Corporate Engagement with Local Governance: Evidence from Biodiversity

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Abstract

We examine how firms allocate resources to shape local policy in decentralized regulatory contexts. Using biodiversity-related protected area governance as a setting with dispersed authority at the local level, we investigate firms' allocations of discretionary charitable resources around protected area downgrading, downsizing, and degazettement (PADDD) events, which relax regulatory risk and land-use constraints. We find that locally exposed firms direct charitable funding to affected counties around PADDD events, targeting nonprofits that hold local implementation and budgetary authority. Donations affect local policy by relaxing budget constraints and triggering reciprocity with key decision-makers. These resource allocations increase retrenchment success and increase local firms' subsequent establishment sales and employment, but decrease municipal conservation spending. Overall, our findings show how corporations engage with local governance institutions to shape local policy aligned with business interests, potentially at the expense of broader social and ecological objectives.

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1. Introduction

Through channels such as campaign giving, direct lobbying, and giving to interest groups, corporations aim to influence the formation of federal laws, regulations, legislative agendas (Bombardini and Trebbi, 2025). Nevertheless, the vast majority of evidence focuses on the most visible and well-documented forms of influence, such as PAC contributions and lobbying, driven by strong disclosure requirements and easily observable policy stakes. Even when moving beyond campaign finance, most evidence still overwhelmingly focuses on federal regulatory outcomes (Bertrand et al., 2020).

However, many policy choices at the local, decentralized level materially affect firms: zoning, permitting, and environmental compliance decisions directly impact firms' operations and are typically made by decentralized authorities rather than by Congress or federal agencies. Nevertheless, how firms aim to influence *local* policy and governance remains opaque. Whereas money flows from corporations to federal legislators are often subject to explicit disclosure requirements, such transparency is limited at local levels. Moreover, local policymaking is uniquely determined not only by organizations such as city councils and municipality or county boards, but also by community members and their interactions with local authorities, with such stakeholders exerting strong influence over local policy and governance decisions. These characteristics imply that firms' influence in local policy may disproportionally arise from targeted engagement with organizations and intermediaries that amplify their private interests in local governance.

In this paper, we study firms' engagement with local policy by investigating patterns in discretionary resource allocations to local organizations that hold governance and authority power. We investigate these allocations in the context of a biodiversity governance. Biodiversity loss and ecosystem degradation reflect first-order economic and policy challenges.[1] Because these pressures operate through land use and resource access, regulatory responses have primarily relied on the expansion of protected areas (PAs), i.e. geographically defined areas in which land use and economic activity is constrained (Watson et al., 2014). Importantly, protected area governance is dispersed across a heterogeneous set of actors, including non-governmental organizations (NGOs), councils, and subnational public agencies (Mascia

[1]The World Economic Forum (2026) ranks biodiversity loss and ecosystem collapse among the most severe global risks over the next decade.

and Pailler, 2011), whose management authority and enforcement capacity affect the operations and growth opportunities of firms reliant on land, natural resources, and spatially fixed capital (Greenstone et al., 2012; Golden-Kroner et al., 2019). Local institutions therefore play a crucial role in how conservation policy - in terms of legal mandates, enforcement capacity, and fiscal dependence - is implemented and in how conflicts between ecological protection and economic activity are resolved.

Despite their widespread use, PA designations are frequently contested and, in many settings, formally retrenched through downgrading, downsizing, or degazettement (PADDD) following political and social pressure, fiscal constraints, or competing development priorities (Mascia and Pailler, 2011; Golden-Kroner et al., 2019). The dispersion of authority over PA governance implies that the credibility and durability of conservation commitments, and the success of proposed changes to their status, can vary substantially even among PAs operating under the same formal legal framework. NGOs, councils, and subnational agencies hold day-to-day operational, budgetary, and enforcement authority over PAs and link local stakeholders to higher-level public authorities, placing them at the center of regulatory and fiscal decision-making. They mediate the flow of information and resources between firms, communities, and public authorities, affecting which claims enter regulatory and budgetary processes and how they are assessed.

In this decentralized regulatory context, we investigate firms' resource allocations to local community organizations in the form of charitable funding. At the local level, direct money flows to elected officials are inherently unobservable. We therefore extend the notion that corporate charitable giving can influence federal rulemaking through engagement with specialized interest groups (Bertrand et al., 2020, 2021), and investigate firms' charitable funding allocation across local nonprofits as a means to influence local conservation policy. Funding of local nonprofits presents an especially powerful tool to engage with conservation policy: in contrast to large federal institutions, local conservation bodies' operations often rely on external funding and are subject to tight budgetary constraints. By funding these organizations, corporations can engage with the informational and fiscal environment in which conservation implementation and budgetary decisions are made. Philanthropic giving can trigger reciprocity with key decision-makers, ease local budget constraints, and expand organizational capacity, thereby affecting which local organizations have the capacity to participate, the fiscal constraints that drive local deliberations over PA implementation,

budgeting, and retrenchment, and voices that influence local conservation decisions.

We exploit this unique setting to investigate whether firms differentially allocate philanthropic giving toward locally embedded organizations that are directly involved in conservation implementation, oversight, and fiscal allocation. We construct a novel firm–county–year panel that combines establishment-level firm locations, detailed corporate donation records, and geospatial information on PA boundaries. PAs are identified using spatial boundary files and administrative records from the World Database on Protected Areas (WDPA), which provide information on the timing, legal status, and governance structure of each site. We spatially intersect these boundaries with establishment locations to assign firm exposure at the county level and by geographic proximity, following Akbari et al. (2025). This spatial design allows us to compare the same firm's philanthropic behavior across counties with differential exposure to regulatory retrenchment, while holding constant firm-wide demand for reputation, liquidity, and corporate social responsibility. At the same time, it allows us to compare philanthropic patterns by firms with differential exposure to the same retrenchment events, holding constant county-level factors driving charitable activity and local policy.

We measure corporate philanthropic engagement using grant-level records that report recipient identity, location, and donation amount, enabling us to distinguish contributions to recipients embedded in local conservation governance (e.g., environmental and biodiversity NGOs, community and council organizations) from contributions to other types of recipients (e.g., universities and internationally focused organizations). This classification permits a direct test of whether firms reallocate giving toward organizations with implementation and budgetary authority, rather than increasing charitable activity broadly in response to heightened environmental salience.

Our baseline empirical design estimates charitable giving patterns by exposed firms in counties subject to PADDD (retrenchment) events using a difference-in-differences (DiD) framework. Our sample includes both successful and unsuccessful PADDD events, mitigating concerns that identification conditions on realized policy changes. The unit of observation is the firm-event-year, where each PADDD proposal defines an event (cohort). The specification includes firm $\times$ year, event $\times$ year, and firm $\times$ event fixed effects, absorbing firm-wide shocks to charitable activity, event-specific time-varying shocks, and persistent differences in exposure intensity across firm–event pairs. Identification therefore comes from within-firm, within-event changes in giving around the PADDD decision year, compared to changes in

giving by other firms facing the same event and relative to the same firm's giving around events without operational exposure.

We find that firms with operational exposure in counties facing retrenchment increase both the probability of donating and the level of charitable contributions in the year prior to the PADDD decision by roughly one-half to four-fifths relative to baseline donation levels. Translating this effect into dollar terms implies an increase of approximately $69,000 per firm-event-year, based on the unconditional mean donation amount.[2] When evaluated at the median donation amount observed in exposed counties, this corresponds to approximately $10,000 to $15,000 per firm-event-year. Our results indicate that corporate philanthropy responds sharply to regulatory fragility, with no differential pre-trends and no comparable post-decision response, indicating that effects are concentrated when regulatory outcomes remain politically and administratively contested.

We next examine heterogeneity in the allocation of charitable giving across recipient types and its relation to governance authority and subsequent regulatory outcomes, shedding light on the channel through which these responses operate. The pre-event increase in giving is concentrated in donations to nonprofits directly involved in conservation implementation and fiscal oversight, such as environmental and biodiversity NGOs, and community and council organizations. In contrast, nonprofits unrelated to local conservation governance, such as universities and organizations focused on international issues, show no increase, indicating targeted engagement rather than broad-based environmental signaling.

When distinguishing PADDD events by PA governance, we find that corporate philanthropic engagement increases with localized governance. Firms exposed to PADDD events in counties with NGO-governed PAs sharply increasing giving by more than 113%, significant at the 1% level, with the effect statistically diminishing as PA governance shifts to subnational governance and federal governance. These results indicate philanthropic engagement matters most when local NGOs hold decision-making power, rather than when authority lies with federal agencies. Moreover, we find no evidence of corporate engagement with federal authorities through formal lobbying or PAC giving, indicating the unique nature of philanthropic funding to engage with policy at the local level. Tax-exempt lobbying, how-

[2]This magnitude is computed as $e^{\hat{\beta}}-1$, where $\hat{\beta}$ denotes the estimated coefficient on $\text{Pre}_{c,t} \times I[\text{Exposure}]_{i,c}$ from Panels A and B of Table 2. Dollar magnitudes are obtained by multiplying this semi-elasticity by the unconditional mean donation amount reported in Table 1.

ever, significantly increases prior to PADDD events in counties with federally-governed PAs, confirming Bertrand et al. (2020).

Firms' distribution of charitable funds across PAs and nonprofit recipients aligns with the level of PA governance and authority. When PA governance lies with NGOs, donations to local environmental and biodiversity NGOs and council organizations increase up to 63%. When governance lies with subnational public agencies, donations to council organization increase by 70% but donations to environmental and biodiversity NGOs remain unchanged. Prior to PADDDs in counties with federally governed PAs, we find no evidence for corporate philanthropic engagement, highlighting the localized nature of firms' engagement with local institutions in decentralized regulatory environments.

Charitable giving enables firms to influence policy by alleviating budget constraints and trigger reciprocity by nonprofit insiders. Consistent with these mechanisms, we document a redistribution effect towards recipients for whom funding is relatively more important. Pre-PADDD donations disproportionally increase to nonprofits with low cash reserves and with high board member compensation. In contrast, donations to nonprofits with high cash reserves and low compensation remain unchanged or decrease, shedding light on *how* charitable donations influence local authorities.

The operational consequences of relaxing land-use constraints on nearby PAs do not affect all establishments equally. We find that firms increase philanthropic engagement primarily when exposed through establishments operating in chemical or resource extraction industries, whereas establishments in wholesale or service-based industries show no significant increase, reflecting alignment between firms' engagement with local policy and the salience of conservation policy for firms' production activities.

We find that such targeted engagement affects PADDD success outcomes. In specifications comparing counties facing retrenchment attempts in the same year and comparing the same counties facing different attempts over time, thereby isolating within- and cross-county variation in PADDD success, we find that higher pre-event donations from firms with local operations are associated with greater retrenchment success. In contrast, donations by non-local firms show no statistically meaningful association with retrenchment outcomes. These effects are concentrated in counties where firms are operationally exposed to PA land-use constraints, i.e. where they operate chemical manufacturing or resource extraction activities.

Regulatory retrenchment following targeted philanthropic engagement also affects local

economic outcomes. Conditional on establishments' pre-event performance and operations intensity, we find that pre-PADDD donations increase establishment sales, employment, and productivity in counties with successful PADDD events. However, parent-firm outcomes show limited improvements, consistent with biodiversity regulation operating through localized compliance and land-use constraints rather than firm-wide valuation channels (Akbari et al., 2025). These local economic effects coincide with changes in the fiscal and administrative allocation of conservation resources. In a sample of closely contested local conservation funding resolutions, we find that donations by locally exposed firms prior to tax-based funding ballots are negatively associated with approval, while bond-based measures show no systematic relationship with charitable engagement by local firms. Similarly, donations to local council organizations are associated with reduced subsequent spending on parks and conservation, suggesting a reallocation of public resources away from nature initiatives.

Finally, we use firms' responses to first-time PA designations to assess the mechanism implied by our PADDD results. First-time designations increase regulatory risk and land-use constraints for local firms, creating incentives for firms to influence local conservation decision-making through engagement with local institutions not only at implementation and governance, but also at initial designation. In this setting, we continue to find that exposed firms reallocate donations across recipient types aligned with the locus of governance authority: donations to environmental and biodiversity NGOs increase (decrease) prior to the designation of PAs governed by NGOs (non-NGOs), whereas donations to community and council organizations increase (decrease) prior to the designation of non-NGO (NGO) governed PAs. First-time designations however trigger less pronounced pre-event increases in donations, indicating that charity as a means to influence decision-making is particularly salient in contexts in which regulatory credibility and implementation authority are contested, rather than regulatory entry alone.

This study advances research on corporate finance and political economy by examining how firms engage with biodiversity regulation at the local implementation stage, rather than treating it as an external constraint faced passively by firms and markets. While existing work shows that biodiversity loss and dependence on ecosystem services are financially material and affect asset prices, firm risk, and investor behavior, it largely overlooks what happens to regulatory commitments after they are announced, including how they are enforced, challenged, and changed (Giglio et al., 2024, 2025; Garel et al., 2025). By linking the allocation of

discretionary corporate resources to variation in governance authority, regulatory retrenchment, and subsequent fiscal and local economic outcomes, we show that firm behavior during policy implementation is associated with differences in the realized credibility and durability of environmental regulation. We thereby also advance the literature showing how local officials and landholders affect deforestation and land use across the globe (Burgess et al., 2012; Katovich and Moffette, ming). By showing how corporations engage with these stakeholders to influence local conservation governance and policy, we shed light on previously undocumented channels through which corporate incentives drive the implementation, enforcement, and credibility of local conservation regulation.

We frame corporate resource allocation, as captured in the distribution of discretionary charitable funds, as a nonmarket channel through which firms engage with and influence regulatory implementation at the local municipal and community level. We thereby complement work on political activity beyond formal lobbying and campaign funding, including through charitable donations and nonprofit affiliations, at the federal level (Hillman et al., 2004; Acemoglu and Robinson, 2012; Bertrand et al., 2020, 2021; Ahn et al., 2025). We focus on how engagement with local institutions embedded in community governance affects the durability and implementation of local policies, rather than federal legislative design, with direct implications for local economic outcomes. We also complement work on firms' allocation of advertising resources to influence jury members in trial proceedings (Cohen and Gurun, 2024) by showing that firms redistribute discretionary resources that alleviate local institutions' resource constraints, rather than advertising expenses that build local awareness, to influence local policies affecting stakeholders beyond the firm, rather than firm-specific litigation cases. Moreover, by showing how targeted charity can influence local policy, we also contribute to the literature documenting the alignment of corporate philanthropy with business incentives (Cai et al., 2021; Agarwal et al., 2021; Choi et al., 2023; Akey et al., 2024; Rice and Schiller, 2024; Liang and Vansteenkiste, 2025; Vansteenkiste, 2025).

Our empirical analysis focuses on the United States, where establishment data, corporate philanthropy records, and PA governance information can be integrated at fine spatial resolution. Although the institutional setting is U.S.-based, the mechanisms we document are not confined to this context. Many countries implement local policies under similar conditions of decentralized governance, constrained public capacity, and increased reliance on nongovernmental and private funding (Bruner et al., 2001; Geldmann et al., 2015, 2018). For

example, whereas prior studies document how local stakeholders such as officials and landholders affect deforestation and land use in the Indonesian tropics (Burgess et al., 2012) and the Amazon (Katovich and Moffette, ming), Moreover, as governments worldwide expand conservation commitments[3], these institutional features make firm engagement with local conservation governance a first-order determinant of whether formal protection translates into durable biodiversity outcomes.

2. Institutional Background

2.1 Protected Areas, PADDD, and Regulatory Governance

PAs are the primary policy instrument through which governments regulate land use to conserve biodiversity and natural capital. A large empirical literature documents that, on average, PAs reduce deforestation, habitat conversion, and species loss relative to comparable unprotected lands (Bruner et al., 2001; Ricketts et al., 2010; Joppa and Pfaff, 2011). However, these average effects mask substantial heterogeneity in realized ecological and economic outcomes, reflecting differences in institutional design, enforcement capacity, and local political and fiscal constraints (Besley, 2010; Ferraro et al., 2011; Geldmann et al., 2018). From an economic perspective, PA designation represents a spatially targeted regulatory intervention whose effectiveness depends critically on implementation and governance rather than legal status alone (Coase, 1960; Acemoglu et al., 2001).

A central institutional feature of biodiversity regulation is that PA designation does not confer regulatory permanence. PAs are frequently modified after establishment through formal legal and administrative processes that weaken protection, reduce spatial extent, or eliminate legal status. Mascia and Pailler (2011) introduce the concept of PADDD, referring to downgrading, downsizing, and degazettement, to characterize these events, and subsequent research shows that PADDD is often driven by economic development, infrastructure investment, social pressure, and political negotiation (Mascia and Pailler, 2014; Golden-Kroner et al., 2019). Rather than constituting a one-time policy shock, PA designation

[3]In 2022, nearly 200 countries signed the landmark Kunming–Montreal Global Biodiversity Framework at the 15th Conference of the Parties (COP15) to the UN Convention on Biological Diversity, committing themselves to a '30x30' target to conserve 30% of landmass and marine areas by 2030.

initiates a dynamic and potentially reversible regulatory process. This dynamic introduces a source of regulatory risk that is driven by local governance choices rather than centralized policy reversals (Greif, 2006; Acemoglu et al., 2001).

The U.S. maintains one of the largest PA networks globally, yet designation decisions do not systematically align with underlying biodiversity value. Using high-resolution measures of species richness and endemism, Jenkins et al. (2015) show that U.S. PAs are disproportionately located in regions with relatively low biodiversity. Related work documents that land-use restrictions and conservation zoning reflect historical land tenure, development pressure, and political bargaining rather than purely ecological criteria (Libecap, 2007; Fischel, 2001). This spatial mismatch indicates that both PA creation and subsequent modification are shaped by local political economy considerations in addition to technocratic conservation objectives (Persson and Tabellini, 2006; Besley, 2010).

In the U.S., governance authority over PAs is fragmented across federal agencies, state and local governments, conservation organizations, land trusts, and private entities. These actors differ in mandates, enforcement capacity, and funding models (Ostrom, 2010; Lubell, 2013). Public agencies often operate under binding fiscal constraints, while NGO- and privately managed protected areas rely heavily on external funding sources such as donations and grants (Ferraro, 2015). Prior evidence shows that this institutional heterogeneity translates into uneven enforcement intensity and variable conservation outcomes across sites and over time (Geldmann et al., 2013).

This same fragmentation creates scope for local discretion in PA implementation, including boundary delineation, protection stringency, monitoring, and funding allocation, as well as the durability of protection and likelihood of subsequent PADDD events (Mascia and Pailler, 2014; Golden-Kroner et al., 2019). As a result, the impact of PAs on local business activity is determined not only at the moment of legal establishment, but also through ongoing interactions among public agencies, conservation organizations, and local stakeholders who influence how protection is enforced, financed, and, in some cases, reversed over time (Greif, 2006; Acemoglu et al., 2001).

This institutional background highlights two features that motivate our analysis. First, biodiversity policy grants substantial discretion at the local level, where governance and funding decisions are made. Second, limited public conservation resources and fragmented authority create opportunities for private actors to engage in PA governance and policy.

Existing research focuses largely on ecological impacts and land-use outcomes (e.g., Bruner et al., 2001; Ricketts et al., 2010; Joppa and Pfaff, 2011; Geldmann et al., 2013), with little systematic evidence on how firms respond to and participate in these governance processes. We examine corporate engagement in the governance and durability of PAs, by focusing on corporate charity patterns around PADDD events.

2.2 Corporate Philanthropy and Local Regulatory Engagement

We examine the allocation of corporate resources to influence local policy by investigating an increasingly important source of discretionary funds, namely corporate charitable giving. Corporate philanthropy represents a large and persistent component of firm engagement with local communities and public institutions. In the U.S., charitable giving by corporations amounts to tens of billions of dollars annually, with total corporate giving exceeding $40 billion in recent years.[4] A defining feature of corporate giving is its strong geographic concentration. Firms disproportionately direct donations toward organizations located in their operating communities and toward public-facing nonprofits and government-adjacent entities, where visibility is high and relationships with local stakeholders and regulators are most salient (Godfrey, 2005; Bertrand et al., 2020). This local orientation distinguishes philanthropy from other nonmarket strategies, such as lobbying, litigation, and advertising, which are typically directed toward centralized policy or court venues (Hillman et al., 2004; de Figueiredo and Richter, 2014; Cohen and Gurun, 2024).

A growing literature in political economy and finance emphasizes that corporate philanthropy can serve strategic functions beyond altruism. Charitable contributions can generate reputational capital, mitigate political risk, and facilitate access to actors involved in policy implementation (Bertrand et al., 2021; Akey et al., 2024). Relative to formal lobbying, philanthropic engagement is a less transparent form of influence-seeking, operating through local nonprofits that play advisory roles in the rulemaking process. As a result, philanthropy to influence policy may prove particularly effective at the local level, especially in institutional environments with fragmented authority and discretionary enforcement, where policy outcomes depend on the behavior of multiple local actors rather than on a single centralized

[4] https://givingusa.org/giving-usa-2025-u-s-charitable-giving-grew-to-592-50-billion-in-2024-lifted-by-stock-market-gains/.

regulator (Persson and Tabellini, 2006; Besley, 2010; Ostrom, 2010).

These mechanisms are especially salient in biodiversity governance. PA management relies heavily on local governments, conservation NGOs, land trusts, and community organizations to monitor compliance, manage land, and allocate limited conservation resources (Lubell, 2013; Ferraro, 2015). Many of these entities operate under persistent budgetary constraints and depend on external funding to sustain core activities. Corporate donations can therefore affect both the capacity of conservation actors and the incentives they face when making decisions surrounding conservation management, including changes in PA status, size, or initial designation.

Despite the scale of corporate philanthropy and its institutional relevance, systematic evidence on how firms use charitable giving in the context of biodiversity regulation remains limited. Existing research primarily emphasizes lobbying, political connections, and firm-level environmental performance rather than philanthropic engagement as strategies to influence policy-making (Kerr et al., 2014; Akey, 2015). Other studies highlight firms' agency- and business-related incentives to engage in philanthropy (Masulis and Reza, 2015; Cai et al., 2021; Choi et al., 2023; Liang and Vansteenkiste, 2025; Vansteenkiste, 2025), including through influencing federal rulemaking (Bertrand et al., 2020, 2021), but do not associate it with policy-making at the local, subnational level.

Because PA implementation and persistence depend on local decision-making by public agencies and conservation organizations operating under fiscal and administrative constraints, charitable giving provides a flexible and visible mechanism through which firms can interact with actors active in local conservation decisions. Our study investigates whether firms use charitable giving to influence policy at the local level in the context of biodiversity conservation. We investigate how donations are allocated across recipients with formal or informal roles in conservation governance and policy implementation, and whether such engagement is associated with differences in regulatory durability.

3. Data and Research Design

Data are drawn from multiple sources covering the period 2006 to 2020. Information on PA designation, boundaries, governance structure, and subsequent legal and administrative modifications is obtained from the World Database on Protected Areas (WDPA), supple-

mented by the Protected Areas Database of the United States (PAD-US).

3.1 Regulatory Events and Establishment-Based Exposure

We use the timing, location, and institutional characteristics of changes in conservation commitments, including PADDD events and first-time PA designations, to construct establishment-level measures of exposure to biodiversity regulation. The unit of analysis is a PADDD proposal or a first-time PA designation event, defined as the year in which a PADDD is formally decided upon or the year in which a PA is designated for the first time within a county.

Our primary focus is on PADDD events, as they allow us to distinguish between enacted and proposed but unsuccessful changes in conservation status, thereby reducing potential bias from conditioning on realized regulatory outcomes. We obtain data on PADDD events from PADDDtracker.org, a verified database capturing all efforts to scale back protected areas globally. In total, 1,732 PADDD proposals were initiated during the sample period. We exclude proposals associated with large-scale public infrastructure projects, which are typically initiated by nonlocal authorities and reflect national or regional planning rather than localized economic pressure. The remaining 555 PADDD events reflect proposals driven by local demands to relax restrictions on industrial activity, land use, or resource extraction. Figure 1 depicts the county-level spatial distribution of PADDD events across the contiguous United States over 2006–2020, omitting Alaska and Hawaii. Counties without PADDD activity are shaded white. Among affected counties, darker shading indicates greater corporate donation intensity in the year preceding the PADDD decision. This figure shows that corporate charitable engagement around regulatory retrenchment events is widespread, with many counties receiving more than $1 million in corporate donations.

As an alternative setting, we examine first-time PA designations, which introduce new regulatory exposure and provide a dated policy intervention around which firm behavior can be evaluated. Unlike PADDD events, which involve the potential modification of existing protections, first-time designations capture the initial imposition of land-use constraints and conservation oversight. We identify 176 such designations over the sample period, which provide sufficient cross-county and cross-firm variation to implement our identification strategy and to validate the governance-targeting mechanism.

We capture exposure to PAs at the establishment level, by spatially linking county-level

PAs events to the geographic coordinates of individual business establishments. Establishment locations are obtained from the National Establishment Time Series (NETS) database, compiled by Walls & Associates, which reports precise latitude and longitude for each operating site, along with information on ownership, industry classification, and operating status. Measuring exposure at the establishment level is central to our design, as land-use regulation, permitting requirements, and interactions with local authorities occur at the site of operation rather than at firm headquarters and therefore vary within firms across locations.

Our baseline exposure measure is an indicator equal to one if a firm operates at least one establishment in a county where a PADDD proposal is initiated or where a PA is designated for the first time at any point during the sample period, and zero otherwise. In additional tests, we classify establishments as exposed if they operate within 30 kilometers of PAs in affected counties, following Akbari et al. (2025), who show that regulatory constraints and firm responses associated with biodiversity protection are most pronounced within this range.[5]

To capture heterogeneity in implementation authority, we distinguish PAs by their governance structure. An NGO governance indicator equals one if the newly designated or modified PA is governed by a conservation organization or land trust, while a subnational governance indicator equals one if authority resides with state or local public agencies. We also consider PAs under federal governance as a comparison group. These classifications are drawn from the WDPA governance framework and reflect systematic differences in enforcement capacity, funding arrangements, and administrative discretion at the time of designation or modification.

3.2 Corporate Philanthropic Engagement

We obtain data on corporate charitable giving from Foundation Directory Online (FDO), a comprehensive database that compiles donation-level information from public records and Form-990 filings by nonprofits. [6] The data provide detailed records on the timing, dollar

[5]The 30-kilometer threshold is also consistent with environmental science evidence indicating that regulatory scrutiny and localized ecological impacts attenuate sharply with distance from protected lands, reflecting standard practice in environmental review and monitoring near protected areas (Hinds, 1999; Seinfeld and Pandis, 2016).

[6]While donations in FDO date back to 1999, coverage improves substantially after 2006 due to the introduction of electronic filing requirements for large organizations (with assets of at least $10 million). To

amount, and recipient of each contribution and integrate information from corporate disclosures, foundation filings, and verified nonprofit submissions. Contributions are recorded in the year in which funds are disbursed rather than pledged, ensuring that observed giving reflects realized transfers rather than announced commitments.

We restrict our sample to firms operating a corporate foundation, mitigating concerns about unobservable factors that jointly affect biodiversity exposure and the decision to disclose charitable donations and/or engage in philanthropy at the firm level. When firms make multiple contributions to the same recipient within a given year, we aggregate donations at the firm–recipient–year level.

Each donation record identifies the recipient organization, allowing contributions to be classified according to their institutional relevance for local governance. Building on the governance framework described in Section 2, we group recipients into environmental and biodiversity-focused nongovernmental organizations, community- and council-related entities, and other nonprofit organizations based on the recipient's mission, grant subject, and organizational mandate. This classification captures whether donations are directed toward actors that participate directly in PA management, monitoring, enforcement, or related public decision-making, as opposed to recipients whose activities are less directly connected to local regulatory implementation.

Donations to recipients without a clear local or governance connection are retained in the sample but primarily serve as a comparison group for assessing shifts in the allocation of giving across recipient types. Because corporate philanthropy is often geographically targeted, we assign each donation to the county in which the recipient organization operates using address information reported in FDO. This localization allows charitable giving to be matched to the institutional and regulatory environment surrounding a firm's operations-based exposure and to counties experiencing PA designation or PADDD events. We align donation records with regulatory events in event time by constructing donation measures relative to the year of the PADDD decision or first-time PA designation. This alignment allows us to examine changes in both the level and composition of giving before and after regulatory intervention and to identify anticipatory donation behavior in the period leading up to formal policy action.

mitigate reporting bias, we restrict the sample to donations made by corporate-owned foundations over the 2006–2020 period.

3.3 Empirical Design

Our empirical strategy exploits spatial and temporal variation in protected-area downgrading, downsizing, and degazettement (PADDD) to identify how firms adjust corporate philanthropy in response to regulatory retrenchment in biodiversity policy. The design treats each PADDD episode as a discrete regulatory shock and implements a stacked cohort event-study that compares charitable giving by exposed firms in the period immediately preceding and following the shock, relative to both other firms assigned to the same treatment event and the same firms assigned to other events.

For firm i, treatment event c, and year t, we estimate the following baseline specification:

$$\ln(\text{Donation Amount})_{i,c,t} = \alpha + \beta_1 \,\text{Pre}_{c,t} \times I[\text{Exposure}]_{i,c} + \beta_2 \,\text{Post}_{c,t} \times I[\text{Exposure}]_{i,c} + \gamma_{i,t} + \theta_{c,t} + \mu_{i,c} + \varepsilon_{i,c,t}. \tag{1}$$

In Equation (1), $\text{Pre}_{c,t}$ equals one in the year immediately preceding the PADDD event defining cohort c, and $\text{Post}_{c,t}$ equals one in the years following the event, with earlier years serving as the omitted category. The indicator $I[\text{Exposure}]_{i,c}$ equals one if firm i operates at least one establishment in the county containing the affected PA or within the specified distance band around a PA boundary in the affected county, depending on the exposure definition. The specification includes firm $\times$ year fixed effects $\gamma_{i,t}$, event $\times$ year fixed effects $\theta_{c,t}$, and firm $\times$ event fixed effects $\mu_{i,c}$. These fixed effects absorb, respectively, firm-level shocks to overall charitable activity, time-varying characteristics common to all firms assigned to the same event (such as political, legal, or media attention surrounding the PADDD), and persistent differences in firm exposure intensity across events. Because PADDD events are defined at the county level, cohort fixed effects absorb all county-specific variation that may simultaneously affect corporate philanthropic engagement, biodiversity exposure, and PADDD intensity over time.

Identification therefore comes from changes in charitable giving within a firm–event pair around the timing of regulatory retrenchment, relative to other firms in the same event and relative to the same firm's behavior across different events. Across all baseline specifications, standard errors are double-clustered at the firm and event level to account for serial correlation in firm- and event-specific donation patterns over time. This design isolates localized

philanthropic responses to regulatory retrenchment from firm-wide shifts in giving and from event-specific shocks that could otherwise confound the estimated effects.

3.4 Summary Statistics

Table 1 reports summary statistics for the main variables used in the analysis. The unit of observation is the firm-county-year, covering the period 2006-2020. Panel A reports average and median donation and PA measures for the full sample underlying the DiD estimates. The unconditional likelihood of a charitable transfer to any county is low at 1.3%, reflecting the sparsity of giving at the firm–county level. Conditional on a firm operating within a county, however, the likelihood of donating rises to approximately 10%, consistent with firms directing charitable activity toward locations in which they maintain an operational presence.

Conditional on giving, donation amounts are highly right-skewed. The mean donation is $86,749, while the median is $5,000, indicating a distribution dominated by a large mass of modest transfers and a small number of very large contributions. Donation amounts also vary systematically with biodiversity exposure. In counties where firms operate establishments near PAs, average donations are substantially larger, at approximately $206,593, compared with $118,940 in counties where firm operations are not near PAs, consistent with greater philanthropic intensity in locations intersecting conservation governance. Panel A also documents substantial heterogeneity in the local conservation environment. The average county contains approximately five protected areas covering about 606 square kilometers, while the median protected land area is approximately 10 square kilometers. This dispersion underscores the importance of measuring regulatory exposure and conservation context at a fine geographic scale rather than relying on aggregate indicators of conservation presence.

Panel B summarizes characteristics of regulatory retrenchment events. Approximately 81% of PADDD proposals in the sample are ultimately enacted, indicating that formal challenges to protected status frequently result in realized changes to land-use or governance regimes. Among PADDD events, 44% are in counties with PAs governed by NGOs, 37% involve PAs governed by local (subnational) public agencies, and 63% involve PAs governed by federal agencies.[7] In 63% of PADDD cases, local nonprofits receive at least one corporate

[7]The sum of governance indicators exceeds 1 because PAs can be simultaneously governed at different

donation in the year preceding the decision, and in 56% of cases, there is corporate activity in the affected county.

Panel C reports contextual statistics for first-time PA designation events, which serve as a validation and comparison setting in the main analysis. Approximately 26% of new designations are governed by NGOs, while 76% are governed by federal or subnational agencies. In 30% of designation events, local nonprofits receive at least one corporate donation in the year prior, and in 48% of cases, there is corporate activity in the affected county. Together, these statistics indicate substantial spatial and temporal variation in both regulatory exposure and philanthropic engagement, providing the empirical leverage for the identification strategies employed in the subsequent analysis.

4. Corporate Responses to PADDD Events

This section examines how firms respond to PADDD events in nearby PAs. We begin with baseline results and event-time evidence to assess identifying variation. We then analyze heterogeneity in donation responses across governance structures, recipient types, and exposure types, and conclude with a validation test based on firms' responses to first-time PA designations.

4.1 Baseline Results: Charitable Giving around PADDD Events

In our baseline analysis, we examine how firms exposed to nearby PAs adjust their charitable giving in the years surrounding a PADDD event. PAs often place formal (regulatory) and informal (reputational) restrictions on firms operating near the affected area, creating incentives to engage with local institutions to influence the designation status of PAs near their operations. Prior work documents that PAs are frequently modified, weakened, or reversed in response to economic, social, and political pressures (Mascia and Pailler, 2011; Golden-Kroner et al., 2019). We test whether firms respond to prospective regulatory retrenchment through geographically targeted charitable giving, exploiting within-firm and within-cohort variation in exposure in a stacked event-study setting.

Our identification strategy compares donation behavior for firm–event pairs in the years

levels and counties can contain several PAs with different governance levels.

immediately preceding and following a PADDD event to the same firm's behavior in other events (cohorts) and to non-exposed firms assigned to the same event. We consider firm i locally exposed if it operates at least one establishment located in a county subject to PADDD event (cohort) c, or within a specified distance band around a PA boundary in the affected county. For a given event, treated observations are firm–event pairs for which local operational presence creates regulatory proximity to the PADDD event. Untreated observations consist of firm–event pairs assigned to the same event but without such geographic exposure.

Importantly, we include both enacted (successful) and proposed (unsuccessful) PADDD events, ensuring that the analysis is not conditioned on observing only realized regulatory changes. To characterize the timing of firms' responses around PADDD proposals, we estimate an event-study specification based on Equation (1) that replaces the pre- and post-event indicators with a set of event-time indicators, interacted with local exposure. This specification preserves the same fixed-effects structure as in the baseline model, namely firm $\times$ year, cohort $\times$ year, and firm $\times$ event fixed effects, while allowing donation behavior to vary flexibly over event time. The event-time coefficients trace the dynamic path of charitable giving relative to a pre-event reference period and provide a visual assessment of anticipatory behavior and pre-trends.

Figure 2 plots the resulting event-time estimates, which isolate changes in charitable giving associated with exposure to PADDD events by netting out firm-wide and event-specific donation trends. Event time is indexed to the PADDD event year T_c, with indicator variables for years $t-5$ through $t+5$ relative to the event, normalized to year $t-6$. Donation activity by firms operating establishments in PADDD-affected areas diverges beginning around $t = -2$ and remains elevated through $t = 0$ relative to firms assigned to the same event without local exposure. In contrast, estimates in earlier pre-periods ($t \leq 3$) are small and statistically indistinguishable from zero. The absence of differential trends prior to $t = -2$ is consistent with the identifying assumption that PADDD proposals are not preceded by systematic firm-level or event-level shocks correlated with exposure. Following the PADDD decision ($t \geq 0$), donation levels revert toward baseline, suggesting that the increase in giving is concentrated in the period leading up to the regulatory decision rather than reflecting sustained post-event support. Overall, Figure 2 indicates a temporally concentrated response prior to proposed conservation policy changes, consistent with geographically targeted philanthropy

that engages with local policy and governance.

Table 2 complements the dynamic evidence by quantifying average treatment effects using DiD specifications based on Equation (1). We examine both changes in the probability of making a charitable donation (the extensive margin; columns 1 and 2) and changes in donation amounts (the intensive margin; columns 3 and 4). Panel A defines exposure at the county level, treating a firm-event observation as exposed if the firm operates at least one establishment in a county subject to a PADDD event. Panel B adopts a distance-based definition, classifying a firm-event observation as exposed if the firm operates an establishment within 30 kilometers of a PA boundary in an affected county. All specifications include firm $\times$ year, event $\times$ year, and firm $\times$ event fixed effects, so identification exploits within-firm and within-event variation in exposure over time.

Firms that are exposed to PAs through their local operations exhibit a statistically significant increase in charitable activity in the year immediately preceding a PADDD event. Donation incidence rises by approximately 5.5 to 5.6%, corresponding to more than a tripling of the baseline donation rate of 1.3% reported in the summary statistics (Table 1), indicating a substantial expansion along the extensive margin. Conditional on donating, contribution amounts increase by roughly 80%.[8] In monetary terms, this implies an increase of approximately \$69,000 relative to the mean donation amount of \$86,749. Post-event interaction terms are small and statistically indistinguishable from zero across all specifications, indicating that the increase in giving is concentrated in the pre-decision period and does not persist following the resolution of the PADDD event.

Panel B reports results using a distance-based exposure definition. Firms operating within 30 kilometers of a PA in a PADDD-affected county display pre-decision increases in donation incidence and donation amounts comparable to those obtained under the county-based definition, while post-event effects remain limited. Overall, these results indicate that PADDD retrenchment is preceded by sharp, geographically localized increases in corporate giving, with little evidence of sustained responses following the resolution of the PADDD decision.

In additional tests in Appendix Table A.1, we distinguish between proposals for PA downsizing versus downgrading, and between proposals for systemic (spanning multiple counties) versus local (confined to a single county) downgrades/downsizes. We find that our baseline

[8] $e^{0.590} - 1 \approx 0.80$ in column (4), Panel A, and $e^{0.596} - 1 \approx 0.81$ in column (4), Panel B.

results are driven by downgrade-based PADDD events (column 2), which typically relax restrictions on business activity within PAs, rather than by downsize-based PADDD events (column 1), which primarily shift PA boundaries. These findings are consistent with a channel in which firms seek to influence local PA policies that expand the scope for local business activities. Similarly, we find stronger effects for PADDD events affecting larger geographic areas (column 3) than for those confined to a single municipality (column 4), which limits the scale of operational expansion.

4.2 Targeted Giving and Governance

Having documented increases in both the likelihood and magnitude of corporate giving, we next examine whether firms reallocate donations across recipient types and governance regimes prior to the PADDD decision. We do so by focusing on changes in the composition of charitable giving across recipients that differ in their degree of local embeddedness and proximity to conservation-related decision-making. Governance authority is defined based on the managing entity recorded in the WDPA at the time of the PADDD event.

To examine how donation targeting evolves around PADDD events, we apply the event-study specification from Section 4.1, disaggregating charitable giving by recipient type. We define locally embedded recipients as organizations that operate within affected jurisdictions and are plausibly engaged in local conservation governance: specifically, we focus on environmental and biodiversity NGOs, and community and council organizations. We compare these to non-local or externally oriented recipients, such as universities and organizations focused on international activities, whose operations are less directly tied to local conservation decision-making. Figure 3 plots event-time estimates separately for each recipient type. Donations to locally embedded recipients increase sharply around $t = -1$ in the year immediately preceding the PADDD decision (Panels A and B), whereas donations to nonlocal recipients do not exhibit a comparably timed or pronounced increase (Panels C and D). As in Figure 2, estimates in earlier pre-periods are small and statistically indistinguishable from zero, indicating the absence of differential pre-trends. Post-decision estimates are smaller and less precisely estimated, consistent with donation responses being concentrated in the period when their potential influence on conservation policy is most impactful.

Panel A of Table **3** reports corresponding DiD estimates. In the year immediately preced-

ing the PADDD decision, firms with establishments in affected counties significantly increase donations to local environmental and biodiversity NGOs (column 1) and to local community and council organizations (column 2), while donations to universities (column 3) and international organizations (column 4) do not change significantly. These estimates indicate that the pre-decision increase documented in Figure 2 is concentrated among locally embedded civic recipients and conservation-focused NGOs, rather than among recipients less directly connected to local governance. This evidence indicates that firms' charitable responses to PADDD events are selective and governance-targeted rather than broad-based. As changes in PA policies approach formal resolution, firms reallocate donations toward local councils and conservation NGOs that are more closely linked to regulatory oversight and community-level governance.

In Panel B, we investigate whether firms systematically change giving patterns with the governance structure of PAs near their operations. Specifically, we assess whether firms reallocate giving depending on whether PA management authority resides with an NGO, a subnational (state or municipal) public agency, or a federal agency.[9] This distinction is central because governance structure determines which actors exercise direct authority over conservation oversight and policy implementation. Panel B reports the corresponding disaggregated estimates by governance regime. In Panel B, we find that pre-PADDD giving to local nonprofits becomes less pronounced as governance authority becomes less decentralized. Prior to PADDD events in counties with NGO-governed PAs, exposed firms increase donations to environmental and biodiversity NGOs by 113%, significant at the 1% level (column 1). In NGO-governed PA counties, giving remains elevated post-PADDD, albeit at a much lower level. In counties with subnational governed PAs, pre-PADDD donations by exposed firms also significantly increase, although the increase is less pronounced at 83%, significant at the 5% level (column 2). In counties with federally governed PAs, pre-PADDD giving is considerably weaker - the jump in giving is weakly significant at the 10% level (column 3).

We then examine whether firms' targeted philanthropic engagement, focused on locally embedded nonprofits, varies systematically with nearby PAs' governance. In Table 4, we investigate whether giving patterns targeting local conservation NGOs and councils vary with the extent to which PA governance is decentralized. In counties with NGO-governed PAs,

[9]Because counties can contain several PAs and because PAs can be governed simultaneously at different levels, we only include counties without overlapping governance oversight.

pre-PADDD giving is concentrated in both conservation NGOs and council organizations, highlighting their focused role in local conservation governance (columns 1 and 2). When governance authority rests with a local public agency, pre-PADDD resource allocation is concentrated in council-directed giving (column 4), with no statistically meaningful increase in donations to conservation NGOs (column 3), highlighting the alignment of targeted corporate engagement with the specific institutions that hold governance authority. In contrast, neither conservation NGOs or councils experience an increase in targeted contributions by local corporations when governance resides with federal agencies (columns 5 and 6), reinforcing the importance of local stakeholders in conservation policy. Moreover, across governance regimes and recipient types, post-PADDD coefficients are small in magnitude and not statistically distinguishable from zero, consistent with a pre-decision targeted engagement channel rather than persistent shifts in philanthropic funding.

In additional tests in Appendix Table A.2, we investigate corporate engagement with conservation governance at the federal level. How firms engage with federal policy and rulemaking is well documented (Bombardini and Trebbi, 2025). However, we find limited evidence that firms engage with *conservation* policy at the federal level. Proxying firms' political footprint through federal lobbying spending and PAC giving, we find no significant changes in pre- or post-PADDD resource allocation across federally or non-federally governed PAs (columns 1 to 4). However, we find some evidence of tax-exempt lobbying at the federal level consistent with Bertrand et al. (2020). Pre-PADDD giving to nonprofits in congressional districts of legislators sitting on committees addressing conservation and nature significantly increases by 150% in counties with federally governed PAs (column 6), whereas there is no significant change in counties with non-federally governed PAs (column 5). While confirming the importance of firms' indirect influence on federal policy, these results also indicate that firms' targeted engagement with local stakeholders is a uniquely direct and influential channel for influencing local policy when authority is fragmented and decentralized.

Overall, these results indicate that firms target their engagement on the institutional locus of PA governance, rather than responding uniformly to regulatory exposure. Firms selectively engage with the actors directly involved in governance and oversight as conservation policy decisions become more salient. These governance-contingent responses are less consistent with explanations based on generalized environmental concern or reputational signaling, which would predict broad-based increases in conservation-oriented giving regard-

less of governance structure. Rather, the evidence points to a governance-aware reallocation of corporate resources as PA policy changes approach resolution, consistent with strategic engagement with institutions expected to shape implementation when binding regulatory constraints affect operations (Aghion et al., 2010; Acemoglu and Robinson, 2012).

4.3 How Does Philanthropic Engagement Affect Local Governance?

A key question is *how* funding of local nonprofit organizations can enable firms to engage with PA governance and oversight. The unique nature of conservation policy's decentralized governance authority implies that local institutions, such as councils, municipal agencies, and NGOs hold decision-making power over day-to-day operational, budgetary, and enforcement issues in and around PAs. Their decisions determine how information and resources are distributed by affecting which claims enter regulatory and budgetary processes and how they are assessed, placing them at the center of regulatory and fiscal implementation. Such governance authority is particularly important around PADDD decisions, which often follow political and social pressure driven by fiscal constraints or competing economic priorities.

In a regulatory context where authority is decentralized and decision-making is driven by economic and budgetary constraints, the provision of funding and resources can provide firms with important influence and clout. First, by relaxing fiscal constraints and expanding organizational capacity, philanthropic funding can affect which organizations participate and how they engage in PADDD decisions. Second, by increasing monetary resources, funding can trigger reciprocity by the nonprofit's board members, whose engagement in PADDD decisions may align more closely with the donating firm's incentives in exchange for monetary compensation. We investigate these mechanisms in Table **5**, where we examine how firms allocate charitable resources across nonprofits with varying financial positions and board compensation levels.

In Panel A, we consider philanthropic funding flows to recipient nonprofits separated by cash reserves, proxied through cash holdings scaled by monthly expenditures, as a measure of budgetary constraints. We condition the analysis on donating, thereby holding constant the decision to donate but varying the intensity of resource provision. A nonprofit's cash reserve status is defined based on its position in the bottom (Q1) or top (Q4) quartile of the nonprofit universe, where we evaluate public and private nonprofits separately relative to

their respective universes. We find that pre-PADDD donations are concentrated in nonprofits with low cash reserves, with a more pronounced 115% increase in counties with subnational public agency-governed PAs (column 3) relative a 31% increase in counties with NGO-governed PAs (column 1). In contrast, funding flows to nonprofits with high cash reserves in NGO-governed PA counties show a small decrease (column 2), suggesting a redistribution of resources from recipients without fiscal constraints to those for whom external funding is more important to sustain daily operations.

We distinguish recipient nonprofits by board member compensation in Panel B. We define the nonprofit's status based on the average monetary compensation received by board members relative to the public and private nonprofit universe. Pre-PADDD donations are concentrated in nonprofits in which board members receive higher compensation, with economically similar effects in NGO-governed (column 1) and subnational public agency-governed (column 3) PA counties. These funds are obtained by reducing flows to nonprofits with lower board compensation, particulary in subnational agency-governed PA counties (column 4), consistent with a reciprocity mechanism in which philanthropic funding provides greater clout when nonprofit insiders derive more private benefits from their affiliated charities.

Overall, these results shed light on the mechanisms through which charitable funding enables firms to engage with local stakeholders that hold governance authority over PAs near firms' operations, engagement which is particularly important around social pressure-driven PADDD retrenchment decisions. By relaxing budget constraints and trigger reciprocity, philanthropy provides firms with political clout at the local level. In the next sections, we investigate whether such engagement translates into economic and financial outcomes.

4.4 Which Operational Exposure Types Drive Local Engagement?

Next, we examine whether firms' governance-contingent targeted resource allocation varies systematically across operational exposure types, reflecting heterogeneity in regulatory salience and the relevance of conservation policy for firms' production activities. Regulatory exposure is unlikely to be uniform across the types of operational exposure faced by local firms. Facilities in environmentally intensive industries (e.g., chemical manufacturing) face heightened permitting requirements, compliance monitoring, and enforcement related to emissions, waste disposal, and land-use constraints. Similarly, establishments in resource extraction

(e.g., mining, oil and gas) are directly affected by access restrictions, boundary changes, and licensing rules associated with PA governance. For these sectors, proximity to PAs intensifies the importance of interaction with conservation authorities and local regulators, raising the potential value of engagement with these actors through charitable funding. We therefore focus on chemical manufacturing and resource extraction as high-exposure settings in which regulatory salience is especially pronounced.

Table **6** reports DiD estimates for firms operating chemical manufacturing (column 1) and resource extraction (column 2) establishments. The specifications mirror those in our baseline specification but replace $I[\text{Exposure}]$ with sector-specific exposure indicators, isolating responses among firms whose operations are most directly affected by conservation-related land use and permitting constraints. To meaningfully compare pre- and post-PADDD event patterns across exposure types, we condition the analysis on successful PADDD events. The results show a pronounced increase in pre-event donation responses in these sectors. Prior to PADDD events, firms operating chemical establishments increase donations by approximately 65% ($e^{0.499} - 1$, column 1), while firms engaged in resource extraction increase donations by approximately 131% ($e^{0.837} - 1$, column 3).[10] Following successful events, firms operating in resource extraction scale back donations, consistent with a reduced marginal benefit of local engagement once regulatory constraints are relaxed. We conduct a placebo test using operations in less environmentally intensive sectors, including wholesale trade (column 3) and service-based industries (column 4). For these exposure types, pre-event donation responses do not display a consistent or systematic relationship with PADDD activity.

Overall, firms' responses to biodiversity regulation are both governance-specific and exposure-specific. Chemical manufacturing and resource extraction operations, which are more directly constrained by conservation policy, exhibit especially pronounced adjustments in donation targeting. This evidence supports the interpretation that corporate resource allocation around PA policy changes reflects targeted engagement with the regulatory environment rather than broad environmental signaling or undifferentiated local giving.

[10] In additional tests, we find no statistically meaningful increase in donations around unsuccessful PADDD attempts.

4.5 Does Philanthropic Engagement Affect PADDD Outcomes?

A key feature of PADDD events is that they generate both successful (enacted) and unsuccessful proposals to relax constraints on corporate operations, allowing us to compare donation behavior across regulatory initiatives that result in realized policy changes and those that do not. We exploit this variation by examining whether local philanthropic engagement is systematically related to the likelihood that a PADDD downgrade is successfully enacted. We collapse the sample to the PADDD-event level and distinguish between aggregate pre-event donations by firms with local operational exposure and donations by firms without local operations in the year preceding each PADDD proposal. The dependent variable is an indicator equal to one if the PADDD proposal results in a formal change in PA status.

Panel A reports the baseline estimates. Donations by locally exposed firms are positively and statistically significantly associated with the probability of PADDD success (column 1), whereas donations by nonlocal firms exhibit no statistically discernible relationship with retrenchment outcomes (column 2). This contrast persists in a horse-race specification that includes both local and nonlocal donations simultaneously (column 3), indicating that the association between corporate engagement and policy outcomes is concentrated among geographically proximate firms.

Panel B disaggregates the analysis by governance authority and operational exposure. In columns (1) and (2), donations by local firms are positively associated with PADDD success in counties in which PAs are governed by public institutions, while no comparable association emerges in counties with NGO-governed PAs. As in Panel A, donations by nonlocal firms are not significantly related to retrenchment outcomes. Columns (3) and (4) focus on donations by firms operating in industries more exposed to PA restrictions, specifically chemical manufacturing and resource extraction. Pre-event donations by geographically proximate firms in these sectors are strongly associated with a higher likelihood of PADDD success, whereas donations by firms with nonlocal operations in the same sectors exhibit no statistically significant relationship. These results indicate that the link between corporate engagement and retrenchment outcomes is concentrated among geographically proximate firms whose operations are most directly affected by changes in PA policy.

5. Post-PADDD Performance and Financing Outcomes

This section examines how changes in PA restrictions on business activities are related to subsequent corporate performance and financing outcomes. Building on evidence that firms' pre-PADDD giving is associated with the likelihood of retrenchment success, we assess whether such engagement is systematically linked to post-PADDD financial performance at both the establishment and firm levels, as well as to downstream public finance and voting outcomes.

5.1 Establishment-Level Performance Outcomes

We first examine whether firms' pre-PADDD donations are systematically related to subsequent establishment-level performance following successful changes in PA status, and whether these local performance effects are accompanied by shifts in post-designation county-level public finance. The analysis focuses on sales, employment, and sales per employee for establishments located in counties subject to PADDD events, relating post-event outcomes to the extent of firms' prior engagement with locally embedded nonprofit and governance institutions.

In Table 8, we analyze average post-PADDD sales, employment, and sales per employee for establishments located in counties subject to PADDD events. The specifications relate post-event performance to firms' pre-event donations to local nonprofits and to the realized outcome of the PADDD process.[11] This design compares establishments exposed to the same regulatory environment but differing in the intensity of pre-event local engagement.

We find that higher pre-event donations are associated with stronger post-PADDD establishment performance when retrenchment is successfully enacted. A 10% increase in donations in the year preceding a successful PADDD decision is associated with an additional 0.43% increase in sales (column 1), a 0.31% increase in employment (column 2), and a 0.10% increase in sales per employee (column 3), computed as $\hat{\beta} \times ln(1.10)$ using the interaction coefficients. Evaluated at the sample means, these magnitudes correspond to approximately \$5,776 in additional county-level sales for each \$6,820 increase in donations,

[11] Because the analysis conditions on firms' pre-PADDD donation levels, we cannot include firm × event fixed effects. To account for the operational importance of the PADDD county to the firm, we control for *Pre-PADDD Operational Intensity*, measured by the number of establishments, as well as *Pre-PADDD Performance* in terms of sales, employment, and sales per employee.

based on per-county sales of $1,346,700 and average pre-event donations of $68,188. While this calculation is illustrative rather than causal, it indicates that the economic effects are large.

These results stand in contrast to prior evidence that PA designations impose localized compliance and land-use constraints that depress establishment-level sales, employment, and productivity (Akbari et al., 2025). In our setting, performance improvements arise only when regulatory constraints are formally relaxed through successful PADDD decisions and firms have engaged with local institutions, indicating that the association between corporate philanthropy and performance is contingent on the resolution of the regulatory process rather than on generalized reputational or demand-side channels. When PADDD proposals do not result in a formal change in PA status, higher pre-event donations are instead associated with weaker subsequent sales and employment. This asymmetry underscores that local engagement does not generate broad performance gains in the absence of regulatory change, but instead operates through the relaxation of constraints that directly shape production and labor decisions at exposed establishments. Firms with greater prior engagement therefore experience larger performance responses precisely in settings where the regulatory outcome determines whether land-use and compliance restrictions are relaxed or maintained.

In additional tests in Appendix Table A.3, we examine whether this establishment-level performance evidence aggregates to economically significant changes in parent-firm outcomes. In Panel A, we assess the baseline relation between firm-level biodiversity exposure, measured by the number of establishments operating near PAs, and firm performance. Following Akbari et al. (2025), we evaluate outcomes in terms of return on assets (ROA), Tobin's Q, and labor productivity (sales per employee). Consistent with their findings, greater biodiversity exposure is associated with weaker firm-level performance on average. In the absence of changes in PA designation or policy, donation activity in exposed counties is not associated with improved firm outcomes, indicating that corporate philanthropic engagement does not operate through a general firm-wide reputational or demand-side channel.

Panel B focuses on firms operating in counties subject to PADDD events, where changes in PA status directly affect local production constraints. Motivated by the heterogeneity documented in Table **6**, we restrict attention to firms in high-exposure industries, specifically chemical manufacturing and resource extraction. Within this subset, pre-event donations to exposed counties are positively and statistically significantly associated with stronger post-

event firm performance. Donating firms exhibit approximately 0.55% higher ROA (column 1), a 0.05 increase in Tobin's Q (column 2), and 1.3% higher labor productivity (column 3) relative to non-donating peers. Overall, firm-level performance gains are concentrated in settings in which conservation policy is economically salient, reflecting the aggregation of local regulatory relief across exposed establishments, rather than a firm-wide reputational or demand-side channel.[12]

5.2 Public Finance Outcomes: Conservation Funding Resolutions

While the previous subsections document that corporate engagement around PADDD events is associated with improvements in firm performance, a related question is whether such giving is also associated with decision-making at the local institutional level. We therefore examine intermediate fiscal outcomes that shape how conservation policy is implemented in practice.[13]

Specifically, we investigate whether philanthropic engagement is associated with changes in local conservation spending, capturing a budgetary channel through which corporate engagement may affect the regulatory and administrative environment surrounding local PA governance. We examine voter approval of state- or council-initiated land conservation funding resolutions, obtained from the LandVote Database compiled by the Trust for Public Land, which records local- and state-level ballot initiatives that seek voter approval to raise public funds for land conservation through bond authorizations or dedicated tax measures. We focus on local land conservation ballots decided by narrow margins (within a 10% win–loss threshold), which provides a setting in which marginal shifts in political or fiscal support are most likely to affect outcomes. We distinguish between tax-based and bond-based funding instruments. Tax-based measures directly affect firms' operating costs through higher local tax burdens, whereas bond-based measures primarily finance conservation through voter-

[12] An important consideration is the timing of real adjustment. While successful PADDD events relax regulatory constraints at exposed establishments, translating local regulatory relief into firm-wide financial outcomes typically requires capital reallocation, permitting, and operational scaling that unfold over multi-year horizons. As a result, short-horizon firm-level performance and valuation measures may understate the longer-run implications of corporate engagement targeting regulatory retrenchment.

[13] We do not examine ecological outcomes such as species abundance or habitat quality. Instead, we focus on institutional and budgetary outcomes that are observable at scale and that condition the administrative capacity and enforcement intensity of conservation policy. These measures are necessary inputs into, but not sufficient indicators of, long-run ecological effectiveness.

backed debt instruments and do not impose immediate, firm-specific fiscal obligations.

Table 9 relates corporate philanthropic funding in the year preceding a closely contested funding ballot to the probability that a land conservation funding measure is approved. As in Table 7, the unit of analysis is the funding resolution, and we distinguish aggregate pre-ballot giving by locally operating firms from giving by nonlocally operating firms. Panel A reports results for tax-based measures. Donations by local firms are negatively and statistically significantly associated with the probability that tax-based conservation measures are approved (column 1). Donations by nonlocal firms show no statistically discernible relationship (column 2), and the negative association for local firms' giving persists in a horse-race specification that includes both sources of donations (column 3). Panel B reports results for bond-based measures. In this case, we find no statistically meaningful relationship between either local or nonlocal firms' giving and the likelihood of approval.

These results indicate that corporate engagement is concentrated in fiscal settings that directly affect firms' operating costs, rather than in funding instruments that primarily reflect broader voter preferences over public investment. Firms appear to target funding mechanisms that shape the incidence and timing of localized tax burdens on operating establishments through local political and fiscal institutions, rather than toward shaping aggregate support for conservation as a public good. The concentration of effects among geographically proximate and high-exposure firms underscores that influence-seeking behavior is contingent on the alignment between firms' operational footprints and the locus of budgetary authority, highlighting the role of local governance structures in mediating how private engagement translates into public finance outcomes.[14]

In additional tests in Appendix Table A.4, we assess whether firms' philanthropic engagement is associated with overall local conservation spending, proxied through city- or council-level parks and conservation spending as a share of total public expenditures. We distinguish between PAs governed by NGOs and public authorities, and between donations to conservation NGOs and council-related recipients. We find no significant association

[14]In Appendix Table A2, we relax the restriction on closely contested ballots and obtain qualitatively similar results. Pre-ballot donations by local firms remain negatively associated with approval of tax-based measures but not bond-based measures. These effects are concentrated among firms in high-exposure industries, such as chemical manufacturing and resource extraction. We also find suggestive evidence that donations by nonlocal firms are positively associated with funding success, consistent with influence-seeking behavior being tied to local operational exposure.

between local philanthropic engagement and subsequent conservation spending in NGO-governed settings. In contrast, in counties where PAs are governed by local public agencies, higher council-directed donations are associated with a statistically significant reduction in the share of public expenditures allocated to parks and conservation, while donations to environmental organizations continue to exhibit no economically meaningful relationship with fiscal outcomes. These findings indicate that, in publicly governed settings, corporate engagement operates through fiscal channels linked to local budgetary authority and allocation decisions, whereas in NGO-governed settings public spending decisions are comparatively insulated from local philanthropic activity. More broadly, the evidence underscores how governance structure mediates the institutional pathways through which corporate giving interacts with the budgetary implementation of conservation policy.

6. Validation: First-Time Protected Area Designations

PADDD events provide a setting in which regulatory constraints on local operations become contestable and subject to potential reversal. In contrast, first-time PA designations introduce new regulatory exposure and regulatory salience, while offering a more limited and less well-defined margin for formal reversal or renegotiation than PADDD events. We use these events as a validation test to assess whether the governance-targeted donation behavior documented in the PADDD setting reflects strategic engagement with institutions that shape regulatory implementation and oversight, rather than generalized environmental concern or reputational signaling.

First-time designations represent discrete regulatory interventions that alter local land-use constraints and regulatory scrutiny, while abstracting from subsequent amendments, downgrades, or post-designation political processes that may influence implementation. This setting allows us to isolate the salience of new conservation governance from the possibility of influencing a binary policy outcome. If corporate philanthropy primarily reflects efforts to shape regulatory implementation, we would expect donation targeting to vary systematically with governance authority, but we would not expect donations to predict designation outcomes or to display the temporal concentration observed around PADDD retrenchment.

We estimate event-study and DiD specifications analogous to those in Section 4.1, where each event is a first-time PA designation rather than a PADDD decision. The unit of

observation is the firm-event-year, where an event corresponds to a newly designated PA. Exposure is defined based on whether firm i operates at least one establishment in the county containing the newly designated PA or within a specified distance band around its boundary. The baseline specification includes firm $\times$ year, firm $\times$ event, and event $\times$ year fixed effects, so identification comes from within-firm, within-event variation in local exposure to designation events. This structure absorbs time-varying firm-level shocks, persistent firm-event relationships, and event-specific time trends in political, economic, or conservation-related conditions.

We focus on changes in donation composition across recipient types that differ in their proximity to local governance and conservation oversight. As before, we distinguish donations to environmental and biodiversity NGOs and to community and council organizations, which are embedded in local policy and governance processes, from donations to universities and international organizations, which are less directly connected to local oversight.

Figure 4 plots event-time estimates disaggregated by recipient type and governance authority. When newly designated PAs are governed by NGOs, donations to environmental and biodiversity NGOs increase in the year immediately preceding designation (Panel A). In contrast, when governance authority rests with public agencies, donations to community and council organizations rise sharply in the pre-designation year (Panel B). Donations to nonlocal recipients, including universities and international organizations, show no comparable change around designation. Estimates in earlier pre-periods are small and statistically indistinguishable from zero, indicating the absence of differential pre-trends. Relative to the PADDD setting, donation responses around first-time designations display greater persistence in the post-designation period, consistent with firms engaging in longer-horizon relationship building with local communities and governance institutions following the introduction of new regulatory constraints, rather than attempting to influence a discrete policy outcome.

Table **10** reports complementary DiD estimates disaggregated by recipient type and governance authority. Panel A uses a county-based exposure definition, while Panel B applies a distance-based definition using a 30-kilometer radius around newly designated PAs. Columns (1) and (2) examine donations to conservation NGOs, and columns (3) and (4) examine donations to community and council recipients. In each case, the sample is partitioned according

to whether the designated PA is governed by an NGO or by a public authority.[15] Across both exposure definitions, the results confirm a governance-contingent reallocation of giving. When newly designated PAs are governed by NGOs, locally exposed firms increase donations to environmental and biodiversity NGOs in the year immediately preceding designation, while donations to councils decline. When governance authority rests with public agencies, donations to environmental and biodiversity NGOs decline, while donations to community and council recipients increase. The absence of increases across recipient categories indicates that firms do not hedge broadly across donation channels. Instead, they reallocate charitable giving toward the actors most directly involved in governance and oversight of new regulatory constraints.

These findings differ in important respects from the PADDD setting. Around first-time designations, donation responses are not linked to the probability of policy success and are less temporally concentrated. Instead, firms adjust the composition of their giving in a manner that reflects the institutional locus of authority responsible for implementation and administration. The results continue to support an interpretation in which corporate philanthropy reflects engagement with governance institutions rather than generalized environmental concern or reputational signaling. In the PADDD setting, where regulatory outcomes are contestable, donation responses are sharply concentrated in the period preceding the decision and are aligned with retrenchment success. In the first-time designation setting, where regulatory exposure is introduced but not immediately renegotiable, firms continue to target governance-relevant recipients, but without a corresponding association with policy outcomes. Collectively, these results validate the governance-targeting mechanism underlying our main findings and underscore the central role of institutional authority in shaping how corporate engagement interacts with conservation policy.

7. Conclusion

This paper examines how firms allocate discretionary resources to influence and engage with policy under decentralized and institutionally fragile authority. Using conservation policy in terms of protected area retrenchment as an empirical setting, we investigate firms' char-

[15] We include PAs governed by federal authorities as well as subnational agencies, given the smaller number of first-time designation incidences in our sample.

itable funding flows to local nonprofit organizations as an engagement tool. The economic and ecological consequences of protected areas depend critically on discretionary decisions made by governance institutions operating at the local municipal and county level. Crucially, these institutions often operate under tight fiscal, administrative, and political constraints. Using establishment-level location data, detailed corporate donation records, and geospatial information on PA designation, governance authority, and regulatory retrenchment, we document how firms reallocate philanthropic funds in response to changes in the credibility and contestability of biodiversity regulation at the retrenchment stage, and how this engagement coincides with subsequent conservation spending and local economic outcomes.

Firms with operational exposure near PAs adjust their philanthropic engagement as the salience and credibility of biodiversity regulation evolve. In the period leading up to successful downgrading, downsizing, or degazettement, charitable resource allocations change in a geographically concentrated and governance-targeted manner, centered on exposed establishments rather than reflected in firm-wide expansions of philanthropy. Donations are reallocated toward conservation organizations and local councils that hold implementation and budgetary authority, depending on where administrative authority over PAs resides. These effects are most pronounced when local governance authority institutions are subject to fiscal and political pressures. PADDD-related donations by locally operating firms are associated with a greater likelihood of successful retrenchment, subsequent reallocation operating in industries with greater operational and regulatory exposure to conservation policies.

Overall, the evidence highlights firms' targeted allocation of resources to engage with local conservation policy, rather than solely to signal generalized environmental concern. Regulatory exposure therefore depends not only on formal legal designation, but also on how conservation policy is administered, financed, and contested at the local level. For investors, these findings imply that assessments of biodiversity-related risk, cash-flow exposure, and firm value should account for heterogeneity in local governance structures and implementation authority, rather than treating conservation policy as uniform or time-invariant. For policymakers, the results underscore that the credibility and effectiveness of conservation commitments hinge on institutional arrangements at the implementation stage. When governance authority and financing are decentralized, transparency, budgetary independence, and accountability mechanisms play a central role in determining whether PA designations trans-

late into durable protection rather than reversible legal status, and in shaping the capacity of conservation policy to mitigate long-run biodiversity loss.

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Figure 1
County-Level Distribution of PADDD Events and Corporate Giving in the Contiguous United States

The figure depicts the spatial distribution of PADDD events between 2006 and 2020 at the county-level across the contiguous United States, omitting Alaska and Hawaii. Counties without PADDD events are shaded white. Counties are affected by PADDD events if at least one PA within the county is affected. Among affected counties, darker tones indicate greater corporate donation intensity in the year preceding the PADDD event.

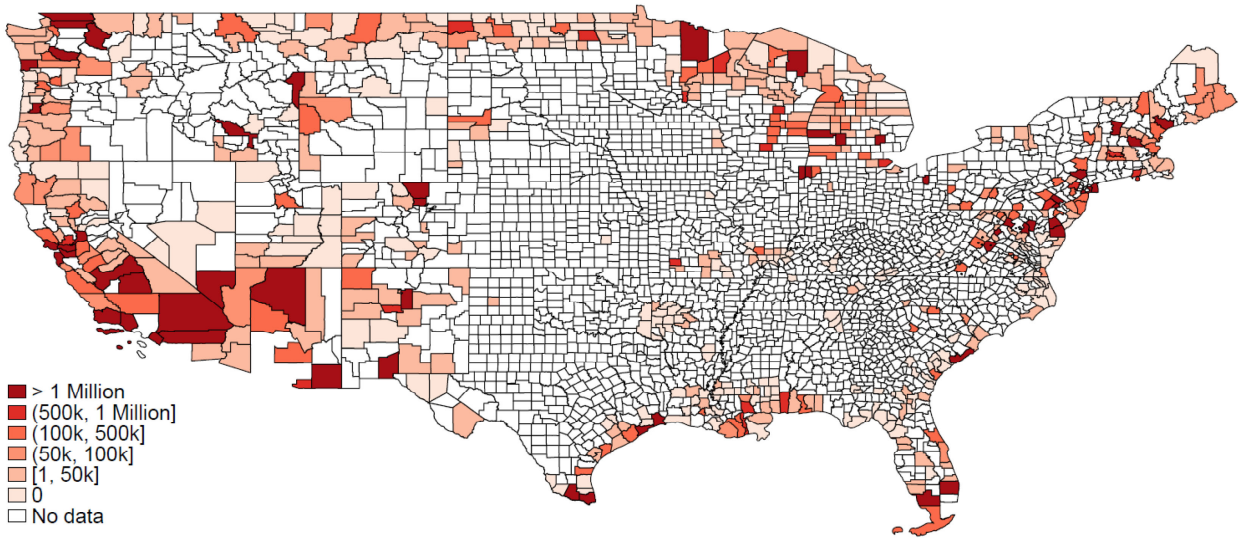


Figure 2
Dynamic Responses of Corporate Donations Around PADDD Events

This figure shows coefficient estimates for β_1 from a event-based event-study specification examining changes in firms' charitable donations around PADDD events. Each PADDD proposal represents an event. The estimates trace the dynamic response of the logarithm of donation amounts for firm–event pairs with local establishment exposure, relative to firm–event pairs assigned to the same PADDD event without such exposure. We estimate:

$$\ln(\text{Donation Amount})_{i,e,t} = \beta_1 \text{Time}_{e,t} \times \mathbb{I}[\text{Exposure}]_{i,e} + \alpha_{i,t} + \gamma_{i,e} + \delta_{e,t} + \epsilon_{i,e,t},$$

where $Time$ is a vector of indicators for years $t-5$ to $t+5$ around the PADDD event in $t=0$, $\alpha_{i,t}$ denotes firm $\times$ year fixed effects, $\gamma_{i,e}$ denotes firm $\times$ event fixed effects, and $\delta_{e,t}$ denotes event $\times$ year fixed effects. $t-6$ is the base period. The dashed lines represent 90% confidence intervals, with standard errors double-clustered at the firm and event level.

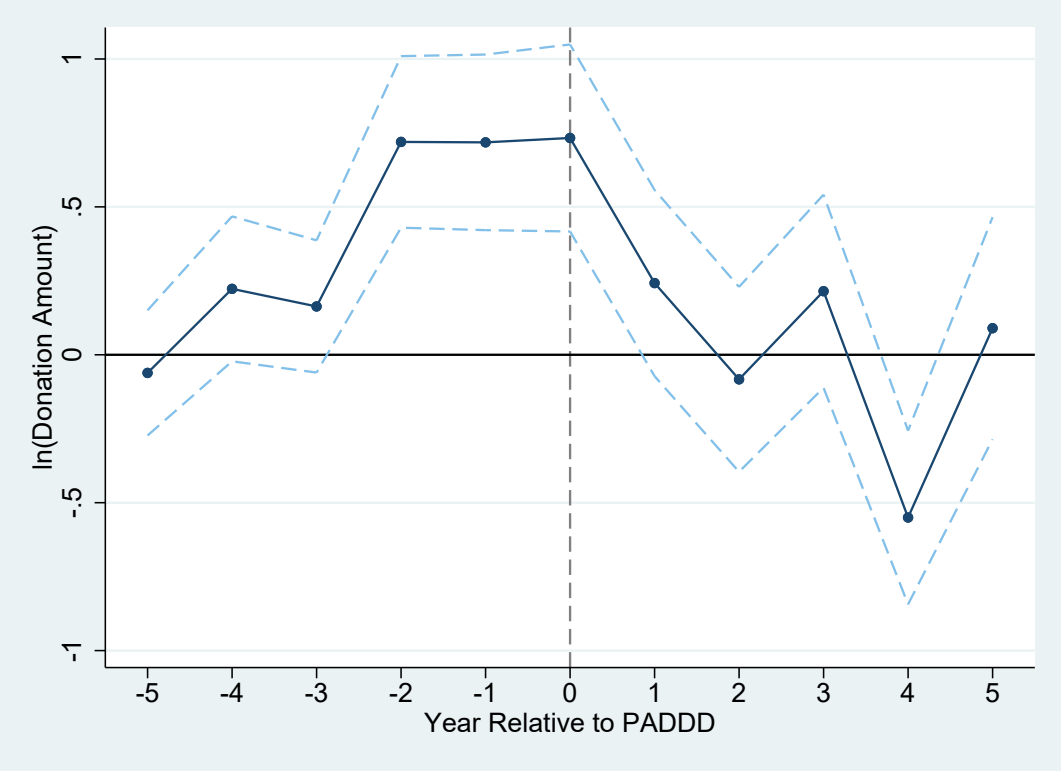
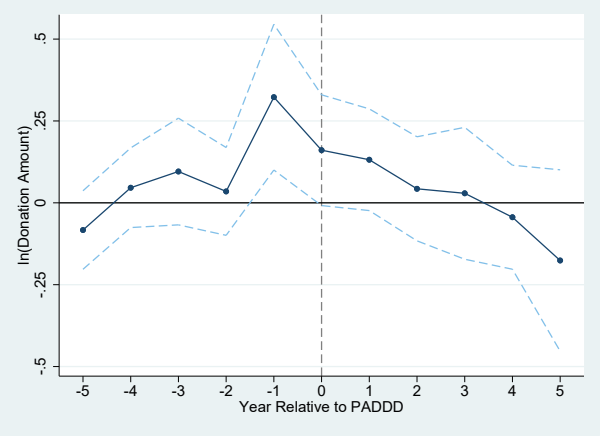


Figure 3
Corporate Donations Targeting Around PADDD Events

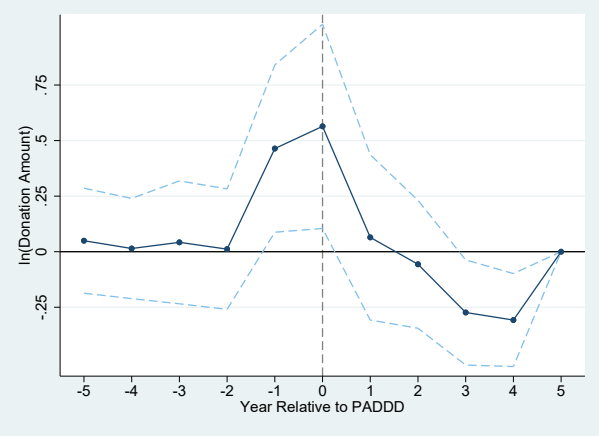
This figure plots coefficient estimates of β_1' from event-based event-study specifications examining changes in firms' charitable donations based on firms' establishment exposure to a PADDD event (event). Estimates trace the dynamic response of the logarithm of donation amounts for firm–event pairs with local establishment exposure, relative to firm–event pairs assigned to the same PADDD event without such exposure. We separately estimate dynamic changes in donations to environmental and biodiversity NGOs in NGO-governed protected-area counties (Panel A); donations to community and council nonprofits in sub-nationally governed protected-area counties (Panel B); and donations to university-related (Panel C) or internationally focused (Panel D) organizations. The specification is:

$$\ln(\text{Donation Amount})_{i,c,t} = \alpha + \beta_1' \, \text{Time}'_{p,t} \times I[\text{Exposure}]_{i,c} + \gamma_{i,t} + \theta_{i,p} + \theta_{p,t} + \varepsilon_{i,c,t},$$

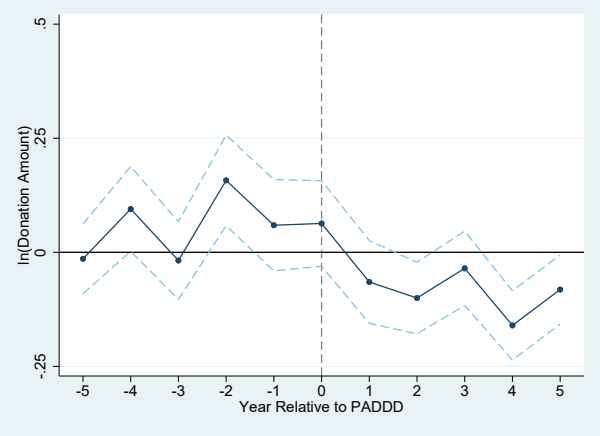
$\text{Time}'_{p,t}$ is a vector of indicator variables for event years $t-5$ through $t+5$ relative to the PADDD event year t_0. All coefficients are normalized relative to year $t-6$, which is omitted from the regression. All regressions include firm-by-year, firm-by-event, and event-by-year fixed effects. Dashed lines indicate 90% confidence intervals.



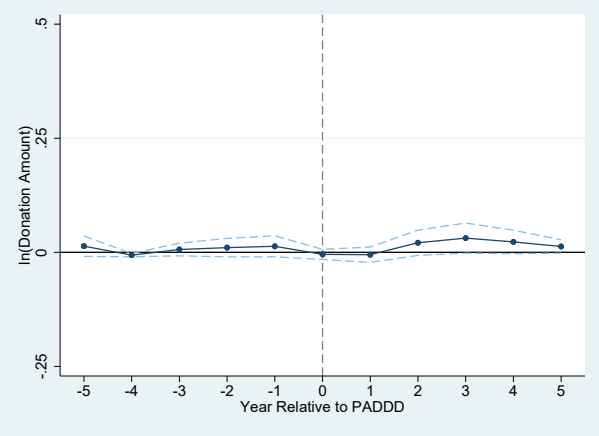
Panel A: Environmental & Biodiversity NGOs (NGO-Governed PAs)



Panel B: Community and Council Organizations (Subnationally Governed PAs)



Panel C: Universities



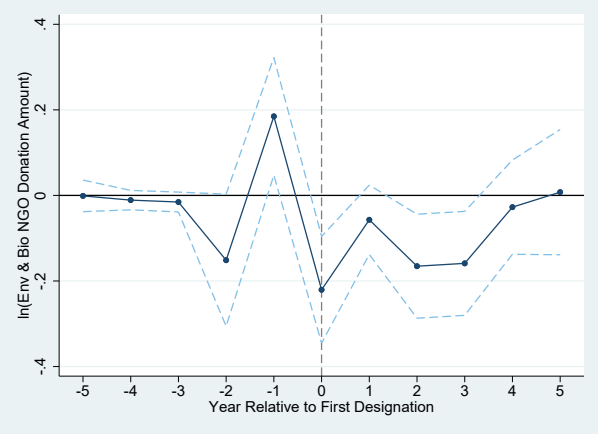
Panel D: International Organizations

Figure 4
Corporate Donations Targeting Around First-Time PA Designations

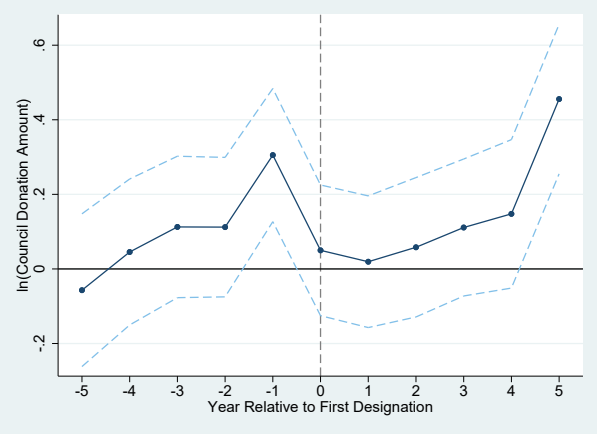
This figure plots coefficient estimates of β_1' from event-based event-study specifications examining changes in firms' charitable donations around first-time protected area designations, disaggregated by donation recipient type and protected area governance structure. Each first-time designation represents an event. The estimates trace the dynamic response of the logarithm of donation amounts for firm–event pairs with local establishment exposure, relative to firm–event pairs assigned to the same PADDD event without such exposure. Panels A–D report donations to environmental and biodiversity NGOs in NGO-governed protected-area counties (Panel A), local community and council organizations in non-NGO governed PA counties (Panel B), universities (Panel C), and international organizations (Panel D). The specification is:

$$\ln(\text{Donation Amount})_{i,p,t} = \alpha + \beta_1' \, \text{Time}'_{p,t} \times I[\text{Exposure}]_{i,p} + \gamma_{i,t} + \theta_{i,p} + \theta_{p,t} + \varepsilon_{i,p,t},$$

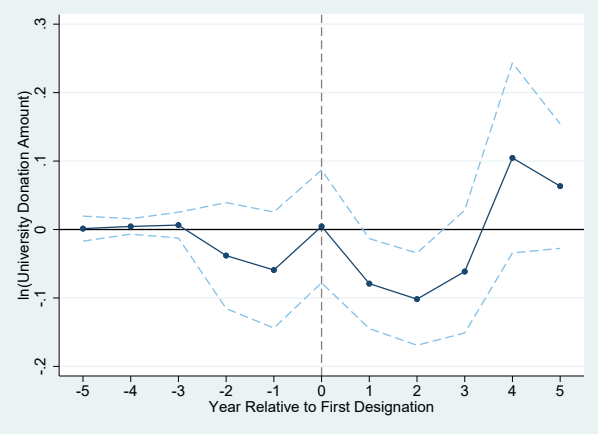
where $\text{Time}'_{p,t}$ is a vector of indicator variables for event years $t-5$ through $t+5$ relative to the first-time designation year t_0. All coefficients are normalized relative to year $t-6$, which is omitted from the regression. All regressions include firm-by-year, firm-by-event, and event-by-year fixed effects. Dashed lines indicate 90% confidence intervals.



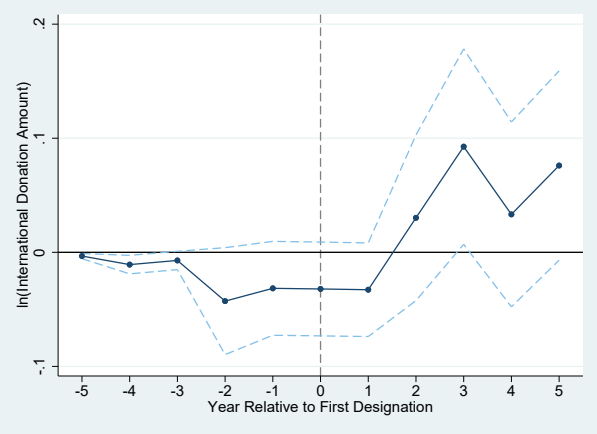
Panel A: Environmental & Biodiversity NGOs (NGO-Governed PAs)



Panel B: Community and Council Organizations (Non-NGO-Governed PAs)



Panel C: Universities



Panel D: International Organizations

Table 1
Summary Statistics

This table reports summary statistics for the main variables used in the analysis, covering the period 2006–2020. Panel A reports observations at the firm–county–year level, including donation incidence and donation amount, and protected area (PA) context. Panel B summarizes characteristics per PADDD event, defined as formal legal actions that downgrade, downsize, or degazette protected areas, and Panel C reports characteristics per first-designation event, which are used as a validation test in the main analysis. Donation amounts are measured in U.S. dollars. In Panels B and C, $\mathbb{I}$[Exposure] indicates whether at least one firm operates an establishment in the county affected by the PADDD or PA designation event.

	Mean	Median
Panel A: Firm–County Level (N = 3,773,125)		
Donation Indicators		
$\mathbb{I}$[Donation]	0.013	0
$\mathbb{I}$[Donation] | $\mathbb{I}$[Establishment]	0.100	0
$\mathbb{I}$[Donation] | $\mathbb{I}$[Non-PA County]	0.100	0
$\mathbb{I}$[Donation] | $\mathbb{I}$[PA County]	0.104	0
Donation Amounts (USD)		
Donation Amount	86,749	5,000
Donated Amount | $\mathbb{I}$[Establishment]	196,983	20,000
Donation Amount | $\mathbb{I}$[Non-PA County]	118,940	16,000
Donation Amount | $\mathbb{I}$[PA County]	206,593	20,500
Protected Area Context		
PA count (number of PAs in county)	5.336	3
PA area (km^2)	606.4	10.38
Panel B: Regulatory Retrenchment (PADDD) Events (N = 555)		
$\mathbb{I}$[Enacted]	0.81	1.00
$\mathbb{I}$[NGO Governance]	0.44	0.00
$\mathbb{I}$[Subnational Governance]	0.37	0.00
$\mathbb{I}$[Federal Governance]	0.63	1.00
$\mathbb{I}$[Pre-PADDD Donation]	0.63	1.00
$\mathbb{I}$[Exposure]	0.56	1.00
Panel C: First-Time PA Designation Events (N = 176)		
$\mathbb{I}$[NGO Governance]	0.26	0.00
$\mathbb{I}$[Non-NGO Governance]	0.76	1.00
$\mathbb{I}$[Pre-PADDD Donation]	0.30	0.00
$\mathbb{I}$[Exposure]	0.48	0.00

Table 2
PADDD and Corporate Philanthropic Engagement

This table reports regression results examining changes in corporate charitable giving around protected area downgrading, downsizing, and degazettement (PADDD) events, which represent formal regulatory retrenchment of conservation policy. The analysis is at the firm-event-year level, where each event is a PADDD proposal. The estimates capture the difference in the logarithm of donation amounts for firm–event pairs with local establishment exposure, relative to firm–event pairs assigned to the same PADDD event without such exposure. Panel A defines exposure at the county level: a firm–county is treated as exposed if the firm operates at least one establishment in the county containing a PA subject to a PADDD event. Panel B defines exposure based on geographic proximity: a firm–county is treated as exposed if the firm operates at least one establishment within 30 kilometers of a PA in PADDD-affected county. The dependent variables are an indicator for whether the firm donates and the natural logarithm of the donation amount. Pre_{t-1} denotes the year immediately preceding a PADDD event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. All regressions include firm-by-year, event-by-year, and firm-by-event fixed effects. Standard errors are double-clustered at the firm and event level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: County-Based Exposure

	$\mathbb{I}$[Donation]		ln(Donation Amount)	
	(1)	(2)	(3)	(4)
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	0.055***	0.056***	0.587***	0.590***
	(0.009)	(0.010)	(0.090)	(0.097)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]		0.004		0.009
		(0.007)		(0.069)
Observations	4,244,640	4,244,640	4,244,640	4,244,640
R^2	0.443	0.443	0.496	0.496
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes

Panel B: Distance-Based Exposure (30 km Radius)

	$\mathbb{I}$[Donation]		ln(Donation Amount)	
	(1)	(2)	(3)	(4)
$\text{Pre}_{t-1} \times \mathbb{I}$[Within 30 km]	0.055***	0.057***	0.589***	0.596***
	(0.010)	(0.011)	(0.098)	(0.105)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Within 30 km]		0.005		0.020
		(0.007)		(0.075)
Observations	4,244,640	4,244,640	4,244,640	4,244,640
R^2	0.443	0.443	0.496	0.496
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes

Table 3
PADDD and Corporate Philanthropic Engagement: Recipient Type and PA Governance

This table reports regression results examining how firms allocate charitable donations across recipient types and governance structures in the period surrounding PADDD events. Panel A disaggregates donation responses by recipient type, distinguishing environmental and biodiversity NGOs, local community and council organizations, universities, and international organizations. Panel B disaggregates donation responses by the governance authority responsible for PA management, distinguishing between NGO, subnational, and federal governed PAs. Pre_{t-1} denotes the year immediately preceding a PADDD event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. The dependent variable in all columns is the natural logarithm of the donation amount, distinguishing different recipient types in Panel A. Each PADDD proposal represents a event, and a firm–event is treated as exposed if the firm operates at least one establishment in the county in which a PADDD event occurs. All regressions include firm-by-year, event-by-year, and firm-by-event fixed effects. Standard errors are double-clustered at the firm and event level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: Recipient Type

	ln(Donation Amount)			
Recipient Type	Env. & Bio. NGOs	Councils	Universities	International
	(1)	(2)	(3)	(4)
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	0.193***	0.198***	0.047	0.005
	(0.060)	(0.049)	(0.046)	(0.015)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	-0.051	0.027	-0.069***	0.004
	(0.040)	(0.030)	(0.026)	(0.009)
Observations	4,244,640	4,244,640	4,244,640	4,244,640
R^2	0.399	0.394	0.322	0.269
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes

Panel B: PA Governance Type

	ln(Donation Amount)		
	(1)	(2)	(3)
PA Governance Type:	NGO	Subnational	Federal
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	0.756***	0.605**	0.708*
	(0.160)	(0.243)	(0.386)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	0.223**	0.038	0.023
	(0.104)	(0.188)	(0.250)
Observations	688,320	405,344	604,192
R^2	0.467	0.518	0.534
Firm × Year FE	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes

Table 4
Is Corporate Philanthropic Engagement Aligned with PA Governance?

This table reports regression results examining how firms' allocation of charitable funds aligns with PA governance types in the period surrounding PADDD events. Columns (1) and (2) consider PADDDs in counties with NGO-governed PAs, columns (3) and (4) consider subnationally-governed PAs, and columns (5) and (6) consider federally governed PAs. Pre_{t-1} denotes the year immediately preceding a PADDD event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. The dependent variable in all columns is the natural logarithm of the donation amount, distinguishing between donations to environmental and biodiversity NGOs in all odd columns and community and council organizations in even columns. Each PADDD proposal represents an event, and a firm–event is treated as exposed if the firm operates at least one establishment in the county in which a PADDD event occurs. All regressions include firm-by-year, event-by-year, and firm-by-event fixed effects. Standard errors are double-clustered at the firm and event level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

	ln(Donation Amount)					
Recipient Type	Env. & Bio. NGOs	Councils	Env. & Bio. NGOs	Councils	Env. & Bio. NGOs	Councils
	(1)	(2)	(3)	(4)	(5)	(6)
PA Governance Type	NGO		Subnational		Federal	
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	0.343***	0.485***	0.071	0.534***	0.013	0.286
	(0.117)	(0.150)	(0.123)	(0.191)	(0.144)	(0.285)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	0.013	0.097	-0.083	0.006	0.029	0.269
	(0.049)	(0.084)	(0.081)	(0.135)	(0.144)	(0.237)
Observations	650,080	650,080	390,048	390,048	565,952	565,952
R^2	0.373	0.407	0.382	0.494	0.486	0.506
Firm × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 5
Which NGOs Receive Corporate Philanthropic Funds?

This table presents regression results examining changes in corporate charitable giving around PADDD events to different recipients, disaggregated by the recipient nonprofit's cash reserves (Panel A) and board member compensation (Panel B), conditional on donating. Cash reserve and board member compensation status are based on the nonprofit's position in the bottom (Q1, low) and top (Q4, high) quartile of the nonprofit universe. PADDD events are identified at the county level. Columns (1) and (2) focus on PADDD events in counties with NGO-governed PAs, and columns (3) and (4) focus on PADDD events in counties with subnationally-governed PAs. Treated firms are defined as those operating establishments in the county in which a PADDD event occurs. The dependent variable is the natural logarithm of the donation amount to recipient nonprofits with high/low cash reserves and compensated board members. Pre_{t-1} denotes the year immediately preceding a PADDD event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. $\text{Pre}_{t-1} \times \mathbb{I}[\text{Exposure}]$ captures differential donation behavior in the year immediately preceding a PADDD event for firms operating a specified establishment type in a given county. Each PADDD proposal represents an event, and a firm–event is treated as exposed if the firm operates at least one establishment in the county in which a PADDD event occurs. All regressions include firm-by-year, event-by-year, and firm-by-event fixed effects. Standard errors are double-clustered at the firm and event level and are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Budgetary Constraints

Recipient Type: Cash Reserves	ln(Donation Amount) Low	High	Low	High
	(1)	(2)	(3)	(4)
PA Governance Type	NGO		Subnational	
$\text{Pre}_{t-1} \times \mathbb{I}[\text{Exposure}]$	0.272*	-0.057*	0.766**	-0.014
	(0.155)	(0.030)	(0.378)	(0.185)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}[\text{Exposure}]$	0.037	-0.072	0.373	0.019
	(0.038)	(0.065)	(0.257)	(0.106)
Observations	18,922	18,922	17,190	17,190
R^2	0.644	0.473	0.643	0.462
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes

Panel B: Reciprocity Incentives

Recipient Type: Board Compensation	ln(Donation Amount) High	Low	High	Low
	(1)	(2)	(3)	(4)
PA Governance Type	NGO		Subnational	
$\text{Pre}_{t-1} \times \mathbb{I}[\text{Exposure}]$	0.251**	-0.018	0.327*	-0.080*
	(0.122)	(0.017)	(0.187)	(0.044)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}[\text{Exposure}]$	0.151*	-0.003	0.348	0.004
	(0.078)	(0.003)	(0.238)	(0.050)
Observations	18,922	18,922	17,190	17,190
R^2	0.708	0.941	0.725	0.356
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes

Table 6
Which Types of Establishment Exposure Drive Philanthropic Engagement?

This table presents regression results examining changes in corporate charitable giving around PADDD events by establishment type. PADDD events are identified at the county level. Treated firms are defined as those operating establishments in the county in which a PADDD event occurs. The dependent variable is the natural logarithm of the donation amount. Pre_{t-1} denotes the year immediately preceding a PADDD event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. $\text{Pre}_{t-1} \times \mathbb{I}[\text{Exposure}]$ captures differential donation behavior in the year immediately preceding a PADDD event for firms operating a specified establishment type in a given county. Each PADDD proposal represents an event, and a firm–event is treated as exposed if the firm operates at least one establishment in the county in which a PADDD event occurs. All regressions include firm-by-year, event-by-year, and firm-by-event fixed effects. Standard errors are double-clustered at the firm and event level and are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	ln(Donation Amount)			
	(1)	(2)	(3)	(4)
Exposure Type	Chemical	Resource Extraction	Wholesale	Services
$\text{Pre}_{t-1} \times \mathbb{I}[\text{Exposure}]$	0.499**	0.837**	0.111	0.849
	(0.219)	(0.420)	(0.268)	(0.591)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}[\text{Exposure}]$	0.068	-0.753**	0.088	-0773
	(0.165)	(0.313)	(0.169)	(0.515)
Observations	3,449,248	3,449,248	3,449,248	3,449,248
R^2	0.503	0.503	0.503	0.503
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes

Table 7
Is Corporate Philanthropic Engagement Associated with PADDD Success?

This table reports regression results at the PADDD event level, examining whether corporate charitable giving is associated with the probability that a PA downgrade is successfully enacted (PADDD success). The dependent variable is an indicator equal to one if the downgrade is successfully implemented, and the independent variables measure the natural logarithm of the aggregate donated amount by local and nonlocal firms to the PADDD county in the year preceding the event. Local firms are defined as those operating establishments in counties intersecting the affected PA, while nonlocal firms operate outside the county. Panel A presents baseline results, and Panel B disaggregates results by PA governance authority and exposure type, distinguishing between NGO-governed and subnationally-governed PAs, and between all exposure types and chemical and resource extraction exposure. All specifications include county and year fixed effects. Standard errors are clustered at the county level and are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: PADDD Success – All Events

	$\mathbb{I}$[PADDD Success]		
	(1)	(2)	(3)
ln(Donation Amount by Local Firms)	0.016*		0.016**
	(0.007)		(0.007)
ln(Donation Amount by Nonlocal Firms)		0.001	0.001
		(0.014)	(0.014)
Observations	312	312	312
R^2	0.946	0.946	0.946
County FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Panel B: PADDD Success — Governance Authority and Exposure Type

	$\mathbb{I}$[PADDD Success]			
	(1)	(2)	(3)	(4)
Exposure Type	All		Chemical & Resource Extraction	
PA Governance Type:	NGO	Subnational	NGO	Subnational
ln(Donation Amount by Local Firms)	0.024	0.075***	0.079***	0.072***
	(0.022)	(0.011)	(0.016)	(0.009)
ln(Donation Amount by Nonlocal Firms)	-0.005	-0.001	-0.000	-0.031
	(0.004)	(0.033)	(0.000)	(0.055)
Observations	102	76	102	76
R^2	0.957	0.881	0.967	0.881
County FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Table 8
Is PADDD Engagement Associated with Establishment Performance?

This table reports regression results examining whether pre-PADDD corporate donations are associated with establishment-level performance following PADDD outcomes in exposed counties. The unit of observation is the firm-event-year, where every PADDD proposal represents an event. The sample period includes all post-PADDD years. The dependent variables are the natural logarithms of sales, employment, and sales per employee, measured as the average performance across all establishments operated by a firm within a given county. ln(*Pre-PADDD Donation Amount*) captures donation intensity by firms operating in counties affected by PADDD in the year preceding the event. The interaction ln(*Pre-PADDD Donation Amount*) $\times$ $\mathbb{I}$[*PADDD Success*] captures differential performance responses in counties where PADDD events are successfully implemented. *Pre-PADDD Operations Intensity* and *Pre-PADDD Performance* control for the operational importance of the county to the firm in the year preceding the PADDD event. The sample is limited to firms with non-missing sales and employment information in the year before and after the PADDD event. All specifications include firm-by-year and event-by-year fixed effects. Standard errors are double-clustered at the firm and event level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	ln(Sales)	ln(Employment)	ln(Sales/Employment)
	(1)	(2)	(3)
ln(Pre-PADDD Donation Amount) $\times$ $\mathbb{I}$[PADDD Success]	0.045***	0.032***	0.011***
	(0.011)	(0.008)	(0.004)
ln(Pre-PADDD Donation Amount)	-0.032***	-0.024***	-0.006
	(0.011)	(0.008)	(0.004)
Pre-PADDD Operations Intensity	0.311***	0.261***	0.053***
	(0.034)	(0.026)	(0.012)
Pre-PADDD Performance	0.755***	0.790***	0.691***
	(0.004)	(0.004)	(0.005)
Observations	147,659	148,793	147,659
R^2	0.811	0.733	0.807
Firm $\times$ Year FE	Yes	Yes	Yes
Event $\times$ Year FE	Yes	Yes	Yes

Table 9
PADDD Engagement and County-Level Land Conservation Voting Outcomes

This table reports regression results at the funding resolution level, examining whether corporate donations influence the success of county-level land conservation funding resolutions. The sample consists of city and council conservation funding resolutions that passed or failed within a narrow bandwidth (10% vote margin). The dependent variable is an indicator equal to one if a resolution is successfully approved. Panel A reports results for tax-based resolutions. Panel B reports results for bond-based resolutions. Explanatory variables measure lagged donation amounts by local and nonlocal firms, where local firms are defined as those operating establishments in the relevant county, while nonlocal firms operate outside the county. Donation variables are measured in year $t-1$ relative to the resolution year. All specifications include year fixed effects. Standard errors are clustered at the yearly level and are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Tax-Based Land Conservation Funding Resolutions

	$\mathbb{I}$[Successful Resolution]$_t$		
	(1)	(2)	(3)
ln(Donation Amount by Local Firms)$_{t-1}$	-0.011**		-0.013**
	(0.004)		(0.005)
ln(Donation Amount by Nonlocal Firms)$_{t-1}$		-0.006	0.006
		(0.008)	(0.010)
Observations	219	219	219
R^2	0.068	0.050	0.070
Year FE	Yes	Yes	Yes

Panel B: Bond-Based Land Conservation Funding Resolutions

	$\mathbb{I}$[Successful Resolution]$_t$		
	(1)	(2)	(3)
ln(Donation Amount by Local Firms)$_{t-1}$	0.009		0.001
	(0.010)		(0.011)
ln(Donation Amount by Nonlocal Firms)$_{t-1}$		0.021	0.021
		(0.013)	(0.015)
Observations	74	74	74
R^2	0.159	0.189	0.189
Year FE	Yes	Yes	Yes

Table 10
Corporate Philanthropic Engagement and First-Time PA Designations

This table reports regression results examining whether firms target their charitable giving toward the governance actor responsible for protected area (PA) management at the time of first-time PA designation. The analysis is at the firm-event-year level, where each first-time designation represents an event. The estimates capture the difference in the logarithm of donation amounts for firm–event pairs with local establishment exposure, relative to firm–event pairs assigned to the same first-designation event without such exposure. Panel A defines exposure at the county level: a firm–county is treated as exposed if the firm operates at least one establishment in the county containing a newly designated PA. Panel B defines exposure based on geographic proximity: a firm–county is treated as exposed if the firm operates at least one establishment within 30 kilometers of a newly designated PA in the county. The dependent variables are an indicator for whether the firm donates and the natural logarithm of the donation amount. Pre_{t-1} denotes the year immediately preceding a first-designation event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. All regressions include firm-by-year, event-by-year, and firm-by-event fixed effects. Standard errors are double-clustered at the firm and event level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: County-Based Exposure

Recipient Type:	ln(Donation Amount)			
	Env. & Bio NGOs		Councils	
	(1)	(2)	(3)	(4)
PA Governance Type	NGO	Subnational	NGO	Subnational
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	0.245**	-0.107**	-0.232***	0.207***
	(0.089)	(0.045)	(0.028)	(0.042)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	0.072	0.049	-0.007	0.103**
	(0.058)	(0.073)	(0.099)	(0.050)
Observations	243,684	892,181	243,684	892,181
R^2	0.346	0.444	0.422	0.441
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes

Panel B: Distance-Based Exposure (30 km Radius)

Recipient Type	ln(Donation Amount)			
	Env. & Bio NGOs		Councils	
	(1)	(2)	(3)	(4)
PA Governance Type	NGO	Subnational	NGO	Subnational
$\text{Pre}_{t-1} \times \mathbb{I}$[Within 30 km]	0.324**	-0.153	-0.302*	0.261***
	(0.112)	(0.172)	(0.158)	(0.070)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Within 30 km]	0.091	0.053	-0.013	0.118
	(0.075)	(0.140)	(0.131)	(0.157)
Observations	243,684	892,181	243,684	892,181
R^2	0.346	0.444	0.422	0.441
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes

Appendix A. Variable Definitions and Data Sources

Variable	Definition and Data Source
Corporate Donation Measures	
$\mathbb{I}$[Donation]	Indicator equal to one if a firm makes any charitable donation in a given firm-county-year, and zero otherwise. (FDO)
ln(Donation Amount)	Natural logarithm of one plus the total dollar amount of charitable donations made by a firm in a given firm-county-year (i.e., ln(1 + *Donation Amount*)), where *Donation Amount* equals zero when the firm makes no donation. (FDO)
ln(Donations to Env. & Bio. NGOs)	Natural logarithm of one plus the total dollar amount donated by a firm to environmental and biodiversity NGOs in a given firm-county-year. (FDO)
ln(Donations to Councils)	Natural logarithm of one plus the total dollar amount donated by a firm to local community and councils organizations in a given firm-county-year. (FDO)
ln(Donation Amount by Local Firms)	Natural logarithm of one plus the total dollar amount of charitable donations made by firms operating at least one establishment in a county subject to PADDD or funding resolution event. It is measured in year t–1 relative to the resolution/PADDD event year. (FDO; NETS)
ln(Donation Amount by Nonlocal Firms)	Natural logarithm of one plus the total dollar amount of charitable donations made by firms operating establishments outside the county subject to PADDD or funding resolution event. It is measured in year t–1 relative to the resolution/PADDD event year. (FDO; NETS)
$\mathbb{I}$[Donations to Exposed Counties]	Indicator equal to one if a firm makes any charitable donation to a county that intersects a protected area or PADDD event, and zero otherwise. (FDO; WDPA)
Protected Area (PA) Variables	
NGO-Governed PA	Indicator equal to one if a county subject to PADDD event contains at least one PA governed by an NGO, and zero otherwise. (WDPA)
Subnationally-Governed PA	Indicator equal to one if a county subject to PADDD event contains at least one PA governed by subnational (state or municipal) bodies, and zero otherwise. (WDPA)
Non-NGO-Governed PA	Indicator equal to one if a county subject to PADDD event contains at least one PA governed by non-NGO entities (federal, state, or municipal bodies), and zero otherwise. (WDPA)
PADDD Event Measures	
$\mathbb{I}$[Successful PADDD]	Indicator equal to one if a PADDD attempt results in a formally implemented downgrading, downsizing, or degazettement of the protected area. (PADDDtracker.org)
Unsuccessful PADDD	Indicator equal to one if a PADDD attempt does not result in a formally implemented downgrading, downsizing, or degazettement of the protected area. (PADDDtracker.org)

Establishment and Exposure Definitions

$\mathbb{I}$[Exposure]	Indicator equal to one if a firm operates at least one establishment in a given county, and zero otherwise. Establishment locations are identified using plant-level geocoded data. (NETS)
$\mathbb{I}$[Within 30 km]	Indicator equal to one if a firm operates at least one establishment located within 30 kilometers of the boundary of a PA, and zero otherwise. (NETS; WDPA; local jurisdiction shapefiles)
Chemical Exposure	Indicator equal to one if a firm operates at least one establishment classified in chemical manufacturing industries (2-digit SIC 28-30) in a given county-year, and zero otherwise. (NETS)
Resource Extraction Exposure	Indicator equal to one if a firm operates at least one establishment classified in mining, quarrying, or oil and gas extraction industries (2-digit SIC 10-14) in a given county-year, and zero otherwise. (NETS)
Wholesale Exposure	Indicator equal to one if a firm operates at least one establishment classified in wholesale trade industries (2-digit SIC 50-51) in a given county-year, and zero otherwise. (NETS)
Services Exposure	Indicator equal to one if a firm operates at least one establishment classified in service-providing industries (2-digit SIC 70-89) in a given county-year, and zero otherwise. (NETS)

County- and Firm-Level Exposure and Performance Variables

ln(Sales)	The natural logarithm of average sales for all establishments operated by a firm in a given county. (NETS)
ln(Employment)	The natural logarithm of average employment for all establishments operated by a firm in a given county. (NETS)
ln(Sales/Employment)	The natural logarithm of average sales per employee for all establishments operated by a firm in a given county. (NETS)
ln(Pre-PADDD Donation Amount)	The natural logarithm of the total amount donated by a firm in the year preceding a PADDD event. (FDO)
Pre-PADDD Operations Intensity	The total number of establishments operated by a firm in a county subject to a PADDD event in the year preceding the event. (NETS)
Pre-PADDD Performance	The natural logarithm of average sales, employment, or sales/employment for all establishments operated by a firm in a given county in the year preceding a PADDD event. (NETS)
ROA	Firm-level operating income before depreciation, scaled by total assets, in percent. (Compustat)
Tobin's Q	Firm-level total assets - equity + market value, scaled by total assets. (Compustat)
Productivity	Firm-level natural logarithm of sales per employee. (Compustat)
Biodiversity Exposure	The total number of establishments operated by a firm in counties with PA exposure. (NETSW; WDPA)

County Spending and Land Conservation Ballot Measures

Parks and Conservation Spending	A city or county's total spending on parks and conservation in a given year, scaled by its total expenditures, in percent. (Fiscally Standardized Cities (FiSC) Database)

$\mathbb{I}$[Successful Resolution]	Indicator equal to one if a land conservation ballot measure (tax- or bond-based) is approved by voters, and zero otherwise. (TPL LandVote Database)
Tax Resolution	Indicator equal to one for land conservation ballot measures financed through tax increases. (TPL LandVote Database)
Bond Resolution	Indicator equal to one for land conservation ballot measures financed through bond issuance. (TPL LandVote Database)

Appendix Table A.1
PADDD Donation Responses by PADDD Type

This table reports regression results examining changes in corporate charitable giving around protected area downgrading, downsizing, and degazettement (PADDD) events. The analysis is at the firm-event-year level, where each PADDD proposal represents an event, disaggregating between downsizing and downgrading PADDD events, and between systemic and local PADDD events. Estimates capture the difference in the logarithm of donation amounts for firm–event pairs with local establishment exposure, relative to firm–event pairs assigned to the same PADDD event without such exposure. A firm–county is treated as exposed if the firm operates at least one establishment in the county containing a PA subject to a PADDD event. The dependent variables are an indicator for whether the firm donates and the natural logarithm of the donation amount. Pre_{t-1} denotes the year immediately preceding a PADDD event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. All regressions include firm-by-year, event-by-year, and firm-by-event fixed effects. Standard errors are double-clustered at the firm and event level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

	ln(Donation Amount)			
	(1)	(2)	(3)	(4)
PADDD Type	Downsizing	Downgrading	Systemic	Local
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	-0.118	0.632***	0.622***	0.405*
	(0.107)	(0.103)	(0.106)	(0.222)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	-0.308	0.011	-0.001	0.077
	(0.238)	(0.072)	(0.076)	(0.158)
Observations	718,912	3,548,672	3,433,952	810,688
R^2	0.846	0.502	0.498	0.584
Firm × Year FE	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes
Firm × Event FE	Yes	Yes	Yes	Yes

Appendix Table A.2
Federal Lobbying, PAC Giving, and Tax-Exempt Lobbying

This table reports regression results examining changes in corporate lobbying at the federal level around protected area downgrading, downsizing, and degazettement (PADDD) events. The analysis is at the firm-event-year level, where each PADDD proposal represents an event. PADDD events are disaggregated by PA governance type of PAs in the PADDD county, distinguishing between non-federal (NGO or subnational) governed PAs and federal governed PAs. Estimates capture the difference in the logarithm of lobbying amounts for firm–event pairs with local establishment exposure, relative to firm–event pairs assigned to the same PADDD event without such exposure. A firm–county is treated as exposed if the firm operates at least one establishment in the county containing a PA subject to a PADDD event. The dependent variables capture the firm's spending on federal lobbying, PAC giving in a specific congressional district, and tax-exempt lobbying proxied through donations to nonprofits in congressional districts of legislators sitting on committees addressing conservation and nature following Bertrand et al. (2020). Tax-exempt lobbying data ends in 2018. Pre_{t-1} denotes the year immediately preceding a PADDD event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. All regressions include event-by-year and firm-by-event fixed effects, columns (3) to (6) additionally include firm-by-year fixed effects. Standard errors are double-clustered at the firm and event level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

	ln(Federal Lobbying Amount)		ln(PAC Giving Amount)		ln(Tax Exempt Lobbying Amount)	
	(1)	(2)	(3)	(4)	(5)	(6)
PA Governance:	Non-Federal	Federal	Non-Federal	Federal	Non-Federal	Federal
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	-0.241	-0.484	-0.167	0.285	0.038	0.915***
	(0.357)	(0.498)	(0.189)	(0.219)	(0.093)	(0.315)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	-0.452	-0.702	0.004	-0.040	-0.032	0.006
	(0.305)	(0.433)	(0.087)	(0.117)	(0.042)	(0.189)
Observations	206,496	604,192	206,475	604,148	184,788	540,676
R^2	0.796	0.796	0.413	0.392	0.252	0.360
Firm × Year FE	No	No	Yes	Yes	Yes	Yes
Event × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm × event FE	Yes	Yes	Yes	Yes	Yes	Yes

Appendix Table A.3
PADDD and Parent Firm Performance

This table reports regression results examining the relationship between biodiversity exposure and parent-firm performance. The dependent variables are return on assets (ROA), Tobin's Q, and firm-level productivity (sales/employment) in year t. *Biodiversity Exposure* measures firm-level exposure to PAs, defined as the number of establishments operating in counties with PA exposure in $t-1$. $\mathbb{I}$[*Donations to Exposed Counties*] is an indicator equal to one if the firm makes charitable donations to establishment counties with PA exposure in $t-1$. The interaction term captures whether donation behavior moderates the performance effects of biodiversity exposure. Panel A reports results for the full sample of firms. Panel B reports results for firms in chemical industries and resource extraction following PADDD events. All specifications include firm and year fixed effects and a standard set of control variables (firms' aggregate donation amount in year $t-1$, size, cash ratio, leverage, and PPE ratio). Standard errors are clustered at the industry level and are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Full Sample

	ROA_t(%)	Tobin's Q_t	Productivity_t
	(1)	(2)	(3)
$\text{Biodiversity Exposure}_{t-1} \times \mathbb{I}[\text{Donations to Exposed Counties}]_{t-1}$	-0.002	0.002	0.001
	(0.012)	(0.001)	(0.001)
$\mathbb{I}[\text{Donations to Exposed Counties}]_{t-1}$	0.043	0.087	-0.000
	(0.440)	(0.060)	(0.021)
$\text{Biodiversity Exposure}_{t-1}$	-0.065*	-0.006*	-0.002
	(0.038)	(0.003)	(0.002)
Observations	6,771	6,737	6,684
R^2	0.654	0.762	0.941
Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Panel B: Chemical and Resource Extraction Firms Following PADDD events

	ROA_t(%)	Tobin's Q_t	Productivity_t
	(1)	(2)	(3)
$\text{Biodiversity Exposure}_{t-1} \times \mathbb{I}[\text{Donations to Exposed Counties}]_{t-1}$	0.555*	0.050*	0.013***
	(0.213)	(0.019)	(0.003)
$\mathbb{I}[\text{Donations to Exposed Counties}]_{t-1}$	4.250	-0.052	-0.135
	(7.662)	(0.317)	(0.159)
$\text{Biodiversity Exposure}_{t-1}$	-0.320	-0.031	0.004
	(0.402)	(0.064)	(0.004)
Observations	120	120	119
R^2	0.653	0.839	0.972
Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Appendix Table A.4
PADDD and Public Finance Responses in County Conservation Spending

This table reports regression results at the firm-county level, examining whether corporate philanthropic activity is associated with county-level conservation spending following a PA designation. The dependent variable is the share of a county's parks and conservation spending as a percentage of total public expenditures in year t. Explanatory variables measure lagged corporate donations directed to environmental and biodiversity NGOs and to local community and council organizations. Results are reported separately by PA governance authority, distinguishing between NGO-governed and subnationally-governed protected areas. All specifications include county and year fixed effects. Standard errors are clustered at the county level and are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Parks and Conservation Spending (%)			
	(1)	(2)	(3)	(4)
PA Governance Type	NGO	Subnational	NGO	Subnational
ln(Donations to Env. & Bio. NGOs)	0.0002	0.004		
	(0.0002)	(0.023)		
ln(Donations to Councils)			0.0001***	-0.020*
			(0.0001)	(0.011)
Observations	5,914	6,401	5,914	6,401
R^2	0.587	0.625	0.587	0.625
County FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Appendix Table A.5
Corporate Donations and Land Conservation Funding Resolution Outcomes: All Resolutions

This table reports regression results at the funding resolution level, examining whether corporate donations influence the success of county-level land conservation funding resolutions. The sample consists of all city and council conservation funding resolutions over the sample period, distinguishing between tax-based and bond-based funding proposals. The dependent variable is an indicator equal to one if a resolution is successfully approved. Panel A reports results for all firm and exposure types; Panel B reports results for donations by firms operating local or nonlocal chemical and resource extraction establishments; Panel C reports results for donations by local and nonlocal chemical manufacturing and resource extraction firms to council and community organizations. Donation variables are measured in year $t-1$ relative to the resolution year. All specifications include year fixed effects. Standard errors are clustered at the yearly level and are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	$\mathbb{I}$[Successful Resolution]			
	(1)	(2)	(3)	(4)
Resolution Type:	Tax	Bond	Tax	Bond
Panel A: All Exposure Types				
ln(Donation Amount by Local Firms)	-0.003	0.001		
	(0.003)	(0.004)		
ln(Donation Amount by Nonlocal Firms)			0.006	0.014**
			(0.006)	(0.007)
Observations	450	269	450	269
R^2	0.072	0.059	0.072	0.082
Year FE	Yes	Yes	Yes	Yes
Panel B: Chemical and Resource Extraction Exposure				
ln(Donation Amount by Local Firms)	-0.008*	-0.005		
	(0.004)	(0.006)		
ln(Donation Amount by Nonlocal Firms)			0.005	0.013**
			(0.006)	(0.007)
Observations	450	269	450	269
R^2	0.076	0.063	0.072	0.081
Year FE	Yes	Yes	Yes	Yes
Panel C: Council Donations, Chemical and Resource Extraction Exposure				
ln(Council Donation Amount by Local Firms)	-0.015*	0.002		
	(0.009)	(0.009)		
ln(Council Donation Amount by Nonlocal Firms)			0.002	0.006
			(0.003)	(0.005)
Observations	450	269	450	269
R^2	0.077	0.059	0.071	0.067
Year FE	Yes	Yes	Yes	Yes