes from the 2017 Census. Data on the number of NGOs in 2018-19 comes from the Punjab Social Welfare Department (SWD) and the Federal Board of Revenue (FBR).

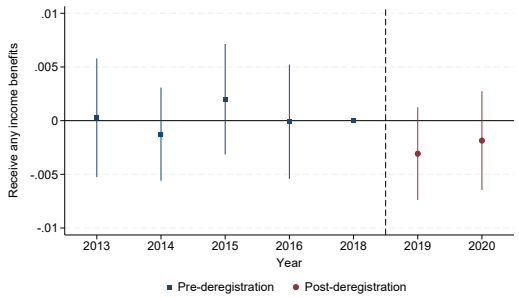
Table 4: First Stage

	(1) Number of NGOs	(2) Number of Education NGOs	(3) Number of Health NGOs
Treated x post	-10.297***		
	(2.230)		
Treated x post (education NGOs only)		-4.632***	
		(0.735)	
Treated x post (health NGOs only)			-4.466***
			(0.831)
Control Mean	36.680	11.000	11.280
Observations	288	288	288

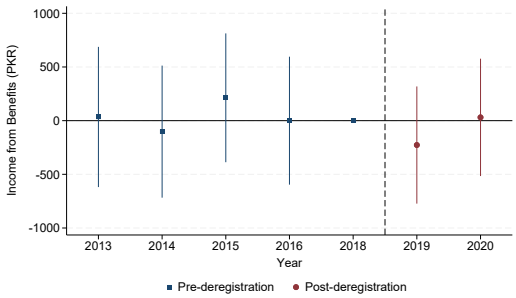
$*p < .10, **p < .05, ***p < .01$; Notes: Columns (1) to (3) show the effect of the deregistration shock on the number of NGOs across tehsils in Punjab, Pakistan. The treated variable refers to tehsils where the proportion of NGOs deregistered exceeds the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. Post refers to the years after 2018. We control for tehsil and time fixed effects, Data from the Punjab Social Welfare Department and the Federal Revenue Board (FBR). Standard errors clustered at tehsil level and reported in parentheses.

Figure 5: Receiving Monetary Benefits

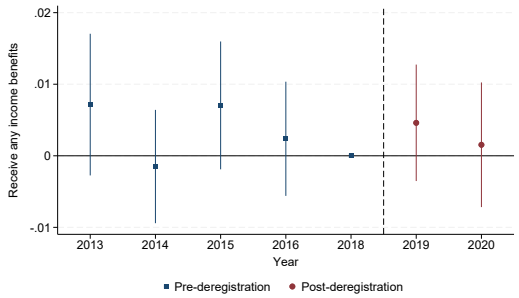
(a) Receive Monetary Benefits



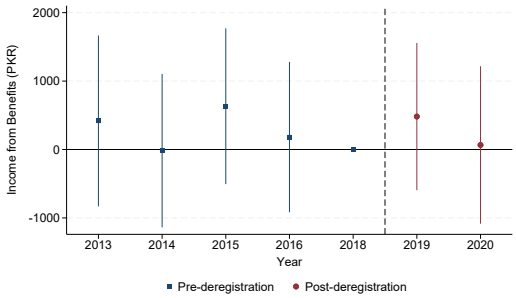
(b) Monetary Benefits (PKR)



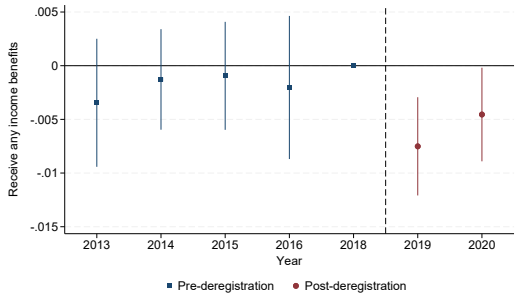
(c) Receive Monetary Benefits: Urban



(d) Monetary Benefits (PKR): Urban



(e) Receive Monetary Benefits: Rural



(f) Monetary Benefits (PKR): Rural

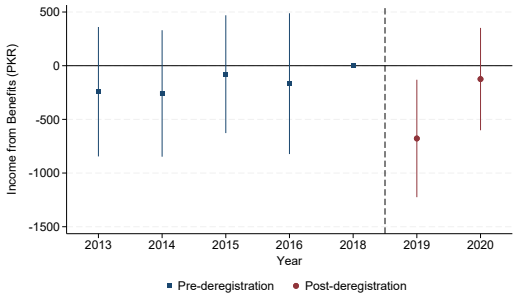
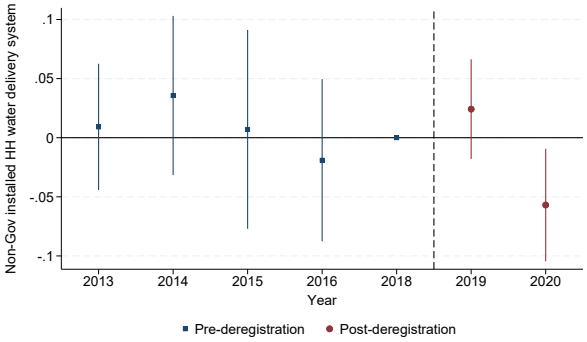


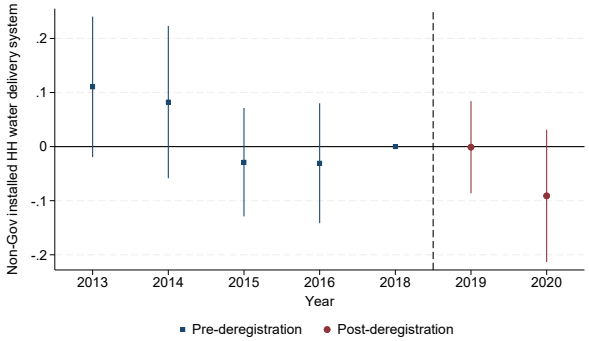
Figure notes: The event study plot shows the effect of the NGO deregistration on the receipt of monetary benefits across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. Sample is individuals aged 10 and above. The treated tehsils are where the proportion of NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 0.015 for panel (a), 0.018 for panel (c), and 0.013 for panel (e). For the outcomes in PKR, the control means are PKR 1931 for panel (b), PKR 2425 for panel (d), and PKR 1564 for panel (f). Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.

Figure 6: Water Delivery System Installed by NGOs

(a) Overall



(b) Urban



(c) Rural

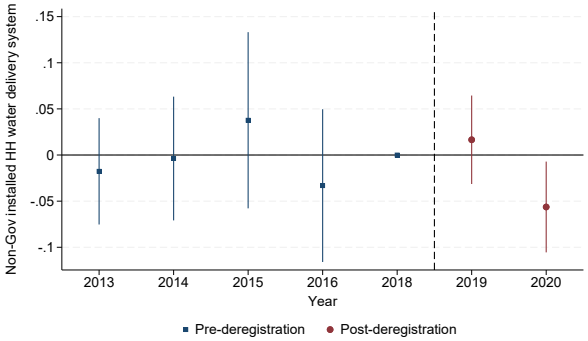


Figure notes: The event study plot shows the effect of the NGO deregistration on whether a non-governmental actor installed the household's water delivery system across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The treated tehsils are where the proportion of NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 0.70 for panel (a), 0.47 for panel (b), and 0.87 for panel (c). Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.

Figure 7: Attending a Non-Gov School

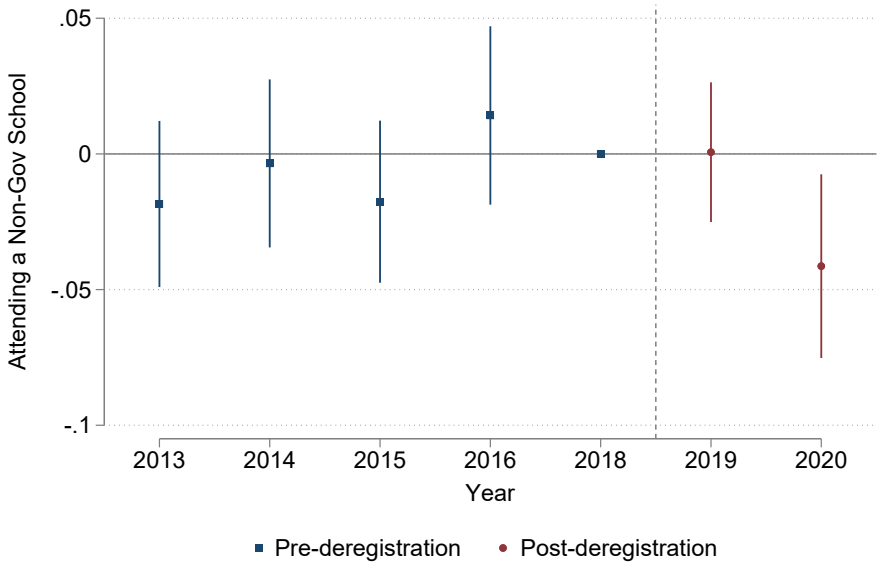
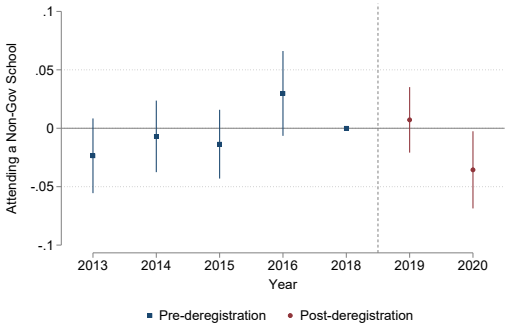


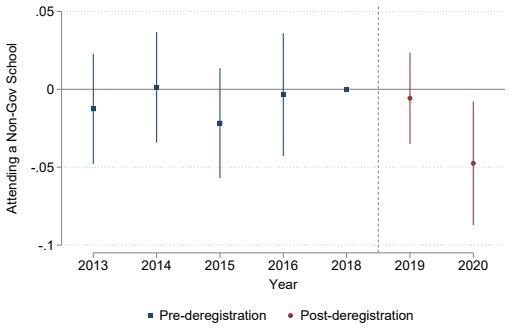
Figure notes: The event study plot shows the effect of the NGO deregistration on attending school at a non-governmental school across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children between 5 and 16 years old. The treated tehsils are where the proportion of "education" NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.39. Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

Figure 8: Attending a Non-Gov School by Gender

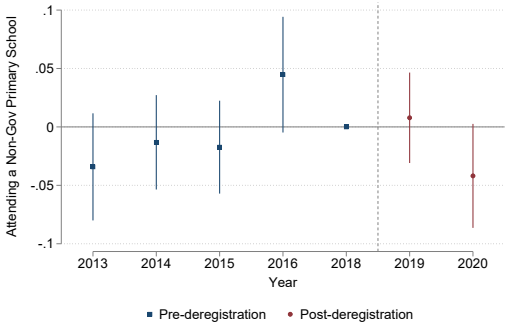
(a) Boys



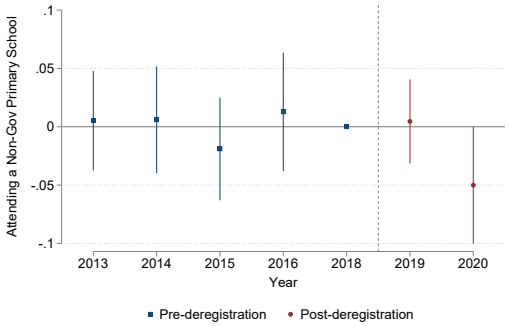
(b) Girls



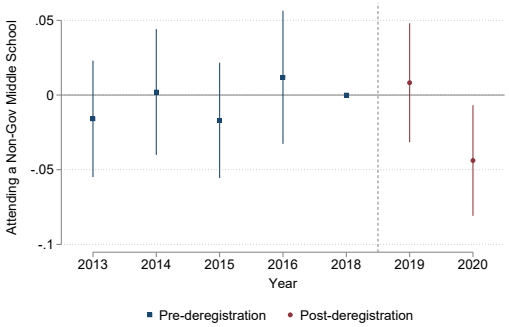
(c) Primary School: Boys



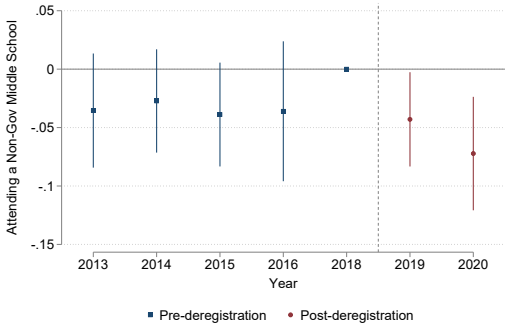
(d) Primary School: Girls



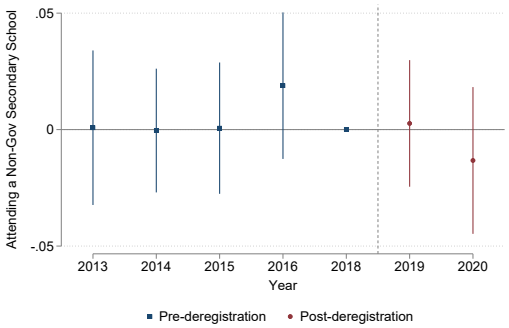
(e) Middle School: Boys



(f) Middle School: Girls



(g) Secondary School: Boys



(h) Secondary School: Girls

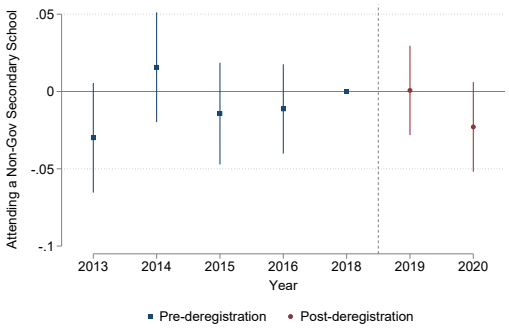


Figure notes: The event study plot shows the effect of the NGO deregistration on attending school at a non-governmental school across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children between 5 and 16 years old. The treated tehsils are where the proportion of "education" NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.4 for boys (panel a) and 0.39 for girls (panel b). Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

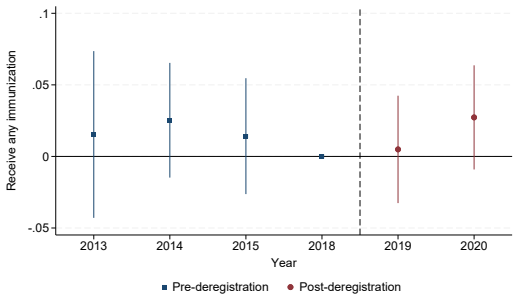
Table 5: School Attendance by Gender and Region

,	Boys					Girls			
	(1) All School Types	(2) All School Types	(3) Primary School	(4) Middle School	(5) Secondary School	(6) All School Types	(7) Primary School	(8) Middle School	(9) Secondary School
Panel A: Non-Gov Schools									
Treated x post	-0.005	-0.000	0.000	-0.002	-0.005	-0.010	-0.009	-0.023*	-0.001
	(0.010)	(0.011)	(0.014)	(0.012)	(0.008)	(0.011)	(0.014)	(0.013)	(0.009)
Control Mean	0.060	0.060	0.070	0.040	0.040	0.060	0.080	0.050	0.030
Observations	201541	107308	57467	25663	24178	94233	50564	22140	21529
I: Urban									
Treated x post	-0.028**	-0.020*	-0.023	-0.007	-0.031***	-0.037**	-0.039**	-0.043**	-0.027*
	(0.012)	(0.012)	(0.016)	(0.015)	(0.011)	(0.015)	(0.018)	(0.017)	(0.015)
Control Mean	0.040	0.040	0.030	0.040	0.050	0.030	0.030	0.030	0.040
Observations	63501	32553	16722	7999	7832	30948	15830	7543	7575
II: Rural									
Treated x post	0.007	0.008	0.009	0.000	0.008	0.005	0.006	-0.016	0.016
	(0.013)	(0.014)	(0.017)	(0.017)	(0.011)	(0.013)	(0.016)	(0.015)	(0.012)
Control Mean	0.070	0.070	0.090	0.040	0.040	0.080	0.110	0.060	0.030
Observations	138040	74755	40745	17664	16346	63285	34734	14597	13954
Panel B: Gov Schools									
Treated x post	0.037***	0.028*	0.027	0.039*	0.015	0.048***	0.062***	0.034	0.025
	(0.014)	(0.015)	(0.019)	(0.022)	(0.025)	(0.017)	(0.021)	(0.026)	(0.024)
Control Mean	0.520	0.530	0.500	0.590	0.530	0.520	0.510	0.590	0.430
Observations	201541	107308	57467	25663	24178	94233	50564	22140	21529
I: Urban									
Treated x post	0.057***	0.042**	0.053**	0.029	0.040	0.072***	0.061**	0.100***	0.046
	(0.017)	(0.020)	(0.024)	(0.036)	(0.040)	(0.022)	(0.026)	(0.035)	(0.032)
Control Mean	0.380	0.340	0.280	0.420	0.420	0.410	0.340	0.520	0.480
Observations	63501	32553	16722	7999	7832	30948	15830	7543	7575
II: Rural									
Treated x post	0.025	0.027	0.019	0.050*	0.014	0.025	0.044*	-0.007	0.016
	(0.016)	(0.018)	(0.022)	(0.029)	(0.027)	(0.020)	(0.023)	(0.033)	(0.031)
Control Mean	0.610	0.640	0.620	0.710	0.590	0.580	0.620	0.640	0.400
Observations	138040	74755	40745	17664	16346	63285	34734	14597	13954

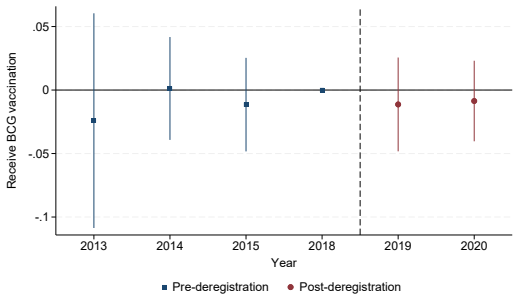
Notes: $*p < .10, **p < .05, ***p < .01$; Standard errors reported in parentheses are clustered at the tehsil level. Columns (1) to (4) report results for boys aged 5 to 16 years, while columns (5) to (6) report results for girls aged 5 to 16 years. In Panel A, the outcome is attending non-governmental schools. In Panel B, the outcome is attending governmental schools. For each outcome, we consider different age groups and corresponding school types: Primary school includes grades 1 to 5 (ages 5 to 10 years), middle school includes grades 6 to 8 (ages 11 to 13 years), and secondary school includes grades 9 and 10 (ages 14 to 16 years). The treated variable refers to tehsils where the proportion of "education" deregistered NGOs exceeds the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. Post refers to the years after 2018. In all regressions, we include tehsil and year-fixed effects. Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We use PSLM sampling weights in all of our regressions.

Figure 9: Child Immunization

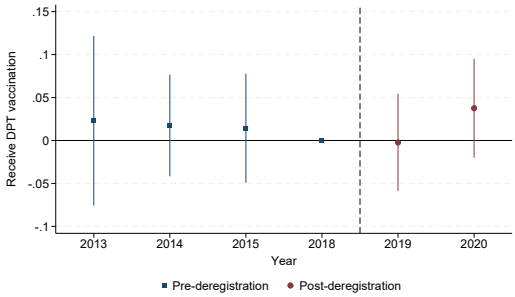
(a) Ever immunized



(b) Received BCG vaccination



(c) Received DPT vaccination



(d) Received Polio Vaccination

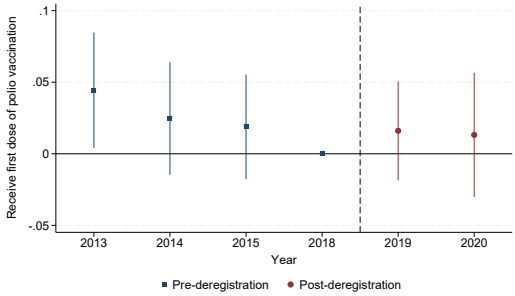


Figure notes: The event study plot shows the effect of the NGO deregistration on children's immunization across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children less than 12 months old. The treated tehsils are where the proportion of "health" NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of health NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.92 for panel (a), 0.94 for panel (b), 0.85 for panel (c), and 0.95 for panel (d). Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The years 2016 and 2017 are missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

Table 6: Child Immunization and Gender

	Boys				Girls			
	(1) Ever immunized	(2) Got BCG vaccination	(3) Got DPT vaccination	(4) Got Polio vaccination	(5) Ever immunized	(6) Got BCG vaccination	(7) Got DPT vaccination	(8) Got Polio vaccination
Panel A: Overall								
Treated x post	0.014	0.002	-0.000	-0.003	-0.028*	-0.012	-0.010	-0.010
	(0.015)	(0.019)	(0.026)	(0.017)	(0.015)	(0.022)	(0.027)	(0.017)
Control Mean	0.920	0.940	0.840	0.930	0.930	0.950	0.850	0.960
Observations	8965	8965	8965	8965	8506	8506	8506	8506
Panel B: Urban								
Treated x post	-0.006	-0.030	-0.034	-0.011	-0.008	-0.022	-0.077	-0.015
	(0.026)	(0.028)	(0.055)	(0.029)	(0.038)	(0.023)	(0.052)	(0.032)
Control Mean	0.950	0.960	0.860	0.940	0.960	1.000	0.850	0.950
Observations	2232	2232	2232	2232	2151	2151	2151	2151
Panel C: Rural								
Treated x post	0.016	0.005	0.015	-0.001	-0.044**	-0.012	0.025	-0.004
	(0.020)	(0.025)	(0.030)	(0.021)	(0.019)	(0.027)	(0.031)	(0.019)
Control Mean	0.900	0.930	0.830	0.930	0.910	0.920	0.850	0.960
Observations	6733	6733	6733	6733	6355	6355	6355	6355

Notes: $*p < .10, **p < .05, ***p < .01$; Standard errors reported in parentheses are clustered at the tehsil level. Columns (1) to (4) report results for boys aged less than 12 months, while columns (5) to (6) report results for girls aged less than 12 months. The treated variable refers to tehsils where the proportion of "health" deregistered NGOs exceeds the median. The control group consists of all tehsils where the proportion of health NGOs deregistered is less than the median. Post refers to the years after 2018. In all regressions, we include tehsil and year-fixed effects. Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The yeas 2016 and 2017 are missing as no survey data is available for that year. We use PSLM sampling weights in all of our regressions.

Figure 10: Receiving Pre-natal Care

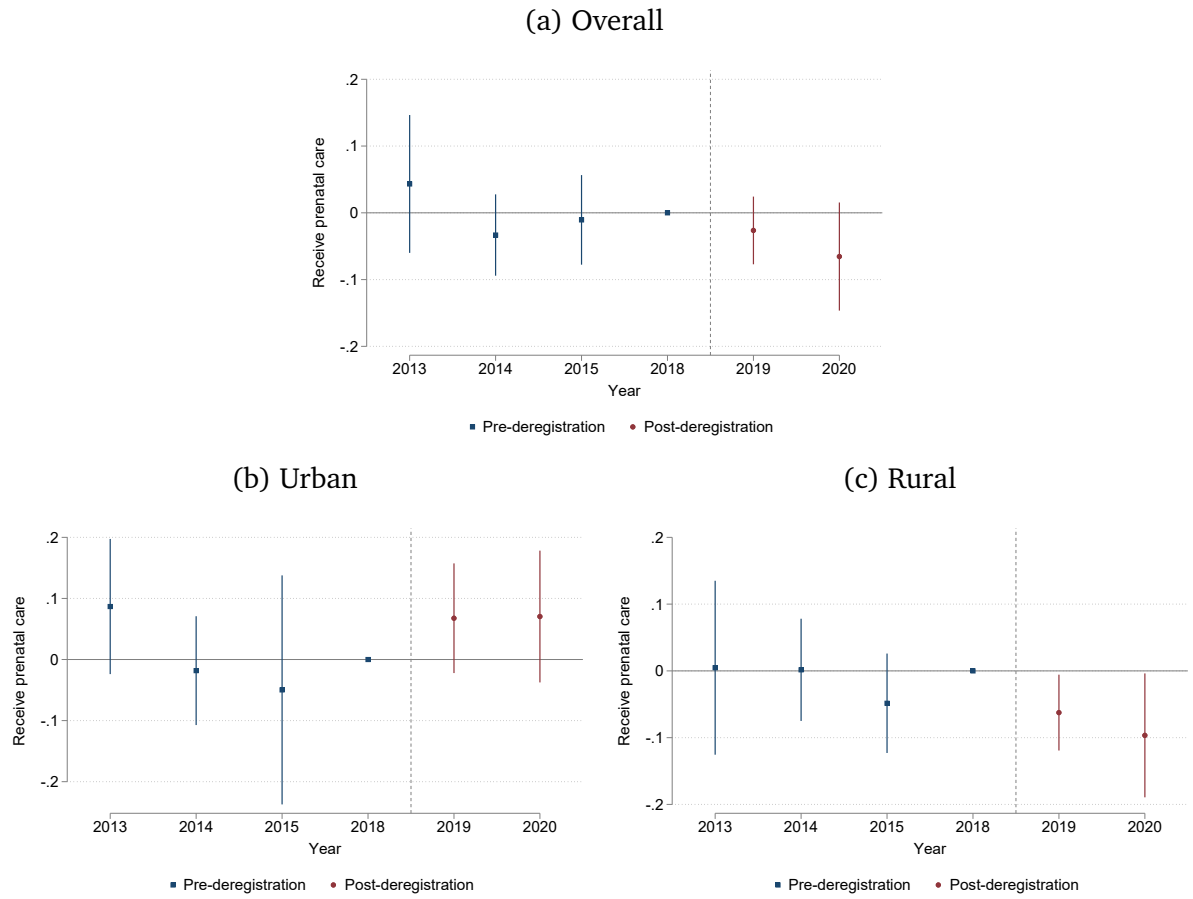
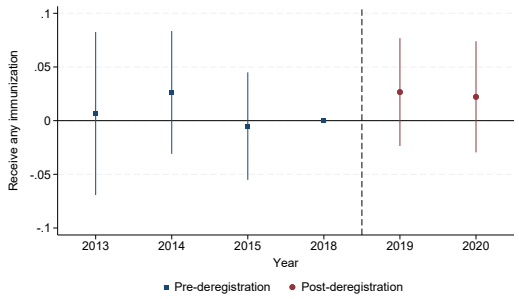


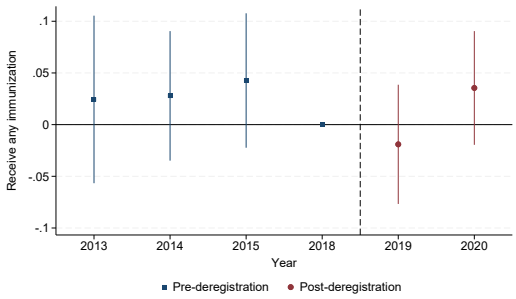
Figure notes: The event study plot shows the effect of the NGO deregistration on whether a pregnant women received pre-natal care during her pregnancy across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample includes pregnant women between the ages of 18 and 26 years. The treated tehsils are where the proportion of "health" NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of health NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 0.93 for panel (a), 0.96 for panel (b), and 0.92 for panel (c). Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The years 2016 and 2017 are missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.

Figure 11: Child Immunization by Gender

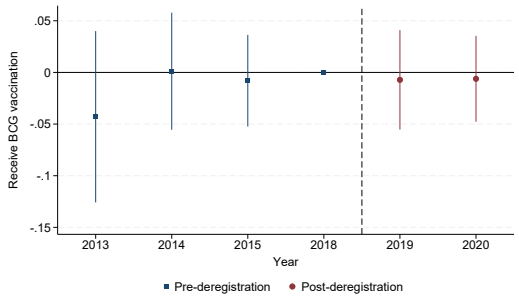
(a) Ever immunized: Boys



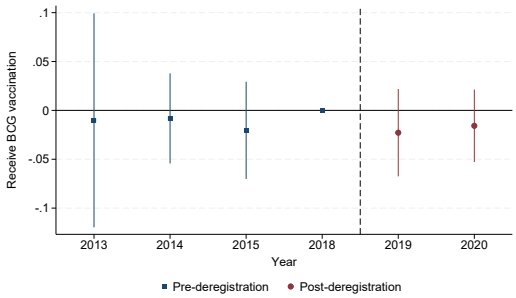
(b) Ever immunized: Girls



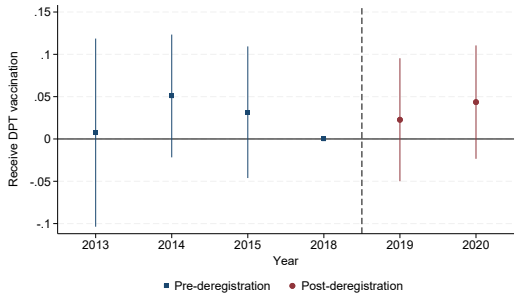
(c) Received BCG vaccination: Boys



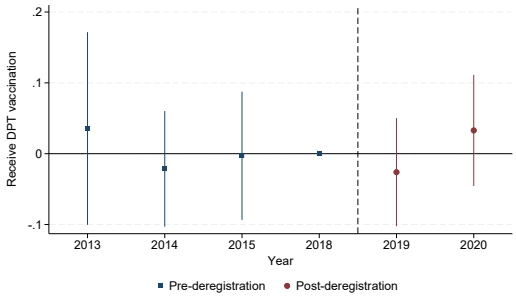
(d) Received BCG vaccination: Girls



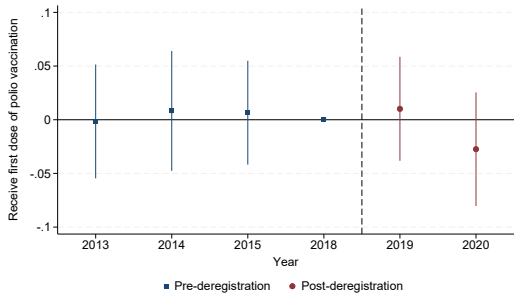
(e) Received DPT vaccination: Boys



(f) Received DPT vaccination: Girls



(g) Received polio vaccination: Boys



(h) Received polio vaccination: Girls

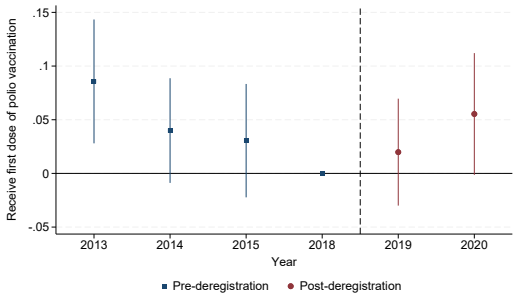
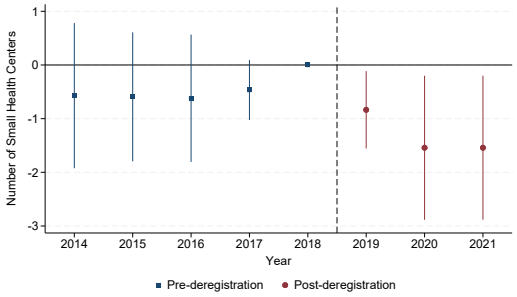


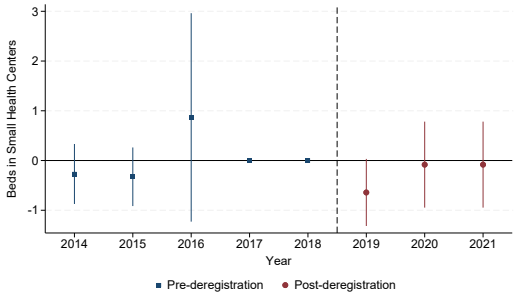
Figure notes: The event study plot shows the effect of the NGO deregistration on children's immunization by gender across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children less than 12 months old. The treated tehsils are where the proportion of "health" NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of health NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The years 2016 and 2017 are missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

Figure 12: Health Sector Snapshot

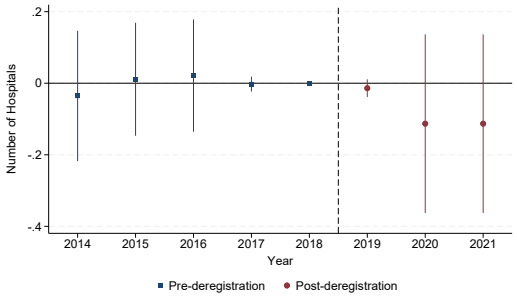
(a) Small Health Centers: Number



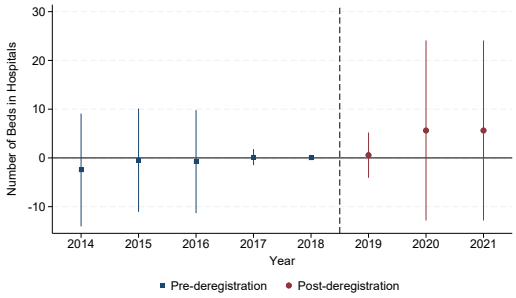
(b) Small Health Centers: Beds



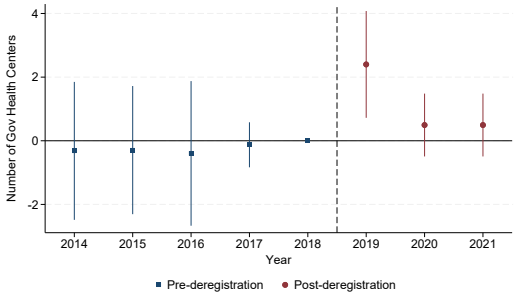
(c) Hospitals: Number



(d) Hospitals: Beds



(e) Gov Health Centers: Number



(f) Gov Health Centers: Beds

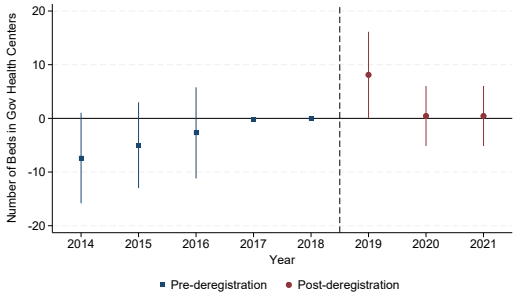


Figure notes: The event study plot shows the effect of the NGO deregistration on the different health centers across tehsils in Punjab, Pakistan, from 2014 to 2020. We show 90% confidence intervals. The treated tehsils are where the proportion of "health" NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of health NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 4.36 small health centers for panel (a), 1.07 beds for panel (b), and 1.36 hospitals for panel (c), 96.56 beds for panel (d). 16.21 government-run health centers for panel (e) and 52 beds for panel (e). Government-run health centers include basic health units, rural health centers, TB health centers, sub-health centers, and mother and child health centers. Data comes from the Punjab Development Statistics Annual Reports. We include tehsil and year-fixed effects. We weight observations by the tehsil population. Standard errors are clustered at the tehsil level.

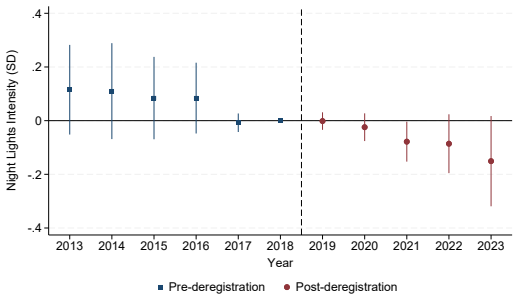
Table 7: Firm Outcomes

	Business Environment		Obstacles to Business		Firm Performance	
	(1)	(2)	(3)	(4)	(5)	(6)
	Experienced power outages	% Loss in annual sales due to power outages	Crime, Theft or Disorder	Inadequately educated workforce	Annual sales per worker (in 1000s PKR)	Annual wage per worker (in 1000s PKR)
Panel A: All firms						
Treated x post	0.180*	20.611***	0.185	0.077	-585.924	-51.989
	(0.102)	(7.321)	(0.273)	(0.087)	(4528.416)	(68.080)
Control Mean	0.980	37.050	0.480	0.300	4650.690	194.240
Observations	1128	1080	1128	1128	842	838
Panel B: Micro and Small Firms ($<$ 20 workers)						
Treated x post	0.350***	27.337***	0.192	0.053	-8.632	-146.175**
	(0.116)	(5.815)	(0.281)	(0.088)	(5405.938)	(57.340)
Control Mean	0.990	38.340	0.520	0.300	5361.680	127.240
Observations	533	505	533	533	363	376
Panel C: Medium and Large Firms ($\geq$ 20 workers)						
Treated x post	-0.043	5.862	0.329	0.156	-1281.714	77.897
	(0.178)	(5.846)	(0.206)	(0.194)	(4795.748)	(99.210)
Control Mean	0.950	33.810	0.390	0.290	4033.940	295.410
Observations	595	575	595	595	479	462

Notes: $*p < .10, **p < .05, ***p < .01$; Standard errors reported in parentheses are clustered at the tehsil level. Columns (1) to (2) report results outcomes related to the business environment, columns (3) to (4) report results for outcomes related to obstacles to business operations (firm's perceptions), and columns (5) and (6) report firm performance outcomes. The treated variable refers to tehsils where the proportion of deregistered NGOs exceeds the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. We have two waves of survey data (2014 and 2022), which comes from the World Bank Enterprise Surveys. Post refers to the year 2022, while pre-period is 2014. In all regressions, we include tehsil and survey-round-fixed effects. We use survey sampling weights in all of our regressions. Variation in observations arises from item non-response (missing values).

Figure 13: Night-time Lights Intensity

(a) Binary Treatment



(b) Continuous Treatment

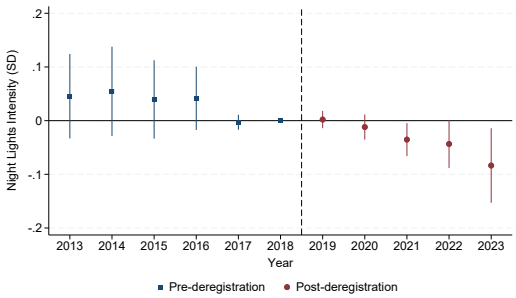


Figure notes: The event study plot shows the effect of the NGO deregistration on night-time light intensity across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. In panel (a), the treated tehsils are where the proportion of deregistered NGOs exceeds the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. In panel (b), the treatment variable is continuous and standardized: the standardized proportion of NGOs deregistered in each tehsil. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 1.38 SD for panel (a) and 1.13 SD for panel (b). Data comes from the VIIRS Nighttime Lights database. The outcome is winsorized at the 5th and 95th percentiles and standardized for ease of interpretation. We include tehsil and year-fixed effects in our regression and observations are weighted by the tehsil population. Standard errors are clustered at the tehsil level.

Figure 14: Sensitivity Analysis (Rambachan & Roth, 2023)

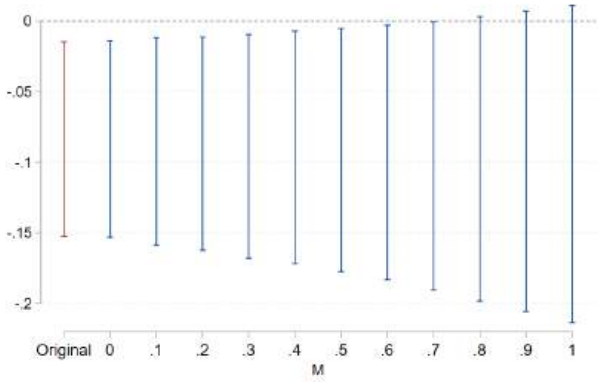


Figure notes: Outcome is night-light intensity, standardized to SD units. We report 90% identified sets for the 2023 coefficient (five years after deregistration) for $M \in \{0, 0.1, \ldots, 1\}$. The specification matches Figure 13 (b): tehsil and year fixed effects, population weights, and standard errors clustered at the tehsil level. We implement Rambachan & Roth (2023) (HonestDiD) with the relative-magnitudes calibration. The "yardstick" is the largest absolute pre-treatment event-time coefficient; M is the fraction of this yardstick we allow as systematic post-treatment deviation from parallel trends. "Original" is the conventional 90% CI under parallel trends ($M = 0$). Blue segments plot 90% identified sets as we allow post-treatment drift equal to a fraction M of the largest absolute pre-trend; the dashed line marks zero.

Figure 15: Annual Income

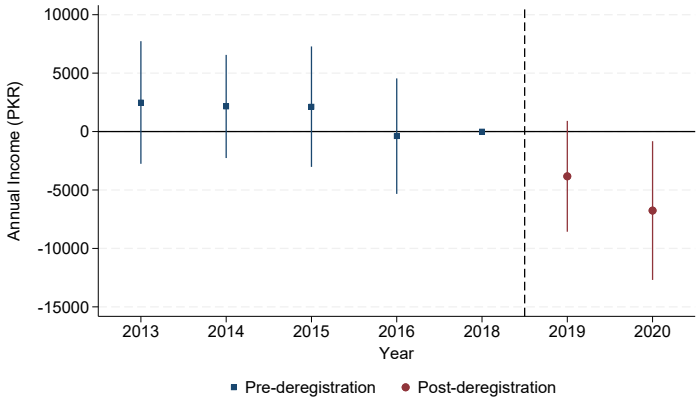
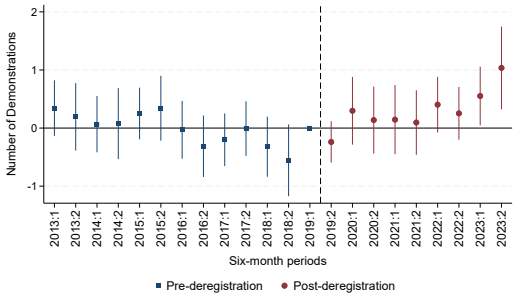


Figure notes: The event study plot shows the effect of the NGO deregistration on annual income across tehsils in Punjab, Pakistan, from 2014 to 2020. We show 90% confidence intervals. The treated tehsils are where the proportion of NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of health NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is PKR 77,220 ($515). Data comes from the PSLM surveys. We include tehsil and year-fixed effects. We weight observations by the survey sampling weights. Standard errors are clustered at the tehsil level.

Figure 16: Demonstrations

(a) Binary Treatment



(b) Continuous Treatment

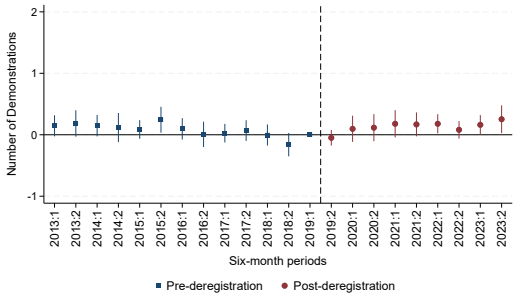


Figure notes: The event study plot shows the effect of the NGO deregistration on demonstrations across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. In panel (a), the treated tehsils are where the proportion of deregistered NGOs exceeds the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. In panel (b), the treatment variable is continuous and standardized: the standardized proportion of NGOs deregistered in each tehsil. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 1.62 demonstrations for panel (a) and 1.07 demonstrations for panel (b). Data comes from the Armed Conflict Location and Event Data (ACLED). The outcome is winsorized at the 95th percentile. We include tehsil and year-fixed effects in our regression and observations are weighted by the tehsil population. Standard errors are clustered at the tehsil level.

Figure 17: Victims of Extreme Violence Admitted to Women Shelter Homes

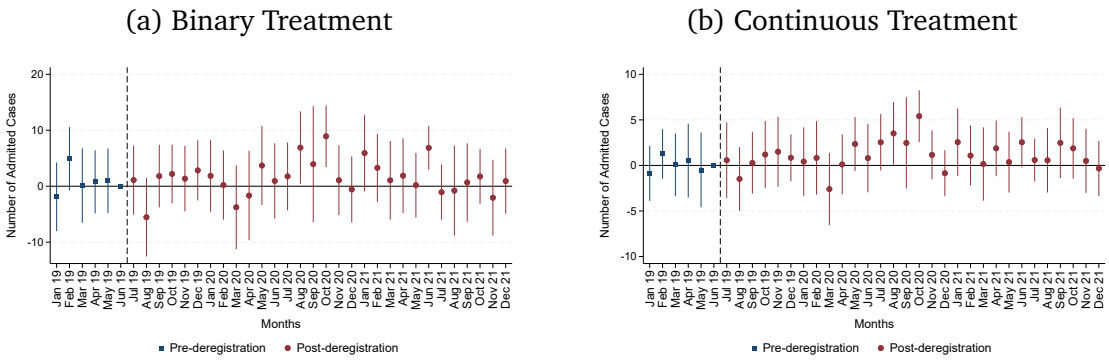


Figure notes: The event study plot shows the effect of the NGO deregistration on the number of violence victims admitted to women's shelter homes across districts in Punjab, Pakistan, from Jan 2019 to Dec 2021. We show 90% confidence intervals. In panel (a), the treated districts are where the proportion of deregistered NGOs exceeds the median. The control group consists of all districts where the proportion of NGOs deregistered is less than the median. In panel (b), the treatment variable is continuous and standardized: the standardized proportion of NGOs deregistered in each district. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is June 2019. The control mean is 30 cases for panel (a) and 32 cases for panel (b). Data comes from the Punjab Social Welfare Department. The outcome is winsorized at the 95th percentile. We include district and year-fixed effects in our regression and observations are weighted by the district population. Standard errors are clustered at the district level.

A Solving Our Conceptual Framework

In our model, we consider that the household's utility depends on consumption c, leisure l, and the use of essential services s_i for each member $i \in \{m, f\}$, where m represents the male household member and f represents the female. The household's problem is to maximize utility, which can be written as:

$$\max\ U = u(c, l, s_m, s_f) \tag{1}$$

subject to the budget constraint:

$$y + w \cdot (T - l) = c + p_{s_m}(\epsilon, g) \cdot s_m + p_{s_f}(\epsilon, g) \cdot s_f \tag{2}$$

where y represents the total exogenous income, T is the total time available to the household, and l denotes leisure. The variable w is the effective wage rate, while c represents consumption. Additionally, s_m and s_f refer to the essential services utilized by the male and female household members, respectively. The price of essential services for each member is denoted by p_{s_m} and p_{s_f}, which depend on NGO activity (ϵ) and government activity (g). We assume that $p_{s_f} \geq p_{s_m}$ due to additional female-specific costs, such as social norms or travel expenses to overcome mobility constraints.

The Lagrangian for the household's optimization problem is expressed as:

$$\max_{c,l,s_m,s_f} \mathcal{L} = u(c, l, s_m, s_f) + \lambda \left[y + w \cdot (T - l) - c - p_{s_m}(\epsilon, g) \cdot s_m - p_{s_f}(\epsilon, g) \cdot s_f \right] \tag{3}$$

where λ is the Lagrange multiplier.

The first-order conditions for this optimization problem are:

$$\frac{\partial \mathcal{L}}{\partial c} = u_c - \lambda = 0 \tag{4}$$

$$\frac{\partial \mathcal{L}}{\partial l} = u_l - \lambda w = 0 \tag{5}$$

$$\frac{\partial \mathcal{L}}{\partial s_m} = u_{s_m} - \lambda p_{s_m}(\epsilon, g) = 0 \tag{6}$$

$$\frac{\partial \mathcal{L}}{\partial s_f} = u_{s_f} - \lambda p_{s_f}(\epsilon, g) = 0 \tag{7}$$

$$\frac{\partial \mathcal{L}}{\partial \lambda} = y + w \cdot (T - l) - c - p_{s_m}(\epsilon, g) \cdot s_m - p_{s_f}(\epsilon, g) \cdot s_f = 0 \tag{8}$$

Solving equation 4 gives:

$$\lambda = u_c \tag{9}$$

Substituting equation 9 into equation 5 leads to:

$$u_l = \lambda w \Rightarrow u_l = w u_c \tag{10}$$

Similarly, using equations 6 and 9, we get the optimal level of essential services for the male household member s_m^*:

$$\frac{u_{s_m}}{u_c} = p_{s_m}(\epsilon, g) \tag{11}$$

For the female household member, from equations 7 and 9, we obtain the optimal level of essential services s_f^*:

$$\frac{u_{s_f}}{u_c} = p_{s_f}(\epsilon, g) \tag{12}$$

In both equations 11 and 12, the left-hand side represents the marginal benefit (MB) of essential services for each individual, while the right-hand side represents the marginal cost (MC) of these services, which depends on NGO activity ϵ and government activity g, and varies by gender.

B Threats to Identification

Table B.1: Threat to Identification - Political Motivations for NGO Deregistration

	(1) Prop. of NGOs deregistered (SD) in district	(2) More-treated district
Opposition party in power	-0.205	-0.349
	(0.596)	(0.240)
Control Mean	2.040	0.780
Observations	36	36

$*p < .10, **p < .05, ***p < .01$; Notes: Robust standard errors reported in parentheses. Column (1) shows the effect of whether the opposition party is in power on the proportion of NGOs deregistered in a *district*. Column (2) shows the effect of whether the opposition party is in power on the likelihood of the *district* being more-treated. Data comes from Election Commission of Pakistan.

Table B.2: Differential Impact of External Factors - COVID-19

	(1) Total COVID-19 cases	(2) Total COVID-19 cases
Prop. of NGOs deregistered (SD)	-1309.649	
	(896.418)	
More-treated		-2700.331
		(1780.639)
Control Mean	3216.000	6818.730
Observations	36	36

$*p < .10, **p < .05, ***p < .01$; Notes: Robust standard errors reported in parentheses. Column (1) shows the effect of whether the opposition party is in power on the proportion of NGOs deregistered in a *district*. Column (2) shows the effect of whether the opposition party is in power on the likelihood of the *district* being more-treated. Data comes from the Punjab Development Statistics Annual Reports.

C Results Using Continuous Treatment Measure

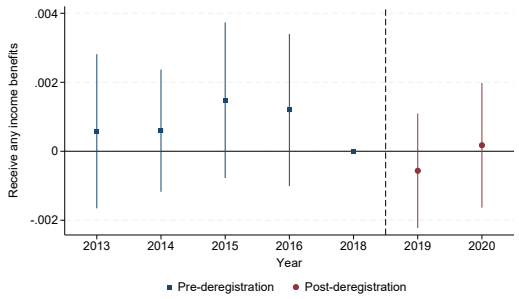
Table C.1: First Stage

	(1) Number of NGOs	(2) Number of Education NGOs	(3) Number of Health NGOs
Prop. NGOs dereg (SD) x post	-4.047***		
	(1.078)		
Prop. NGOs dereg (SD) x post (education NGOs only)		-2.109***	
		(0.423)	
Prop. NGOs dereg (SD) x post (health NGOs only)			-2.067***
			(0.521)
Control Mean	25.040	7.300	7.180
Observations	288	288	288

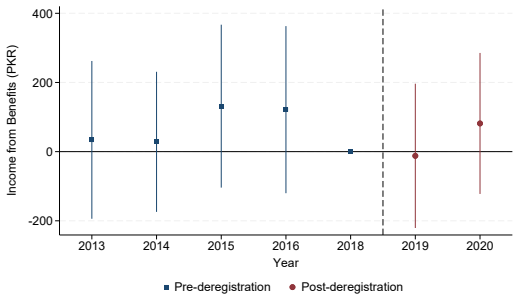
$*p < .10, **p < .05, ***p < .01$; Notes: Robust standard errors reported in parentheses. Column (1) shows the effect of the deregistration shock on the number of NGOs across tehsils in Punjab, Pakistan. The treatment variable is the standardized proportion of NGOs deregistered in a tehsil. Post refers to the years after 2018. We control for tehsil and time fixed effects. Data from the Punjab Social Welfare Department and the Federal Revenue Board (FBR).

Figure C.1: Receiving Monetary Benefits

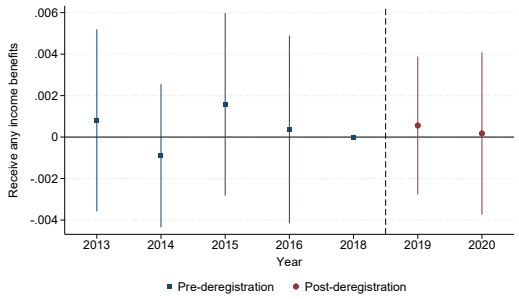
(a) Receive Monetary Benefits



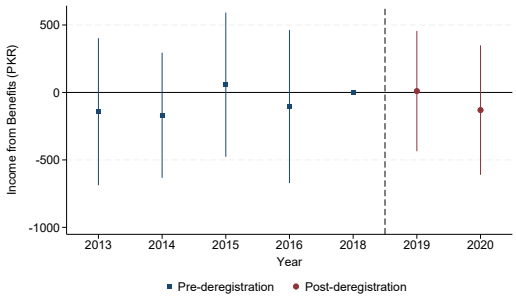
(b) Monetary Benefits (PKR)



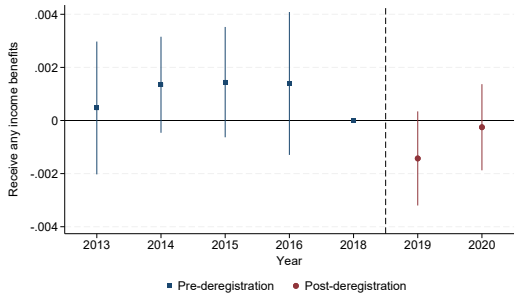
(c) Receive Monetary Benefits: Urban



(d) Monetary Benefits (PKR): Urban



(e) Receive Monetary Benefits: Rural



(f) Monetary Benefits (PKR): Rural

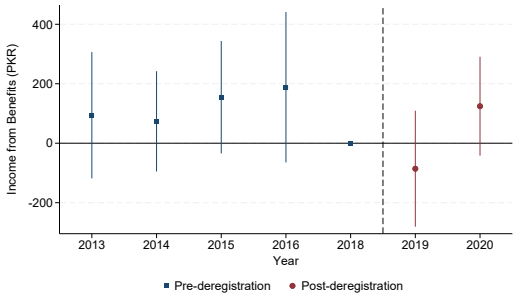
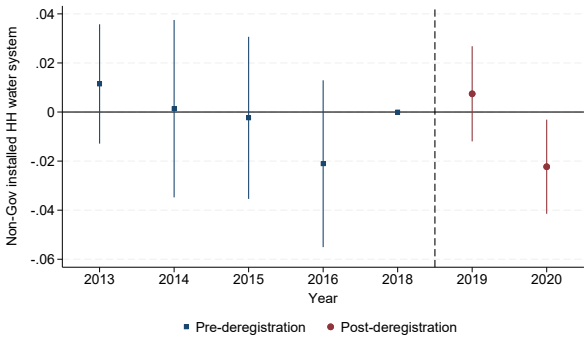


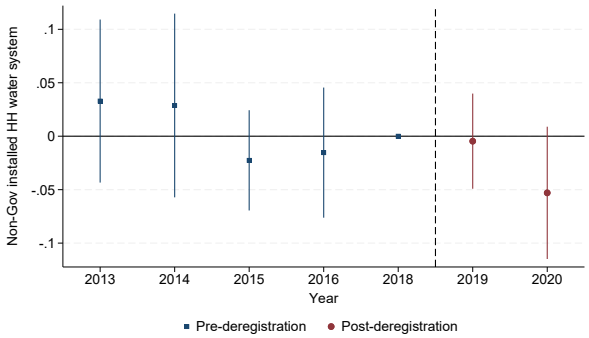
Figure notes: The event study plot shows the effect of the NGO deregistration on the receipt of monetary benefits across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. Sample is individuals aged 10 and above. The treatment variable is the standardized proportion of NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 0.015 for panel (a), 0.018 for panel (c), and 0.013 for panel (e). For the outcomes in PKR, the control means are PKR 1931 for panel (b), PKR 2425 for panel (d), and PKR 1564 for panel (f). Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.

Figure C.2: Water Delivery System Installed by NGOs

(a) Overall



(b) Urban



(c) Rural

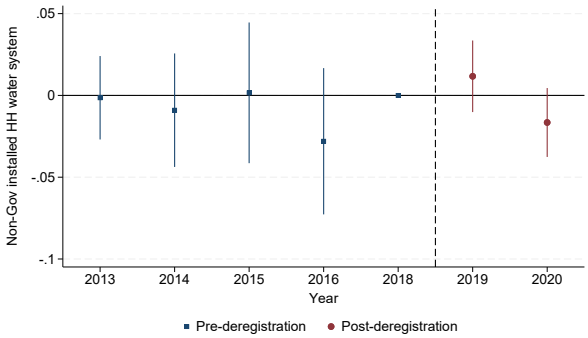


Figure notes: The event study plot shows the effect of the NGO deregistration on whether an NGO installed the household's water delivery system across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The treatment variable is the standardized proportion of NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 0.11 for panel (a), 0.09 for panel (b), and 0.12 for panel (c). Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.

Figure C.3: Attending a Non-Gov School

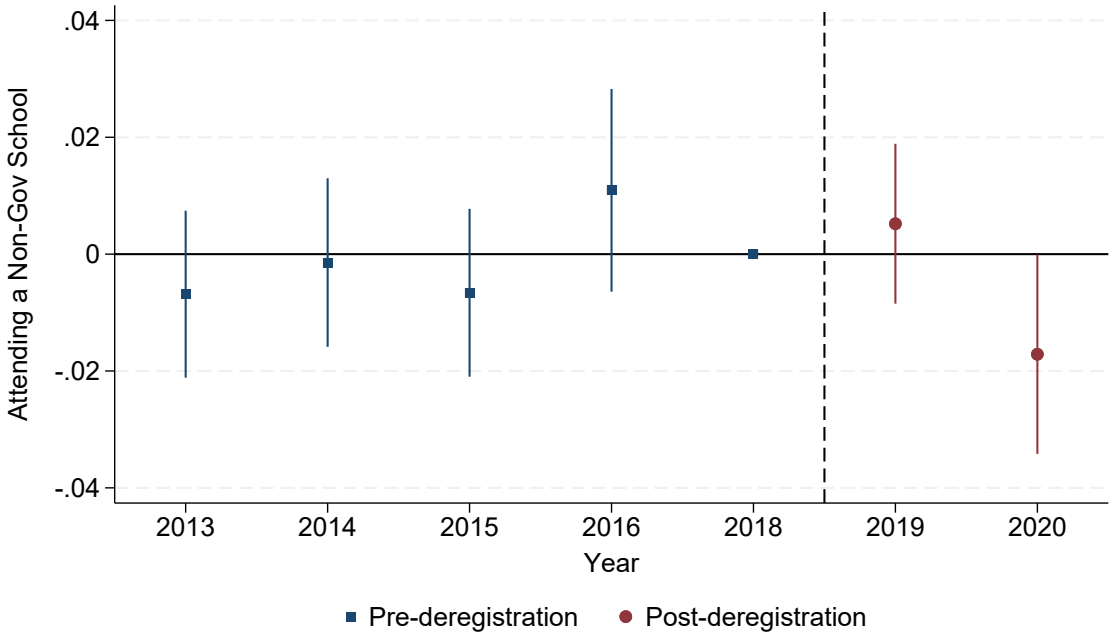
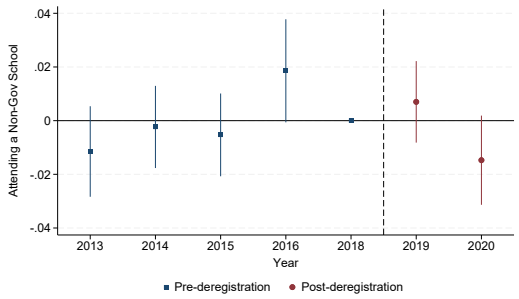


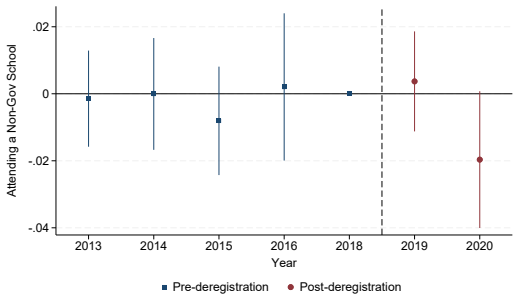
Figure notes: The event study plot shows the effect of the NGO deregistration on attending school at a non-governmental school across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children between 5 and 16 years old. The treatment variable is the standardized proportion of "education" NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.39. Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We also control for the age, gender, and urban status of the child. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

Figure C.4: Attending a Non-Gov School by Gender

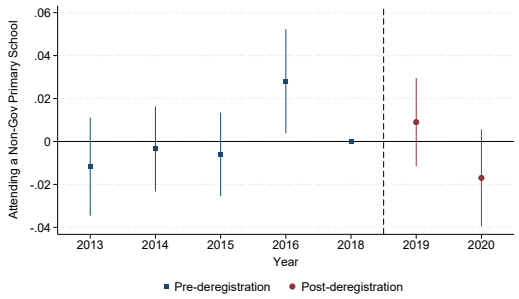
(a) Boys



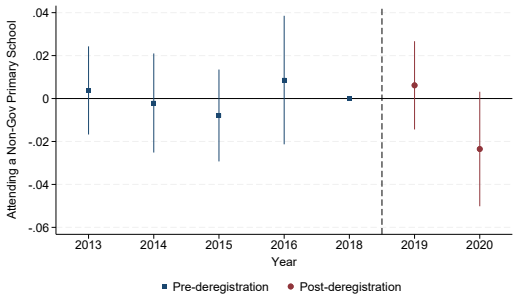
(b) Girls



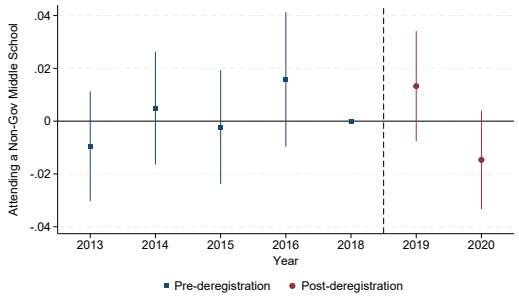
(c) Primary School: Boys



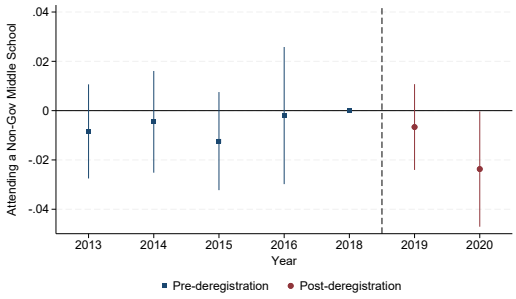
(d) Primary School: Girls



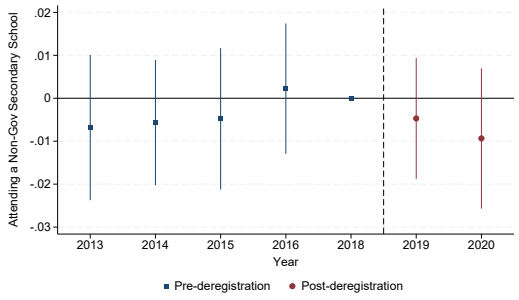
(e) Middle School: Boys



(f) Middle School: Girls



(g) Secondary School: Boys



(h) Secondary School: Girls

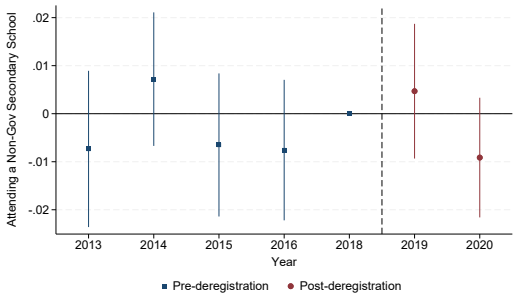


Figure notes: The event study plot shows the effect of the NGO deregistration on attending school at a non-governmental school across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children between 5 and 16 years old. The treatment variable is the standardized proportion of "education" NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.4 for boys (panel a) and 0.39 for girls (panel b). Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We also control for the age and urban status of the child. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

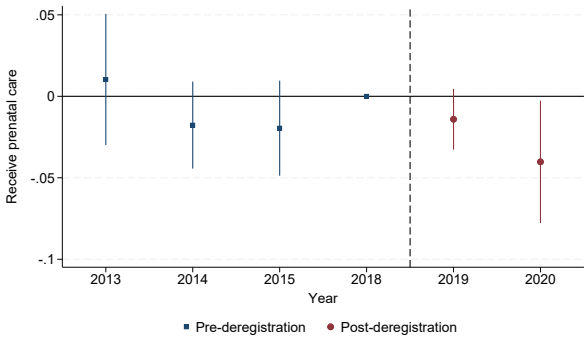
Table C.2: School Attendance by Gender and Region

,	(1) All School Types	Boys (2) All School Types	(3) Primary School	(4) Middle School	(5) Secondary School	Girls (6) All School Types	(7) Primary School	(8) Middle School	(9) Secondary School
Panel A: Non-Gov Schools									
Prop. NGOs dereg (SD) x post	0.001	0.002	0.002	0.004	-0.002	-0.001	-0.001	-0.006	0.002
	(0.006)	(0.006)	(0.008)	(0.007)	(0.004)	(0.006)	(0.008)	(0.007)	(0.004)
Control Mean	0.070	0.060	0.080	0.050	0.040	0.070	0.090	0.070	0.040
Observations	201541	107308	57467	25663	24178	94233	50564	22140	21529
I: Urban									
Prop. NGOs dereg (SD) x post	-0.005	-0.002	-0.003	0.005	-0.010	-0.009	-0.009	-0.017**	-0.004
	(0.006)	(0.006)	(0.008)	(0.008)	(0.006)	(0.007)	(0.009)	(0.008)	(0.006)
Control Mean	0.050	0.050	0.050	0.030	0.050	0.050	0.050	0.040	0.040
Observations	63501	32553	16722	7999	7832	30948	15830	7543	7575
II: Rural									
Prop. NGOs dereg (SD) x post	0.003	0.003	0.003	0.003	0.001	0.002	0.002	-0.004	0.006
	(0.007)	(0.008)	(0.009)	(0.009)	(0.005)	(0.007)	(0.009)	(0.009)	(0.006)
Control Mean	0.080	0.070	0.090	0.050	0.040	0.090	0.110	0.090	0.030
Observations	138040	74755	40745	17664	16346	63285	34734	14597	13954
Panel B: Gov Schools									
Prop. NGOs dereg (SD) x post	0.009	0.004	0.004	0.008	-0.003	0.015*	0.012	0.019	0.019*
	(0.007)	(0.008)	(0.010)	(0.012)	(0.011)	(0.008)	(0.009)	(0.012)	(0.011)
Control Mean	0.510	0.520	0.510	0.570	0.490	0.510	0.510	0.560	0.440
Observations	201541	107308	57467	25663	24178	94233	50564	22140	21529
I: Urban									
Prop. NGOs dereg (SD) x post	0.024***	0.015	0.027**	0.010	0.002	0.033***	0.024**	0.050***	0.040**
	(0.008)	(0.010)	(0.013)	(0.020)	(0.015)	(0.010)	(0.012)	(0.018)	(0.019)
Control Mean	0.370	0.340	0.290	0.400	0.390	0.390	0.330	0.470	0.480
Observations	63501	32553	16722	7999	7832	30948	15830	7543	7575
II: Rural									
Prop. NGOs dereg (SD) x post	0.005	0.006	0.002	0.016	-0.001	0.006	0.009	0.005	0.004
	(0.009)	(0.009)	(0.011)	(0.015)	(0.012)	(0.010)	(0.012)	(0.016)	(0.015)
Control Mean	0.590	0.620	0.620	0.660	0.550	0.570	0.610	0.620	0.420
Observations	138040	74755	40745	17664	16346	63285	34734	14597	13954

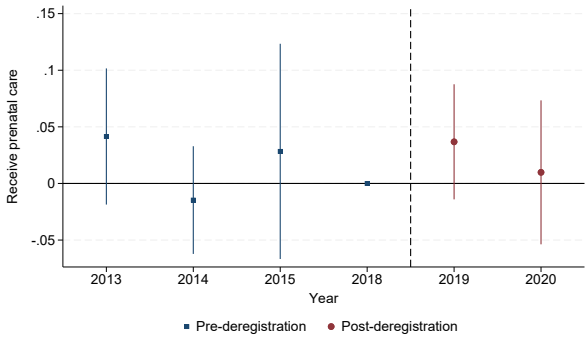
Notes: $*p < .10, **p < .05, ***p < .01$; Standard errors reported in parentheses are clustered at the tehsil level. Columns (1) to (4) report results for boys aged 5 to 16 years, while columns (5) to (6) report results for girls aged 5 to 16 years. In Panel A, the outcome is attending non-governmental schools. In Panel B, the outcome is attending governmental schools. For each outcome, we consider different age groups and corresponding school types: Primary school includes grades 1 to 5 (ages 5 to 10 years), middle school includes grades 6 to 8 (ages 11 to 13 years), and secondary school includes grades 9 and 10 (ages 14 to 16 years). The variable "Prop. NGOs dereg (SD)" refers to the standardized proportion of "education" NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. Post refers to the years after 2018. In all regressions, we include tehsil and year-fixed effects. We also control for the age and urban status of the child. Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We use PSLM sampling weights in all of our regressions.

Figure C.5: Receiving Pre-natal Care

(a) Overall



(b) Urban



(c) Rural

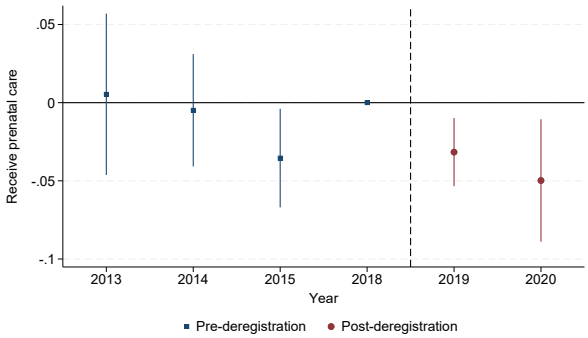
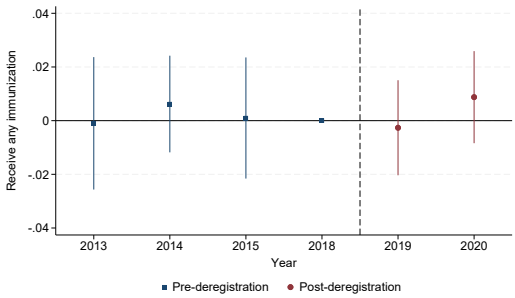


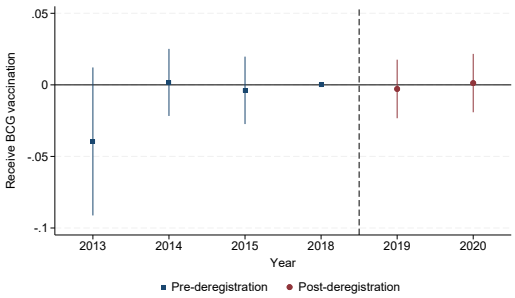
Figure notes: The event study plot shows the effect of the NGO deregistration on whether a pregnant women received pre-natal care during her pregnancy across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample includes pregnant women between the ages of 18 and 26 years. The treatment variable is the standardized proportion of "health" NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 0.93 for panel (a), 0.96 for panel (b), and 0.92 for panel (c). Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The years 2016 and 2017 are missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.

Figure C.6: Child Immunization

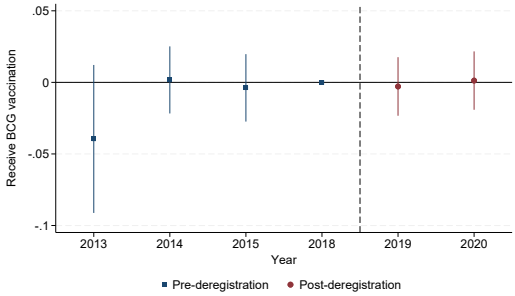
(a) Ever immunized



(b) Received BCG vaccination



(c) Received Diphtheria (DPT1) vaccination



(d) Received Polio Vaccination

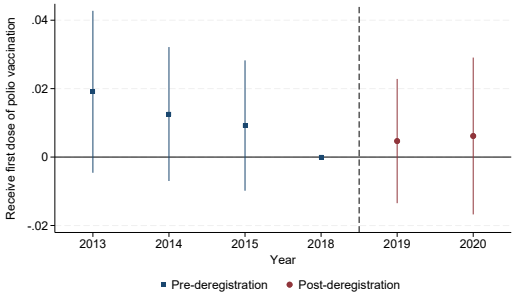
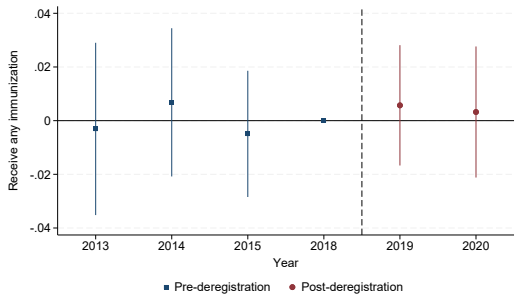


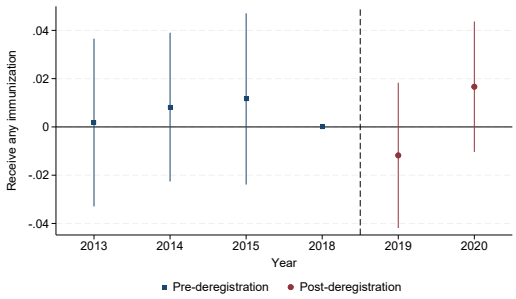
Figure notes: The event study plot shows the effect of the NGO deregistration on children's immunization across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children less than 12 months old. The treatment variable is the standardized proportion of "health" NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.92 for panel (a), 0.94 for panel (b), 0.85 for panel (c), and 0.95 for panel (d). Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The years 2016 and 2017 are missing as no survey data is available for that year. We include tehsil and year-fixed effects. We also control for the gender and urban status of the child. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

Figure C.7: Child Immunization by Gender

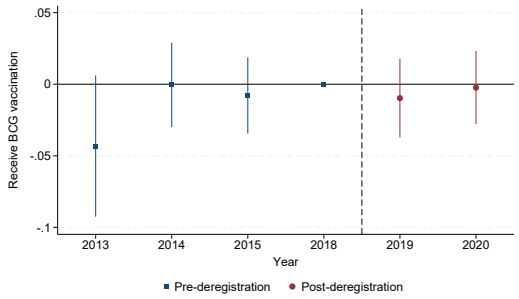
(a) Ever immunized: Boys



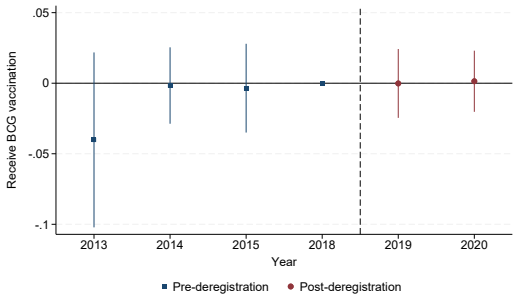
(b) Ever immunized: Girls



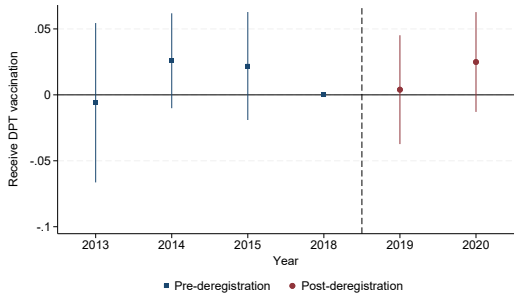
(c) Received BCG vaccination: Boys



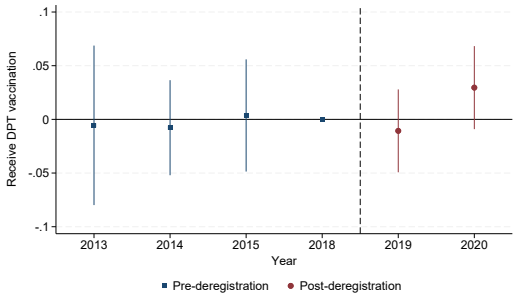
(d) Received BCG vaccination: Girls



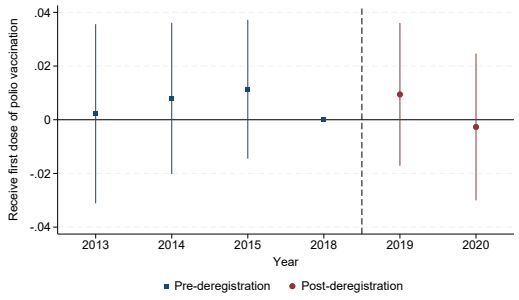
(e) Received DPT1 vaccination: Boys



(f) Received DPT1 vaccination: Girls



(g) Received polio vaccination: Boys



(h) Received polio vaccination: Girls

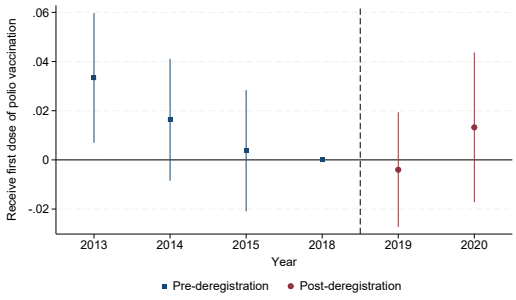
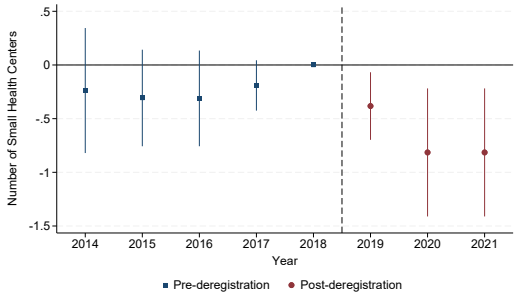


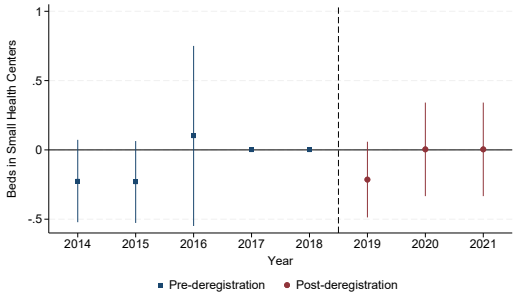
Figure notes: The event study plot shows the effect of the NGO deregistration on children's immunization by gender across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children less than 12 months old. The treatment variable is the standardized proportion of "health" NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The years 2016 and 2017 are missing as no survey data is available for that year. We include tehsil and year-fixed effects. We also control for the urban status of the child. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

Figure C.8: Health Sector Snapshot

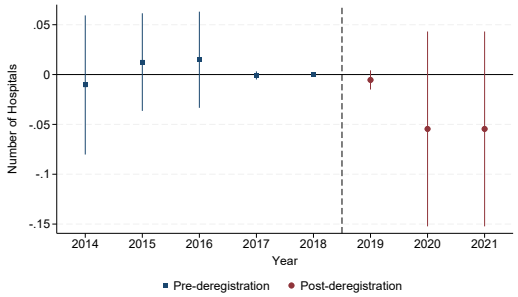
(a) Small Health Centers: Number



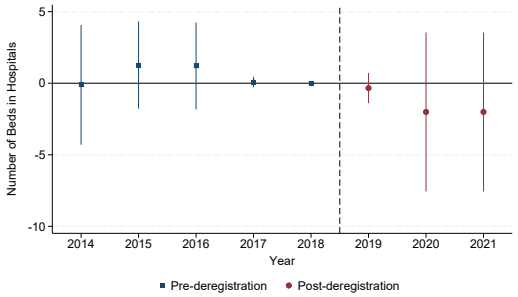
(b) Small Health Centers: Beds



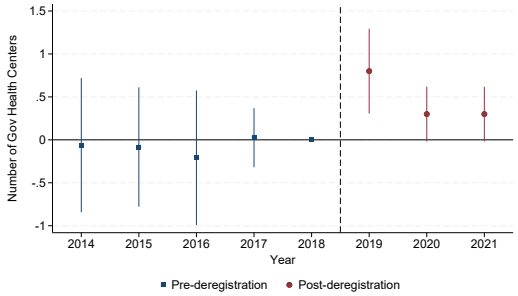
(c) Hospitals: Number



(d) Hospitals: Beds



(e) Gov Health Centers: Number



(f) Gov Health Centers: Beds

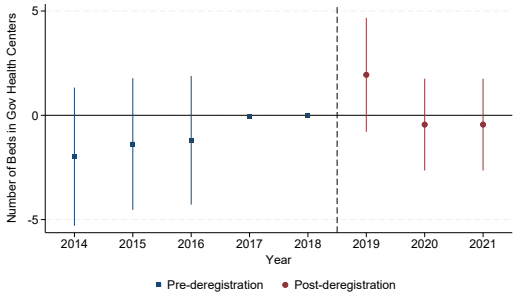


Figure notes: The event study plot shows the effect of the NGO deregistration on the different health centers across tehsils in Punjab, Pakistan, from 2014 to 2020. We show 90% confidence intervals. The treatment variable is the standardized proportion of "health" NGOs deregistered in a tehsil. We winsorize the proportion of deregistered NGOs at the 5th and 95th percentiles. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 4.36 small health centers for panel (a), 1.07 beds for panel (b), and 1.36 hospitals for panel (c), 96.56 beds for panel (d). 16.21 government-run health centers for panel (e) and 52 beds for panel (e). Government-run health centers include basic health units, rural health centers, TB health centers, sub-health centers, and mother and child health centers. Data comes from the Punjab Development Statistics Annual Reports. We include tehsil and year-fixed effects. We weight observations by the tehsil population. Standard errors are clustered at the tehsil level.

Table C.3: Child Immunization and Gender

	Boys				Girls			
	(1) Ever immunized	(2) Got BCG vaccination	(3) Got DPT vaccination	(4) Got Polio vaccination	(5) Ever immunized	(6) Got BCG vaccination	(7) Got DPT vaccination	(8) Got Polio vaccination
Panel A: Overall								
Prop. NGOs dereg (SD) x post	0.004	0.003	-0.005	0.001	-0.011	0.011	0.002	-0.015*
	(0.007)	(0.011)	(0.015)	(0.008)	(0.009)	(0.013)	(0.014)	(0.008)
Control Mean	0.920	0.940	0.830	0.930	0.920	0.960	0.850	0.940
Observations	8965	8965	8965	8965	8506	8506	8506	8506
Panel B: Urban								
Prop. NGOs dereg (SD) x post	0.001	-0.020	-0.016	-0.012	-0.010	-0.009	-0.040	-0.019
	(0.012)	(0.018)	(0.028)	(0.014)	(0.027)	(0.017)	(0.029)	(0.017)
Control Mean	0.960	0.970	0.870	0.950	0.950	0.990	0.880	0.940
Observations	2232	2232	2232	2232	2151	2151	2151	2151
Panel C: Rural								
Prop. NGOs dereg (SD) x post	0.001	0.005	0.002	0.008	-0.015	0.014	0.020	-0.007
	(0.008)	(0.013)	(0.015)	(0.010)	(0.009)	(0.015)	(0.016)	(0.008)
Control Mean	0.890	0.930	0.810	0.930	0.910	0.940	0.830	0.940
Observations	6733	6733	6733	6733	6355	6355	6355	6355

Notes: $*p < .10, **p < .05, ***p < .01$; Standard errors reported in parentheses are clustered at the tehsil level. Columns (1) to (4) report results for boys aged less than 12 months, while columns (5) to (8) report results for girls aged less than 12 months. The treatment variable is the standardized proportion of "health" NGOs deregistered in a tehsil. We winsorize the proportion of health NGOs deregistered at the 5th and 95th percentiles. Post refers to the years after 2018. In panel A, we report the overall results. In panels B and C, we report the results for children in urban and rural households. In all regressions, we include tehsil and year-fixed effects. We also control for the urban status of the child in panel A. Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The yeas 2016 and 2017 are missing as no survey data is available for that year. We use PSLM sampling weights in all of our regressions.

Table C.4: Firm Outcomes

	Business Environment		Perceptions on Obstacles to Business		Firm Performance	
	(1) Experienced power outages	(2) % Loss in annual sales due to power outages	(3) Crime, Theft or Disorder	(4) Inadequately educated workforce	(5) Annual sales per worker	(6) Annual wage per worker
Panel A: All firms						
Prop. NGOs dereg (SD) x post	0.136***	9.867**	0.050	0.071*	-2387.991	-29.685
	(0.050)	(4.710)	(0.164)	(0.040)	(3130.023)	(42.338)
Control Mean	0.960	35.750	0.460	0.390	4152.220	321.300
Observations	1128	1080	1128	1128	842	838
Panel B: Micro and Small Firms ($<$ 20 workers)						
Prop. NGOs dereg (SD) x post	0.230***	13.785**	0.028	0.060*	-1148.343	-92.566***
	(0.035)	(6.468)	(0.171)	(0.035)	(3065.169)	(21.631)
Control Mean	0.990	44.770	0.300	0.200	1492.880	157.950
Observations	533	505	533	533	363	376
Panel C: Medium and Large Firms ($\geq$ 20 workers)						
Prop. NGOs dereg (SD) x post	0.051	1.072	0.263**	0.136	-2093.626	160.958
	(0.101)	(2.792)	(0.128)	(0.103)	(2104.095)	(136.157)
Control Mean	0.950	32.270	0.520	0.470	5318.240	418.470
Observations	595	575	595	595	479	462

Notes: $*p < .10, **p < .05, ***p < .01$; Standard errors reported in parentheses are clustered at the tehsil level. Columns (1) to (2) report results outcomes related to the business environment, columns (3) to (4) report results for outcomes related to obstacles to business operations (firm's perceptions), and columns (5) and (6) report firm performance outcomes. The treatment variable is the standardized proportion of NGOs deregistered in a tehsil. We have two waves of survey data (2014 and 2022), which comes from the World Bank Enterprise Surveys. Post refers to the year 2022, while pre-period is 2014. In all regressions, we include tehsil and survey-round-fixed effects. We use survey sampling weights in all of our regressions. Variation in observations arises from item non-response (missing values).

D Randomization Inference

Figure D.1: Water Delivery System Installed by NGOs

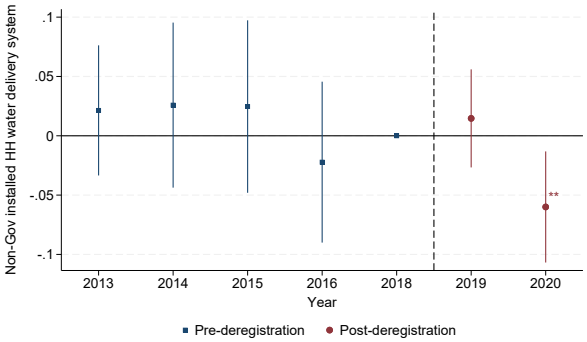


Figure notes: The event study plot shows the effect of the NGO deregistration on whether an NGO installed the household's water delivery system across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. Stars indicate level of significance of the estimated coefficient using randomization inference. $*p < .10, **p < .05, ***p < .01$. The treated tehsils are where the proportion of NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 0.11 for panel (a), 0.09 for panel (b), and 0.12 for panel (c). Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.

Figure D.2: Attending a Non-Gov School

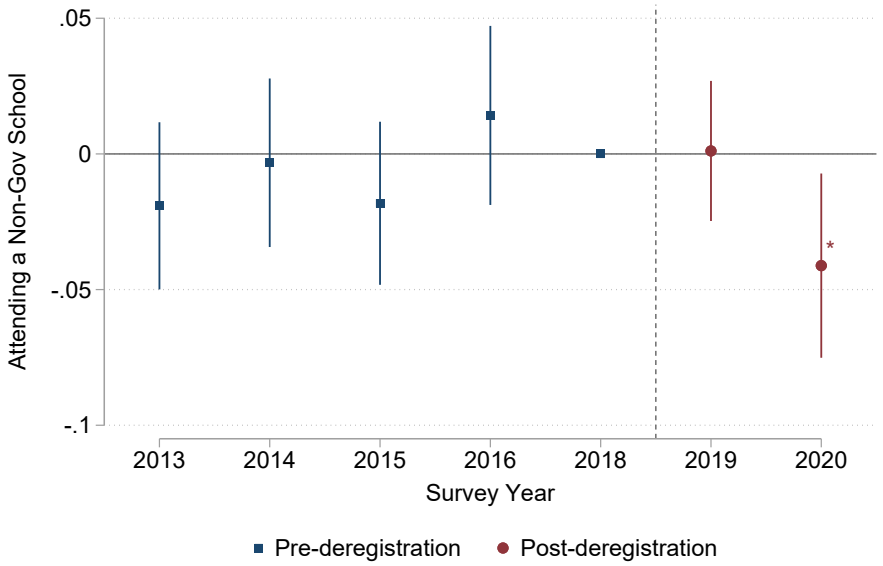


Figure notes: The event study plot shows the effect of the NGO deregistration on attending school at a non-governmental school across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. Stars indicate level of significance of the estimated coefficient using randomization inference. $*p < .10, **p < .05, ***p < .01$. The sample is children between 5 and 16 years old. The treated tehsils are where the proportion of NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.39. Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We also control for the age, gender, and urban status of the child. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

Figure D.3: Receiving Pre-natal Care in Rural Areas

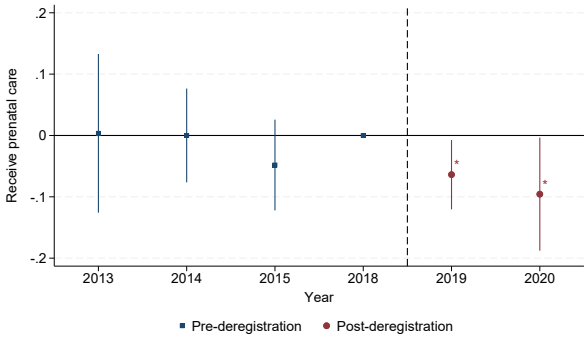
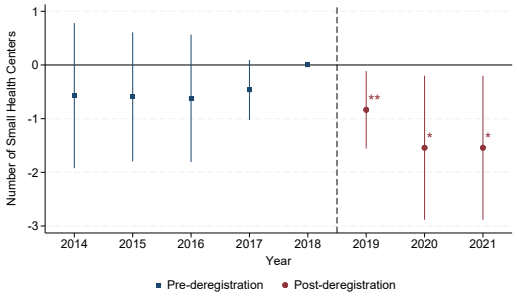


Figure notes: The event study plot shows the effect of the NGO deregistration on whether a pregnant women received pre-natal care during her pregnancy across rural areas in tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. Stars indicate level of significance of the estimated coefficient using randomization inference. $*p < .10, **p < .05, ***p < .01$. The sample includes pregnant women between the ages of 18 and 26 years. The treated tehsils are where the proportion of "health" NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of health NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.92. Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The years 2016 and 2017 are missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.

Figure D.4: Health Sector Snapshot

(a) Small Health Centers: Number



(b) Gov Health Centers: Number

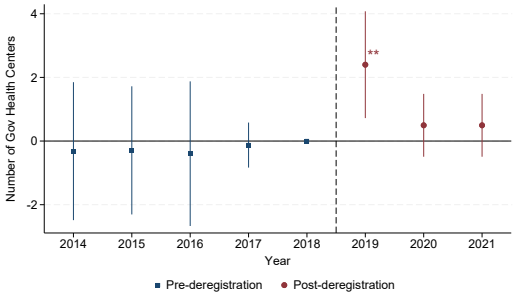
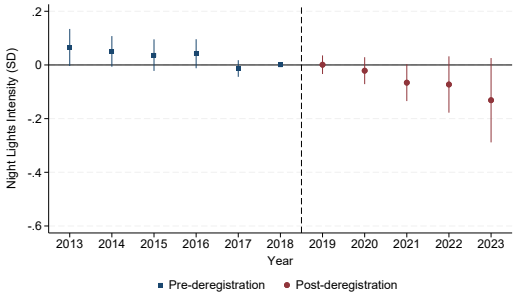


Figure notes: The event study plot shows the effect of the NGO deregistration on the different health centers across tehsils in Punjab, Pakistan, from 2014 to 2020. We show 90% confidence intervals. Stars indicate level of significance of the estimated coefficient using randomization inference. $*p < .10, **p < .05, ***p < .01$. The treated tehsils are where the proportion of "health" NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of health NGOs deregistered is less than the median. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 4.36 small health centers for panel (a) and 16.21 government-run health centers for panel (b). Government-run health centers include basic health units, rural health centers, TB health centers, sub-health centers, and mother and child health centers. Data comes from the Punjab Development Statistics Annual Reports. We include tehsil and year-fixed effects. We weight observations by the tehsil population. Standard errors are clustered at the tehsil level.

Figure D.5: Night-time Lights Intensity

(a) Binary Treatment



(b) Continuous Treatment

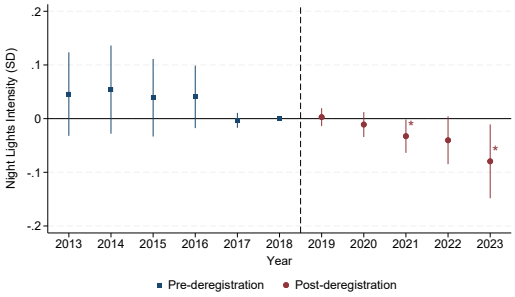


Figure notes: The event study plot shows the effect of the NGO deregistration on night-time light intensity across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. Stars indicate level of significance of the estimated coefficient using randomization inference. $*p < .10, **p < .05, ***p < .01$. In panel (a), the treated tehsils are where the proportion of deregistered NGOs exceeds the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. In panel (b), the treatment variable is continuous: the proportion of NGOs deregistered in each tehsil. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The dotted vertical line indicates the deregistration shock. The control mean is 1.38 SD for panel (a) and 1.13 SD for panel (b). Data comes from the VIIRS Nighttime Lights database. The outcome is winsorized at the 5th and 95th percentiles and standardized for ease of interpretation. We include tehsil and year-fixed effects in our regression and observations are weighted by the tehsil population. Standard errors are clustered at the tehsil level.

E Robustness Check: Not Tying NGO Type to Outcome Type

Figure E.1: Attending a Non-Gov School

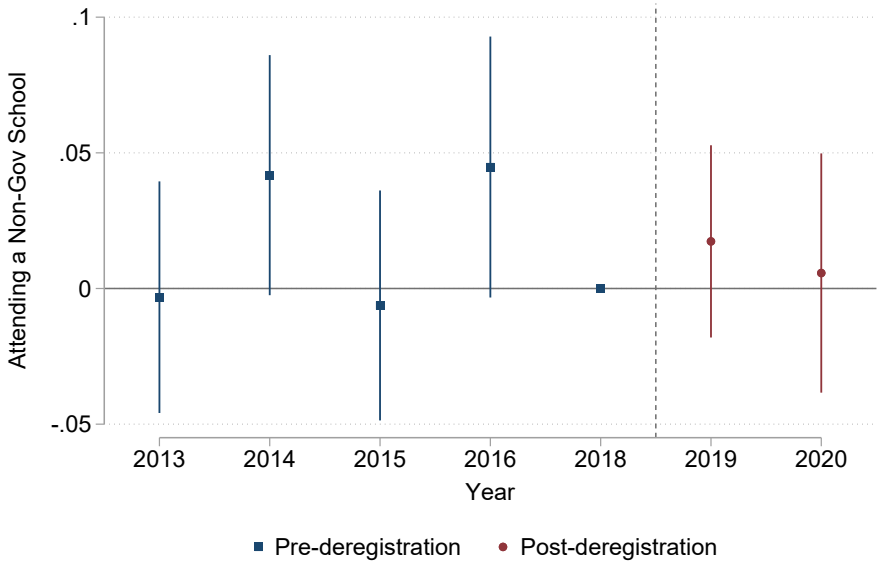


Figure notes: The event study plot shows the effect of the NGO deregistration on attending school at a non-governmental school across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample is children between 5 and 16 years old. The treated tehsils are where the proportion of NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. This treatment measure does not include education NGOs. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control mean is 0.06. Data comes from the Pakistan Living Standards and Measurement Survey (PSLM). The year 2017 is missing as no survey data is available for that year. We include tehsil and year-fixed effects. We also control for the age, gender, and urban status of the child. We use PSLM sampling weights in all of our regressions. Standard errors are clustered at the tehsil level.

Figure E.2: Receiving Pre-natal Care

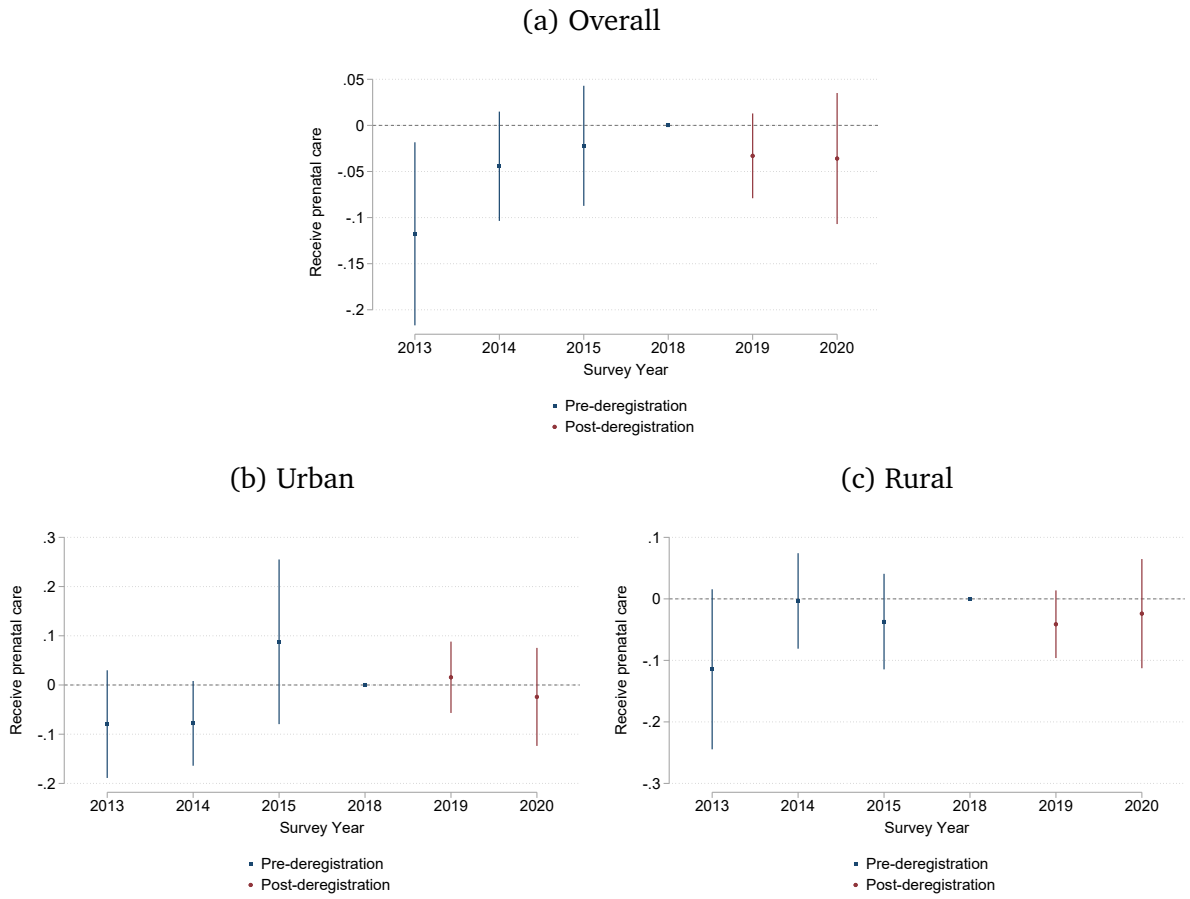


Figure notes: The event study plot shows the effect of the NGO deregistration on whether a pregnant women received pre-natal care during her pregnancy across tehsils in Punjab, Pakistan, from 2013 to 2020. We show 90% confidence intervals. The sample includes pregnant women between the ages of 18 and 26 years. The treated tehsils are where the proportion of NGOs deregistered is greater than the median. The control group consists of all tehsils where the proportion of NGOs deregistered is less than the median. This treatment measure does not include health NGOs. The vertical dotted line indicates the incidence of treatment i.e., deregistration of NGOs. Blue vertical lines correspond to the pre-deregistration time period, while the red lines correspond to the post-deregistration period. The base reference period is 2018. The control means are 0.92 for panel (a), 0.95 for panel (b), and 0.91 for panel (c). Data from 2013 to 2020 comes from the Pakistan Living Standards and Measurement Survey (PSLM). The years 2016 and 2017 are missing as no survey data is available for that year. We include tehsil and year-fixed effects. We use PSLM sampling weights in all of our regressions.