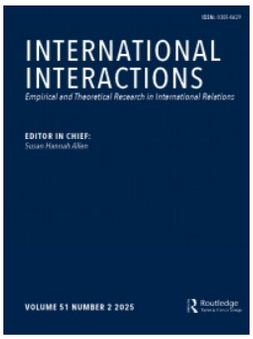

Routledge
Taylor & Francis Group

International Interactions

Empirical and Theoretical Research in International Relations

ISSN: 0305-0629 (Print) 1547-7444 (Online) Journal homepage: www.tandfonline.com/journals/gini20

Are foreign firms good for the environment? FDI and protected areas

Les entreprises étrangères ont-elles un effet positif sur l'environnement? IDE et zones protégées

Ana Carolina Garriga & Muzhou Zhang

To cite this article: Ana Carolina Garriga & Muzhou Zhang (2025) Are foreign firms good for the environment? FDI and protected areas, International Interactions, 51:2, 224-263, DOI: 10.1080/03050629.2025.2473362

To link to this article: https://doi.org/10.1080/03050629.2025.2473362

Published online: 20 Mar 2025.

INTERNATIONAL INTERACTIONS
2025, VOL. 51, NO. 2, 224–263
https://doi.org/10.1080/03050629.2025.2473362

Routledge
Taylor & Francis Group

Are foreign firms good for the environment? FDI and protected areas

Ana Carolina Garriga[a] and Muzhou Zhang[b]

[a]University of Essex; [b]Aarhus University

ABSTRACT

Despite the coexistence of three trends—increased economic integration, a dramatic reduction in biodiversity, and the implementation of national policies to reduce extinction risks—we know little about how foreign investment affects biodiversity. This paper focuses on the incentives that foreign direct investment (FDI) poses on governments' foremost strategy to protect biodiversity: the establishment of protected areas. Protected areas have expanded in most countries at rates that are not explained merely by geography or environmental reasons. We argue that FDI is associated with the expansion of protected areas through two channels. First, multinational corporations can obtain reputational benefits from host countries' commitment to protect biodiversity. Second, protected areas impose different costs on existing and prospective FDI, and rarely entail expropriation of foreign investment. This potentially shields foreign owned firms from domestic or international competition for the use of comparable resources. Statistical analyses on a sample of 60 developed and developing countries between 1984 and 2020 strongly support our expectations. Our findings shed new light on globalization's non-economic implications and add to our understanding about how international factors influence the provision of public goods.

KEYWORDS

Environmental regulation; foreign direct investment; globalization; protected areas

RESUMEN

A pesar de la coexistencia de tres tendencias (una mayor integración económica, una reducción drástica de la biodiversidad y la implementación de políticas nacionales para reducir los riesgos de extinción), sabemos poco sobre cómo la inversión extranjera afecta a la biodiversidad. Este artículo se centra en los incentivos que la inversión extranjera directa (IED) plantea con relación a la principal estrategia de los Gobiernos para proteger la biodiversidad: el establecimiento de áreas protegidas. Las áreas protegidas se han expandido en la mayoría de los países a un ritmo que no se explica simplemente por razones geográficas o ambientales. Argumentamos que la IED se encuentra asociada con la expansión de las áreas protegidas a través de dos canales. En primer lugar, las empresas multinacionales pueden obtener beneficios reputacionales del compromiso de los países receptores de proteger la

CONTACT Ana Carolina Garriga carolina.garriga@essex.ac.uk Department of Government, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, UK
Authors listed alphabetically.

biodiversidad. En segundo lugar, las áreas protegidas imponen diferentes costes a la IED, tanto existente como futura, y rara vez implican la expropiación de la inversión extranjera. Esto podría proteger a las empresas de propiedad extranjera de la competencia nacional o internacional con respecto al uso de recursos comparables. Llevamos a cabo análisis estadísticos de una muestra de 60 países, desarrollados y en desarrollo, entre 1984 y 2020, los cuales respaldan firmemente nuestras expectativas. Nuestras conclusiones arrojan nueva luz sobre las implicaciones no económicas que tiene la globalización y se suman a nuestra comprensión en materia de cómo los factores internacionales influyen sobre la provisión de bienes públicos.

RÉSUMÉ

Malgré la coexistence de trois tendances (augmentation de l'intégration économique, réduction spectaculaire de la biodiversité et mise en œuvre de politiques nationales visant à atténuer les risques d'extinction), nous en savons peu sur les effets de l'investissement à l'étranger sur la biodiversité. Cet article se concentre sur les avantages que représente l'investissement direct à l'étranger (IDE) dans le cadre de la principale stratégie de protection de la biodiversité des gouvernements: la définition de zones protégées. Les zones protégées se sont élargies dans la plupart des pays à une vitesse qui ne s'explique pas simplement par des raisons géographiques et environnementales. Nous affirmons que l'IDE est lié à l'expansion des zones protégées de deux façons. D'abord, la réputation des multinationales s'améliore quand un pays hôte s'engage à protéger la biodiversité. Ensuite, les zones protégées imposent différents coûts sur les IDE existants et à venir, mais impliquent rarement l'expropriation d'investissements étrangers. Aussi les entreprises détenues par des étrangers seront-elles potentiellement protégées de la concurrence nationale et internationale par rapport à l'utilisation de ressources comparables. Des analyses statistiques d'un échantillon de 60 pays développés et en développement entre 1984 et 2020 viennent fortement étayer nos attentes. Nos conclusions apportent un nouvel éclairage sur les implications non économiques de la mondialisation et viennent enrichir notre compréhension des effets de facteurs internationaux sur la fourniture de biens publics.

Introduction

Almost two decades ago, Agrawal and Ostrom (2006) criticized the lack of attention that political science had paid to conservation biology and biodiversity, highlighting that the political implications of protected areas exceeded the "region demarcated on a map" (Agrawal and Ostrom 2006, 682). This neglect is puzzling because, by removing land and its resources from private appropriation and exploitation, protected areas have immediate distributive effects. Subsequent research uncovered the political and economic costs of protected areas, and how protected areas' management

affects their effectiveness (Agrawal and Redford 2009; Gibson, McKean, and Ostrom 2000; Hayes and Ostrom 2005). Beyond that, the politics of biodiversity protection has been largely ignored by political scientists until recently (Fernández Milmanda and Garay 2019, 2020; Garcia and Burns 2022; Mangonnet, Kopas, and Urpelainen 2022; Hawkins and Goodliffe 2023).

We investigate whether countries may use the establishment of protected areas, governments' foremost strategy to preserve biodiversity, with the dual goal of protecting the environment and business. Although protected areas have grown in most countries especially since the mid-1980s,[1] contrasting trajectories in different countries suggest that the global expansion of protected areas is not an artifact of definitional change. Furthermore, neither geographic nor environmental factors can solely explain this trend. In this paper, we look at the association between foreign direct investment (FDI) and the expansion of protected areas, and posit that the presence of foreign subsidiaries is associated with the expanding coverage of protected areas.

FDI, one of the key parameters of contemporary globalization (Garrett 2000), is a good indication of exposure to, and integration into, international markets. FDI has been associated with a host of effects on environmental outcomes and regulation (Cole, Elliott, and Zhang 2017). Interestingly, most of the research focuses on the environmental costs or benefits of competing for new investment. In this paper, we revisit the idea of the obsolescence of bargaining (Vernon 1971) and examine whether extant FDI is associated with increases in environmental regulation that may translate into benefits to foreign companies already in the country—even if those regulations do not clearly or equally benefit new investment.

We draw on protected areas' multiple goals—environmental, economic, socio-cultural—and argue that protected areas are generally beneficial for foreign firms operating in the country.[2] Therefore, foreign investors should support and even encourage governments' initiatives to expand protected areas for two reasons. First, multinational corporations can benefit from host countries' increased public commitment to environmental norms, including the expansion of protected areas (Reinhardt 1998)—what we call the *reputational* mechanism. Second, we claim that this reputational gain generally comes at little or no cost for existing foreign subsidiaries because the establishment of protected areas rarely undermines their rights—in particular, it rarely entails expropriation of foreign investment. In fact,

[1]Figure A1 in the Appendix visualizes different timing and rates of expansion of protected areas.

[2]We use foreign firms and multinational corporations exchangeably throughout this paper.

new protected areas potentially shield current investment from domestic and international competition for the use of comparable land or resources, providing and additional benefit for firms already in the country—a *shielding* effect.

Understanding the political economy of protected areas is important for several reasons. First, one of the main concerns of environmentalists is that "with enhanced international capital mobility the fear of capital loss might induce countries not to raise standards" (Neumayer 2001, 231). Thus, the discussion tends to focus on how the goals of business attraction and environmental protection pull regulatory frameworks in opposite directions. Identifying the alignment between (some) business interests and some measures for biodiversity conservation may result into increased environmental standards. Foreign firms could be overlooked, yet powerful actors for biodiversity conservation. Second, empirically, the coexistence of three trends—a dramatic reduction in biodiversity (Jenkins 2003), the implementation of national policies to reduce extinction risks, and increased economic integration—makes it difficult to individualize direct channels through which economic incentives may affect biodiversity or the policies adopted to protect it. By disentangling some linkages between particular forms of economic integration and environmental protection, this study also adds new insights to important policy debates.

This paper contributes to several lines of research. First, our results shed new light on some non-economic implications of globalization. In line with the literature showing that market forces and interdependence help the diffusion of international standards (Jones and Zeitz 2019; Malesky and Mosley 2018; Mosley 2003; Simmons and Elkins 2004), we provide evidence on additional channels through which international factors may influence the provision of public goods. By looking at investment already settled in a country, we build on the idea that strong domestic actors interested in some institutional arrangements may contribute to the protection of biodiversity (Agrawal and Ostrom 2006; Ostrom 1990). We highlight the role of foreign owned companies as parties interested in conservationist policies, moving the focus beyond the work on corporate social responsibility.

Our results also speak to the more general literature on FDI and environmental politics (Bayer 2023; Bechtel, Genovese, and Scheve 2019; Finnegan 2022; Gu and Hale 2023; Schulze 2021). The underlying assumption regarding environmental regulation is that it results in a distributive conflict in which businesses generally "lose." In the case of protected areas, we show a cleavage within the seemingly "losing" coalition: existing investment may benefit while prospective investors may face more costs. Put differently, instead of the distributive conflict along sectoral lines, as seen in the existing literature, we focus on the inter-temporal distributive

conflict among international businesses.[3] This also let us to question the limits of the obsolescence of bargaining for the case of environmental regulation.

Finally, we also contribute to studies that have recently started to look at the domestic politics of protected areas designation (Beacham 2023; Fernández Milmanda and Garay 2019, 2020; Garcia and Burns 2022; Mangonnet, Kopas, and Urpelainen 2022; Orihuela 2020). By shifting the focus to international economic incentives, we look at a decision that precedes the eventual bargaining between national authorities and local communities regarding protected areas' effective location.

In the next section, we describe and characterize protected areas as instruments for biodiversity conservation. After reviewing the literature, we present our main argument and hypotheses. Section four describes our data and methods, and the fifth section presents our results and robustness checks. The conclusion summarizes our findings and proposes lines for future research.

What protected areas are and why they matter

Protected areas are "clearly defined geographical space[s], recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (Dudley 2008). This imposition of legal restrictions to the access to and/or the use of defined zones to preserve both species diversity and their habitat integrity is the most commonly used tool for biodiversity conservation (Butchart et al. 2012; Geldmann et al. 2013).[4] Protected areas currently cover over one sixth of the Earth's land surface (UNEP-WCMC and IUCN 2023)—see Figure 1—and countries have committed to keep increasing their coverage (Convention on Biological Diversity 2010).

The largest study conducted to date shows that protected areas benefit a wide range of species, and that worldwide, local biodiversity remains higher inside than outside terrestrial protected areas (Gray et al. 2016). This suggests that protected areas might be the most important tool to protect biodiversity and contextualizes debates regarding the effectiveness of these areas (Arriagada, Echeverria, and Moya 2016; Joppa and Pfaff 2009; Le Saout et al. 2013).

[3]Our approach is consistent Aklin and Mildenberger (2020)'s conceptualization of environmental policy as a distributional conflict within countries, focusing on "the empirical linkages between domestic and international factors shaping climate policy making.".

[4]Watson et al. (2014) present an overview of the origins and changing goals of protected areas.

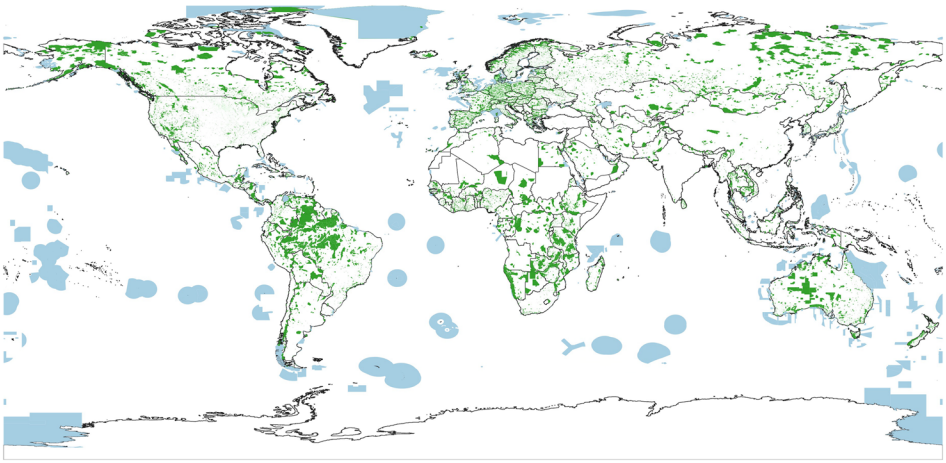

Figure 1. Distribution of protected terrestrial and marine areas as of January 2023.
Note: Green indicates terrestrial protected areas; blue indicates marine protected areas; data from UNEP-WCMC and IUCN (2023); base map from GADM version 4.1; figure produced by the authors with QGIS (3.28.3-Firenze).

Although the process of designation of protected areas varies across countries, it is normally an executive-led decision—in contrast with legislature-led initiatives (Fauchald 2021; Lausche 2011). For instance, the high-profile designation of San Lucas Island National Park was directly mandated by the Costa Rican president Carlos Alvarado (Executive Decree No. 9892). Similarly, Vietnam's Biodiversity Law (Law No. 20/2008/QH12) explicitly delegates the decision to establish national-level conservation areas to the prime minister (Article 23.1).[5] This may explain why some suggest that declaring protected areas particularly benefits national authorities in the form of international recognition designation (Fernández Milmanda and Garay 2019, 2020; Garcia and Burns 2022; Mangonnet, Kopas, and Urpelainen 2022; Orihuela 2020).

The process normally involves the participation of different stakeholders in the area, and generally receives significant press attention. Although notifications and consultations may be mandatory, the results of the consultations are generally not binding. The description of the designation process of protected areas by former National Protected Area Service of Peru (SERNANP) board member illustrates this point:

> "A number of procedures and requirements are needed to declare an area, including *consulta previa* [prior consultation], if there are indigenous communities living nearby. Those holding land rights in the area must also be notified of the intention to create a protected area. The proposal then passes from SERNANP to the Ministry of Environment for approval, and ultimately to the council of Ministers for its final declaration" (Wiebel 2017).

[5]http://bit.ly/3EL2POL (accessed Nov 29, 2022).

The designation of protected areas is also linked to an international regulatory framework. Under the umbrella of the Convention on Biological Diversity, organizations such as the International Union for Conservation of Nature (IUCN) aim to harmonize and monitor the protection of biodiversity—and eventually offer some forms of international assistance. Protected areas that meet requirements are listed in the World Database on Protected Areas, the IUCN Red List of Threatened Species, and the World Database of Key Biodiversity Areas.[6]

The establishment of protected areas normally does not impose additional costs to ongoing production directly—this contrasts with other kinds of environmental regulation, such as limits on emissions, water usage, or waste disposal—but has the potential to limit opportunities for new business. Protected areas may also directly improve some industries' expected income—such as tourism or research collaborations (Fauchald 2021). As such, protected areas are likely less costly than other forms of environmental regulation for current business, and may affect existing and new investment through different channels.

Literature review

A growing literature analyzes the effects of globalization on the environment. The main focus has been both on environmental quality or degradation (de Soysa and Neumayer 2005; Shahbaz et al. 2015)—analyzing outcomes such as air or water pollution (Cao and Prakash 2010; Zeng and Eastin 2007), or preferences over (non)renewable energy sources (Bayer and Urpelainen 2016; Cooper, Kim, and Urpelainen 2018)—and on environmental institutions (Prakash and Potoski 2006, 2007; Saikawa 2013). Yet, we know little about how economic openness affects *biodiversity* and the policies aiming to protect it.

New research has started uncovering the political economy of protected areas designation (Fernández Milmanda and Garay 2019, 2020; Garcia and Burns 2022; Mangonnet, Kopas, and Urpelainen 2022; Orihuela 2020). This literature stresses the domestic dimension of designating protected areas and highlights that, although declaring protected areas benefits national authorities in the form of international recognition, it imposes local costs. Thus, the interplay of local and national politics is at the heart of the delimitation of protected areas—as it is in many other areas of environmental politics (Cooper, Kim, and Urpelainen 2018; Finseraas, Høyland, and Søyland 2021). Subnational dynamics are key to understand

[6]The enforcement of protected areas is ultimately a function of rule of law in different countries (Abman 2018; R. Clark and Humphreys 2020). That being said, protected areas are subject to international monitoring—even in the context of warfare (de Hemptinne 2023; Hilario-Husain et al. 2024).

the ultimate location of the protected areas, and what regions in the country may be prioritized to fulfil international commitments or address environmental concerns. Yet, the international economic incentives to expand protected areas—which would eventually lead to secondary bargaining regarding their effective location—are still unclear.

Although limited empirical research directly addresses international factors linked to the establishment of protected areas,[7] the broader literature on international incentives for environmental policies offers two lines of relevant research. First, studies on *diffusion* of environmental standards stress the role of learning and reputational pressures to join, and later comply with, international agreements (Biesenbender and Tosun 2014; Fankhauser, Gennaioli, and Collins 2016; McLean and Stone 2012; Spilker 2013). More recently, Hawkins and Goodliffe (2023) show how trade networks provide "pathways for influence" on a state's choice of protected areas. This literature is important to understanding why countries would adopt higher standards of environmental regulation—including protected areas—but it gives little insight regarding the potential role of business communities in fostering or resisting the adoption of protected areas.

A second, rich body of literature focuses on the incentives that economic integration, including FDI, poses for environmental regulation. In this group, three contrasting hypotheses frame the study of protected areas.[8]

Globalization has deleterious effects on environmental regulation (the "race to the bottom" and "regulatory chill" hypotheses)

A large literature analyzes whether countries systematically lower regulatory environmental standards to attract FDI. Some studies find unconditional support for this hypothesis (Porter 1999; Woods 2006). Others find conditional evidence, both for environmental regulatory stringency (Cole, Elliott, and Zhang 2017) and for environmental outcomes—i.e., water pollution depends on trade competition between structurally similar countries (Cao and Prakash 2010), and FDI is associated with pollution heavens or emissions depending on countries' governance or technological innovation capacity (Omri and Bel Hadj 2020; Shahbaz et al. 2015). A similar line of reasoning leads others to expect competition for capital to lead not necessarily a race to the bottom, but to *regulatory chill*, that is, "when regulators resist the implementation of higher standards" (Aisbett and Silberberger 2021; Moehlecke 2019). Finally, others contend that the environmental race to the bottom does not exist (Demena and Afesorgbor

[7]A notable exception is Hawkins and Goodliffe (2023).

[8]Notice that this literature addresses directly *de jure* environmental institutions (Prakash and Potoski 2006; Saikawa 2013), and *de facto* environmental quality (Cao and Prakash 2010; 2012; Zeng and Eastin 2007). Work on the Kuznets curve focuses only on environmental outcomes.

2020; Konisky 2007; Wheeler 2001), or find a "race to the top" instead (Holzinger and Sommerer 2011).

Environmental Kuznets curve hypothesis

The Kuznets curve posits that as economies grow, income inequality first increases and then falls. This idea was used to theorize the relationship between indicators of environmental degradation and per capita income, suggesting that pollution or emissions per capita are an inverted U-shaped function of per capita income (Grossman and Krueger 1995). FDI could contribute to this effect by promoting economic growth. Although the economic literature received this idea with considerable skepticism (Dinda 2004; Stern 2004), some studies have found evidence of an inverted U-shaped relationship between economic growth and CO_2 emissions after controlling for FDI and trade (Lau, Choong, and Eng 2014; Villanthenkodath and Arakkal 2020). Notice that the same logic that leads to expect an inverted U-shaped association between FDI and environmental deterioration should predict a U-shaped relationship between FDI and environmental regulation stringency—including protected areas.

Globalization promotes environmental protection (the "California effect" hypothesis)

Unlike the previous two hypotheses, the "California effect" was proposed by to explain environmental regulatory standards and includes references to protected areas. Vogel (1995, 1997) argues that market pressures lead nations to increasingly adopt the standards of their richer, greener trading partners. Vogel stresses an important non-governmental dimension of the California effect: "environmental activists in rich countries have frequently targeted particular products that are produced in environmentally harmful ways. In some cases, they have organized boycotts of these products while in others they have applied pressures on multinational firms responsible for their production. A number of these pressures have been highly effective, *particularly in the areas of forest and wildlife conservation*" (1997, p. 564, emphasis added). Some evidence based on global and Chinese data (Prakash and Potoski 2007; Zeng and Eastin 2007, respectively) suggests that FDI drives the diffusion of regulatory standards. These results lead to optimistic views regarding the compatibility between global capitalism and conservation (Brockington, Duffy, and Igoe 2012; de Soysa and Neumayer 2005).

Theory: FDI and protected areas

Protected areas were initially devised to preserve unique environments, usually in areas with "little potential for economic use" (Watson et al. 2014, 67).

Yet, in the second half of the 1900s, they expanded both geographically and conceptually to include not only land and marine life preservation, "but also to contribute to the livelihood of local communities, to bolster national economies through tourism revenues, to replenish fisheries and to play a key part in the mitigation of, and adaptation to, climate change, among many other functions" (Watson et al. 2014, 67).

Although protected areas are the most commonly used tool for biodiversity conservation (Butchart et al. 2012), we focus on the multiple, changing goals of protected areas to analyze the use of this policy for a particular, and understudied, purpose: the protection of FDI. As we explain below, we argue that, other things constant, foreign investors will prefer the expansion of protected areas for two reasons. First, multinational corporations can benefit from countries' actions that increase their commitment to environmental norms, including the establishment of protected areas. Second, the establishment or expansion of protected areas—that generally does not result in expropriation of foreign investment—has the potential to shield current investment from domestic or international competition for the use of comparable land or resources. This may lead foreign owned companies to mobilize and support or pressure for the expansion of protected areas, as part of corporate political activities (CPAs) documented in literature (Bayer 2023; Hansen and Mitchell 2000; Hasija and Brown 2024; Hillman and Wan 2005; Lee 2022; Puck, Rogers, and Mohr 2013).[9]

The reputational mechanism

Beyond their environmental purposes, and social and economic impact, protected areas have the potential to enhance the reputation of companies operating in a country. Following a logic similar to the case of commitment to international human rights regimes (Garriga 2016) and other domestic reforms (Bush and Zetterberg 2021), we argue that countries can also use protected areas to protect FDI. Two conditions are necessary for this reputational mechanism to be plausible. First, it is necessary that companies' reputations potentially benefit from operating in countries that expand protected areas. Second, governments should ponder companies' interests while considering protected areas—or at least, attempt to present protected areas as business-friendly decisions.

Regarding the first condition, the literature shows that the reputation of the host country has an independent effect on business decisions (Dukerich and Carter 2000; Garriga 2016; van Ham 2001), and that companies' reputations affect their profit and the value of their shares. A good

[9]Although analyzing environmental CPAs exceeds the scope of this paper, we thank a reviewer for pointing to this literature.

environmental reputation may benefit the relations of companies with their consumers—in terms of attraction and brand loyalty—and also with their shareholders, investors and lenders who factor environmental factors in their decisions (Berliner and Prakash 2013; Jain and Prakash 2017; Zeng and Eastin 2007). Reputational gains of subsidiaries may not only improve the company's standing in local communities (Reinhardt 1998, 44), but also work as a "buffer against the parent firm reputation risk" (Zhou and Wang 2020).

Jain and Prakash (2017) show that ownership matters: social responsibility communication—and how it is used to enhance legitimacy—differs greatly between foreign and domestic firms. This can be due to the fact that foreign companies tend to be more highly scrutinized than their domestic counterparts (Zaheer 1995). There are many illustrations of multinational corporations making their policies regarding biodiversity protection explicit to improve their reputation. For example, Shell states their commitment regarding "environmentally sensitive areas" and publicizes their pledge as follows:

- "we will further improve the way we operate in International Union for Conservation of Nature (IUCN) Category I–IV protected areas, and areas of high biodiversity value;
- *we will publicly report on our activities in IUCN Categories I–IV*; and
- *we will work with IUCN and others to help safeguard protected areas*."[10]

Shell's website also lists the activities of its subsidiaries in seven countries with protected areas (Shell 2022). Similarly, BP (2021) publicizes the major operational sites whose activities are inside, adjacent (within one kilometer), and within 20 kilometers of international protected areas, and their approach to biodiversity in and near protected areas.

Beyond the companies' direct communication with stakeholders, protected areas may affect companies' operations via investment assessment. For example, the Integrated Biodiversity Assessment Tool[11] includes data from the World Database on Protected Areas, IUCN Red List of Threatened Species, and the World Database of Key Biodiversity Areas. These tools are used for companies to decide the location of their investment, and by portfolio investors and investment funds—including socially responsible investment—to decide their participation in multinational corporations (G. Clark and Hebb 2005; Hebb and Wójcik 2005; Wen 2009).

In some instances, foreign companies publicize their pro-biodiversity protection stance by voluntarily contributing to the expansion of protected

[10]See Shell (2022, emphasis added).

[11]IBAT, https://www.ibat-alliance.org.

areas. Despite having an unchallenged license to operate in a protected area, in 2016, British Tullow Oil "[publicly] committed to not explore for or exploit hydrocarbon resources" within Kenya's Lake Turkana National Park.[12] Reputational—more than direct economic—motives can explain this decision.

Our theory does not require that companies have sincere environmental concerns that lead them to prefer countries with active protectionist policies, but it does not discard this possibility either. Whether the investors' preference for countries that protect biodiversity—or for the establishment of protected areas—is motivated by purely profit-driven or environmental concerns,[13] companies can capitalize their association with greener, more conservationist countries. Our argument only requires that foreign companies are able to obtain reputational gains from the host country's establishment of protected areas, and that this reputational gain is not offset by the costs of more stringent environmental regulation, as we explain below.

Regarding the second condition, stating that governments should plausibly weigh business interests while establishing protected areas, anecdotal evidence shows that governments present protected areas as beneficial for companies operating in their territory.[14] For example, *Invest Northern Ireland*, an official channel for business advice and support, highlights the benefits for companies that improve their environmental performance. Additionally, it lists advantages of conserving biodiversity while operating in or near areas considered protected. This applies not only to "land-based industries such as forestry or farming, but [also to] all offices, factories and other business activities based on or near these areas" (Invest Northern Ireland 2022). Their website also states:

> "Sustainable development can create opportunities for your business. As well as making financial savings, *you can enhance your reputation and brand value* by fostering customer loyalty and motivating staff. You can also use sustainable development as an opportunity to encourage innovation, increase investment and open new markets."

Positive externalities and shielding effect

Beyond reputational gains, the establishment of protected areas has the potential of shielding existing foreign investment from competition. First,

[12]See the joint statement by UNESCO and IUCN (http://bit.ly/3FbYdma, accessed Nov 29, 2022) and a news report by The Kenyan Wall Street (http://bit.ly/3GVUpXv, accessed Nov 29, 2022).

[13]See for example the *World Economic Forum's Champions for Nature* group.

[14]Governments have broader strategies aimed at avoiding investment flight, from high-level statements speeches designed to persuade foreign investors to stay in the UK (https://www.thetimes.com/article/government-acts-to-soothe-foreign-investors-fears-nx7w9mc7pgd) to series of strategies designed to retain foreign investment documented by the World Bank (Kher and Griffin 2023).

the establishment of protected areas either removes the land and its resources from further exploitation, or imposes additional conditions on new investments.[15] New investment, particularly foreign investment, in or near protected areas comes with increased scrutiny not only from domestic and international conservationist NGOs, but also from the financial sector. For example, the WWF/BankTrack guidelines for the finance sector include the following recommendations:

- "Investments and financial services provided by the bank should *not negatively impact upon any of the protected areas* covered by the IUCN I-IV categories or sites listed under UNESCO World Heritage and the Ramsar Conventions;
- Industrial extractive projects such as mining, oil, gas and forestry *should not be financed within World Heritage Sites and IUCN I-IV protected areas*, nor where they negatively impact upon those sites and areas" (Durbin, Herz, and Peck 2006, 41–42), emphasis added).

These market protections increase the costs of entry of domestic and foreign competitors.[16] However, both increased reputation and market protections would be worthless if protected areas challenged foreign firms' rights. Anecdotal evidence suggests that the establishment of protected areas rarely entails expropriation of foreign investment.[17] When governments have attempted to expropriate, foreign firms have successfully challenged this decision. The establishment of the Sierra del Divisor National Park in the Peruvian Amazon illustrates this situation. In 2007, Canada-based *Pacific Exploration and Production* (now Frontera Energy) signed a contract for the concession Lot 135. In 2015, Peruvian president Ollanta Humala established Sierra del Divisor National Park by Supreme Decree No. 014-2015-MINAM. Lot 135 was completely within the newly designated national park—representing about 40% of its total size. A Peruvian court ruled in favor of Pacific's concession contract and against any attempt to limit their contractual rights.[18] Of note, and in line with the influence

[15]For example, by requiring protected areas management plans (see https://www.conservationfinance.info/business-planning-for-protected-areas).

[16]Although protected areas have the potential to shield current investment from competition for the use of the same resources, it is not clear that governments would result in (net) less FDI. Furthermore, it is plausible that governments prefer to avoid the risk losing current investment (Barry 2025; Cefis et al. 2022) over the expectation that new investment—attracted by lower biodiversity protection standards—would come in the future.

[17]Our empirical analysis below provides additional support to this anecdote.

[18]The case is far more complicated than the failed attempt of expropriation and included other developments, such a lawsuit between indigenous communities and the Peruvian environmental agency running protected areas, SERNAP.

reputational concerns in foreign companies' decisions, following a conflict between the Peruvian government, conservationists, and local NGOs advocating for indigenous groups peoples "in isolation," Pacific voluntarily pulled out of Lot 135 in 2017.[19]

Taken together, these two characteristics—restrictions on new foreign or domestic competition and not increased risks of expropriation—allow new protected areas to potentially shield current investment from domestic or international competition for the use of comparable land or resources.

Based on the two reasons explained above—reputation and potential positive externalities—we derive and test the following hypothesis:

Hypothesis 1: *FDI is positively associated with the coverage of protected areas.*

Our first hypothesis contrasts with the race to the bottom and regulatory chill hypotheses. Although it is consistent with the California effect's expectation, it differs in the logic driving this relationship. We expect this positive association regardless the investment's country of origin—that is, not only from richer, greener countries—and of the kinds of goods or services the multinational corporation aims to produce. The reputational mechanism and additional positive externalities, such as the shielding effect, may benefit especially some companies. However, we argue that considered together, should benefit all kinds of investments.

Although not central to our argument, our reasoning suggests the possibility of diminishing returns of the establishment of new protected areas. If the main mechanism connecting FDI and protected areas is the reputational gain for companies located in the country, it is reasonable to think that after key areas are protected, incorporating additional, marginal zones should not have a similar importance. In parallel, geography imposes a natural limit to the expansion of protected areas that reinforces the intuition of diminishing returns. Notice that this expected non-linearity contrasts with the logic of the environmental Kuznets curve that would predict initial deterioration of environmental indicators—and by extension, deterioration or non-improvement in environmental regulation—and improvement after a tipping point. We instead expect the positive relationship to become weaker after a threshold is achieved.

Hypothesis 2: *The relationship between FDI and protected areas exhibits diminishing returns.*

[19]While confirming the company's decision, the Corporate Social Responsibility and Sustainability Manager, Alejandro Jiménez Ramirez, stated: "We wish to reiterate the company's commitment to conduct its operations under the highest sustainability and human rights guidelines, avoiding damages to cultures and their surroundings; a value promise we feel remains intact." The quote is from *The Guardian*, available at https://bit.ly/3im9Q1c (accessed Feb 10, 2023).

Data and methods

Main variables

The dependent variable, *Protected areas*, measures the area of terrestrial protected areas as percentage of the country's territory. Data come from the OECD (Persson 2021), to our knowledge, the only worldwide time-series cross-sectional data source for protected areas,[20] and covers 60 developed and developing countries in all continents from 1980 to 2020. Data availability on this variable constrains the countries and years included in this study. For 1980–2000, data are available every five years. We linearly interpolate the values between the recorded data points in the first two decades. Figure A1 in the appendix shows the countries included in our sample, and the share of their territory covered by protected areas. It also shows that although protected areas expanded in all these countries since the 1980s, they did so at significantly varied rates.[21]

Our main independent variable is *FDI stock*, a measure of the capital owned by, and the net indebtedness to, foreign investors or parent enterprises overseas in a given year. *FDI stock* parallels the idea that existing FDI benefits from the establishment of protected areas. This measure is also less sensitive to short-term volatility than FDI flows, which might "conflate financial flows with commercial operations" (Kerner 2014). Because we are more interested in uncovering general trends than in identifying the factors associated with yearly changes in protected areas, we apply the five-year moving average (right-aligned) to *FDI stock*—that is, for country *i* year *t*, the variable *Protected areas* is measured on year *t*, and *FDI stock* is the average of *t* to *t-4*. This smooths our independent variable, enabling it to reflect the underpinning trend of government's conservation policy. FDI data come from the UN Conference on Trade and Development (UNCTAD) and is measured in billion, 2015 constant US dollars. Noticing the potential influence of extreme values in the sample, we log-transform our FDI data, making it less influenced by the heterogeneous baseline levels of FDI across different countries.

[20]OECD's data is based on the World Database on Protected Areas (WDPA)—originally compiled by the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) and the International Union for Conservation of Nature (IUCN). In contrast with national governments' self-reported data, OECD data only include internationally recognized protected areas with an IUCN protected area management category attached, which minimizes cross-national inconsistency.

[21]Although the changing definition may have contributed to some definitional changes the expansion of protected areas worldwide, any definitional change is orthogonal to FDI and, thus, should have no impact on the relationship we show.

Control variables

We control for a series of factors that may affect both our dependent and main independent variables. We include *GDP per capita* in constant US dollars, with data from Bolt and van Zanden (2020), because average wealth is likely associated with both a country's economic openness and its political decisions regarding protected areas. Following the literature on the environmental Kuznets curve (Grossman and Krueger 1991, 1995), we also include its squared term to capture a likely nonlinear relationship between *GDP per capita* and *Protected areas*.

Population density proxies both land scarcity in the country, and the market potential for foreign investment. Polity score, an index ranging from −10 (full autocracy) to 10 (full democracy) (Marshall, Gurr, and Jaggers 2021), proxies regime type and is included for several reasons. The literature suggests that democracy is positively associated with more progressive environmental protection, including biodiversity conservation (Bättig and Bernauer 2009; Bayer and Urpelainen 2016; Li and Reuveny 2006; Midlarsky 1998; von Stein 2022). However, democratic governments may find more hurdles to expand protected areas because they are more constrained by private or indigenous land property rights than their autocratic counterparts. Furthermore, regime type is also associated with FDI's allocation (Li, Owen, and Mitchell 2018). For the reasons stated above, we do not have a clear expectation regarding the direction of these last two variables.

In addition to domestic factors, our models account for different channels of international diffusion (Hawkins and Goodliffe 2023; Simmons and Elkins 2004). First, research has shown that globalization drives the diffusion of norms—e.g., awareness of biodiversity—and new policies—e.g., designating areas exclusively for conservation—across borders. For example, Prakash and Potoski (2006) find that trade is associated with improved environmental protection. Similarly, Ward and Cao (2012) show that intergovernmental organizations enable member states to learn environmental norms and policies from each other—see also Hawkins and Goodliffe (2023). Thus, countries that are economically and politically more integrated might be more likely to have protected areas. Therefore, we include the *KOF Globalization Index*, which comprehensively proxies globalization across various dimensions (Gygli et al. 2019). Second, governments are also likely to learn from or simply emulate their neighbors. Because geographic contiguity may lead a diffusion of policies on protected areas within a region, *Regional diffusion* indicates the average regional coverage of protected areas and controls for local interdependence.[22] A binary

[22]The mean value of *Protected areas (% of territory)* of all the countries within the country's continent in a given year.

variable, *Post-CBD*, indicates all the years after the Convention on Biodiversity (CBD) was established in 1992 at the Rio de Janeiro Earth Summit. We take this first global agreement to cover all aspects of biological diversity into account since it may have not only contributed to the transnational socialization of biodiversity norms but also driven each signatory to comply with their commitments.

We include a time trend variable to capture both the increasing international awareness of environmental protection and deepening economic interdependence. Protected areas and FDI might be jointly determined by some confounded, unobserved country-specific factors. Therefore, models include country fixed effects. All our control variables, except for *Regional diffusion, Post-CBD, Time trend*, and country fixed effects, are five-year moving-averaged as *FDI stock* is to ensure that the confounding relationships we aim to control for are in the right temporal order and to mitigate "posttreatment bias" (Dworschak 2024). For descriptive statistics, see Table A1 in the appendix.

For our main regression models, we estimate feasible general least squares (FGLS) regressions. We allow the random error to follow a first order autoregressive process to control the time dependency of protected areas and avoid underestimating regression uncertainty. Standard errors are panel-corrected to take the cross-national dependency—i.e., the remaining diffusion or clustering—of protected areas into account (Beck and Katz 1995; Wawro, Samii, and Kristensen 2007). Tables indicate when models are run on a shorter sample. Figure A1 in the appendix shows countries included in the analysis. All countries in out sample have some level of protected areas. This reflects the fact that most countries worldwide have many protected areas including national parks, wildlife sanctuaries, conservation reserves, and community reserves, and the establishment of protected areas started many decades before the beginning of our sample.[23]

Empirical analysis

Main results

Table 1 presents our main results. Columns show estimates of models from least to more constraining specifications. We first include the main independent variable(s) without controls to show that our results are not

[23]The World Database on Protected Areas (WDPA), the source of our data, was established in 1981. However, the mandate for the database dates from 1959 when the United Nations Economic and Social Council called for a list of national parks and equivalent reserves in recognition that they 'are valuable for economic and scientific reasons and also as areas for the future preservation of fauna and flora and geologic structures in their natural state' Resolution 713 (XXVIII). The first UN List of Protected Areas, as it became known, was subsequently published in 1962 (UNEP-WCMC 2019).

Table 1. Positive effect of FDI stock on protected areas (% of territory).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FDI stock[a]	2.666***	2.938***	0.976**	0.938*	3.636***	3.721***	1.687**	2.234***
	(0.229)	(0.168)	(0.339)	(0.368)	(0.582)	(0.432)	(0.525)	(0.527)
FDI stock[a], squared					−0.154*	−0.122*	−0.110*	−0.191***
					(0.067)	(0.050)	(0.045)	(0.051)
GDP per capita[a]				−6.284***				−8.785***
				(1.428)				(1.587)
GDP per capita[a], squared				0.974**				1.425***
				(0.325)				(0.363)
KOF Globalization Index[a]				0.083				0.058
				(0.044)				(0.043)
Polity score[a]				0.081				0.057
				(0.068)				(0.069)
Population density[a]				0.002				0.007
				(0.010)				(0.010)
Post-CBD				−0.161				−0.185
				(0.117)				(0.112)
Regional diffusion				0.533***				0.530***
				(0.038)				(0.042)
Time trend				0.063				0.073
				(0.042)				(0.044)
Country fixed effects	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	No	No	Yes	No
Obs.	1,910	1,910	1,910	1,789	1,910	1,910	1,910	1,789
RMSE	1.252	1.272	1.248	1.291	1.250	1.276	1.247	1.282

Notes: FGLS estimations with AR(1) correction; panel-corrected standard errors in parentheses; [a]5-year moving-averaged;
*$p < .050$,
**$p < .010$,
***$p < .001$;
CBD: Convention on Biodiversity.

driven by any combination of control variables or missing data (Columns (1) and (5)), and then add sequentially country (Columns (2) and (6)), and country- and year-fixed effects (Columns (3) and (7)). Columns (4) and (8) present the fully specified models, the baseline for our substantive interpretation and robustness checks.[24]

Hypothesis 1 stated a positive association between FDI and protected areas. Across all columns, the coefficient associated with *FDI stock* is positive and statistically significant, as expected—and in contrast with the race to the bottom predictions. Regarding control variables, the coefficients associated with *GDP per capita* and *GDP per capita, squared* suggest some support for an extension of the environmental Kuznets curve hypothesis in relation to environmental regulation. Two of our controls for channels of international diffusion are statistically significant and positive: the *KOF Globalization Index* and *Regional diffusion* suggest that countries that are more integrated with the rest of the world and countries whose neighbors have larger protected areas have also a broader coverage of these areas in their territories. *Population density* is negative and marginally significant

[24]Our baseline model does not include year-fixed effects to preserve the control for the *Post-CBD* period.

in Column (4). Intuitively, countries with higher population density should find it costlier to extend their protected areas than countries with less demographic pressure, but this result is not robust. Neither regime type, the *Convention on Biological Diversity*, nor the time trend are statistically significant.

Substantively, based on the estimates shown in Column (4), Table 1, one standard-deviation increase of *FDI stock* is associated with a 1.8 percentage-point, or 0.2 standard-deviation, increase in the country's surface covered by protected areas. This is significant considering that the mean coverage of protected areas is only 12.3% of the territory, and when compared with the effect of other statistically significant variables. For instance, one standard-deviation increase of *Regional diffusion*, a factor shown to affect protected areas extension (Hawkins and Goodliffe 2023), is associated with 3.0 percentage-point increase in their territorial coverage.

The second hypothesis suggests that the association between FDI and protected areas may exhibit negative returns. To test such non-linearity, the second set of models reproduce the previous analyses including the squared term of FDI stock among the right-hand side variables. The root mean squared error (RMSE) indicates that the model with the quadratic polynomial has a better fit, lending support for existence of the non-linear effect. In Columns (5) to (8), both terms in the squared polynomial are statistically significant and in the expected directions. Furthermore, based on the fully specified model shown in Column (8), Table 1, these two terms are jointly significant ($\chi 2 = 18.87$, $p < .00$), which evidences a generally positive but nonlinear association between FDI and protected areas in a country. The second derivative indicates that this increasing relationship is concave down—FDI's positive effect on the growing protected areas is diminishing as FDI increases. When the value of *FDI stock* rises from 1 to 2, protected areas grow by 1.66 percentage-points (0.86 standard deviation); while when *FDI stock* rises from 4 to 5, protected areas only grow by 0.51 percentage-point (0.26 standard deviation). This positive yet diminishing effect of FDI on protected areas is illustrated in Panel 1 in Figure 2, which plots the fitted values of protected areas and the confidence intervals against the observed values of FDI while holding all other variables constant.

We also estimated the tipping point of the quadratic polynomial of *FDI stock* based on Column (8), Table 1, which is 5.85—a value that is above the 90th percentile. By exponentiation, this is equivalent to about $347 billion. Taken together, the coefficients associated with *FDI stock* and its squared term provide support for our first and second hypotheses: even accounting for the non-linear effects, Panel 1 in Figure 2 shows that the association between FDI and protected areas is generally positive, but this association exhibits diminishing returns. This tipping point after which

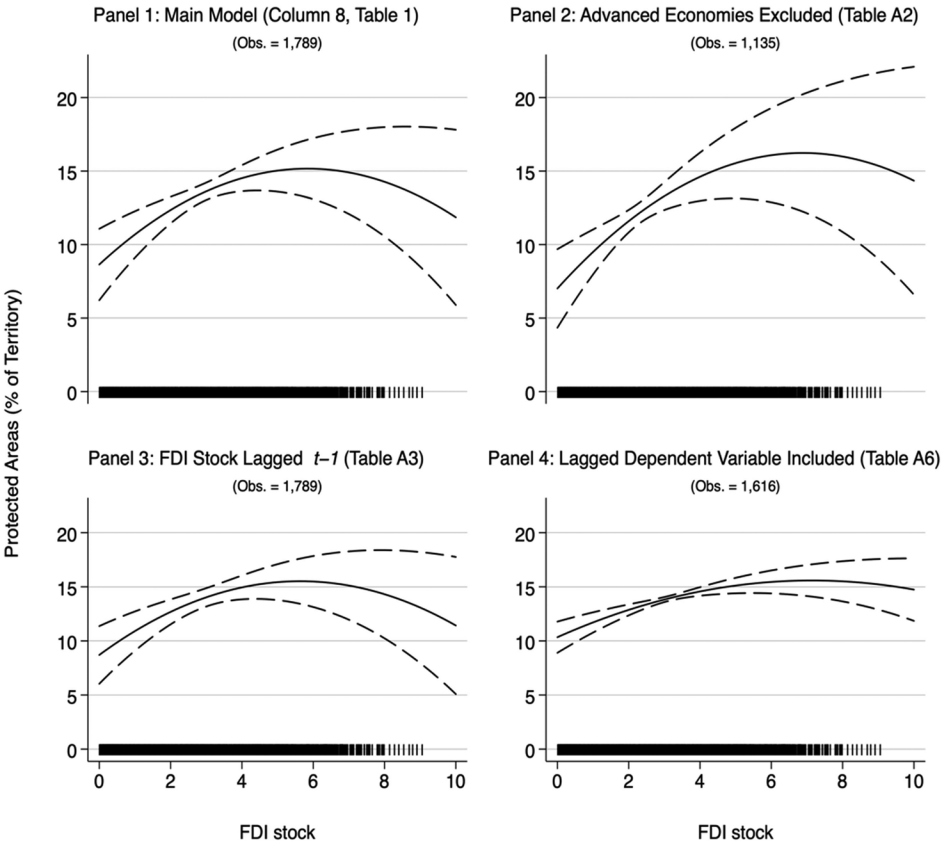

Figure 2. FDI's diminishing effects on protected areas with 95% confidence intervals. Different model specifications.
Note: Panel plots estimates after Column (8) in Table 1. Panels 2 to 4 plot same estimates after robustness checks, as indicated in their titles.

there are negative returns to the scale of FDI describes an unusual scenario which is, technically, an extrapolation and not supported by most of the data.[25]

Robustness checks

Our results do not seem to be driven by outliers or a set of observations, and are robust to changes in the sample, different lag structures, after addressing concerns regarding reverse causality, and including additional controls.

[25]Although the non-linearity of this relationship may look consistent with the logic of the Kuznets curve, its interpretation is the opposite—the y-axis is environmental protection rather than environmental degradation.

First, we address whether results might be driven by outliers. We re-estimated model (8) excluding one country at the time. In all cases, the coefficients associated with *FDI stock* and its square term are positive and negative, respectively, and statistically significant. Figure A2 in the appendix shows the estimates for our main independent variables when removing one country at the time. Second, we look at the possibility that the results are driven by developed economies. We re-estimate the main models on a subsample excluding advanced economies. Results hold in this smaller sample (see Panel 2 in Figure 2 and Table A2 in the appendix).

The establishment of protected areas involves careful planning and normally highly regulated land appropriation procedures, which may imply different lags between the decision and the actual establishment of protected areas. In the main models, we use the prior 5-year moving average of our main independent variables. However, it is possible that our baseline models do not fully capture these delays in the process. First, we re-estimate the models with deeper lags in the independent variables. Tables A3 to Tables A5 in the appendix and Panel 3 in Figure 2 show that our results hold with deeper lags in our main independent variables. Second, given that protected areas generally do not change dramatically from year to year, we re-estimate our models including a lagged dependent variable. We are aware that the inclusion of a lagged dependent variable in this context may introduce biases in our estimators. Yet, we can show that our argument holds—in terms of direction and statistical significance—also for changes in the extension of protected areas, a more stringent test for our argument (see Table A6 in the appendix and Panel 4 in Figure 2).

Measuring our main independent variable as five-year moving averages—and deeper lags of this moving average—may not dissipate all concerns regarding reverse causality. Theoretically, we hypothesize that extant FDI would benefit from the establishment of protected areas because they would not negatively affect their investment—i.e., would not expropriate or involve additional costs—but would provide with reputational advantages. That is, we expect FDI *stock* to be positively associated with protected areas. This logic contrasts with the relationship between protected areas and *new* FDI (or FDI *inflows*). We expect protected areas to impose additional costs to new investment that would use resources affected by/located in these areas—even if other investors could be attracted by the host country's greener reputation. The "shielding effect" lead us to expect a negative association between protected areas and FDI *flows* to exploit similar resources—or a null relationship, if the reputational gains offset additional burden in new investment. If our

intuition is wrong, we should empirically observe that protected areas do attract more FDI *flows*.

We directly test this reasoning by modelling FDI *flows* including different lags—and leading values[26]—of *Protected areas* as independent variables. In all these models, the coefficients associated with *Protected areas* are negative but do not achieve statistical significance. These results indicate that the coverage of protected areas is not significantly associated with future FDI inflows, and suggest that establishing protected areas may not be an effective tool to attract all forms of FDI—although further research could explore if they are significant tools for some kinds of investment in areas such as tourism. We believe these results provide additional support to the plausibility of the shielding effect benefiting FDI already in the country, while deterring some flows of new investment. Additionally, and given the difficulties to directly instrument FDI stock,[27] we estimated a GMM dynamic panel data model (Arellano and Bond 1991; Arellano and Bover 1995; Blundell and Bond 1998) to address both the issues of joint endogeneity of all explanatory variables in a dynamic formulation, and potential biases induced by fixed effects.[28] Our results hold (Table A9).

Finally, we test the robustness of our results to the inclusion of alternative or additional controls. Table A10 in the appendix shows that our results hold when we use V-Dem data to control for *Electoral democracy* as an alternative to *Polity score*, and for *Political corruption*. Results also hold when we use the World Bank data to control for *Natural resources rents* (from oil, natural gas, coal, minerals, and forest) as share of the GDP, or for *State capacity* which is measured using Hanson and Sigman (2021)'s Bayesian latent variable model. Among these newly added controls, only *State capacity* achieves statistical significance.

Protected areas and expropriation risk

We argue that foreign investors should benefit from reputational gains associated with large(r) protected areas in the host country. However, protected areas should be only beneficial for firms that already operate in the country. Those foreign-owned firms can enjoy the reputational gains while being shielded from additional competition because protected areas normally ban or impose additional hurdles on new investment in those

[26]Leading values test the possibility of incoming FDI anticipating the establishment of protected areas.

[27]The literature has used instruments for FDI flows (Jensen and Rosas 2007; Pinto and Zhu 2016; Okara 2023), but instrumenting FDI stocks is less common. Malesky (2009) instruments FDI stock for developing countries as predicted exchange rate, but the assumptions for these instruments do not work for a sample of both developed and developing countries, such as ours.

[28]These estimators are designed for dynamic panels that may contain fixed effects (Roodman 2009; 2020), similar to our sample.

areas. We also argue these benefits come without imposing additional costs on existing investment in terms of expropriations. Our argument might not be supported if protected areas lead to increased risks of expropriation for foreign firms. Therefore, in this section, we test whether the expansion of protected areas is associated with an increased likelihood of expropriation of foreign-owned firms.

Ideally, we would look at individual decisions of expanding protected areas and track the modes in which the land was acquired, or look at how governments assess the presence of FDI in areas of conservation interest. However, those data are not readily available, and their collection is beyond the scope of our paper. Thus, to show the plausibility of our argument, we test whether the growing protected areas are associated with a higher likelihood of expropriations of foreign investment. We are not trying to explain expropriation in our sample, but we expect a null (statistically insignificant) relationship between the expansion of protected areas and expropriations.

We use expropriation data from Esberg and Perlman (2023) in our sample—until 2014, the last year for expropriation in this source—and estimate a logit model to examine whether *Protected areas* is significantly associated with increases in the risk of expropriation. Our models include the lagged *Protected areas* at *t-1* as well as the leading *Protected areas* at $t+1$ to allow the possibility that authorities expropriate to compensate economic losses from expanding protected areas or that authorities expropriate just for expanding protected areas, respectively. In addition to controlling *Polity score*, *FDI stock* (quadratic), *GDP per capita* (quadratic), we also take *Expropriation history* into account and follow Carter and Signorino (2010)'s advice to add t, t^2, and t^3 to control time dependency. Many countries in our sample never expropriated any foreign investment, so we do not include country fixed effects to prevent these countries from dropping our binary time-series cross-section (B-TSCS) analysis entirely. Since we expect a null relationship, we deliberately keep our model specification parsimonious. Should we still fail to find any significant result even with such "significance-permissive" modeling strategy, it is safer to conclude that the discovered null relationship is not just a false negative.

The three columns in Table 2 consistently show that *Protected areas* is not associated with increase expropriation risk, as expected. The data do not allow us to disentangle whether this insignificant association is a result of countries' genuine preference for protecting foreign firms, or from these companies higher efficiency (than domestic firms and potential new investors) to pressure the government via lobby or even less legitimate means (Desbordes and Vauday 2007; Kim and Milner 2019; Lee 2024). However, these results provide support to our claim that protected areas do not seem to threaten existing FDI.

Table 2. Null effect of protected areas (% of territory) on the occurrence of FDI expropriation.

	(1)	(2)	(3)
Protected areas (t-1)	−0.032		
	(0.027)		
Protected areas		−0.031	
		(0.027)	
Protected areas (t + 1)			−0.032
			(0.026)
Polity score	−0.059**	−0.059**	−0.057**
	(0.023)	(0.023)	(0.023)
FDI stock	0.282	0.288	0.290
	(0.583)	(0.582)	(0.582)
FDI stock, squared	−0.055	−0.056	−0.057
	(0.082)	(0.082)	(0.082)
GDP per capita	4.613**	4.629**	4.655**
	(2.051)	(2.055)	(2.067)
GDP per capita, squared	−1.196***	−1.200***	−1.203***
	(0.439)	(0.439)	(0.442)
Expropriation history	0.037**	0.036**	0.036**
	(0.016)	(0.017)	(0.017)
Time	−0.596	−0.595	−0.595
	(0.474)	(0.473)	(0.472)
Time, squared	0.045	0.045	0.045
	(0.029)	(0.029)	(0.029)
Time, cubed	−0.001	−0.001	−0.001
	(0.001)	(0.001)	(0.001)
Obs.	1,516	1,516	1,516
Log Likelihood	−156.359	−156.368	−156.253

Note: Logit models; country-clustered standard errors in parentheses;
*$p < .10$,
**$p < .05$,
***$p < .01$.

Conclusion

In this paper, we analyze the association between FDI and countries' main regulatory tool to preserve biodiversity: protected areas. We find a robust, significant relationship between the stock of foreign investment in a country and the coverage of protected areas. This relationship is generally positive but exhibits decreasing returns. We argue that the main drivers of these findings are less studied effects of protected areas: beyond protecting biodiversity, protected areas can protect foreign firms. The establishment of protected areas can increase the green reputation of countries, and firms hosted in those countries can capitalize these reputational gains. Additionally, protected areas potentially benefit foreign owned firms by shielding them from domestic or foreign competition, without threatening the rights of existing investment—we find no evidence of increased expropriation risks to foreign companies.

Our results bring some optimism regarding potential synergies between foreign investment and regulatory attempts to protect biodiversity and potentially mitigate climate change (Duncanson et al. 2023). Our findings contrast with the expectations of the race to the bottom and regulatory chill arguments, and with recent literature showing linkages between money and deforestation (Harding et al. 2024). We do not find support for the

idea of an environmental Kuznets curve through FDI—we find this latter effect regarding income. In fact, our results point in the opposite direction, and add evidence supporting the idea that market forces may provide positive incentives for higher standards of environmental protection (Crocker 2005; Malesky and Mosley 2018; Mosley 2003; Harding et al. 2024). As mentioned above, our theory does not require that companies have sincere environmental concerns or strong corporate social responsibility policies, but it does not discard this possibility either: whether foreign investors are motivated by purely profit-driven or environmental concerns—or some combination of both—firms can capitalize their association with countries with (more) stringent environmental regulation.

We do not argue that foreign firms' interests protection is the only or most important force driving the expansion of protected areas, but we think the evidence supports the plausibility of these incentives being at work. In particular, our results suggest that other diffusion mechanisms are also at work, in line with recent research (Hawkins and Goodliffe 2023). Yet, the estimated effect of FDI is not negligible when compared with diffusion, after controlling for it. Our findings indicate a race to the top effect. However, the fact that we are not only analyzing investment of companies proceeding from countries with higher environmental standards, and that we also find this result in "greener" countries, suggests that the California effect alone does not explain our findings.

Importantly, our findings also suggest the need to revisit expectations regarding the obsolescence of bargaining, and the assumption that investors cannot shape domestic policies after operating in the country—in line with recent work already questioning the limits of this assumption (Cory, Lerner, and Osgood 2021; Kim and Milner 2019; Malesky and Taussig 2017; Meckling and Hughes 2017). It is possible that, from the government's perspective, protected areas are a path of least resistance compared with other regulatory tools, because they may not negatively affect production costs. Further research can analyze this intuition at the firm-level, and whether, under certain circumstances, governments use a substitution logic to choose between regulatory tools that impose different costs on firms operating in the country.

Our work opens the path for further, more refined analyses. Research could analyze heterogeneous effects depending on the sector of the investment, or origin of investment (Colgan, Green, and Hale 2021; Jones and Zeitz 2019; Hawkins and Goodliffe 2023). We believe that by including all investment we set a more demanding test to our theory, and lay the ground to explore nuances with sectoral analyses. More importantly, case studies can shed light on the firms' and governments' strategies, linking their preferences with policy outcomes. We suspect that there is a large variance in this sense, depending on bargaining power of both parties and of different actors involved in the protected areas designation process.

Acknowledgements

This paper was presented at ISA 2022, MPSA 2022, and EPSA 2022 annual conferences. We thank participants and discussant in these panels for their comments. We also thank Patrick Bayer, Bora Jeong, Vytautas Kuokštis, Brian Phillips, Kyu Young-Lee, Noah Zucker, and the editors and three reviewers at *International Interactions* for their helpful feedback.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Ana Carolina Garriga http://orcid.org/0000-0002-9332-8202
Muzhou Zhang http://orcid.org/0000-0001-5122-5814

References

Abman, Ryan. 2018. "Rule of Law and Avoided Deforestation from Protected Areas." *Ecological Economics 146* (April): 282–289. https://doi.org/10.1016/j.ecolecon.2017.11.004.

Agrawal, Arun, and Elinor Ostrom. 2006. "Political Science and Conservation Biology: A Dialog of the Deaf." *Conservation Biology: The Journal of the Society for Conservation Biology 20* (3): 681–682. https://doi.org/10.1111/j.1523-1739.2006.00468.x.

Agrawal, Arun, and Kent Redford. 2009. "Conservation and Displacement: An Overview." *Conservation and Society 7* (1): 1–10. https://doi.org/10.4103/0972-4923.54790.

Aisbett, Emma, and Magdalene Silberberger. 2021. "Tariff Liberalization and Product Standards: Regulatory Chill and Race to the Bottom?" *Regulation & Governance 15* (3): 987–1006. https://doi.org/10.1111/rego.12306.

Aklin, Michaël, and Matto Mildenberger. 2020. "Prisoners of the Wrong Dilemma: Why Distributive Conflict, Not Collective Action, Characterizes the Politics of Climate Change." *Global Environmental Politics 20* (4): 4–27. https://doi.org/10.1162/glep_a_00578.

Arellano, Manuel, and Olympia Bover. 1995. "Another Look at the Instrumental Variable Estimation of Error-Components Models." *Journal of Econometrics 68* (1): 29–51. https://doi.org/10.1016/0304-4076(94)01642-D.

Arellano, Manuel, and Stephen Bond. 1991. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations." *The Review of Economic Studies 58* (2): 277–297. https://doi.org/10.2307/2297968.

Arriagada, Rodrigo A., Cristian M. Echeverria, and Danisa E. Moya. 2016. "Creating Protected Areas on Public Lands: Is There Room for Additional Conservation?" *PloS One 11* (2): e0148094. https://doi.org/10.1371/journal.pone.0148094.

Barry, Colin M. 2025. "Making and Maintaining Corporate Empires: The Political Economy of FDI, Appended." *Review of International Political Economy 32* (1): 101–125. https://doi.org/10.1080/09692290.2024.2390861.

Bättig, Michèle B., and Thomas Bernauer. 2009. "National Institutions and Global Public Goods: Are Democracies More Cooperative in Climate Change Policy?" *International Organization 63* (2): 281–308. https://doi.org/10.1017/S0020818309090092.

Bayer, Patrick, and Johannes Urpelainen. 2016. "It Is All about Political Incentives: Democracy and the Renewable Feed-in Tariff." *The Journal of Politics 78* (2): 603–619. https://doi.org/10.1086/684791.

Bayer, Patrick. 2023. "Foreignness as an Asset: European Carbon Regulation and the Relocation Threat among Multinational Firms." *The Journal of Politics 85* (4): 1291–1304. https://doi.org/10.1086/724963.

Beacham, Austin. 2023. "Conserving What's Left: The Political Economy of Protected Area Location." La Jolla, CA. Accessed March 3, 2025. https://www.peio.me/wp-content/uploads/PEIO15/PEIO15_paper_59.pdf

Bechtel, Michael M., Federica Genovese, and Kenneth F. Scheve. 2019. "Interests, Norms and Support for the Provision of Global Public Goods: The Case of Climate Co-Operation." *British Journal of Political Science 49* (4): 1333–1355. https://doi.org/10.1017/S0007123417000205.

Beck, Nathaniel, and Jonathan N. Katz. 1995. "What to Do (and Not to Do) with Time-Series Cross-Section Data." *American Political Science Review 89* (3): 634–647. https://doi.org/10.2307/2082979.

Berliner, Daniel, and Aseem Prakash. 2013. "Signaling Environmental Stewardship in the Shadow of Weak Governance: The Global Diffusion of ISO 14001." *Law & Society Review 47* (2): 345–373. https://doi.org/10.1111/lasr.12015.

Biesenbender, Sophie, and Jale Tosun. 2014. "Domestic Politics and the Diffusion of International Policy Innovations: How Does Accommodation Happen?" *Global Environmental Change 29* (vember): 424–433. https://doi.org/10.1016/j.gloenvcha.2014.04.001.

Blundell, Richard, and Stephen Bond. 1998. "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models." *Journal of Econometrics 87* (1): 115–143. https://doi.org/10.1016/S0304-4076(98)00009-8.

Bolt, Jutta, and Jan van Zanden. 2020. "Maddison Project Database, Version 2020." Accessed February 1, 2023. https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project- database-2020

BP 2021. "International Protected Areas 2020." Accessed January 29, 2023. https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/sustainability/2020-protected-areas.pdf

Brockington, Dan, Rosaleen Duffy, and Jim Igoe. 2012. *Nature Unbound: Conservation, Capitalism and the Future of Protected Areas*. Milton Park, UK: Routledge.

Bush, Sarah Sunn, and Pär Zetterberg. 2021. "Gender Quotas and International Reputation." *American Journal of Political Science 65* (2): 326–341. https://doi.org/10.1111/ajps.12557.

Butchart, Stuart, Joern P. W. Scharlemann, Mike Evans, Suhel Quader, Salvatore Arico, Julius Arinaitwe, Mark Balman, Leon Bennun, Bastian Bertzky, and Charles Besancon. 2012. "Protecting Important Sites for Biodiversity Contributes to Meeting Global Conservation Targets." *PloS One 7* (3): e32529. https://doi.org/10.1371/journal.pone.0032529.

Cao, Xun, and Aseem Prakash. 2010. "Trade Competition and Domestic Pollution: A Panel Study, 1980–2003." *International Organization 64* (3): 481–503. https://doi.org/10.1017/S0020818310000123.

Cao, Xun, and Aseem Prakash. 2012. "Trade Competition and Environmental Regulations: Domestic Political Constraints and Issue Visibility." *The Journal of Politics 74* (1): 66–82. https://doi.org/10.1017/S0022381611001228.

Carter, David B., and Curtis S. Signorino. 2010. "Back to the Future: Modeling Time Dependence in Binary Data." *Political Analysis 18* (3): 271–292. https://doi.org/10.1093/pan/mpq013.

Cefis, Elena, Cristina Bettinelli, Alex Coad, and Orietta Marsili. 2022. "Understanding Firm Exit: A Systematic Literature Review." *Small Business Economics 59* (2): 423–446. https://doi.org/10.1007/s11187-021-00480-x.

Clark, Gordon, and Tessa Hebb. 2005. "Why Should They Care? The Role of Institutional Investors in the Market for Corporate Global Responsibility." *Environment and Planning A: Economy and Space 37* (11): 2015–2031. https://doi.org/10.1068/a38116.

Clark, Robert, and John Humphreys. 2020. "Chapter 25 - Enforcement Capabilities and Compliance in English Marine Protected Areas: The Art of the Possible." In *Marine Protected Areas*, edited by John Humphreys and Robert W.E. Clark, 489–505. Elsevier. https://doi.org/10.1016/B978-0-08-102698-4.00025-3.

Cole, Matthew A., Robert J. R. Elliott, and Liyun Zhang. 2017. "Foreign Direct Investment and the Environment." *Annual Review of Environment and Resources 42* (1): 465–487. https://doi.org/10.1146/annurev-environ-102016-060916.

Colgan, Jeff D., Jessica F. Green, and Thomas N. Hale. 2021. "Asset Revaluation and the Existential Politics of Climate Change." *International Organization 75* (2): 586–610. https://doi.org/10.1017/S0020818320000296.

Convention on Biological Diversity 2010. "COP 6 Decision VI/26. Strategic Plan for the Convention on Biological Diversity." Accessed March 3, 2025. https://https://www.cbd.int/decision/cop?id=7200.

Cooper, Jasper, Sung Eun Kim, and Johannes Urpelainen. 2018. "The Broad Impact of a Narrow Conflict: How Natural Resource Windfalls Shape Policy and Politics." *The Journal of Politics 80* (2): 630–646. https://doi.org/10.1086/694787.

Cory, Jared, Michael Lerner, and Iain Osgood. 2021. "Supply Chain Linkages and the Extended Carbon Coalition." *American Journal of Political Science 65* (1): 69–87. https://doi.org/10.1111/ajps.12525.

Crocker, Thomas D. 2005. "Markets for Conserving Biodiversity Habitat: Principles and Practice." In *Species at Risk: Using Economic Incentives to Shelter Endangered Species on Private Lands*, 191–216. University of Texas Press.

Demena, Binyam Afewerk, and Sylvanus Kwaku Afesorgbor. 2020. "The Effect of FDI on Environmental Emissions: Evidence from a Meta-Analysis." *Energy Policy 138* (March): 111192. https://doi.org/10.1016/j.enpol.2019.111192.

Desbordes, Rodolphe, and Julien Vauday. 2007. "The Political Influence of Foreign Firms in Developing Countries." *Economics & Politics 19* (3): 421–451. https://doi.org/10.1111/j.1468-0343.2007.00317.x.

Dinda, Soumyananda. 2004. "Environmental Kuznets Curve Hypothesis: A Survey." *Ecological Economics 49* (4): 431–455. https://doi.org/10.1016/j.ecolecon.2004.02.011.

Dudley, Nigel. 2008. *Guidelines for Applying Protected Area Management Categories*. IUCN.

Dukerich, Janet, and Suzanne Carter. 2000. "Distorted Images and Reputation Repair." In *The Expressive Organization: Linking Identity, Reputation, and the Corporate Brand*, edited by Majken Schultz, MaryJo Hatch, and Mogens Holten Larsen, 97–112. New York, NY: Oxford University Press.

Duncanson, Laura, Mengyu Liang, Veronika Leitold, John Armston, S. M. Krishna Moorthy, Ralph Dubayah, Sebastien Costedoat, B. J. Enquist, Lola Fatoyinbo, and S. J. Goetz. 2023. "The Effectiveness of Global Protected Areas for Climate Change Mitigation." *Nature Communications 14* (1): 2908. https://doi.org/10.1038/s41467-023-38073-9.

Durbin, Andrea, Steve Herz, and Jules Peck. 2006. *Shaping the Future of Sustainable Finance: Moving from Paper Promises to Performance*. London: WWF in assosication with BankTrack.

Dworschak, Christoph. 2024. "Bias Mitigation in Empirical Peace and Conflict Studies: A Short Primer on Posttreatment Variables." *Journal of Peace Research 61* (3): 462–476. https://doi.org/10.1177/00223433221145531.

Esberg, Jane, and Rebecca Perlman. 2023. "Covert Confiscation: How Governments Differ in Their Strategies of Expropriation." *Comparative Political Studies 56* (1): 3–35. https://doi.org/10.1177/00104140221089650.

Fankhauser, Samuel, Caterina Gennaioli, and Murray Collins. 2016. "Do International Factors Influence the Passage of Climate Change Legislation?" *Climate Policy 16* (3): 318–331. https://doi.org/10.1080/14693062.2014.1000814.

Fauchald, Ole Kristian. 2021. "International Environmental Governance and Protected Areas." *Yearbook of International Environmental Law 30* (1): 102–136. https://doi.org/10.1093/yiel/yvaa078.

Fernández Milmanda, Belén, and Candelaria Garay. 2019. "Subnational Variation in Forest Protection in the Argentine Chaco." *World Development 118* (June): 79–90. https://doi.org/10.1016/j.worlddev.2019.02.002.

Fernández Milmanda, Belén, and Candelaria Garay. 2020. "The Multilevel Politics of Enforcement: Environmental Institutions in Argentina." *Politics & Society 48* (1): 3–26. https://doi.org/10.1177/0032329219894074.

Finnegan, Jared J. 2022. "Institutions, Climate Change, and the Foundations of Long-Term Policymaking." *Comparative Political Studies 55* (7): 1198–1235. https://doi.org/10.1177/00104140211047416.

Finseraas, Henning, Bjørn Høyland, and Martin Søyland. 2021. "Climate Politics in Hard Times: How Local Economic Shocks Influence MPs Attention to Climate Change." *European Journal of Political Research 60* (3): 738–747. https://doi.org/10.1111/1475-6765.12415.

Garcia, Rocío M., and Sarah L. Burns. 2022. "Bureaucratic Politics in Protected Areas: The Voided Power Projection Efforts of Conservation Vis-à-Vis Forest Bureaucracies in Patagonia, Argentina." *Forest Policy and Economics 134* (January): 102630. https://doi.org/10.1016/j.forpol.2021.102630.

Garrett, Geoffrey. 2000. "The Causes of Globalization." *Comparative Political Studies 33* (6-7): 941–991. https://doi.org/10.1177/001041400003300610.

Garriga, Ana Carolina. 2016. "Human Rights Regimes, Reputation, and Foreign Direct Investment." *International Studies Quarterly 60* (1): 160–172. https://doi.org/10.1093/isq/sqw006.

Geldmann, Jonas, Megan Barnes, Lauren Coad, Ian D. Craigie, Marc Hockings, and Neil D. Burgess. 2013. "Effectiveness of Terrestrial Protected Areas in Reducing Habitat Loss and Population Declines." *Biological Conservation 161*: 230–238. https://doi.org/10.1016/j.biocon.2013.02.018.

Gibson, Clark C., Margaret A. McKean, and Elinor Ostrom. 2000. *People and Forests: Communities, Institutions, and Governance (Politics, Science, and the Environment)*. MIT Press.

Gray, Claudia L., Samantha L. L. Hill, Tim Newbold, Lawrence N. Hudson, Luca Börger, Sara Contu, Andrew J. Hoskins, Simon Ferrier, Andy Purvis, and Jörn P. W. Scharlemann. 2016. "Local Biodiversity Is Higher inside than Outside Terrestrial Protected Areas Worldwide." *Nature Communications 7* (1): 12306. https://doi.org/10.1038/ncomms12306.

Grossman, Gene M., and Alan B. Krueger. 1991. "Environmental Impacts of a North American Free Trade Agreement." National Bureau of Economic Research Cambridge, Mass., USA.

Grossman, Gene M., and Alan B. Krueger. 1995. "Economic Growth and the Environment*." *The Quarterly Journal of Economics 110* (2): 353–377. https://doi.org/10.2307/2118443.

Gu, Grace Weishi, and Galina Hale. 2023. "Climate Risks and FDI." *Journal of International Economics 146* (December): 103731. https://doi.org/10.1016/j.jinteco.2023.103731.

Gygli, Savina, Florian Haelg, Niklas Potrafke, and Jan-Egbert Sturm. 2019. "The KOF Globalisation Index—Revisited." *The Review of International Organizations 14* (3): 543–574. https://doi.org/10.1007/s11558-019-09344-2.

Ham, Peter van. 2001. "The Rise of the Brand State: The Postmodern Politics of Image and Reputation." *Foreign Affairs 80* (5): 2–6. https://doi.org/10.2307/20050245.

Hansen, Wendy L., and Neil J. Mitchell. 2000. "Disaggregating and Explaining Corporate Political Activity: Domestic and Foreign Corporations in National Politics." *American Political Science Review 94* (4): 891–903. https://doi.org/10.2307/2586214.

Hanson, Jonathan K., and Rachel Sigman. 2021. "Leviathan's Latent Dimensions: Measuring State Capacity for Comparative Political Research." *The Journal of Politics 83* (4): 1495–1510. https://doi.org/10.1086/715066.

Harding, Robin, Mounu Prem, Nelson A. Ruiz, and David L. Vargas. 2024. "Buying a Blind Eye: Campaign Donations, Regulatory Enforcement, and Deforestation." *American Political Science Review 118* (2): 635–653. https://doi.org/10.1017/S0003055423000412.

Hasija, Dinesh, and Lee Warren Brown. 2024. "Political Lobbying by Foreign Firms: A New Firm-Level Data Set." *Journal of International Management 30* (2): 101098. https://doi.org/10.1016/j.intman.2023.101098.

Hawkins, Darren, and Jay Goodliffe. 2023. "Leave It as It Is': International Network Effects on Protected Lands." *International Interactions 49* (5): 696–726. https://doi.org/10.1080/03050629.2023.2236774.

Hayes, Tanya, and Elinor Ostrom. 2005. "Conserving the World's Forests: Are Protected Areas the Only Way." *Indiana Law Review 38*: 595.

Hebb, Tessa, and Dariusz Wójcik. 2005. "Global Standards and Emerging Markets: The Institutional-Investment Value Chain and the CalPERS Investment Strategy." *Environment and Planning A: Economy and Space 37* (11): 1955–1974. https://doi.org/10.1068/a37264.

Hemptinne, Jérôme de. 2023. "Increasing the Safeguarding of Protected Areas Threatened by Warfare through International Environmental Law." *International Review of the Red Cross 105* (924): 1392–1411. https://doi.org/10.1017/S181638312300036X.

Hilario-Husain, Bona Abigail, Krizler Cejuela Tanalgo, Sarrah Jane C. Guerrero, Francisco Gil N. Garcia, Tessie E. Lerios, May Eva Z. Garcia, Renee Jane Alvaro-Ele, et al. 2024. "Caught in the Crossfire: Biodiversity Conservation Paradox of Sociopolitical Conflict." *Npj Biodiversity 3* (1): 10. https://doi.org/10.1038/s44185-024-00044-8.

Hillman, Amy J., and William P. Wan. 2005. "The Determinants of MNE Subsidiaries' Political Strategies: Evidence of Institutional Duality." *Journal of International Business Studies 36* (3): 322–340. https://doi.org/10.1057/palgrave.jibs.8400137.

Holzinger, Katharina, and Thomas Sommerer. 2011. "Race to the Bottom' or 'Race to Brussels'? Environmental Competition in Europe." *JCMS: Journal of Common Market Studies 49* (2): 315–339. https://doi.org/10.1111/j.1468-5965.2010.02135.x.

Invest Northern Ireland 2022. "Improve Your Environmental Performance." Accessed January 27, 2023. https://www.nibusinessinfo.co.uk/content/conservation-and-biodiversity-issues-businesses.

Jain, Shalini Sarin, and Aseem Prakash. 2017. "Signalling Stewardship." *Journal of Corporate Citizenship 2017* (66): 46–80. https://doi.org/10.9774/TandF.4700.2017.ju.00005.

Jenkins, Martin. 2003. "Prospects for Biodiversity." *Science 302* (5648): 1175–1177. https://doi.org/10.1126/science.1088666.

Jensen, Nathan M., and Guillermo Rosas. 2007. "Foreign Direct Investment and Income Inequality in Mexico, 1990-2000." *International Organization 61* (03): 467–487. https://doi.org/10.1017/S0020818307070178.

Jones, Emily, and Alexandra O. Zeitz. 2019. "Regulatory Convergence in the Financial Periphery: How Interdependence Shapes Regulators' Decisions." *International Studies Quarterly 63* (4): 908–922. https://doi.org/10.1093/isq/sqz068.

Joppa, Lucas N., and Alexander Pfaff. 2009. "High and Far: Biases in the Location of Protected Areas." *PloS One 4* (12): e8273. https://doi.org/10.1371/journal.pone.0008273.

Kerner, Andrew. 2014. "What We Talk about When We Talk about Foreign Direct Investment." *International Studies Quarterly 58* (4): 804–815. https://doi.org/10.1111/isqu.12147.

Kher, Priyanka, and C. Griffin. 2023. *Divestment Drivers and FDI Retention*. Washington, DC: World Bank.

Kim, In Song, and Helen V. Milner. 2019. "Multinational Corporations and Their Influence through Lobbying on Foreign Policy." *Multinational Corporations in a Changing Global Economy 9* (4): 497–536.

Konisky, David M. 2007. "Regulatory Competition and Environmental Enforcement: Is There a Race to the Bottom?" *American Journal of Political Science 51* (4): 853–872. https://doi.org/10.1111/j.1540-5907.2007.00285.x.

Lau, Lin-Sea, Chee-Keong Choong, and Yoke-Kee Eng. 2014. "Investigation of the Environmental Kuznets Curve for Carbon Emissions in Malaysia: Do Foreign Direct Investment and Trade Matter?" *Energy Policy 68* (May): 490–497. https://doi.org/10.1016/j.enpol.2014.01.002.

Lausche, Barbara J. 2011. *Guidelines for Protected Areas Legislation*. Gland, Switzerland: IUCN.

Le Saout, Soizic, Michael Hoffmann, Yichuan Shi, Adrian Hughes, Cyril Bernard, Thomas M. Brooks, Bastian Bertzky, et al. 2013. "Protected Areas and Effective Biodiversity Conservation." *Science 342* (6160): 803–805. https://doi.org/10.1126/science.1239268.

Lee, Jieun. 2022. "Foreign Direct Investment in Political Influence." *International Studies Quarterly 67* (1): sqad005. https://doi.org/10.1093/isq/sqad005.

Lee, Jieun. 2024. "Foreign Lobbying through Domestic Subsidiaries." *Economics & Politics 36* (1): 80–103. https://doi.org/10.1111/ecpo.12232.

Li, Quan, and Rafael Reuveny. 2006. "Democracy and Environmental Degradation." *International Studies Quarterly 50* (4): 935–956. https://doi.org/10.1111/j.1468-2478.2006.00432.x.

Li, Quan, Erica Owen, and Austin Mitchell. 2018. "Why Do Democracies Attract More or Less Foreign Direct Investment? A Metaregression Analysis." *International Studies Quarterly 62* (3): 494–504. https://doi.org/10.1093/isq/sqy014.

Malesky, Edmund, and Layna Mosley. 2018. "Chains of Love? Global Production and the Firm-Level Diffusion of Labor Standards." *American Journal of Political Science 62* (3): 712–728. https://doi.org/10.1111/ajps.12370.

Malesky, Edmund, and Markus Taussig. 2017. "The Danger of Not Listening to Firms: Government Responsiveness and the Goal of Regulatory Compliance." *Academy of Management Journal 60* (5): 1741–1770. https://doi.org/10.5465/amj.2015.0722.

Malesky, Edmund. 2009. "Foreign Direct Investors as Agents of Economic Transition: An Instrumental Variables Analysis." *Quarterly Journal of Political Science 4* (1): 59–85. https://doi.org/10.1561/100.00008068.

Mangonnet, Jorge, Jacob Kopas, and Johannes Urpelainen. 2022. "Playing Politics with Environmental Protection: The Political Economy of Designating Protected Areas." *The Journal of Politics 84* (3): 1453–1468. https://doi.org/10.1086/718978.

Marshall, Monty G., Ted Robert Gurr, and Keith Jaggers. 2021. "Polity IV Project: Political Regime Characteristics and Transitions, 1800–2018." Accessed January 27, 2023. https://www.systemicpeace.org/inscrdata.html.

McLean, Elena V., and Randall W. Stone. 2012. "The Kyoto Protocol: Two-Level Bargaining and European Integration." *International Studies Quarterly 56* (1): 99–113. https://doi.org/10.1111/j.1468-2478.2011.00706.x.

Meckling, Jonas, and Llewelyn Hughes. 2017. "Globalizing Solar: Global Supply Chains and Trade Preferences." *International Studies Quarterly 61* (2): 225–235. https://doi.org/10.1093/isq/sqw055.

Midlarsky, Manus I. 1998. "Democracy and the Environment: An Empirical Assessment." *Journal of Peace Research 35* (3): 341–361. https://doi.org/10.1177/0022343398035003005.

Moehlecke, Carolina. 2019. "The Chilling Effect of International Investment Disputes: Limited Challenges to State Sovereignty." *International Studies Quarterly 64* (1): 1–12. https://doi.org/10.1093/isq/sqz077.

Mosley, Layna. 2003. "Attempting Global Standards: National Governments, International Finance, and the IMF's Data Regime." *Review of International Political Economy 10* (2): 331–362. https://doi.org/10.1080/0969229032000063243.

Neumayer, Eric. 2001. "Do Countries Fail to Raise Environmental Standards? An Evaluation of Policy Options Addressing 'Regulatory Chill." *International Journal of Sustainable Development 4* (3): 231–244. https://doi.org/10.1504/IJSD.2001.004446.

Okara, Assi. 2023. "Does Foreign Direct Investment Promote Political Stability? Evidence from Developing Economies." *Economic Modelling 123* (June): 106249. https://doi.org/10.1016/j.econmod.2023.106249.

Omri, Anis, and Tarek Bel Hadj. 2020. "Foreign Investment and Air Pollution: Do Good Governance and Technological Innovation Matter?" *Environmental Research 185* (June): 109469. https://doi.org/10.1016/j.envres.2020.109469.

Orihuela, José Carlos. 2020. "Embedded Countermovements: The Forging of Protected Areas and Native Communities in the Peruvian Amazon." *New Political Economy 25* (1): 140–155. https://doi.org/10.1080/13563467.2019.1570101.

Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge, UK: Cambridge University Press.

Persson, Eric. 2021. "OECD: Search and Extract Data from the OECD." Accessed February 01, 2023. https://cran.r-project.org/web/packages/OECD/.

Pinto, Pablo M., and Boliang Zhu. 2016. "Fortune or Evil? The Effect of Inward Foreign Direct Investment on Corruption." *International Studies Quarterly 60* (4): 693–705. https://doi.org/10.1093/isq/sqw025.

Porter, Gareth. 1999. "Trade Competition and Pollution Standards:''Race to the Bottom" or ''Stuck at the Bottom." *The Journal of Environment & Development 8* (2): 133–151. https://doi.org/10.1177/107049659900800203.

Prakash, Aseem, and Matthew Potoski. 2006. "Racing to the Bottom? Trade, Environmental Governance, and ISO 14001." *American Journal of Political Science 50* (2): 350–364. https://doi.org/10.1111/j.1540-5907.2006.00188.x.

Prakash, Aseem, and Matthew Potoski. 2007. "Investing up: FDI and the Cross-Country Diffusion of ISO 14001 Management Systems." *International Studies Quarterly 51* (3): 723–744. https://doi.org/10.1111/j.1468-2478.2007.00471.x.

Puck, Jonas F., Helen Rogers, and Alex T. Mohr. 2013. "Flying under the Radar: Foreign Firm Visibility and the Efficacy of Political Strategies in Emerging Economies." *International Business Review 22* (6): 1021–1033. https://doi.org/10.1016/j.ibusrev.2013.02.005.

Reinhardt, Forest L. 1998. "Environmental Product Differentiation: Implications for Corporate Strategy." *California Management Review 40* (4): 43–73. https://doi.org/10.2307/41165964.

Roodman, David. 2009. "How to Do Xtabond2: An Introduction to 'Difference' and 'System' GMM in Stata." *The Stata Journal 9* (1): 86–136. https://doi.org/10.1177/1536867X0900900106.

Roodman, David. 2020. "Xtabond2: Stata Module to Extend Xtabond Dynamic Panel Data Estimator." Accessed October 21, 2024. https://ideas.repec.org/c/boc/bocode/s435901.html.

Saikawa, Eri. 2013. "Policy Diffusion of Emission Standards Is There a Race to the Top?" *World Politics 65* (1): 1–33. https://doi.org/10.1017/S0043887112000238.

Schulze, Kai. 2021. "Policy Characteristics, Electoral Cycles, and the Partisan Politics of Climate Change." *Global Environmental Politics 21* (2): 44–72. https://doi.org/10.1162/glep_a_00593.

Shahbaz, Muhammad, Samia Nasreen, Faisal Abbas, and Omri Anis. 2015. "Does Foreign Direct Investment Impede Environmental Quality in High-, Middle-, and Low-Income Countries?" *Energy Economics 51* (September): 275–287. https://doi.org/10.1016/j.eneco.2015.06.014.

Shell 2022. "Environmentally Sensitive Areas." Accessed January 29, 2023. https://www.shell.com/sustainability/environment/biodiversity/environmentally-sensitive-areas.html

Simmons, Beth A., and Zachary Elkins. 2004. "The Globalization of Liberalization: Policy Diffusion in the International Political Economy." *American Political Science Review 98* (1): 171–189. https://doi.org/10.1017/S0003055404001078.

Soysa, Indra de, and Eric Neumayer. 2005. "False Prophet, or Genuine Savior? Assessing the Effects of Economic Openness on Sustainable Development, 1980–99." *International Organization 59* (03): 731–772. https://doi.org/10.1017/S0020818305050253.

Spilker, Gabriele. 2013. *Globalization, Political Institutions and the Environment in Developing Countries*. Milton Park, UK: Routledge.

Stein, Jana von. 2022. "Democracy, Autocracy, and Everything in Between: How Domestic Institutions Affect Environmental Protection." *British Journal of Political Science 52* (1): 339–357. https://doi.org/10.1017/S000712342000054X.

Stern, David I. 2004. "The Rise and Fall of the Environmental Kuznets Curve." *World Development 32* (8): 1419–1439. https://doi.org/10.1016/j.worlddev.2004.03.004.

UNEP-WCMC 2019. "User Manual for the World Database on Protected Areas and World Database on Other Effective Area-Based Conservation Measures: 1.6." Cambridge, UK. Accessed March 3, 2025. http://wcmc.io/WDPA_Manual.

UNEP-WCMC and IUCN 2023. "Protected Planet: The World Database on Protected Areas (WDPA)." Accessed January 29, 2023. www.protectedplanet.net.

Vernon, Raymond. 1971. *Sovereignty at Bay: The Multinational Spread of US Enterprises*. New York City, NY: Basic Books.

Villanthenkodath, Muhammed Ashiq, and Muhamed Faizudheen Arakkal. 2020. "Exploring the Existence of Environmental Kuznets Curve in the Midst of Financial Development, Openness, and Foreign Direct Investment in New Zealand: Insights from ARDL Bound Test." *Environmental Science and Pollution Research International 27* (29): 36511–36527. https://doi.org/10.1007/s11356-020-09664-6.

Vogel, David. 1995. *Trading Up: Consumer and Environmental Regulation in a Global Economy*. Cambridge, MA: Harvard University Press.

Vogel, David. 1997. "Trading Up and Governing Across: Transnational Governance and Environmental Protection." *Journal of European Public Policy 4* (4): 556–571. https://doi.org/10.1080/135017697344064.

Ward, Hugh, and Xun Cao. 2012. "Domestic and International Influences on Green Taxation." *Comparative Political Studies 45* (9): 1075–1103. https://doi.org/10.1177/0010414011434007.

Watson, James E. M., Nigel Dudley, Daniel B. Segan, and Marc Hockings. 2014. "The Performance and Potential of Protected Areas." *Nature 515* (7525): 67–73. https://doi.org/10.1038/nature13947.

Wawro, Gregory, Cyrus Samii, and Ida Kristensen. 2007. "On the Use of Fixed Effects Estimators for Time-Series Cross-Section Data." Unpublished Manuscript.

Wen, Shuangge. 2009. "Institutional Investor Activism on Socially Responsible Investment: Effects and Expectations." *Business Ethics: A European Review 18* (3): 308–333. https://doi.org/10.1111/j.1467-8608.2009.01565.x.

Wheeler, David. 2001. "Racing to the Bottom? Foreign Investment and Air Pollution in Developing Countries." *The Journal of Environment & Development 10* (3): 225–245. https://doi.org/10.1177/10704965-0101003-02.

Wiebel, Haley. 2017. "Peru's Protected Area System: A Key Component of Ecotourism-Driven Growth." Council on Hemispheric Affairs. Accessed February 2, 2023. https://coha.org/perus-protected-area-system-a-key-component-of-ecotourism-driven-growth/.

Woods, Neal D. 2006. "Interstate Competition and Environmental Regulation: A Test of the Race-to-the-Bottom Thesis." *Social Science Quarterly 87* (1): 174–189. https://doi.org/10.1111/j.0038-4941.2006.00375.x.

Zaheer, Srilata. 1995. "Overcoming the Liability of Foreignness." *Academy of Management Journal 38* (2): 341–363. https://doi.org/10.2307/256683.

Zeng, Ka., and Josh Eastin. 2007. "International Economic Integration and Environmental Protection: The Case of China." *International Studies Quarterly 51* (4): 971–995. https://doi.org/10.1111/j.1468-2478.2007.00485.x.

Zhou, Nan, and Heli Wang. 2020. "Foreign Subsidiary CSR as a Buffer against Parent Firm Reputation Risk." *Journal of International Business Studies 51* (8): 1256–1282. https://doi.org/10.1057/s41267-020-00345-7.

Appendix A

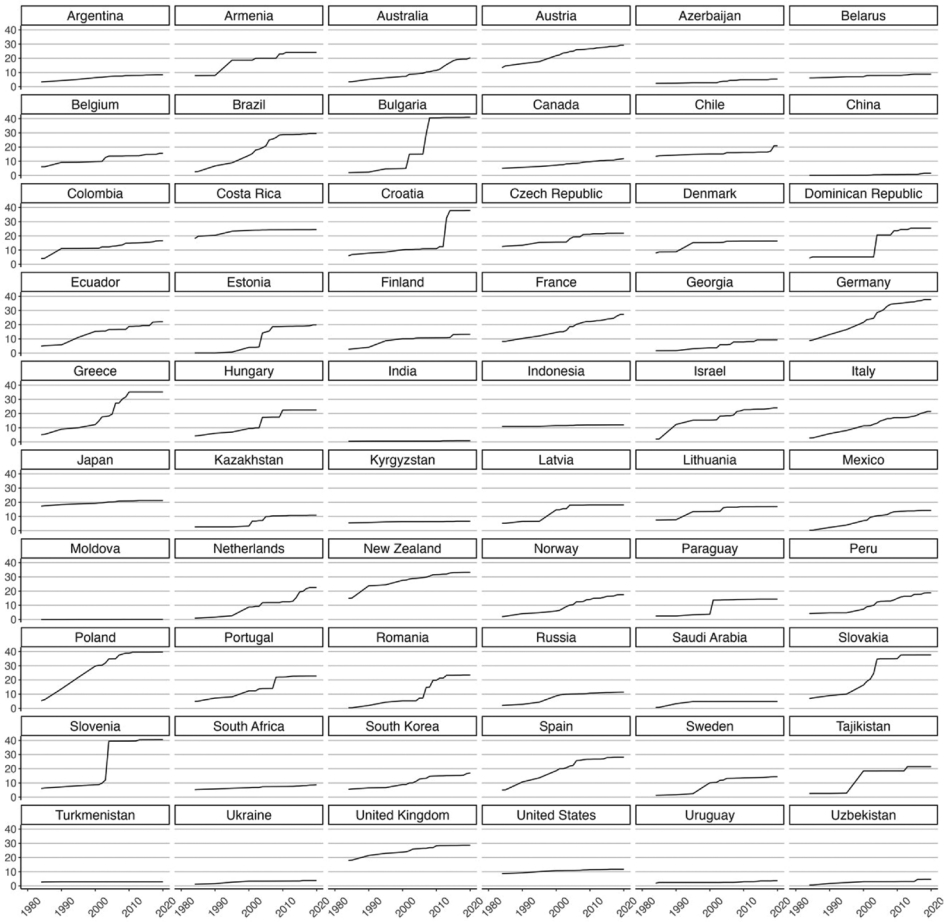

Figure A1. Protected areas (% of territory), change over time.

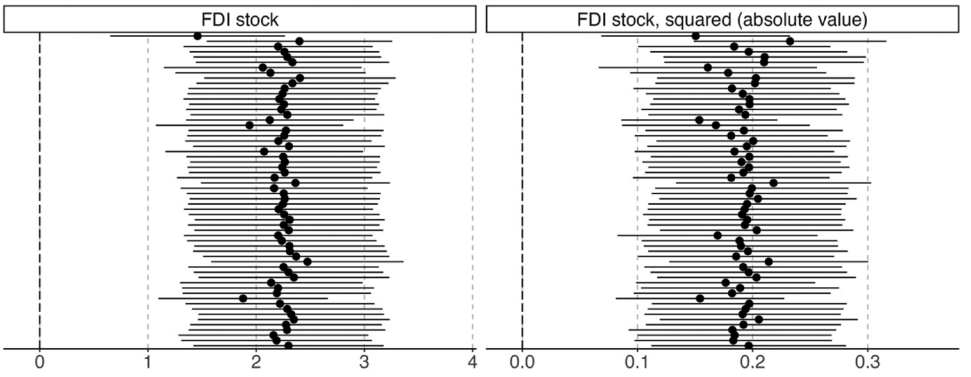

Figure A2. Leave-one-country-out estimates.
Note: Estimates of FDI stock (left panel) and FDI stock, squared (right panel) in models specified as in column (8), Table 1, excluding one country at the time. In all cases, estimates are different from zero and in the expected direction.

Table A1. Summary statistics of main variables.

Variable	Min	Median	Max	Mean	SD	Obs
Protected areas	0.00	10.43	40.98	12.26	9.36	2,220
FDI stock	0.02	3.05	9.06	3.17	1.94	1,910
GDP per capita	0.47	2.79	4.42	2.69	0.78	1,860
KOF Globalization Index	22.34	62.24	90.53	61.65	15.02	2,010
Polity score	−10.00	9.00	10.00	6.13	5.97	1,862
Population density	1.97	76.37	528.51	101.31	110.50	2,220
Post-CBD	0.00	1.00	1.00	0.76	0.43	2,220
Regional diffusion	0.00	9.69	23.21	11.26	5.70	2,220
Time trend	1.00	19.00	37.00	19.00	10.68	2,220

Table A2. Positive effect of *FDI stock* on *Protected Areas*, with advanced economies excluded.

	(1)	(2)
FDI stock[a]	1.426**	2.677***
	(0.475)	(0.699)
FDI stock[a], squared		−0.194**
		(0.065)
GDP per capita[a]	−8.876***	−10.183***
	(1.913)	(2.057)
GDP per capita[a], squared	1.275**	1.571**
	(0.465)	(0.490)
KOF Globalization Index[a]	0.007	−0.006
	(0.046)	(0.045)
Polity score[a]	0.053	0.046
	(0.072)	(0.072)
Population density[a]	0.010	0.012
	(0.011)	(0.011)
Post-CBD	−0.184	−0.220
	(0.142)	(0.139)
Regional diffusion	0.790***	0.736***
	(0.094)	(0.093)
Time trend	0.034	0.032
	(0.062)	(0.065)
Country fixed effects	Yes	Yes
Obs.	1,135	1,135
RMSE	1.520	1.523

Notes: FGLS estimations with AR(1) correction; panel-corrected standard errors in parentheses; [a]5-year moving-averaged; $*p < 0.050$, $**p < 0.010$, $***p < 0.001$; CBD: Convention on Biodiversity.

Table A3. Positive effect of *FDI stock* on *protected areas*, with *FDI stock* Lagged *t*−1.

	(1)	(2)
FDI stock[a]	0.959*	2.419***
	(0.410)	(0.540)
FDI stock, squared[a]		−0.215***
		(0.049)
GDP per capita[a]	−7.217***	−10.032***
	(1.494)	(1.661)
GDP per capita, squared[a]	1.219***	1.726***
	(0.366)	(0.405)
KOF Globalization Index[a]	0.068	0.039
	(0.047)	(0.046)
Polity score[a]	0.074	0.046
	(0.069)	(0.070)
Population density[a]	−0.006	−0.001
	(0.010)	(0.010)
Post-CBD	−0.180	−0.221
	(0.174)	(0.169)
Regional diffusion[a]	0.265**	0.253*
	(0.101)	(0.102)
Time trend	0.165*	0.181*
	(0.071)	(0.072)
Country fixed effects	Yes	Yes
Obs.	1,789	1,789
RMSE	1.316	1.305

Notes: FGLS estimations with AR(1) correction; panel-corrected standard errors in parentheses; [a]lagged $t-1$ after 5-year moving-averaged; $*p<0.050$, $**p<0.010$, $***p<0.001$; CBD: Convention on Biodiversity.

Table A4. Positive effect of *FDI stock* on *protected areas*, with *FDI stock* lagged *t*−2.

	(1)	(2)
FDI stock[a]	0.666	2.178***
	(0.418)	(0.549)
FDI stock, squared[a]		−0.224***
		(0.049)
GDP per capita[a]	−5.755***	−8.686***
	(1.542)	(1.704)
GDP per capita, squared[a]	1.027**	1.551***
	(0.369)	(0.402)
KOF Globalization Index[a]	0.057	0.028
	(0.047)	(0.045)
Polity score[a]	0.067	0.039
	(0.069)	(0.069)
Population density[a]	−0.004	0.001
	(0.010)	(0.010)
Post-CBD	−0.133	−0.194
	(0.165)	(0.154)
Regional diffusion[a]	0.345***	0.340***
	(0.102)	(0.101)
Time trend	0.152*	0.167*
	(0.072)	(0.071)
Country fixed effects	Yes	Yes
Obs.	1,789	1,789
RMSE	1.309	1.300

Notes: FGLS estimations with AR(1) correction; panel-corrected standard errors in parentheses; [a]lagged $t-2$ after 5-year moving-averaged; $*p<0.050$, $**p<0.010$, $***p<0.001$; CBD: Convention on Biodiversity.

Table A5. Positive effect of *FDI stock* on *protected areas,* with *FDI stock* lagged *t*−3.

	(1)	(2)
FDI stock[a]	0.214	1.602**
	(0.410)	(0.556)
FDI stock[a], squared		−0.207***
		(0.051)
GDP per capita[a]	−5.406***	−8.099***
	(1.611)	(1.791)
GDP per capita[a], squared	1.068**	1.553***
	(0.375)	(0.410)
KOF Globalization Index[a]	0.124*	0.098*
	(0.049)	(0.047)
Polity score[a]	0.053	0.028
	(0.070)	(0.070)
Population density[a]	0.001	0.005
	(0.009)	(0.009)
Post-CBD	−0.041	−0.110
	(0.214)	(0.200)
Regional diffusion[a]	0.383***	0.379***
	(0.101)	(0.100)
Time trend	0.120	0.132
	(0.073)	(0.072)
Country fixed effects	Yes	Yes
Obs.	1,729	1,729
RMSE	1.324	1.317

Notes: FGLS estimations with AR(1) correction; panel-corrected standard errors in parentheses; [a]lagged $t-3$ after 5-year moving-averaged; $*p<0.050$, $**p<0.010$, $***p<0.001$; CBD: Convention on Biodiversity.

Table A6. Positive effect of *FDI stock* on *protected areas*, with lagged dependent variable included.

	(1)	(2)
FDI stock[a]	0.725***	1.468***
	(0.219)	(0.295)
FDI stock[a], squared		−0.103***
		(0.025)
Lagged dependent variable	0.642***	0.635***
	0.071)	(0.071)
GDP per capita[a]	−2.237**	−3.996***
	(0.768)	(0.761)
GDP per capita[a], squared	0.408**	0.665***
	(0.147)	(0.140)
KOF Globalization Index[a]	0.086***	0.070**
	(0.023)	(0.022)
Polity score[a]	0.290**	0.268**
	(0.098)	(0.100)
Population density[a]	0.000	0.002
	(0.004)	(0.003)
Post-CBD	0.102	−0.036
	(0.202)	(0.198)
Regional diffusion[a]	0.321***	0.313***
	(0.047)	(0.046)
Time trend	−0.166***	−0.139***
	(0.035)	(0.032)
Country fixed effects	Yes	Yes
Obs.	1,616	1,616
RMSE	2.751	2.739

Notes: FGLS estimations with AR(1) correction; panel-corrected standard errors in parentheses; [a]5-year moving-averaged; $*p<0.050$, $**p<0.010$, $***p<0.001$; CBD: Convention on Biodiversity.

Table A7. Positive effect of *FDI stock* on *protected areas*, with full specification, including country and year fixed effects.

	(1)	(2)
FDI stock[a]	1.035**	2.659***
	(0.331)	(0.523)
FDI stock[a], squared		−0.230***
		(0.042)
GDP per capita[a]	−8.628***	−12.175***
	(1.476)	(1.457)
GDP per capita[a], squared	1.323***	1.904***
	(0.302)	(0.298)
KOF Globalization Index[a]	0.070	0.034
	(0.043)	(0.043)
Polity score[a]	0.072	0.055
	(0.087)	(0.088)
Population density[a]	−0.004	0.002
	(0.008)	(0.008)
Regional diffusion	0.250***	0.213**
	(0.072)	(0.074)
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Obs.	1,789	1,789
RMSE	1.296	1.282

Notes: FGLS estimations with AR(1) correction; panel-corrected standard errors in parentheses; [a]5-year moving-averaged; $*p < 0.050$, $**p < 0.010$, $***p < 0.001$; CBD: Convention on Biodiversity.

Table A8. Null effect of *protected areas* (% of Territory) on *FDI flows*, with the right-hand side variables lagged/leading.

	t-2	*t-1*	*t*	*t + 1*	*t + 2*
Protected areas	−0.013	−0.009	−0.006	−0.005	−0.003
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
GDP per capita	0.321	0.390*	0.495*	0.615*	0.670*
	(0.183)	(0.191)	(0.212)	(0.234)	(0.256)
KOF Globalization Index	−0.004	−0.006	−0.006	−0.004	−0.003
	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)
Polity score	0.033	0.025	0.018	0.014	0.009
	(0.017)	(0.018)	(0.018)	(0.019)	(0.019)
Population density	0.008**	0.007**	0.007**	0.007**	0.007**
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Time trend	0.048***	0.053***	0.051***	0.048***	0.047***
	(0.010)	(0.010)	(0.010)	(0.011)	(0.011)
Constant	−1.016	−1.046	−1.371	−1.726*	−1.936*
	(0.651)	(0.671)	(0.703)	(0.734)	(0.780)
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Obs.	1,831	1,827	1,823	1,783	1,743
RMSE	0.655	0.634	0.630	0.626	0.620

Notes: OLS regressions; country fixed effects included; country-clustered standard errors in parentheses; $*p < 0.050$, $**p < 0.010$, $***p < 0.001$.

Table A9. Positive effect of *FDI stock* on *protected areas*, with dynamic panel data estimation (GMM).

	(1)
FDI stock[a]	0.158**
	(0.078)
FDI stock[a], squared	−0.025**
	(0.010)
GDP per capita[a]	−0.035
	(0.342)
GDP per capita[a], squared	−0.005
	(0.067)
KOF Globalization Index[a]	−0.001
	(0.005)
Polity score[a]	−0.001
	(0.005)
Population density[a]	0.000
	(0.000)
Post-CBD	0.305***
	(0.100)
Regional diffusion	0.031***
	(0.008)
Time trend	−0.035***
	(0.007)
Protected areas$_{t-1}$	1.027***
	(0.006)
Country fixed effects	Yes
Obs.	1,756
Hansen J test	0.648
2nd order serial correlation test	0.545

Notes: Column 1: Dynamic panel-data estimation, one-step system GMM, robust standard errors in parentheses. [a]5-year moving-averaged; $*p < 0.050$, $**p < 0.010$, $***p < 0.001$; CBD: Convention on Biodiversity. Both the Hansen J test of overidentifying restrictions and a test of second order serial correlation of the residuals reject the null hypotheses. Thus, the validity of the instruments cannot be rejected.

Table A10. Positive effect of *FDI stock* on *protected areas*, with alternative/additional control variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FDI stock[a]	0.924*	2.236***	0.978**	2.258***	1.093**	2.355***	0.954*	2.514***
	(0.369)	(0.531)	(0.364)	(0.524)	(0.347)	(0.522)	(0.419)	(0.628)
FDI stock[a], squared		−0.194***		−0.190***		−0.188***		−0.238***
		(0.051)		(0.051)		(0.054)		(0.060)
GDP per capita[a]	−6.104***	−8.678***	−6.282***	−8.764***	−5.863***	−8.675***	−5.507***	−8.215***
	(1.441)	(1.594)	(1.434)	(1.587)	(1.567)	(1.765)	(1.643)	(1.704)
GDP per capita[a], squared	0.950**	1.412***	0.924**	1.374***	0.791*	1.297***	0.907*	1.426***
	(0.329)	(0.365)	(0.328)	(0.366)	(0.335)	(0.382)	(0.375)	(0.388)
KOF Globalization Index[a]	0.082	0.057	0.079	0.055	0.085	0.065	0.097	0.076
	(0.044)	(0.043)	(0.044)	(0.043)	(0.045)	(0.044)	(0.051)	(0.049)
Polity score[a]			0.046	0.023	0.076	0.049	0.113	0.104
			(0.068)	(0.069)	(0.071)	(0.072)	(0.076)	(0.076)
Population density[a]	0.002	0.006	0.002	0.006	−0.017	−0.009	−0.001	0.004
	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.012)	(0.011)	(0.011)
Post-CBD	−0.164	−0.187	−0.160	−0.185	−0.173	−0.198	−0.120	−0.136
	(0.119)	(0.112)	(0.118)	(0.112)	(0.118)	(0.117)	(0.132)	(0.116)
Regional diffusion	0.534***	0.530***	0.531***	0.528***	0.539***	0.534***	0.514***	0.519***
	(0.039)	(0.042)	(0.039)	(0.042)	(0.038)	(0.041)	(0.040)	(0.044)
Time trend	0.066	0.076	0.067	0.077	0.063	0.074	0.072	0.080
	(0.042)	(0.044)	(0.043)	(0.045)	(0.046)	(0.047)	(0.054)	(0.055)
Electoral democracy index (V-Dem)[a]	1.299	0.807						
	(1.336)	(1.369)						
Political corruption index (V-Dem)[a]			−3.652	−3.576				
			(2.427)	(2.481)				
Natural resources rents (% of GDP)[a]					0.017	0.024		
					(0.016)	(0.017)		
State capacity[a]							−1.604*	−2.206**
							(0.813)	(0.856)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1, 789	1, 789	1, 789	1, 789	1, 752	1, 752	1, 609	1, 609
RMSE	1.289	1.281	1.289	1.280	1.294	1.285	1.348	1.342

Notes: FGLS estimations with AR(1) correction; panel-corrected standard errors in parentheses; [a]5-year moving-averaged; $*p<0.050$, $**p<0.010$, $***p<0.001$; CBD: Convention on Biodiversity.