Corporate Philanthropy and Biodiversity Governance

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Abstract

This paper examines firms' use of philanthropic giving to influence local biodiversity policies. Using a quasi-experimental design, we investigate how firms allocate charitable funds around protected area downgrading, downsizing, or degazettement (PADDD) in counties with operational exposure. We document an increase in charitable giving by locally exposed firms in the period immediately preceding PADDD events, with no comparable responses in earlier periods or following changes in protection status. This increase is concentrated in donations to environmental and biodiversity NGOs and to local community and council organizations that hold implementation and budgetary authority. Higher pre-event donations by locally operating firms are associated with a greater likelihood of successful retrenchment, subsequent reallocation of county-level conservation spending, and improvements in establishment-level sales and employment, while firm-wide financial outcomes exhibit limited average responses. These findings highlight how corporations engage with and shape local governance institutions that determine the durability of biodiversity regulation.

Keywords: Corporate Philanthropy; Conservation Policy; Protected Areas; Policy Implementation; Local Governance
JEL Codes: Q57, G30, D78, Q58

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Corporate Philanthropy and Biodiversity Governance

Abstract

This paper examines firms' use of philanthropy to influence local policy in the context of biodiversity, with protected areas as the central policy instrument. Conservation policy affects local economic activity by governing land use and natural capital, often under decentralized and institutionally fragile authority. We leverage establishment-level location data, corporate donation records, and geospatial data on protected area boundaries, governance authority, and regulatory retrenchment events. Using a quasi-experimental design, we investigate how firms allocate charitable funds around protected area downgrading, downsizing, or degazettement (PADDD) in counties with operational exposure. We document an increase in charitable giving by locally exposed firms in the period immediately preceding PADDD events, with no comparable responses in earlier periods or following changes in protection status. The increase is concentrated in donations to environmental and biodiversity NGOs and to local community and council organizations that hold implementation and budgetary authority. Higher pre-event donations by locally operating firms are associated with a greater likelihood of successful retrenchment, subsequent reallocation of county-level conservation spending, and improvements in establishment-level sales and employment, while firm-wide financial outcomes exhibit limited average responses. These findings highlight how corporations engage with and shape local governance institutions that determine the durability of biodiversity regulation.

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1. Introduction

Biodiversity loss and ecosystem degradation have emerged as first-order economic and policy challenges.[1] Because these pressures operate through land use and resource access, governments have increasingly relied on the expansion of protected areas as a primary regulatory response, embedding conservation policy in geographically defined legal regimes that constrain land use and economic activity across large portions of the globe (Watson et al., 2014). Governance authority over protected areas is dispersed across a heterogeneous set of actors, including non-governmental organizations (NGOs), local councils, and subnational public agencies (Mascia and Pailler, 2011; Watson et al., 2014), whose management authority and enforcement capacity affect the operations and growth opportunities of firms reliant on land, natural resources, or spatially fixed capital (Greenstone et al., 2012; Golden-Kroner et al., 2019). Differences in legal mandates, enforcement capacity, and fiscal dependence shape how conservation policy is implemented and how conflicts between ecological protection and economic activity are resolved at the local level.

Despite their widespread use, protected area 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 protected area governance implies that the credibility and durability of conservation commitments, and the success of proposed changes to their status, can vary substantially even among protected areas operating under the same formal legal framework. NGOs, councils, and subnational agencies hold day-to-day operational, budgetary, and enforcement authority over protected areas 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 local, decentralized regulatory context, we investigate corporate charitable giving as a means to influence local conservation policy. Local conservation bodies are often subject to tight budgetary constraints and rely on external funding to operate. By funding these or-

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

ganizations, corporations can engage with the informational and fiscal environment in which conservation implementation and budgetary decisions are made. Philanthropic giving can ease local budget constraints and expand organizational capacity, thereby affecting which locally embedded organizations have the capacity to participate and the fiscal constraints that drive local deliberations over protected-area implementation, budgeting, and retrenchment. We therefore examine the role of targeted charity in local conservation decision-making through engagement with institutions that implement and finance local policy, going beyond its role in influencing federal rulemaking (Bertrand et al., 2020, 2021).

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 protected area boundaries. Protected areas 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 (environmental and biodiversity NGOs, community and council organizations) from contributions to other types of recipients (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 stacked difference-in-differences 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-cohort-year, where each PADDD event defines a cohort. The specification includes firm × year, cohort × year, and firm × cohort fixed effects, absorbing firm-wide shocks to charitable activity, cohort-specific time-varying shocks, and persistent differences in exposure intensity across firm–cohort pairs. Identification therefore comes from within-firm, within-cohort 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-cohort-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-cohort-year. Our results indicate that corporate philanthropy responds sharply to regulatory fragility. Exposed firms in PADDD-affected counties increase both the probability and level of charitable giving prior to formal retrenchment, 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 environmental and biodiversity NGOs and to community and council organizations, rather than to universities or international recipients, indicating targeted engagement with institutions involved in conservation implementation and fiscal oversight, rather than broad-based environmental signaling. These targeted allocations are concentrated around successful PADDD events that result in formal changes in protected

[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.

area status, with unsuccessful PADDD events showing no comparable patterns. Consistent with this evidence, counties receiving higher pre-event donations from firms with local operations exhibit a greater likelihood that retrenchment attempts are successfully enacted, while donations by nonlocal firms show no statistically meaningful association with outcomes. These specifications compare counties facing retrenchment attempts in the same year and the same counties facing different attempts over time, isolating within- and cross-county variation in outcomes associated with locally embedded corporate giving.

The economic consequences of philanthropic engagement in settings where firms seek to influence regulatory retrenchment are primarily local. Establishments in counties experiencing successful PADDD events exhibit higher post-event sales and employment when pre-event donation intensity is greater, while parent-firm outcomes such as return on assets and Tobin's Q show limited responses, 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. Donations to local community and council organizations in counties with locally governed protected areas are associated with reduced subsequent spending on parks and conservation, suggesting a reallocation of public resources away from nature initiatives. We observe similar dynamics in a sample of closely contested local conservation funding resolutions: 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.

Finally, we use firms' responses to first-time protected area 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 institutions responsible for implementation and governance at the stages of initial designation and subsequent administration. We find that exposed firms reallocate donations across recipient types in a manner aligned with the locus of governance authority: donations to environmental and biodiversity NGOs increase (decrease) prior to the designation of protected areas governed by NGOs (non-NGOs), whereas donations to community and council organizations increase (decrease) prior to the designation of non-NGO (NGO) governed protected areas. First-time designations trigger less pronounced pre-event increases in donations, indicating that charity as a means to in-

fluence 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 establishment-level corporate philanthropy 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 frame corporate philanthropy as a nonmarket channel through which firms engage with and influence regulatory implementation, complementing work on political activity beyond formal lobbying and campaign funding at the federal level (Hillman et al., 2004; Acemoglu and Robinson, 2012). We identify charitable giving as a means through which firms influence policy implementation and governance at the local, subnational level, complementing work documenting how donations and nonprofit affiliations can affect federal legislative outcomes (Bertrand et al., 2020, 2021; Ahn et al., 2025). We focus on how engagement with local institutions is associated with the durability of biodiversity regulation, rather than with legislative design or firm-wide political activity, which has direct implications for local economic outcomes. We thereby 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 protected area 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 biodiversity policy under similar conditions of decentralized governance, constrained public capacity, and increasing reliance on nongovernmental and private funding (Bruner et al., 2001; Geldmann

et al., 2015, 2018). As governments expand conservation commitments worldwide, these institutional features make firm engagement with local consesrvation 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

Protected areas 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, protected areas 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, protected-area 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 protected-area designation does not confer regulatory permanence. Protected areas 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, protected-area designation 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 protected-area 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.

protected areas 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 protected areas 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 protected area 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 protected areas 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 protected areas, by focusing on corporate charity patterns around PADDD events.

2.2 Corporate Philanthropy and Local Regulatory Engagement

Corporate philanthropy represents a large and persistent component of firm engagement with local communities and public institutions. In the U.S., corporate charitable giving amounts to tens of billions of dollars annually, with total corporate donations exceeding $40 billion in recent years.[3] 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 or litigation, which are typically directed toward centralized policy venues (Hillman et al., 2004; de Figueiredo and Richter, 2014).

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

These mechanisms are especially salient in biodiversity governance. Protected area 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 protected area status, size, or initial designation.

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

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), 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

The data for this study are drawn from multiple sources covering the period 2006 to 2020. Information on protected areadesignation, boundaries, governance structure, and subsequent legal and administrative modifications is obtained from the World Database on Protected Areas (WDPA), supplemented by the Protected Areas Database of the United States (PAD-US). Establishment-level location and operating information are drawn from the National Establishment Time Series (NETS) database compiled by Walls & Associates.

Corporate charitable donation data are collected from Foundation Directory Online (FDO), which provides donation-level information on contribution amounts, recipients, and timing from public records and Form-990 filings. County-level spending data are from the Fiscally Standardized Cities (FiSC) database. Local conservation funding resolution data are drawn 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.

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 protected-area 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 protected area 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. 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 protected-area 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 protected areas at the establishment level, by spatially linking

county-level PA events to the geographic coordinates of individual business establishments. Establishment locations are obtained from the NETS database, 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 protected area 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 the affected protected area, following Akbari et al. (2025), who show that regulatory constraints and firm responses associated with biodiversity protection are most pronounced within this range.[4]

To capture heterogeneity in implementation authority, we distinguish protected areas by their governance structure. An NGO governance indicator equals one if the newly designated or modified protected area 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. In tests where subnational governance does not provide sufficient observations to run a meaningful analysis, we also consider protected areas under federal governance. 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 Philanthropy and Firm-Level Engagement

We obtain data on corporate charitable giving from Foundation Directory Online (FDO), a comprehensive database that compiles donation-level information reported by nonprofits,

[4]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).

including company-sponsored foundations, from 2006 to 2020.[5] The data provide detailed records on the timing, dollar 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 protected-area 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 protected-area 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 protected-area designation. This alignment allows us to examine changes in both the level and composition of giving

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

before and after regulatory intervention and to identify anticipatory donation behavior in the period leading up to formal policy action.

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 cohort and the same firms assigned to other cohorts.

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

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

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 protected area or within the specified distance band around its boundary, depending on the exposure definition. The specification includes firm $\times$ year fixed effects $\gamma_{i,t}$, cohort $\times$ year fixed effects $\theta_{c,t}$, and firm $\times$ cohort 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 cohort (such as political, legal, or media attention surrounding the PADDD event), and persistent differences in firm exposure intensity across cohorts. 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–cohort pair around the timing of regulatory retrenchment, relative to other firms in the same cohort and

relative to the same firm's behavior across different cohorts. Across all baseline specifications, standard errors are double-clustered at the firm and cohort level to account for serial correlation in firm- and cohort-specific donation patterns over time. This design isolates localized philanthropic responses to regulatory retrenchment from firm-wide shifts in giving and from cohort-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 protected-area measures for the full sample underlying the difference-in-differences 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 protected areas, average donations are substantially larger, at approximately $206,593, compared with $118,940 in counties where firm operations are not proximate to protected areas, 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% involve protected areas governed by nongovernmental organizations and 37% involve protected areas governed by local (sub-national) public agencies. In 63% of PADDD cases, local nonprofits receive at least one corporate 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 protected-area designation events, which serve as a validation and comparison setting in the main analysis. Approximately 26% of new designations are governed by nongovernmental organizations, while 76% are governed by federal or sub-national 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 protected areas. 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 protected area designations.

4.1 Baseline Results: Charitable Giving around PADDD Events

In our baseline analysis, we examine how firms exposed to nearby protected areas adjust their charitable giving in the years surrounding a PADDD event. Protected areas 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 protected areas near their operations. Indeed, prior work documents that protected areas 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 tar-

geted 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–cohort pairs in the years immediately preceding and following a PADDD event to the same firm's behavior in other cohorts and to non-exposed firms assigned to the same cohort. We consider firm i locally exposed if it operates at least one establishment located in the county containing a protected area subject to cohort c, or within a specified distance band around its boundary. For a given cohort, treated observations are firm–cohort pairs for which local operational presence creates regulatory proximity to the PADDD event. Untreated observations consist of firm–cohort pairs assigned to the same cohort 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-by-year, cohort-by-year, and firm-by-cohort 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 cohort-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 cohort 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 cohort-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 difference-in-differences 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-cohort 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-cohort observation as exposed if the firm operates an establishment within 30 kilometers of the affected protected area boundary. All specifications include firm-by-year, cohort-by-year, and firm-by-cohort fixed effects, so identification exploits within-firm and within-cohort variation in exposure over time.

Firms that are exposed to protected areas 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%.[6] 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 an affected protected area 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.

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

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 role in local governance and conservation oversight. 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 classify locally embedded recipients as environmental and biodiversity NGOs, and community and council organizations. We compare these to recipients that are not directly involved in local decision-making, such as universities and organizations focused on international activities. 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 difference-in-differences estimates. In the year immediately preceding 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 international organizations (column 3) and universities (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 protected-area 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.

We next examine whether this targeting varies systematically with the governance structure of the protected areas near firms' operations. Specifically, we assess whether firms adjust the composition of their donations depending on whether protected area management authority resides with an NGO or with a public (state or municipal) agency. 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 recipient type and governance regime. In PADDD event cohorts involving NGO governance, exposed firms exhibit significant pre-event increases in donations to environmental and biodiversity NGOs (column 1) and to local councils (column 2).

In contrast, when governance authority rests with a local public agency, pre-event responses are concentrated in council-directed giving (column 4), with no statistically meaningful increase in donations to environmental and biodiversity NGOs (column 3). Across governance regimes and recipient types, post-event coefficients are small in magnitude and not statistically distinguishable from zero, consistent with a pre-decision targeting channel rather than persistent shifts in firm-wide philanthropy.

In additional tests reported in Appendix Table A.1, we distinguish between proposals for protected area 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 results are driven by downgrade-based PADDD events (column 2), which typically relax restrictions on business activity within protected areas, rather than by downsize-based PADDD events (column 1), which primarily shift protected-area boundaries. These findings are consistent with a channel in which firms seek to influence local protected area 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.

These results indicate that firms condition donation targeting on the institutional locus of protected area 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

regardless of governance structure. Rather, the evidence points to a governance-aware reallocation of charitable giving as protected-area 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 Engagement and Retrenchment Outcomes

Our evidence thus far indicates that corporate engagement is concentrated in the period preceding PADDD decisions. We now present regression-based evidence linking pre-event charitable giving to retrenchment outcomes and examining how this relationship varies across governance regimes. A key feature of PADDD events is that they generate both successful (enacted) and unsuccessful proposals to modify protected-area constraints on corporate operations, allowing us to compare donation behavior across regulatory initiatives that result in realized policy changes and those that do not. Our empirical design exploits this variation by maintaining the same event-time structure and fixed effects as in the baseline specification and re-estimating donation responses separately for successful and unsuccessful cases. This approach holds constant firm-level and cohort-level characteristics, as well as time-varying shocks common to firms within the same PADDD cohort, and isolates differences in pre-event engagement associated with realized policy outcomes rather than with the mere presence of a regulatory proposal.

Panel A of Table 4 reports these estimates. We find that pre-event donations are concentrated in PADDD cases that culminate in successful retrenchment, with estimated increases in donation amounts of approximately 88% (i.e., $e^{0.629} - 1$). In contrast, PADDD proposals that do not lead to formal changes in protected-area status or boundaries exhibit no statistically significantly meaningful increase in giving prior to the decision. Post-event coefficients remain statistically indistinguishable from zero, indicating that corporate engagement is concentrated in the period in which regulatory outcomes remain unresolved.

Panel B further disaggregates these responses by governance authority and recipient type to assess whether the alignment between donation activity and retrenchment success varies with the location of decision-making authority. In counties in which protected areas are governed by NGOs, exposed firms exhibit significant pre-event increases in donations to environmental and biodiversity NGOs in cases that culminate in successful retrenchment.

When governance authority rests with a public agency, pre-event responses are instead concentrated in council-directed giving. Across both governance regimes, unsuccessful PADDD cases show no statistically meaningful increases in donations to either recipient category. Collectively, these results suggest that firms do not engage uniformly across all regulatory proposals but concentrate pre-event giving in settings where governance channels are aligned with the recipients most directly involved in implementation and oversight and which are most likely to result in successful outcomes.

4.4 Heterogeneity by Establishment Exposure

The results in the prior subsection show that firms condition donation targeting on the governance authority responsible for protected area management. We next examine whether this governance-contingent targeting 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, such as chemical manufacturing, face heightened permitting requirements, compliance monitoring, and enforcement related to emissions, waste disposal, and land-use constraints. Similarly, establishments in resource extraction (mining, oil and gas) are directly affected by access restrictions, boundary changes, and licensing rules associated with protected area governance. For these sectors, proximity to protected areas 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.

Panel A of Table 5 reports difference-in-differences estimates for firms operating chemical manufacturing (columns 1 and 2) and resource extraction (columns 3 and 4) establishments, distinguishing between successful and unsuccessful PADDD events. The specifications mirror those in Table 4 but replace $I[\text{Exposure}]$ with sector-specific exposure indicators, isolating responses among firms whose operations are most directly affected by biodiversity-related land use and permitting constraints. The results show a pronounced amplification of pre-event donation responses in these sectors. Prior to successful 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). In contrast, there is no statistically meaningful increase in donations prior to unsuccessful PADDD attempts. 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. In Panel B, we conduct a placebo test using operations in less environmentally intensive sectors, including wholesale trade (columns 1 and 2) and service-based industries (columns 3 and 4). For these exposure types, pre-event donation responses do not display a consistent or systematic relationship with PADDD activity.[7]

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 donation behavior around protected-area policy changes reflects strategic engagement with the regulatory environment rather than broad environmental signaling or undifferentiated local giving.

4.5 Local Donations and Retrenchment Outcomes

Building on the estimates in Table 4, we examine in Table 6 whether corporate charitable giving 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 protected-area 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

[7] Column (4) shows a statistically significant decline in donations in counties where firms operate in service-based industries following unsuccessful PADDD attempts, consistent with a reallocation of charitable resources away from locations and activities with limited regulatory exposure.

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 protected areas are governed by public institutions, while no comparable association emerges in counties with NGO-governed protected areas. 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 protected-area 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 protected-area policy.

5. Performance and Financing Outcomes

This section examines how changes in protected-area 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 protected-area 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 em-

ployee 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 7, 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.[8] 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, 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 protected-area 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 protected-area 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

[8]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.

engagement therefore experience larger performance responses precisely in settings where the regulatory outcome determines whether land-use and compliance restrictions are relaxed or maintained.

5.2 Firm-Level Performance Outcomes

We next examine whether the establishment-level performance effects documented in Table 7 aggregate to economically significant changes in parent-firm outcomes. The unit of observation is the firm-year, and we estimate specifications with firm and year fixed effects. In Panel A of Table 8, we assess the baseline relation between firm-level biodiversity exposure, measured by the number of establishments operating near protected areas, and firm performance. Following Akbari et al. (2025), we evaluate outcomes in terms of return on assets, 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 protected-area designation or policy, donation activity in exposed counties is not associated with improved firm outcomes, indicating that corporate philanthropy 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 protected-area status directly affect local production constraints. Motivated by the heterogeneity documented in Table 5, 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 return on assets (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, these results indicate that firm-level performance gains are concentrated in settings in which regulatory constraints are relaxed and biodiversity policy is economically salient. The improvements in return on assets, valuation, and productivity appear to reflect the aggregation of localized regulatory relief across exposed establishments, rather than a firm-wide reputational or demand-side channel, consistent with a 'tax-exempt lobbying' mechanism operating through local councils and related governance institutions that shape the implementation of conservation policy.

An important consideration in interpreting these firm-level results 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.

5.3 Public Finance Outcomes: Conservation Spending

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.[9] Specifically, we assess whether firms' donation behavior is associated with subsequent changes in local public spending on parks and conservation, capturing a budgetary channel through which corporate engagement may affect the regulatory and administrative environment surrounding protected areas.

Table **9** reports regression results relating lagged corporate donations to city- and county-level parks and conservation spending as a share of total public expenditures. The analysis distinguishes between protected areas governed by NGOs and those governed by public authorities, and between donations directed to environmental organizations and those directed to community- and council-related recipients.

The results reveal systematic differences across governance regimes. In NGO-governed settings, donations to environmental and biodiversity organizations or to council-related recipients are not significantly associated with subsequent parks and conservation spending. In contrast, in counties where protected areas 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

[9] 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.

organizations 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.

5.4 Public Finance Outcomes: Funding Votes

Building on the evidence that corporate giving is associated with changes in local conservation spending, we examine a more direct policy channel through which firms may influence public finance outcomes: voter approval of council- or city-initiated land conservation funding 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-backed debt instruments and do not impose immediate, firm-specific fiscal obligations.

Table **10** relates corporate charitable giving in the year preceding a closely contested funding ballot to the probability that a land conservation funding measure is approved. As in Table **6**, 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.[10]

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 protected area 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

[10]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.

outcomes or to display the temporal concentration observed around PADDD retrenchment.

We estimate event-study and difference-in-differences specifications analogous to those in Section 4.1, where each event is a first-time protected area designation rather than a PADDD decision. The unit of observation is the firm-cohort-year, where a cohort corresponds to a newly designated protected area. Exposure is defined based on whether firm i operates at least one establishment in the county containing the newly designated protected area or within a specified distance band around its boundary. The baseline specification includes firm-by-year, firm-by-cohort, and cohort-by-year fixed effects, so identification comes from within-firm, within-cohort variation in local exposure to designation events. This structure absorbs time-varying firm-level shocks, persistent firm-cohort relationships, and cohort-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 protected areas 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 **11** reports complementary difference-in-differences 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 protected areas. 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 protected area is governed by an NGO or by a public authority.[11] Across both exposure definitions, the results confirm a governance-contingent reallocation of giving. When newly designated protected areas 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.

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

7. Conclusion

This paper examines how firms use corporate philanthropy to interact with the institutional implementation of biodiversity regulation in settings where conservation policy is administered under decentralized and institutionally fragile authority. Protected areas constitute the primary regulatory instrument for biodiversity conservation, yet their economic and ecological consequences depend critically on discretionary decisions made by local governance institutions operating under fiscal, administrative, and political constraints. Using establishment-level location data, detailed corporate donation records, and geospatial information on protected area designation, governance authority, and regulatory retrenchment, we document how firms reallocate philanthropic activity in response to changes in the credibility and contestability of biodiversity regulation at the retrenchment stage, and how this engagement coincides with subsequent county conservation spending and local economic outcomes.

We find that firms with operational exposure near protected areas adjust their charitable activity as the salience and credibility of biodiversity regulation evolve. In the period leading up to successful downgrading, downsizing, or degazettement, giving rises 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 environmental and biodiversity organizations or toward local councils that hold implementation and budgetary authority, depending on where administrative authority over protected areas resides. These effects are most pronounced in decentralized institutional environments subject to local fiscal and political pressures. Higher pre-event donations by locally operating firms are associated with a greater likelihood of successful retrenchment, subsequent reallocation of county-level conservation spending, and improvements in establishment-level sales and employment, while firm-wide financial outcomes exhibit no systematic average response in the full sample, with positive effects concentrated among firms in high-exposure industries in post-PADDD cohorts.

Overall, the evidence indicates that firms use corporate philanthropy to engage with the implementation and durability of biodiversity regulation, rather than solely to signal generalized environmental concern. Regulatory exposure 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 protected area designations translate into durable protection rather than reversible legal status, and in shaping the capacity of conservation policy to mitigate long-run biodiversity loss.

References

Acemoglu, D., Johnson, S., and Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5):1369–1401.

Acemoglu, D. and Robinson, J. A. (2012). *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. Crown Business, New York.

Agarwal, V., Lu, Y., and Ray, S. (2021). Are hedge funds' charitable donations strategic? *Journal of Corporate Finance*, 66:101830.

Aghion, P., Algan, Y., Cahuc, P., and Shleifer, A. (2010). Regulation and distrust. *Quarterly Journal of Economics*, 125(3):1015–1049.

Ahn, C., Houston, J. F., and Kim, S. (2025). Hidden in plain sight: The role of corporate board of directors in public charity lobbying. *Management Science*. Forthcoming.

Akbari, A., Yu, J., Ng, L., and Pham, M. D. (2025). The real effects of protecting biodiversity. *Review of Finance*, pages 1–37. Advance Access.

Akey, P. (2015). Valuing changes in political networks. *Review of Financial Studies*, 28(11):3188–3223.

Akey, P., Lewellen, S., Liskovich, I., and Schiller, C. (2024). Hacking corporate reputations. Working paper no. 3143740 / ecgi finance working paper no. 948/2024, Rotman School of Management, University of Toronto and European Corporate Governance Institute. SSRN Working Paper.

Bertrand, M., Bombardini, M., Fisman, R., and Trebbi, F. (2020). Tax-exempt lobbying. *American Economic Review*, 110(7):2065–2102.

Bertrand, M., Bombardini, M., Fisman, R., and Trebbi, F. (2021). Hall of mirrors. *Quarterly Journal of Economics*, 136(4):2413–2465.

Besley, T. (2010). Paying politicians. *Journal of the European Economic Association*, 2(2–3):193–215.

Bruner, A. G., Gullison, R. E., Rice, R. E., and da Fonseca, G. A. B. (2001). Effectiveness of parks in protecting tropical biodiversity. *Science*, 291(5501):125–128.

Cai, Y., Xu, J., and Yang, J. (2021). Paying by donating: Corporate donations affiliated with independent directors. *The Review of Financial Studies*, 34(2):618–660.

Choi, S., Park, R. J., and Xu, S. (2023). The strategic use of corporate philanthropy: Evidence from bank donations. *Review of Finance*, 27(5):1883–1930.

Coase, R. H. (1960). The problem of social cost. *Journal of Law and Economics*, 3:1–44.

de Figueiredo, J. M. and Richter, B. K. (2014). Advancing the empirical research on lobbying. *Annual Review of Political Science*, 17:163–185.

Ferraro, P. J. (2015). Parks, power, and poverty. *Conservation Biology*, 29(2):343–351.

Ferraro, P. J., Hanauer, M. M., and Sims, K. R. E. (2011). Conditions associated with protected area success. *Proceedings of the National Academy of Sciences*, 108(34):13913–13918.

Fischel, W. A. (2001). The homevoter hypothesis.

Garel, A., Romec, A., Sautner, Z., and Wagner, A. F. (2025). Firm-level nature dependence. *Review of Finance*. Forthcoming.

Geldmann, J., Barnes, M., Coad, L., Craigie, I. D., Hockings, M., and Burgess, N. D. (2013). Effectiveness of terrestrial protected areas in reducing habitat loss and population declines. *Biological Conservation*, 161:230–238.

Geldmann, J., Barnes, M., Coad, L., Craigie, M., and Hockings, M. (2015). Changes in protected area management effectiveness over time: A global analysis. *Biological Conservation*, 191:692–699.

Geldmann, J., Coad, L., Barnes, M. D., Craigie, I. D., Woodley, S., Balmford, A., Brooks, T. M., Hockings, M., Knights, K., Mascia, M. B., McRae, L., and Burgess, N. D. (2018). A global analysis of management capacity and ecological outcomes in terrestrial protected areas. *Conservation Letters*, 11(3):e12434.

Giglio, S., Kuchler, T., Stroebel, J., and Wang, O. (2024). The economics of biodiversity loss. *Journal of Finance*. Forthcoming.

Giglio, S., Kuchler, T., Stroebel, J., and Zeng, X. (2025). Biodiversity risk. *Review of Finance*. Forthcoming.

Godfrey, P. C. (2005). The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Academy of Management Review*, 30(4):777–798.

Golden-Kroner, R. E., Qin, S., Cook, C. N., Krithivasan, R., Pack, S. M., Bonilla, O. D., Cort-Kansinally, K. A., et al. (2019). The uncertain future of protected lands and waters. *Science*, 364(6443):881–886.

Greenstone, M., List, J. A., and Syverson, C. (2012). The effects of environmental regulation on the competitiveness of u.s. manufacturing. *NBER Working Paper*, (18392).

Greif, A. (2006). *Institutions and the Path to the Modern Economy*. Cambridge University Press, Cambridge.

Hillman, A. J., Keim, G. D., and Schuler, D. A. (2004). Corporate political activity: A review and research agenda. *Journal of Management*, 30(6):837–857.

Hinds, W. C. (1999). *Aerosol Technology*. Wiley, New York, 2 edition.

Jenkins, C. N., Van Houtan, K. S., Pimm, S. L., and Sexton, J. O. (2015). Us protected lands mismatch biodiversity priorities. *PNAS*, 112(16):5081–5086.

Joppa, L. N. and Pfaff, A. (2011). Global protected area impacts. *Proceedings of the Royal Society B*, 278(1712):1633–1638.

Kerr, W. R., Lincoln, W. F., and Mishra, P. (2014). The dynamics of firm lobbying. *American Economic Journal: Economic Policy*, 6(4):343–379.

Liang, H. and Vansteenkiste, C. (2025). Disaster relief, inc.: When is corporate philanthropy good or bad for shareholders? *Review of Finance*, 29(3):851–886.

Libecap, G. D. (2007). The assignment of property rights on the western frontier. *Journal of Economic History*, 67(2):257–291.

Lubell, M. (2013). Governing institutional complexity. *Policy Studies Journal*, 41(3):537–559.

Mascia, M. B. and Pailler, S. (2011). Protected area downgrading, downsizing, and degazettement. *Conservation Letters*, 4(1):9–20.

Mascia, M. B. and Pailler, S. (2014). Protected area downgrading, downsizing, and degazettement. *Biological Conservation*, 169:355–361.

Masulis, R. W. and Reza, S. W. (2015). Agency problems of corporate philanthropy. *The Review of Financial Studies*, 28(2):592–636.

Ostrom, E. (2010). Polycentric systems for coping with collective action. *Global Environmental Change*, 20(4):550–557.

Persson, T. and Tabellini, G. (2006). Democracy and development. *American Economic Review*, 96(2):319–324.

Rice, A. and Schiller, C. (2024). When values align: Corporate philanthropy and employee turnover. *SSRN Electronic Journal*.

Ricketts, T. H. et al. (2010). Indigenous lands, protected areas, and slowing climate change. *PLOS Biology*, 8(3):e1000331.

Seinfeld, J. H. and Pandis, S. N. (2016). *Atmospheric Chemistry and Physics*. Wiley, 3 edition.

Vansteenkiste, C. (2025). Targeted philanthropy: Evidence from m&as. *Working Paper*.

Watson, J. E. M., Dudley, N., Segan, D. B., and Hockings, M. (2014). The performance and potential of protected areas. *Nature*, 515(7525):67–73.

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.

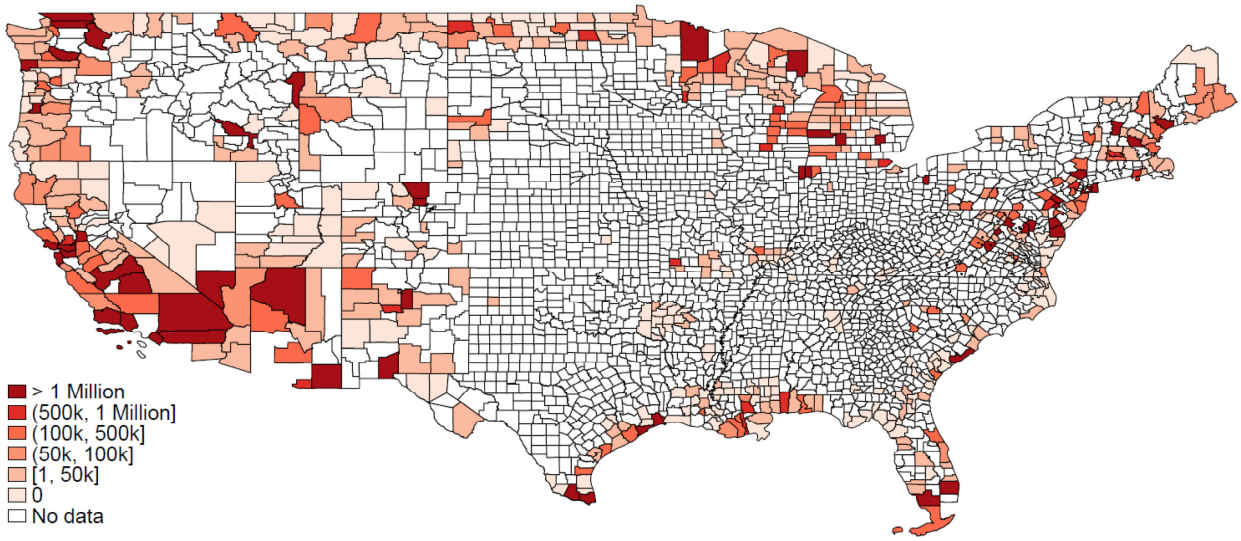


Figure 2
Dynamic Responses of Corporate Donations Around PADDD Events

This figure shows coefficient estimates for β_1 from a cohort-based event-study specification examining changes in firms' charitable donations around PADDD events. Each PADDD event represents a cohort. The estimates trace the dynamic response of the logarithm of donation amounts for firm–cohort pairs with local establishment exposure, relative to firm–cohort pairs assigned to the same PADDD cohort 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 $\times$ cohort fixed effects, and $\delta_{e,t}$ denotes cohort $\times$ 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 cohort level.

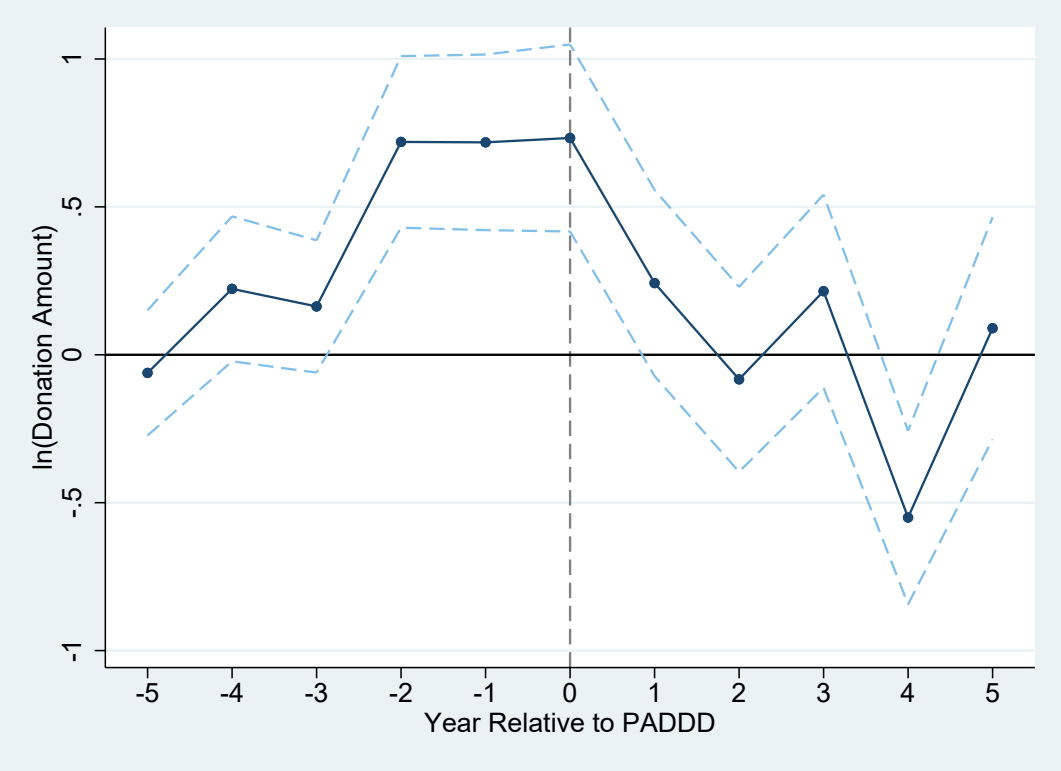
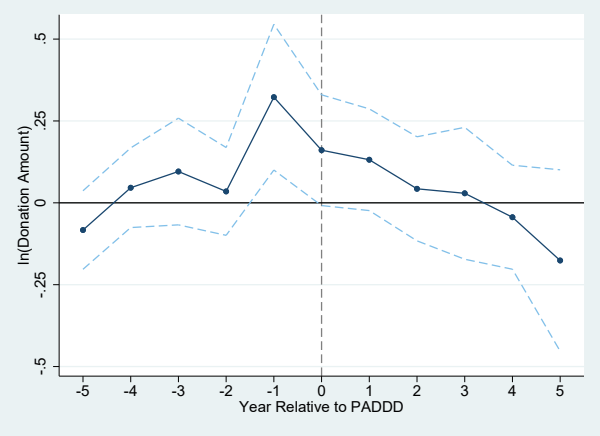


Figure 3
Corporate Donations Targeting Around PADDD Events

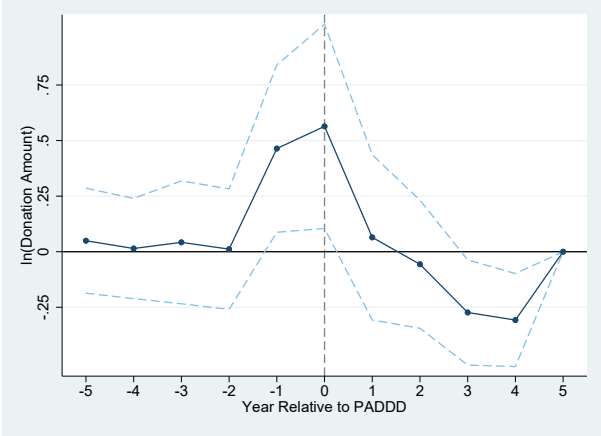
This figure plots coefficient estimates of β_1' from cohort-based event-study specifications examining changes in firms' charitable donations based on firms' establishment exposure to a PADDD event (cohort). Estimates trace the dynamic response of the logarithm of donation amounts for firm–cohort pairs with local establishment exposure, relative to firm–cohort pairs assigned to the same PADDD cohort 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:

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

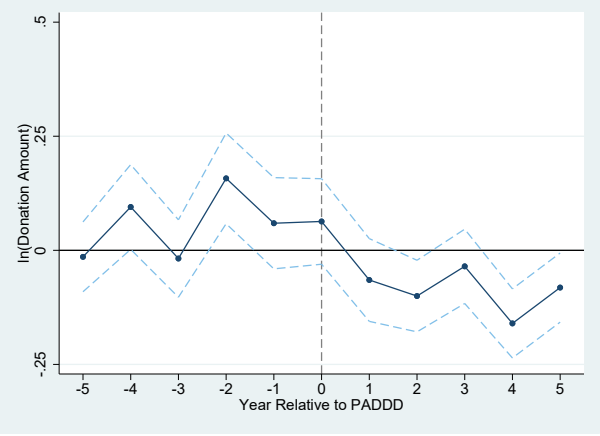
$\text{Time}'_{p,t}$ is a vector of indicator variables for event years $t-5$ through $t+5$ relative to the PADDD event year t_0. All coefficients are normalized relative to year $t-6$, which is omitted from the regression. All regressions include firm-by-year, firm-by-event, and event-by-year fixed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



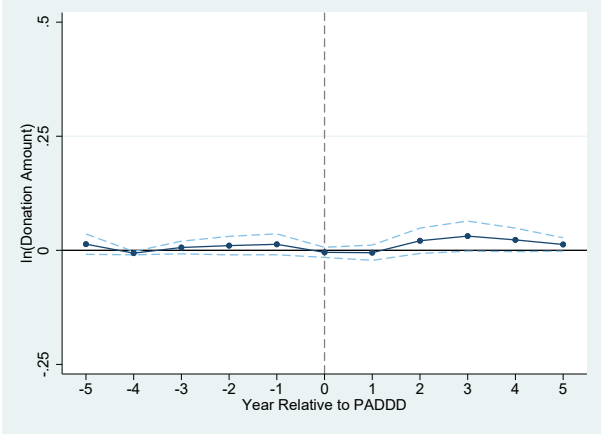
Panel A: Environmental & Biodiversity NGOs (NGO-Governed PAs)



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



Panel C: Universities



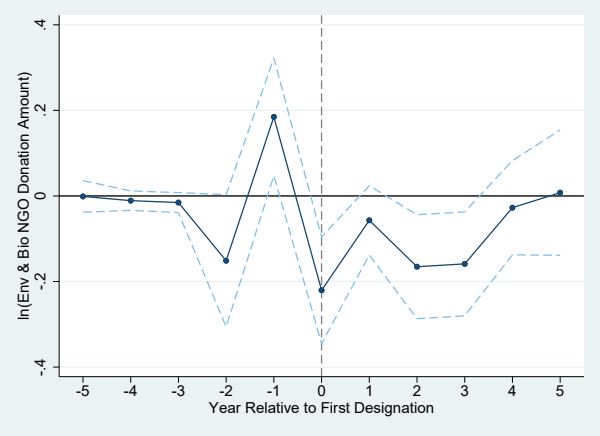
Panel D: International Organizations

Figure 4
Corporate Donations Targeting Around First-Time Protected Area Designations

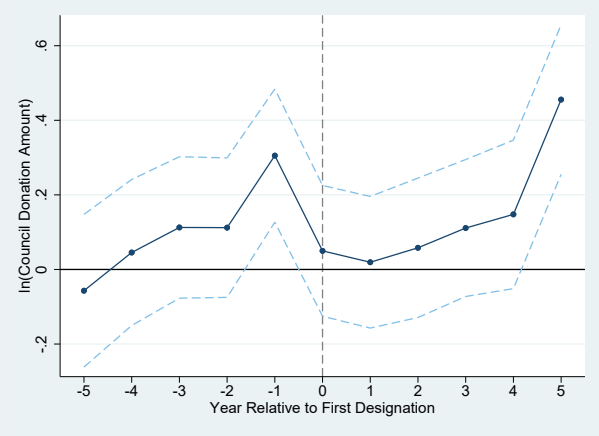
This figure plots coefficient estimates of β_1' from cohort-based event-study specifications examining changes in firms' charitable donations around first-time protected area designations, disaggregated by donation recipient type and protected area governance structure. Each first-time designation event represents a cohort. The estimates trace the dynamic response of the logarithm of donation amounts for firm–cohort pairs with local establishment exposure, relative to firm–cohort pairs assigned to the same PADDD cohort 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:

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

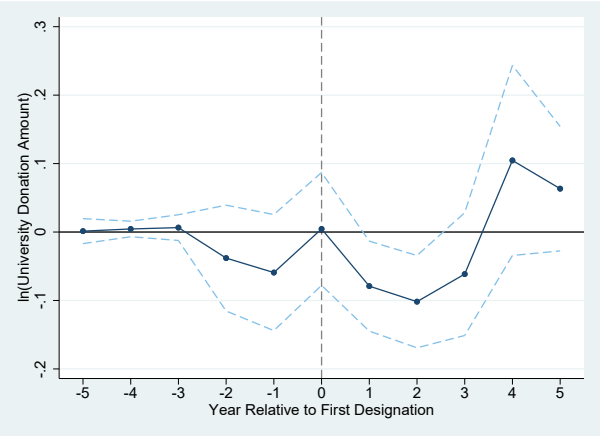
where $\text{Time}'_{p,t}$ is a vector of indicator variables for event years $t-5$ through $t+5$ relative to the first-time designation year t_0. All coefficients are normalized relative to year $t-6$, which is omitted from the regression. All regressions include firm-by-year, firm-by-event, and event-by-year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



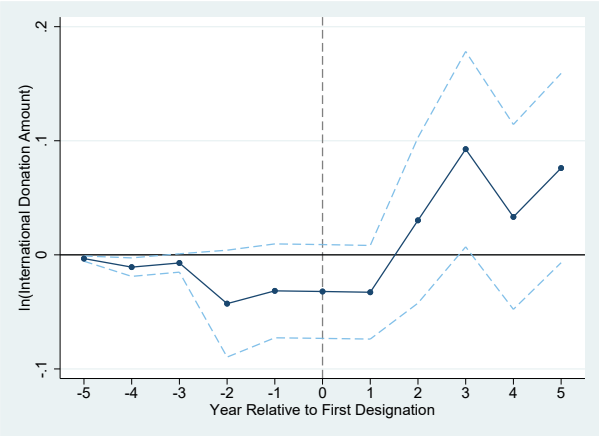
Panel A: Environmental & Biodiversity NGOs (NGO-Governed PAs)



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-Exposed]	0.100	0
$\mathbb{I}$[Donation] | $\mathbb{I}$[Exposed]	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-Exposed]	118,940	16,000
Donation Amount | $\mathbb{I}$[Exposed]	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 Governed]	0.44	0.00
$\mathbb{I}$[SubNat Governed]	0.37	0.00
$\mathbb{I}$[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 Governed]	0.26	0.00
$\mathbb{I}$[Non-NGO Governed]	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-cohort-year level, where each PADDD event represents a cohort. The estimates capture the difference in the logarithm of donation amounts for firm–cohort pairs with local establishment exposure, relative to firm–cohort pairs assigned to the same PADDD cohort 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, cohort-by-year, and firm-by-cohort fixed effects. Standard errors are double-clustered at the firm and cohort 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
Cohort × Year FE	Yes	Yes	Yes	Yes
Firm × Cohort 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
Cohort × Year FE	Yes	Yes	Yes	Yes
Firm × Cohort FE	Yes	Yes	Yes	Yes

Table 3
PADDD and Corporate Philanthropic Engagement by Donation Type and 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, including environmental and biodiversity NGOs, local community and council organizations, international organizations, and universities. Panel B further disaggregates donation responses by the governance authority responsible for PA management, distinguishing between NGO-governed and non-NGO- (subnationally-) 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. Each PADDD event represents a cohort, and a firm–cohort 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, cohort-by-year, and firm-by-cohort fixed effects. Standard errors are double-clustered at the firm and cohort level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Donation Type

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

Panel B: PA Governance Type

	ln(Donation Amount)			
Recipient Type:	Env. & Bio. NGOs	Councils	Env. & Bio. NGOs	Councils
	(1)	(2)	(3)	(4)
PA Governance Type:	NGO		Subnational	
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	0.304***	0.236***	0.055	0.362**
	(0.105)	(0.090)	(0.120)	(0.179)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	0.038	-0.035	-0.090	-0.071
	(0.051)	(0.044)	(0.079)	(0.066)
Observations	688,320	688,320	405,344	405,344
R^2	0.364	0.379	0.380	0.519
Firm × Year FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Firm × Cohort FE	Yes	Yes	Yes	Yes

Table 4
PADDD and Corporate Philanthropic Engagement by Success and Governance

This table reports regression results comparing corporate charitable giving responses around *successful* and *unsuccessful* PADDD events. Successful events are defined as PADDD events resulting in formal changes to PA status, while unsuccessful events are PADDD attempts that do not result in a formal regulatory change. Panel A reports baseline results for total donation amounts, distinguishing between successful and unsuccessful events. Panel B disaggregates donation responses by governance authority, distinguishing between NGO-governed and subnationally-governed PAs. Pre_{t-1} denotes the year immediately preceding a PADDD event, and $\text{Post}_{t+j(j>0)}$ denotes post-event years. Each PADDD event represents a cohort, and a firm–cohort 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, cohort-by-year, and firm-by-cohort fixed effects. Standard errors are double-clustered at the firm and cohort level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: PADDD Outcomes — Successful vs. Unsuccessful

	ln(Donation Amount)	
	(1)	(2)
PADDD Type:	Successful	Unsuccessful
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	0.629***	0.310
	(0.106)	(0.190)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	-0.010	0.222
	(0.074)	(0.184)
Observations	3,449,248	795,392
R^2	0.503	0.672
Firm × Year FE	Yes	Yes
Cohort × Year FE	Yes	Yes
Firm × Cohort FE	Yes	Yes

Panel B: PA Governance Type and PADDD Success

	ln(Donation Amount)			
Recipient Type:	Env. & Bio NGOs		Councils	
	(1)	(2)	(3)	(4)
PA Governance Type:	NGO-Governed PAs		Subnationally-Governed PAs	
PADDD Type:	Successful	Unsuccessful	Successful	Unsuccessful
$\text{Pre}_{t-1} \times \mathbb{I}$[Exposure]	0.343***	-0.120	0.389**	-0.655
	(0.117)	(0.132)	(0.182)	(0.538)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}$[Exposure]	0.013	0.254	-0.059	-0.649
	(0.049)	(0.216)	(0.067)	(0.538)
Observations	650,080	38,240	390,048	15,296
R^2	0.373	0.409	0.524	0.635
Firm × Year FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Firm × Cohort FE	Yes	Yes	Yes	Yes

Table 5
PADDD and Corporate Philanthropic Engagement by Exposure Type

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. Columns distinguish between PADDD events that are successfully implemented and those that are unsuccessful. 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. Each PADDD event represents a cohort, and a firm–cohort 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, cohort-by-year, and firm-by-cohort fixed effects. Standard errors are double-clustered at the firm and cohort level and are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Exposure Types

	ln(Donation Amount)			
	(1)	(2)	(3)	(4)
PADDD Type:	Successful	Unsuccessful	Successful	Unsuccessful
	Chemical Exposure		Mining Exposure	
$\text{Pre}_{t-1} \times \mathbb{I}[\text{Exposure}]$	0.499**	0.520	0.837**	-0.044
	(0.219)	(0.842)	(0.420)	(0.049)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}[\text{Exposure}]$	0.068	0.122	-0.753**	-0.073
	(0.165)	(0.490)	(0.313)	(0.090)
Observations	3,449,248	795,392	3,449,248	795,392
R^2	0.503	0.672	0.503	0.672
Firm × Year FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Firm × Cohort FE	Yes	Yes	Yes	Yes

Panel B: Other Exposure Types

	ln(Donation Amount)			
	(1)	(2)	(3)	(4)
PADDD Type:	Successful	Unsuccessful	Successful	Unsuccessful
	Wholesale Exposure		Services Exposure	
$\text{Pre}_{t-1} \times \mathbb{I}[\text{Exposure}]$	0.111	-0.080	0.849	-0.110**
	(0.268)	(0.061)	(0.591)	(0.046)
$\text{Post}_{t+j(j>0)} \times \mathbb{I}[\text{Exposure}]$	0.088	-0.202***	-0.773	-0.240***
	(0.169)	(0.049)	(0.515)	(0.044)
Observations	3,449,248	795,392	3,449,248	795,392
R^2	0.503	0.672	0.503	0.672
Firm × Year FE	Yes	Yes	Yes	Yes
Cohort × Year FE	Yes	Yes	Yes	Yes
Firm × Cohort FE	Yes	Yes	Yes	Yes

Table 6
Corporate Philanthropic Engagement and the Likelihood of PADDD Success

This table reports regression results at the PADDD 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)
	All Firms		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 7
PADDD and Establishment Performance in Exposed Counties

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-cohort-year, where every PADDD event represents a cohort. 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 cohort-by-year fixed effects. Standard errors are double-clustered at the firm and cohort level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Establishment Performance		
	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
Cohort $\times$ Year FE	Yes	Yes	Yes

Table 8
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 chemical and mining firms 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 Mining Firms Following PADDD Cohorts

	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

Table 9
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	Non-NGO	NGO	Non-NGO
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

Table 10
PADDD and 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 11
Governance Targeting at First-Time Protected Area Designation

This table reports regression results examining whether firms target their charitable giving toward the governance actor responsible for protected area management at the time of first-time protected area (PA) designation. The analysis is at the firm-cohort-year level, where each first-time designation event represents a cohort. The estimates capture the difference in the logarithm of donation amounts for firm–cohort pairs with local establishment exposure, relative to firm–cohort pairs assigned to the same first-designation cohort 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, cohort-by-year, and firm-by-cohort fixed effects. Standard errors are double-clustered at the firm and cohort level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

Panel A: County-Based Exposure

	ln(Donation Amount)			
Recipient Type:	Env. & Bio NGOs		Councils	
	(1)	(2)	(3)	(4)
PA Governance Type:	NGO	Non-NGO	NGO	Non-NGO
$\text{Pre}_{t-1} \times \mathbb{I}$[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
Cohort × Year FE	Yes	Yes	Yes	Yes
Firm × Cohort FE	Yes	Yes	Yes	Yes

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

	ln(Donation Amount)			
Recipient Type:	Env. & Bio NGOs		Councils	
	(1)	(2)	(3)	(4)
PA Governance Type:	NGO	Non-NGO	NGO	Non-NGO
$\text{Pre}_{t-1} \times \mathbb{I}$[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
Cohort × Year FE	Yes	Yes	Yes	Yes
Firm × Cohort 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-cohort-year level, where each PADDD event represents a cohort, 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–cohort pairs with local establishment exposure, relative to firm–cohort pairs assigned to the same PADDD cohort 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, cohort-by-year, and firm-by-cohort fixed effects. Standard errors are double-clustered at the firm and cohort 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
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