

A Triangle of Vulnerability: Global Demand for Resources, Political Marginalization, and a Culture of Impunity as Causes of Environmental Defender Killings

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Abstract

What countries are most dangerous for environmental defenders? In many countries around the world advocating on behalf of the environment can be deadly. We theorize that three main factors, which we term the triangle of vulnerability, put environmental defenders most at risk. Those factors are global demand for resources, marginalization of effected populations from the political process, and a culture of impunity exists where perpetrators of violence against defenders escape justice. Overall, we show that environmental defenders are at risk from violence and given the elements that drive this violence are unlikely to abate soon they are also in need of protection.

Introduction

“When I got there, the place was covered in empty bullet shells, and it made me think: all these indigenous people ever wanted was to be able to reclaim their ancestral lands and live in peace”

The above quote is from environmental defender Rene Pamplona who is describing the scene after the murder of eight indigenous people near the municipality of Lake Sebu in the Mindanao island of the Philippines. The attack was carried out by the Filipino military. Their justification was that this attack was in retaliation against the New People’s Army (NPA) who they alleged shot at soldiers patrolling the area. However, no members of the NPA were among those killed instead among the dead were Datu Victor Danyan and four of his family members. Datu Victor Danyan was an outspoken opponent of the Silvicultural Industries Coffee Plantation expansion of 300 hectares into the ancestral homeland of the Taboli-manubo people of Mindanao. Anonymous sources for the NGO Global Witness stated that the Special Civilian Armed Auxiliary (SCAA), an auxiliary army unit that provides security for Silvicultural Industries, might also have been involved and possibly told the military that the NPA was operating in the area in the hopes of inciting violence against the opponents of the plantation expansion. This practice known as “red-tagging” – accusing environmentalists of being communist sympathizers is common in the Philippines¹. This story is described in a report on

¹ Wolfram Dressler, *Defending lands and forests: NGO histories, everyday struggles, and extraordinary violence in the Philippines*, Critical Asian Studies 1 (2021)
DOI: [10.1080/14672715.2021.1899834](https://doi.org/10.1080/14672715.2021.1899834)

environmental defender² killings produced by the NGO Global Witness³. The report entitled *At What Cost?* states that in 2017, 207 land and environmental defenders were murdered 48 of whom, including Datu Victor Danyan and his family, were murdered in the Philippines which had the second highest murder rate of environmental and land defenders in 2017. By 2019 the murders in the Philippines totaled 43 while the overall number had increased to 212.⁴

The story of Datu Victor Danyan is, according to Global Witness, becoming all too familiar. The Philippines is a lower middle-income country that has experienced robust GDP growth over the last few years and an influx of foreign direct investment. It is also a democracy, but one with a large amount of corruption, particularly in the judiciary, and vulnerabilities to strongman leadership as displayed by the current President Rodrigo Duterte, and human rights violations. Additionally, the Philippines has a relatively large indigenous population and independent local governments. Ultimately, what this paper seeks to answer is how these factors are related. In other words, the Philippines is an example of a country that presents certain dangers for environmental defenders. It is a democracy which allows space for free speech and protest, but is also a country with serious human rights violations and judicial corruption which often leads to impunity for those who commit violence against those who speak out against the government of corporate interests. Furthermore, as a middle income country with an abundance of natural resources global corporations are involved in extracting those resources for the global

² Global Witness uses the term “environment and land defenders” while this paper uses the term “environmental defender” We consider the later a synonym for the former. For a thorough discussion of the term ‘environmental defender’ see Judith Verweijen et. al., *Environmental Defenders’ The Power/Disempowerment of a Loaded Term*, in *Environmental Defenders: Deadly Struggles for Life and Territory* 37 (Mary Menton and Philippe Le Billon eds., 2021)

³ Global Witness, *At What Cost?* (2018)

<https://www.globalwitness.org/en/campaigns/environmental-activists/at-what-cost/>

⁴ Global Witness, *Defending Tomorrow* (2020)

<https://www.globalwitness.org/en/campaigns/environmental-activists/defending-tomorrow/>

market which often puts them in conflict with rural and indigenous peoples. Finally, the Philippines empowers local governments to make decisions which, in combination with the above factors, can lead to even more dangerous environments for environmental defenders. Ultimately, what this paper argues is that a triangle of vulnerability creates dangerous environments for environmental defenders. The three prongs of the triangle are - countries with abundant natural resources which are extracted for global markets, the marginalization of the effected population whether because they are indigenous and/or the local government has autonomy and moves forward with disputed projects against the support of the local population, and a culture of impunity exists where perpetrators of violence are often free to act without repercussions.

To test this proposition, we utilize the Global Witness reports documenting environmental defender murders from 2002 to 2018. We find that that countries that have a positive amount of FDI coming in and countries that experience a net amount of deforestation are more likely to have an environmental defender killing. Furthermore, we find that countries with larger indigenous populations and countries with empowered local governments also are more likely to have an environmental defender killing. Finally, we find countries with higher amounts of judicial corruption are more likely to have an environmental defender killing. Interestingly, we did not find support for the notion that non-consolidated democracies are more likely to have a killing or for the contention that countries that rely of natural resource rents are more likely to have an environmental defender killing.

Understanding the theoretical factors, supported by empirical evidence, that drive environmental defender killings are important to understand as climate change leads to further environmental destabilization around the world this will likely lead to great confrontations

between environmental defenders on one hand and business and government actors on the other. The rest of the paper will review the previous literature on environmental defender killings and then develop a theory of environmental defender killings which we term – the triangle of vulnerability. This is followed by the hypotheses and research design sections which are subsequently followed by the results section and then finally the conclusion.

Previous Research on Environmental Defender Killings

Research on the violence faced by people defending the environment from extraction and exploitation is not new⁵. However, much of this research focused on specific cases of defenders who have been murdered such as Ken Saro-Wiwa in Nigeria⁶, Chico Mendes in Brazil⁷, and Berta Caceres in Honduras⁸ among others. Recently, however, the publication of two new datasets on environmental conflicts and environmental defender killings has led to an upsurge in research on the question. The two dataset are the Global Environmental Justice Atlas (EJAtlas)⁹ and the yearly reports since 2013 from the NGO Global Witness documenting environmental defender killings.¹⁰

One of the general findings from the recent literature examining the violence faced by environmental defenders, including the potential of homicide, is that defenders often operate in what Menton and Le Billon call an “atmosphere of violence.” They define these as “multi-

⁵ Andrew Rowell, *Green Backlash: Global Subversion of the Environmental Movement* (1996)

⁶ Ken Saro-Wiwa: *Writer and Political Activist* (Craig McLuckie & Aubrey McPhail eds. 1999).

⁷ Andrew Revkin, *The Burning Season: The Murder of Chico Mendes and the Fight for the Amazon Rainforest* (2004).

⁸ Nina Lakhani, *Who Killed Berta Caceres? Dams, Death Squads, and an Indigenous Defender’s Battle for the Planet* (2020).

⁹ Leah Temper et. al., *The Global Environmental Justice Atlas (EJAtlas): Ecological Distribution Conflicts as Forces for Sustainability*, 13 *Sustainability Science* 573 (2018).

¹⁰ Id. At 4

dimensional, temporally and spatially dispersed, a mixture of direct attacks and continual fear from threats against themselves, their families, their communities, and their territories.”¹¹ It is within the broader “atmosphere of violence” in which environmental defender murders occur.

Using data from the EJAtlas, Scheidel et. al.¹² find, what they term ecological distribution conflicts which are conflicts over the unfair distribution of environmental goods, are mainly concentrated in the agriculture and extractive sectors and that assassinations, physical violence and criminalization occurs in these conflicts at a much higher rate when indigenous groups mobilize against the projects. Overall, they find that 13% of environmental conflicts involve an assassination of an environmental defender¹³. Jeffords and Thompson¹⁴, using Global Witness environmentalists killing data, conclude that fatal crimes committed against environmental defenders follows an inverted U shape similar to what is known as the environmental Kuznets curve. They find that as per capita income increases killing of environmental defenders also increases but eventually as per capita income keeps increasing the rate of killings begins to decline. Middeldorp and Le Billon¹⁵ also use the Global Witness environmental defender killing data to analyze the determinants of environmental defender killings. They look at simple bivariate correlations between regime type in a country and rate of environmental defender murders. They also find an inverted U shape relationship between regime type and the rate of

¹¹ Environmental Defenders: Deadly Struggles for Life and Territory (Mary Menton & Philippe Le Billon eds. 2021).

¹² Arnim Scheidel et. al., *Environmental conflicts and defenders: A global overview* 63 Global Environmental Change 1 (2020).

¹³ Scheidel, *supra* note 12

¹⁴ Chris Jeffords & Alexa Thompson, *An empirical analysis of fatal crimes against environmental land activists* 36 Economic Bulletin 827 (2016).

¹⁵ Nick Middeldorp & Philippe Le Billon, *Deadly Environmental Governance: Authoritarianism, Eco-populism and the Repression of Environmental and Land Defenders* 109 Annals of the American Association of American Geographers 324 (2019).

environmental defender killings such that countries that are partially democratic have the highest rate of environmental defender killings¹⁶. Butt et. al.¹⁷ also use bivariate correlations to examine the relationship between environmental defender killings and natural resource distributions. They find that strong incentives for governments or public actors to exploit natural resources, marginalization of those who depend on, or live in, the areas where natural resource exploitation occurs, and weak rule of law and corruption lead to greater numbers of environmental defenders being killed.¹⁸

The most comprehensive, and methodologically sophisticated, quantitative study on environmental defender killings to date is by Le Billon and Lujala¹⁹. They test multiple variables for their impact on environmental defenders killings and determine that in terms of economic factors higher levels of FDI, mineral rents, and forest rents are associated with more environmental defender killings. Additionally, they find further support for the environmental Kuznets curve identified by Jeffords and Thompson²⁰. In terms of political factors, Le Billon and Lujala find a curvilinear relationship in regards to regime type. They find that as democracy increases so does the number of environmental defender killings but this relationship plateaus and for those countries considered full democracies the number of environmental defender killings declines. Finally, in terms of demographic factors, they find that countries with larger populations experience more environmental defender killings as do countries with large

¹⁶ Middeldorp & Le Billon, *supra* note 15

¹⁷ Nathalie Butt et. al., *The Supply Chain of Violence 2* Nature Sustainability 742 (2019).

¹⁸ Nathalie Butt, *supra* note 17

¹⁹ Philippe Le Billon & Päivi Lujala, *Environmental and land defenders: Global patterns and determinants of repression* 65 Global Environmental Change 102163 (2020).

²⁰ Jeffords & Thompson, *supra* note 14

indigenous populations.²¹ An interesting rejoinder to many of these studies is from Zeng et. al.²² who argue that environmental factors better explain environmental defender killings than socio-political or economic factors. They note:

Our results show that models with only environmental factors have a stronger statistical link to land and environmental defender murders. Specifically, we find that land and environmental defender homicides are more common in areas where resources (e.g., water and land) are abundant and relatively unexploited but limited elsewhere in the country or region.²³

What they highlight here is the regional variation of environmental defender killings within countries as a function of exploitable resources within a country

In addition to these works that focus on the overall determinants of environmental defender killings there have been recent works published with a narrower view such as focusing on conflicts in specific countries, among certain industries, and focusing on specific types of defenders. For example, Cheon et. al.²⁴, using data from the EJAtlas, focus on why communities mobilize against fossil fuel production, and they find that three factors generally shape mobilization decisions by those affected – the type of democratic institutions in a country, the perceptions of government shaped by land tenure security amongst the population, and the attributes of the firms involved (whether they are foreign companies or domestic). Dell’ Angelo et. al.²⁵ also using data from the EJAtlas, examine the phenomenon of “commons grabbing” where large agriculture industries take over common property and the mobilization of affected

²¹ Le Billon & Lujala, *supra* note 19

²² Yiwen Zeng, et. al., *Threats to Land and Environmental Defenders in Nature’s Last Strongholds*, *Ambio* <https://doi.org/10.1007/s13280-021-01557-3>

²³ Yiwen Zeng et. al., *supra* note 22

²⁴ Andrew Cheon et. al., *Determinants of Environmental Conflict: When Do Communities Mobilize against Fossil Fuel Production?* 65 *Journal of Conflict Resolution* 1308 (2021).

²⁵ Jampel Dell’ Angelo et. al., *Commons Grabbing and Agribusiness: Violence, Resistance and Social Mobilization* 184 *Ecological Economics* 1 (2021).

populations to this activity. They find that communities that mobilize against this practice are overwhelmingly comprised of indigenous people and often have the support of local (and national and international) environmental NGOs. Focusing on the differences among environmental defenders, Tran et. al.²⁶ observe the particularly perilous position that women environmental defenders occupy. They find that in all the cases of environmental conflicts where women defenders were killed that governments backed or supported the extractive projects that precipitated the conflict. Finally, in an examination of environmental conflicts and defender murders in the Philippines, Dressler²⁷ finds that “red-tagging” (smearing opponents of extractive projects as communist sympathizers), the broader criminalization of the left, the police impunity facilitated by Duterte’s war on drugs, along with local government corruption all facilitate broader violence and even murder towards environmental defenders.

In addition to studies examining the determinants of environmental defenders it is worth mentioning some additional studies which examine a similar topic – the killing of journalists. In terms of regime type and the killing of human rights defenders and journalists studies have found contradictory results. For example, Landman²⁸ found that human rights defenders were less likely to experience repression in democracies. In contrast, the work by Asal et. al.²⁹ on the relationship between regime type and the killing of journalists found that journalists were more

²⁶ Dalena Tran et. al., *Gendered Geographies of Violence: A Multiple Case Study Analysis of Murdered Women Environmental Defenders* 27 *Journal of Political Ecology* 1189 (2020).

²⁷ Wolfram Dressler, *supra* note 1

²⁸ Todd Landman, *Holding the Line: Human Rights Defenders in the Age of Terror* 8 *British Journal of Politics and International Relations* 123 (2006).

²⁹ Victor Asal et. al., *Killing the Messenger: Regime Type as a Determinant of Journalist Killing, 1992-2008* 14 *Foreign Policy Analysis* 24 (2018).

vulnerable to killings in democracies. Previous work on the killing of journalists has highlighted how these killings are often a precursor to further systematic repression.³⁰

Asal et. al.³¹ argue that, contrary to conventional wisdom, journalists operating in democracies are more vulnerable to violence. Their argument is that democratic countries make it easier for journalists to pursue stories, as opposed to authoritarian states which put heavy restrictions on what journalists can report on, and uncover corruption and criminal activities. However, this can leave them vulnerable to violent actors who wish to remain out of the spotlight, such as criminal gangs, and who may use violence against journalists in retaliation for the stories they cover.³² Democracies also provide space for environmental defenders to protest and engage in contentious politics against the state and private actors. This is one of the reasons that democracy is better for the environment.³³ In authoritarian states this level of political freedom is most likely not available to environmental defenders.

Advancing the work of Asal et. al., Jonathan Solis³⁴ argues that regime durability is a better explanation for journalist killings than regime type. He argues that as a regime endures, regardless of the type – autocracy, anocracy, or democracy, the likelihood of journalist killings should decrease. Furthermore, Carey and Gohdes³⁵ claim that while the majority of journalist killings occur in democracies there are important institutional variations within democracies that

³⁰ Anita R Gohdes & Sabine C. Carey, *Canaries in a Coal-mine? What the killings of journalists tell us about future repression* 54 *Journal of Peace Research* 157 (2017).

³¹ Victor Asal et. al., *supra* note 29

³² Victor Asal et. al., *supra* note 29

³³ Rodger A. Payne, *Freedom and the Environment* 6 *Journal of Democracy* 41 (1996).

³⁴ Jonathan A. Solis, *The Press Safety Paradox of Democracies: Regime-type Durations and Journalist Killings* 17 *Foreign Policy Analysis* (2021).

³⁵ Sabine C. Carey & Anita R. Gohdes, *Understanding Journalist Killings* *Journal of Politics* (2021) <https://www.journals.uchicago.edu/doi/pdf/10.1086/715172>

account for the higher rate of killings. They argue that the local level empowerment of government officials through elections is a key factor in journalist killings. The logic here is that press freedoms are generally established at the national level which means that local elected officials are unable to censure politically damaging reporting causing the local elected officials to seek more repressive paths. As Carey and Gohdes describe it, “Because local-level politicians are unable to modify the framework of press freedom, they need to pursue alternative and more targeted strategies if they want to interfere and influence their portrayal in the media. Direct attacks against individual members of the press present a more feasible solution.”³⁶ What Carey and Gohdes are highlighting here is that authoritarian enclaves can exist within decentralized democracies especially in rural areas.³⁷

The previous research on environmental defender killings, supplemented with research on journalist killings, provides a solid base for further investigation on the topics. Although previous research on environmental defender killings has found important empirical patterns the research has lacked explicit theorizing regarding the threats to their lives that environmental defenders face. Before turning to the empirical section of the paper I will first develop a theory of environmental defender killings

A Theory of Environmental Defender Killings

John H Knox served as a special rapporteur for the UN Human Rights Council on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and

³⁶ Sabine C. Carey & Anita R. Gohdes, *supra* note 35, 8

³⁷ Edward L. Gibson, *Boundary Control: Subnational Authoritarianism in Federal Democracies* (2012).

sustainable environment. Based on regional consultation with human rights and environmental defenders, Knox outlined three factors behind the growing vulnerability of environmental defenders.³⁸ Those three factors are: 1) a growing global demand for extraction and exploitation of natural resources, 2) a lack of political power and legal recognition of the groups that are often most affected by this increasing demand, and 3) weak or corrupt legal institutions that create a culture of impunity. Knox's observations provide a solid foundation for a theory of environmental defender killings. In essence, Knox identified three important factors in a country that can increase the vulnerability of environmental defenders – global demand for resources that are located in that country, marginalization of the people who live near those resources, and a culture of impunity within the country. In essence these three factors represent what we term a “triangle of vulnerability” which can greatly increase the likelihood of an environmental defender killing

Figure 1. Here

Environmental defender murders generally spring from contestations between defenders and either state or corporate authorities over some natural resource and/or extractive operation. However, these conflicts are generally more than simple disputes over the use of natural resources or economic processes. According to Arturo Escobar³⁹ most environmental conflicts are not simple just economic disputes but also ecological and cultural disputes as well. In other

³⁸ John H. Knox, *Environmental Human Rights Defenders: A Global Crisis*. Universal Rights Group Policy Brief 1 (2017).

³⁹ Arturo Escobar, *Difference and Conflict in the Struggle Over Natural Resources: A Political Ecology Framework* 49 *Development* 6 (2006).

words, local peoples are not just protesting against unfair compensation (although that can be part of the complaint), but they are often just as likely to dispute how the resources are being used and extracted (an ecological dispute), and also rebelling against being pulled into a monetized market-driven economy from the local self-reproducing and subsistence world they had been living in.⁴⁰ It is at the nexus of global market driven capitalism and natural resources owned, used, or governed by local, usually rural and often indigenous, groups where conflict may occur.

The fact that many environmental conflicts are not just over economic issues but over ecological and cultural values shows how intense and intractable the conflicts can be. The intractableness can lengthen the dispute and give rise to the government, or corporation, seeking to extract the natural resource to seek extra-judicial means of resolving the dispute. This is where the second part of Knox's argument comes in – marginalization, or lack of political power and legal recognition of groups most effected by the increasing demand. According to Knox⁴¹ what creates such a dangerous environment for environmental defenders is lack of political power and legal rights to properly contest extractive projects. While overall this is true a bit more nuance to the claim directly exposes where and when environmental defenders are in the most danger. As the literature on environmental defender killings and journalist killings highlights both are vulnerable in democratic regimes, and possibly more so than in non-democratic regimes.⁴² However, careful analysis requires thinking about *where* in democratic regimes (and non-democratic regimes) environmental defenders are the most vulnerable. The

⁴⁰ Arturo Escobar, *supra* note 39.

⁴¹ John H. Knox, *supra* note 38.

⁴² Victor Asal et. al., *supra* note 29; Le Billon & Lujala, *supra* note 19.

research by Carey and Gohdes⁴³ on the killing of journalists show that where journalists are most vulnerable are in authoritarian enclaves in democratic states. These “authoritarian enclaves” tend to be in federal democracies where a fair amount of local control is available.⁴⁴ They also tend to be farther away from the capital and predominately rural.⁴⁵ It’s these areas – rural with lots of available natural resources and where local governments have predominant control where the exploitation of resources and people can occur with greater frequency. It is within “authoritarian enclaves” where people who have control of natural resources that are desired by global capital and the most marginalized and thus more vulnerable to violence by state or corporate actors.

This brings us to the third and final component of our theory – impunity. Here again an exploration of the similarities between the killings of journalists and the killings of environmental defenders is useful. As Asal et. al.⁴⁶ argue, it is democratic states that have a culture of impunity, often manifest in weak and corrupt judicial institutions, that are the most dangerous places for journalists. This is because in a democracy journalists are allowed to pursue whatever stories they wish but in a country with a culture of impunity those targets of journalist inquiries – mobsters, corrupt politicians, gangs, etc. who may not want public attention on them may feel free to take out the journalist without fear of (serious) state punishment. Impunity can be defined as “absence of punishment in the face of illegal conduct.”⁴⁷ Recent research suggests that impunity is detrimental to human rights and ending it, or greatly reducing

⁴³ Sabine C. Carey & Anita R. Gohdes, *supra* note 35

⁴⁴ Edward L. Gibson, *Id* 37

⁴⁵ Jonathan Fox, *Accountability Politics: Power and Voice in Rural Mexico* (2007).

⁴⁶ Victor Asal et. al., *supra* note 29

⁴⁷ Daniel Vázquez & Horacio Ortiz, *Impunity and Economic and Social Rights* 21 *Human Rights Review* 159, 161 (2020).

it, can have a positive impact on human rights.⁴⁸ Vasquez and Ortiz⁴⁹ describe impunity as both context and expectation. Impunity as context refers to the idea that when human rights are violated there should be an investigation, some type of sanctioning, and reparations for the victims. If there is a culture of impunity in a country these things will not occur or happen at a diminished level. Impunity as expectation occurs in countries with a culture of impunity where individuals violate others human rights (in this case kill environmental defenders) because they know they will not be punished or not punished severely.

Hypotheses

The theory presented above posits that there are three main factors, comprising a triangle of vulnerability, that increase the likelihood of an environmental defender murder in a country. Those are global demand for resources that are located in that country, marginalization of the people who live near those resources, and a culture of impunity within the country. Based on this theory one can derive several hypothesis to test. First with regard to global demand for resources we hypothesize that countries with natural resources that global markets desire are more dangerous for environmental defenders. The assumption here is that local communities need to have something to exploit. Most often this is land which contains some valuable commodity such as minerals or precious metals for mining, oil and gas for extraction, or forests for logging. The more these points of conflict exist in a state therefore the more opportunities exist for conflict. The following hypotheses represents both sides of this exchange – the global market side and the local resources side:

⁴⁸ Daniel Vázquez & Horacio Ortiz, *supra* note 47; Kathryn Sikkink, *The Justice Cascade: How Human Rights Protections are Changing World Politics* (2011).

⁴⁹ Daniel Vázquez & Horacio Ortiz, *supra* note 47

H1: States with more foreign direct investment (FDI) will be more likely to have an environmental defender killing.

H2: States with a greater reliance natural resource extraction for economic development will be more likely to have an environmental defender killing

H3: States with a decline in forest area will more likely have an environmental defender killing

The second aspect of the theory of environmental defender killings is marginalization in that the areas where natural resources are located are often far from the main population centers and the people living in those areas are marginalized from the political process. Often the most marginalized people in these areas are the indigenous populations. An additional element of marginalization is the empowerment of local political leaders. As Sabine and Gohdes⁵⁰ have shown with journalist killings it's the "authoritarian enclaves" of federal democracies where they are most vulnerable to violence. Local leaders of authoritarian enclaves may support the murder of environmental defender (or at least may not oppose it) for two possible reasons: 1) they may be involved in the extractive project as acquiescence of local politicians is usually required for these projects to move forward. 2) they may not want to attract the attention or ire of the central government and local protests may bring such unwanted attention. It is important to remember that in general democracies are less repressive than non-democracies but the pacific

⁵⁰ Sabine C. Carey & Anita R. Gohdes, *supra* note 35.

elements of democracy are usually found in consolidated democracies. It is in non-consolidated democracies where free speech rights are law but where pockets of authoritarianism and corruption exist that can make the situation vulnerable for environmental defenders.

H4: States with larger indigenous populations will have more environmental defender killings than states with smaller indigenous populations

H5: States with more powerful local governments will have more environmental defender killings than states with less powerful local governments

H6: Transitioning or non-consolidated democracies will have more environmental defender killings than consolidated democracies or autocracies

Of course, most democracies - consolidated or not - do not engage in retaliatory violence against environmental defenders or journalists, and do not allow private actors to do so either, but those democracies with empowered local governments and large amounts of corruption are the types of states where environmental defenders maybe most vulnerable to violence. For environmental defenders, as with journalists, the most dangerous places for them are democracies that allow them the space to protests but have empowered local governments that are also corrupt enough in which a culture of impunity is created where retaliation against environmental defenders by private and/or state actors is encouraged, or at the very least not prosecuted. Corruption in the judiciary is particularly dangerous because that can lead directly to impunity for those who

commit violence. With this in mind we propose the last hypothesis in accordance with our theory:

H7: The more judicial corruption in a state the more likely the state will have an environmental defender killing

Research Design

Data

We test the above hypotheses using data on environmental defender killings gathered by the NGO Global Witness. Global Witness defines land and environmental defenders as “people taking peaceful action to protect land or environmental rights, whether in their own personal capacity or professionally.”⁵¹ The dataset consists of observations from 2002-2018 and includes 167 countries.⁵² Over that time a total of 1,179 environmental defenders were killed. Global Witness utilizes a public information strategy for cataloguing the killings of environmental defenders. First, they use publicly available datasets on human rights defenders killed and research each case. Second, they set up search engine alerts with specific keywords pertaining to environmental killings to identify relevant cases. Finally, where possible and necessary they verify with in country or regional partners to gather more information about cases. They also outline four criteria for a case to be included in their dataset: First the information must be credible, second there must be details about the killing available, third the names and biographic

⁵¹ Global Witness, *Id* 3, 58.

⁵² Data from 2002-2013 comes from the 2014 Global Witness Report, “Deadly Environment.” <https://www.globalwitness.org/en/campaigns/environmental-activists/deadly-environment/> All data after comes from subsequent yearly reports from Global Witness.

information about the victim(s) must be available, and finally, there must be a clear and documented connection to an environmental or land issue.⁵³ Global Witness acknowledges that this methodology almost certainly undercounts the number of environmental defenders killed each year. Reasons why this may be the case according to them include: lack of civil society organizations in the country to monitor the situation, lack of a free media, and the presence of violent conflict which may make it difficult to identify specific environmental defender killings.⁵⁴ With these limitations in mind, the data compiled by Global Witness is the only comprehensive (or quasi-comprehensive) dataset available on environmental defender killings and as such has already been utilized in previous academic studies as highlighted above.

Dependent Variables

Following Asal et. al.⁵⁵ we create a variety of measures for our dependent variable. The first variable (*EDKilled1*) is dichotomous with a 0 meaning there were no environmental defenders killed in that country for that year and a score of 1 indicating that there were one or more environmental defenders killed in that country for that year. A second dependent variable (*EDKilled2*) is ordinal with 0 meaning there were no environmental defenders killed in that country for that year, a 1 indicates that one environmental defender killing happened in the country during that year, and 2 indicates that two or more environmental defender killings took place in that country during that year. The third measure of our dependent variable (*EDKilled3*) is another ordinal variable with 0 indicating that there were no environmental defenders killed in that country for that year, a score of 1 indicating that one to nine environmental defender killings happened in that country for that year, and 2 indicating that 10 or more environmental defender

⁵³ Global Witness, *Id* 3, 52.

⁵⁴ Global Witness, *Id* 3.

⁵⁵ Victor Asal et. al., *supra* note 29.

killings occurred in that country during that year. Finally, the fourth measure of the dependent variable (*EDKilled4*) is simply the count of the number of environmental defenders killed in each country per year. The variable ranges from 0 to 73 with most of the observations at zero.

Because the vast majority of the countries in the dataset had zero environmental defender killings at all the use of multiple measures of the dependent variable can help to ensure the robustness of the findings.

Independent Variables

To account for global demand for natural resources in a country we use three specific variables: *FDI*, *Natural Resource Rents*, and *Deforestation*. *FDI* is foreign direct investment and is calculated as net inflow of FDI as share of GDP. Following Le Billon and Lujala⁵⁶ we transform the measure using the inverse hyperbolic sine which is a transformation similar to a natural log transformation but this one also capture negative values. The purpose of the transformation is to account for the skewness of the data as some countries receive a large amounts of FDI while other receive little to none. *Natural Resource Rents* includes the sum of oil, natural gas, coal, mineral, and forest rents and is expressed as a percentage of a countries GDP This variable is used to measure how important natural resource extraction is to a state's economy with the implication that the more important it is the more opportunities there are for conflict between local groups and the state (or private businesses). Finally, *Deforestation* is the change in the percentage of a country's landmass that is forested each year. In this measure negative numbers indicate a loss of forested area and positive numbers indicate an increase in forested area. This measure is used to indicate how many potential environmental flashpoints

⁵⁶ Le Billon & Lujala, *supra* note 19.

there are in a country where conflict may occur. All three of these measures come from the World Bank's World Development Indicator's list.⁵⁷

To account for marginalization and the presence of authoritarian enclaves in federal democracies we also employ three variables: *Native Population*., *Local Government*, and *Regime*. *Native Population* is the indigenous population of a state. The data comes from the International Work Group for Indigenous Affairs annual report⁵⁸. Following Le Billon and Lujala⁵⁹ we use the number of indigenous people as a share of the state's population in 2018 and therefor this variable is time invariant. For the *Local Government* variable, we use the Varieties of Democracy Local Government Index.⁶⁰ The index ranges from 0 to 1 with lower scores indicating no local elected governments, medium scores indicating local elected government but those governments are subordinate to unelected officials appointed at a higher level of government, and higher scores represent elected local governments who are not subordinate to unelected officials at the local level appointed at higher levels of government. Finally, *Regime* is a measure of the level of electoral democracy in a country. We use the Varieties of Democracy Electoral Democracy Index which ranges from 0 to 1 with higher levels indicating further fulfillment of electoral democracy.⁶¹ As previous research has suggested that regime type may have a non-linear impact on environmental defender killings, we also include a square term of *Regime* in our analysis identified as *Regime_Sq*.⁶²

⁵⁷ World Bank, *World Development Indicators* (2018) (<http://data.worldbank.org/data-catalog/world-development-indicators>)

⁵⁸ International Working Group for Indigenous Affairs, *The Indigenous World* (2020) https://iwgia.org/images/yearbook/2020/IWGIA_The_Indigenous_World_2020.pdf

⁵⁹ Le Billon & Lujala, *supra* note 19.

⁶⁰ Michael Coppedge et. al., *V-Dem [Country–Year/Country–Date] Dataset v11.1* Varieties of Democracy Project. (2021) <https://doi.org/10.23696/vdemds21>

⁶¹ Michael Coppedge, *supra* note 60.

⁶² Le Billon & Lujala, *supra* note 19.

Finally, to account for judicial impunity we include the variable *Judicial Corruption*. For this variable we use the Judicial Corruption Decision measure from the Varieties of Democracy project.⁶³ The measure captures the answer to the question, “how often do individuals or businesses make undocumented extra payments or bribes in order to speed up or delay the process or obtain a favorable judicial decision?” The measure is interval with higher values indicating rarity of judicial bribery while negative values indicate the frequency of the behavior in a country.

Control Variables

We also include seven control variables. First, we include a measure of the level of respect for human rights in a country. For this we use the Political Terror Scale (PTS). The PTS is an ordinal measure of 1 to 5 and each level indicates an increase in repression on measures of physical integrity. The PTS is constructed through country reports from both the U.S. State Department and Amnesty International.⁶⁴ The PTS reports scores from each source and we use the average of the two here. Secondly, to also capture the level of violence in a country, we also include a variable for major episodes of political violence (*MEPV*). This is a count variable that includes the major episodes of political violence that occur within a country each year (e.g., Civil War). The data is taken from the Center for Systemic Peace, Major Episodes of Political Violence list.⁶⁵ Our third control variable is *Protest* which is a count of the number of protests

⁶³ Michael Coppedge, *supra* note 60.

⁶⁴ Mark Gibney et. al., *The Political Terror Scale 1976-2019*. (2020) <http://www.political-terror-scale.org>

⁶⁵ Center for Systemic Peace. *Major Episodes of Political Violence, 1946-2018* (2019)(<http://www.systemicpeace.org/inscrdata.html>).

over 50 people in a country per year. The data comes from the Mass Mobilization Protest dataset.⁶⁶ These three control variables are meant to capture the already existing level of violence and dissent in a country.

The next two control variables – *Info Flow* and *Under Reported* – are used to account for the level of information in a country and the possibility that environmental defender killings are under reported. The *Info Flow* variable data is from the KOF informational globalization index.⁶⁷ The index ranges from 0 to 100 with higher numbers indicating more information globalization, or information flow, in a country. The index includes for level of internet bandwidth, number of international patents, high technology export, television access, internet access, and press freedom in a country. We include this variable to account for reporting bias in that countries with a relatively free media may publicize the killing of environmental defenders at a greater rate than countries where freedom of speech and the press is suppressed.⁶⁸

Following Le Billon and Lujala⁶⁹ we also include a variable – *Under Reported* – which is dichotomous to account for the arguable undercounting of environmental defender killings in Ethiopia, Myanmar, Nigeria, and Venezuela.

Finally, we include a measure of level of economic development in a country – *GDP percap*, which is the GDP per capita in a country. We also include the square term of the variable – *GDP percap_Sq* in the analysis. The variables are constructed this way to account for

⁶⁶ David Clark & Patrick Regan, *Mass Mobilization Protest Data* Harvard Dataverse, v4 (2020). <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/HTTWYL>

⁶⁷ Savina Gygli et. al., *The KOF Globalisation Index – Revisited* 14 Review of International Organizations, 543 (2019).

⁶⁸ Konstantinos Drakos & Andreas Gofas, *The Devil You Know but Are Afraid to Face: Underreporting Bias and its Distorting Effects on the Study of Terrorism* 50 Journal of Conflict Resolution 714 (2006).

⁶⁹ Le Billon & Lujala, *supra* note 19.

the environmental Kuznets (or inverted U) curve identified by Jeffords and Thompson⁷⁰ and Le Billon and Lujala⁷¹ showing that as GDP per capita increases the level of environmental defender killings also increase but at some point, the killings begin to decrease as GDP per capita continues to rise. We want to control for the fact that environmental defender killings may take place at higher rates in middle income countries rather than in poor or rich countries. The data for *GDP percap* comes from the World Bank's World Development Indicator's list and we take the natural log of it to account for outliers.⁷² The final control variable included is *Population*. This is a measure of a state's total population. Population data comes from the World Bank's World Development Indicators list and again we take the natural log of the data to account for outliers.⁷³ Table 1 presents the descriptive statistics for all variables used in our models

Table 1. Here

Models

Because the dependent variables are dichotomous, ordinal, and count we use logistic, ordered logistic, negative binomial regression, and zero inflated negative binomial regression model estimations. The use of these specific models is in keeping with Asal et. al.⁷⁴ and their analysis of the determinants of journalist killings. Finally, our models include year fixed effects and robust standard errors.

⁷⁰ Jeffords & Thompson, *supra* note 14.

⁷¹ Le Billon & Lujala, *supra* note 19.

⁷² World Bank, Id. 57.

⁷³ World Bank, Id. 57.

⁷⁴ Victor Asal et. al., *supra* note 29.

Results

Table 2 presents the results of seven models used to test our hypothesis. Model 1 is a logistic regression model that uses the dependent variable *EDKilling1* which is the dichotomous dependent variable of 1 if a country had at least one environmental defender killing that year and 0 if there were none. Model 2 uses the dependent variable *EAKilling2* which is an ordinal variable of 0 for no environmental defender killings in a country for that year, 1 for one environmental defender killing in that country for that year, and 2 for two or more environmental defender killings in that country for that year. Model 3 uses the dependent variable *EAKilling3* which is also an ordinal variable where 0 is no environmental defenders killed in that country for that year, 1 is 1-9 environmental defenders killed in that country during that year, and 2 is 10 or more environmental defenders in that country were killed during that year. Model's 2 and 3 are ordered logistic regressions. Finally, model's 4 and 5 use the *EAKilling4* dependent variable which is a count measure of the number of environmental defender killings each year per country. They are also a negative binomial regression and zero-inflated negative binomial regression respectively with *Population* used as the inflation factor since countries with more people are less likely to always have zero environmental defender killings.

Table 2 Here

There are several findings that are robust to all models. For the independent variables included *Deforestation*, *Native Population*, *Local Government*, and *Judicial Corruption* reached statistical significance in all models while *FDI* was statistically significant in models 1-3. In

terms of global demand there is moderate evidence to support hypothesis 1, no evidence to support hypothesis 2, and strong evidence to support hypothesis 3. The variable *FDI* is positive indicating that as foreign direct investment into a country increases so does the likelihood of an environmental defender killing, however, as stated above the variable is only significant in models 1-3. Figure 2 captures the predicted probability of an environmental defender killing as the level of FDI into a country increases. Although the confidence intervals widen considerably at higher levels of FDI one can see that it is at the higher ranges of FDI where the likelihood of defender killings are more likely to occur.

Figure 2 Here

Natural Resource Rents is not significant and the sign switches directions from models 1-3 to models 4-5, therefore we find no support for our second hypothesis. This is somewhat surprising considering the environmental and social disruptions that can occur from natural resource extractive activities.⁷⁵ A counter-point to our hypothesis, at least as it refers to mining operations, comes from Christensen⁷⁶ who shows the likelihood of social and/or armed conflict over mining projects varies over the life of a mine. The reason for this he argues is incomplete information. He finds that it's not environmental degradation per se that leads to protests over mining but rather the fact that people have limited information about how profitable mines are but nevertheless they expect to gain from mining operations, and when these gains are not met

⁷⁵Anthony Bebbington et. al., *Mining and social movements: Struggles over Livelihood and Rural Territorial Development in the Andes* 36 *World Development* 2888 (2008).

⁷⁶Darin Christensen, *Concession Stands: How Mining Investments Incite Protest in Africa* 73 *International Organization* 65 (2019).

that is when protests and violence can occur.⁷⁷ Following this logic, it is perhaps not surprising that *Natural Resource Rents* is not significant in this analysis if extractive activities such as mining operations do not necessarily lead to long and sustained protests then the likelihood of environmental defender killings would also be low.

Continuing with the global demand variable we can see that *Deforestation* is significant across all models and in the hypothesized direction giving support for hypothesis 3. The negative sign shows that as forested area increases the likelihood of an environmental defender killing decreases. Figure 3 presents the predicted probabilities of an environmental defender killing for various rates of deforestation. The highest likelihood of an environmental defender killing is when there are large reductions in the forested area of a country while very small amounts of deforestation to an increase in forested area have very low probabilities of environmental defender killings

Figure 3. Here

With regards to marginalization category, we find support for hypotheses 4 and 5 but not, surprisingly, for hypothesis number 6. The variable *Native Population* is significant and in the hypothesized direction indicating that the larger the indigenous population is in a country the greater the likelihood of an environmental defender killing. Figure 4 shows the predicted probability. Although the confidence intervals are quite wide, figure 4 shows that countries with larger indigenous populations have a much higher likelihood of have an environmental defender

⁷⁷ Darin Christensen *supra* note 76.

killing that countries with smaller indigenous populations, even though the overall likelihood of killing is low.

Figure 4. Here

The *Local Government* variable is significant and in the hypothesized direction meaning we have evidence that countries with more powerful local governments have higher likelihood of having an environmental defender killing than countries with relatively weaker local governments. Figure 5 shows the predicted probabilities from Model 1 for *Local Government*. At the lowest level of the *Local Government* variable (meaning local governments in a country has little to no autonomy from the central government) the probability of an environmental defender killing is .008% but at the highest level of the *Local Government* variable (meaning local governments in a country have significant autonomy from the government) that number increases to .021%. This result gives credence to the contention that it is within “authoritarian enclaves” in countries where environmental defenders are most vulnerable to murder.

Figure 5. Here

Somewhat surprisingly, given the findings in previous research, *Regime* was not significant. In other words, we do not find evidence that environmental defender killings are more likely in non-consolidated democracies as opposed to authoritarian regimes or consolidated democracies. However, this finding does give more support to the notion that it is not regime type per se that is important for understanding environmental defender killings but rather it is the empowerment of

local governments that seems to have more of an impact. This is in line with the findings of Carey and Gohdes⁷⁸ and their examination of journalist killings where they also find that the autonomy of local governments from the central government increases the likelihood of killings.

Finally, the last element of the triangle of vulnerability is impunity and the hypothesis tested under that category was on the role judicial corruption plays in environmental defender killing. The variable *Judicial Corruption* was significant across all models tested and in the hypothesized direction. Figure 6 shows the predicted probabilities of an environmental defender killing for each level of the *Judicial Corruption* variable. In this variable lower numbers represent more corruption while higher numbers represent less. As can be seen, going from a -3 on the *Judicial Corruption* variable to a 3 the predicted probability of an environmental defender killing changes from .06% to .003% respectively.

Figure 6. Here

As far as the control variables are concerned, *Human Rights*, *Under Reported*, the GDP variables, and *Population* were significant across all models. The variables *MEPV*, *Protest*, and *Info Flow* were not significant in any of the models tested. One interesting observation from the results of the control variables is that the likelihood of environmental defender killings are higher in rights repressive countries (as indicated by the significance of the human rights variable) but not in countries engaged in major episodes of political violence or with more protest activity. This suggests that environmental defender killings are more likely to occur in a more rights

⁷⁸ Sabine C. Carey & Anita R. Gohdes, *supra* note 35.

repressive atmosphere but not necessarily in countries engaged in war or civil war or with large amounts of protest activity.

Finally, the significance and direction of the GDP variables is in line with the results from Jeffords and Thompson⁷⁹ and Le Billion and Lujala⁸⁰ in that it is countries in the middle of the GDP per capita distribution with the most environmental defender killings. This is the environmental Kuznets curve identified by Jeffords and Thompson⁸¹ in their study. Figure 7. shows the predicted probabilities of environmental defender killings as one moves along the GDP per capita income scale. The inverted U shape in the graph highlights that it is in the middle of the income scale where an environmental defender killing is more likely compared to the poles. This is in line with the global demand element of the triangle of vulnerability as these are the countries that are most likely receiving heavier flows of FDI comparatively

Figure 7. Here

Conclusion

In conclusion, we find strong support for our theoretical claim that three elements create a triangle of vulnerability for environmental defenders that can lead to horrific outcomes, namely the murder of environmental defenders. The three elements of the triangle of vulnerability are global demand, marginalization, and impunity. From those three elements we derived seven hypothesis to test of which we found evidence to support five. Those five where: states with

⁷⁹ Jeffords & Thompson, *supra* note 14.

⁸⁰ Le Billion & Lujala, *supra* note 19.

⁸¹ Jeffords & Thompson, *supra* note 14.

more FDI are more likely to have an environmental defender killing, states with more deforestation are more likely to have an environmental defender killing, states with a larger indigenous population are more likely to have an environmental defender killing, states where local governments have more autonomy from the central government are more likely to have an environmental defender killing, and finally, states with higher levels of judicial corruption are more likely to have an environmental defender killing. The two hypothesis that we did not find support for are, states with greater reliance on natural resource extraction will have a higher likelihood for having an environmental defender killing, and non-consolidated democracies are more likely to have an environmental defender killing than either consolidated democracies or authoritarian regimes. Despite finding support for only five out of our seven hypothesis, we still believe our theoretical model performed well in our analysis.

Overall, we find that environmental defenders are most vulnerable to violence, including murder, in places where there is encroaching economic activity (often driven by global demand) on local populations many of whom may not welcome such activity and thus creating the climate for confrontation between defenders and businesses and/or government actors. If the local population is marginalized from the political process because they are indigenous and/or the local government has autonomy from the central government and engages in repressive activity this further accelerates the vulnerability of environmental defenders. Finally, if there is impunity for perpetrators of violence against environmental defenders, including for murders, this only add more fuel to the vulnerability fire as it shows perpetrators in the future that they are unlikely to suffer consequences for their actions.

Further research in this area should continue to pursue the environmental factors that may lead to environmental defender killings. There is evidence to suggest that certain types of

economic development projects with large environmental footprints lead to more local violence.⁸² With climate change and continual environmental degradation around the world the likelihood of tension and conflict between local groups and the state or local groups and powerful economic interests will only continue to increase. Understanding the broad factors that lead to the killing of environmental defenders are important steps to ensuring their protection. Also, future research should address who is doing the killing? Is violence more often perpetrated by private actors or government actors? Of particular interest, here maybe the “thugs for hire” phenomenon especially in democratic states. “Thugs for hire” are a form of privatized coercion used by state actors to repress a population and according to Ong⁸³ they are used by state actors to evade responsibility. This would be an avenue that democratic states may use to suppress environmental defenders since doing so openly would expose them to charges of hypocrisy and wider backlash. These and additional questions will help fill out the picture of who is most vulnerable to violence and hopefully lead to ways to minimize that violence.

⁸² Daniela Del Bene et. al., *More Dams, More Violence? A Global Analysis on Resistances and Repression Around Conflictive Aams through Co-produced Knowledge* 13 *Sustainability Science* 617 (2018).

⁸³ Lynette H. Ong, *‘Thugs-for-hire’: Subcontracting of State Coercion and State Capacity in China* 16 *Perspectives on Politics* 680 (2018).

Figures and Tables

Figure 1. Triangle of Vulnerability

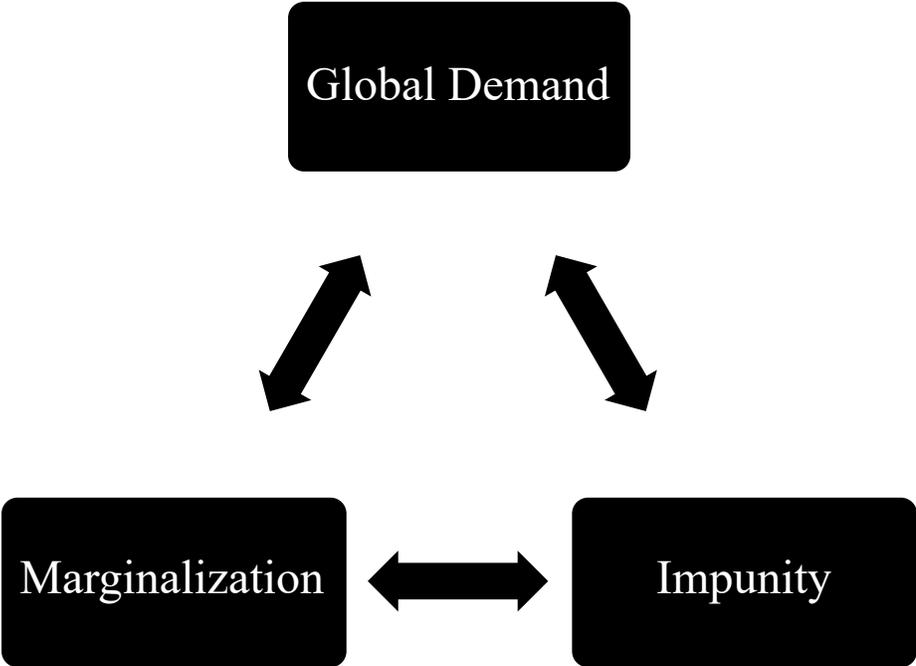


Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
(asinh)FDI	2,571	1.01	1.24	-6.72	5.29
Natural Resources Rent	2,722	9.08	12.33	0.00	64.11
Deforestation	2,450	-0.03	0.33	-3.09	3.19
Native Population	2,802	3.45	7.98	0.00	46.00
Local Government	2,768	0.63	0.36	0.00	1.00
Regime	2,802	0.53	0.26	0.02	0.92
Regime_Sq	2,802	0.35	0.28	0.00	0.85
Judicial Corruption	2,799	-0.07	1.52	-3.28	3.30
Human Rights	2,787	2.59	1.08	1.00	5.00
MEPV	2,801	0.53	1.42	0.00	9.00
Protest	2,783	3.10	6.71	0.00	143.00
Info. Flow	2,766	63.99	18.42	17.00	98.00
Under Reported	2,802	0.02	0.15	0.00	1.00
(ln) GDP per cap	2,710	8.40	1.53	5.27	11.63
(ln) GDP per cap_Sq	2,710	72.95	26.00	27.74	135.16
(ln) Population	2,798	16.17	1.54	12.98	21.05

Table 2. Model Results of Environmental Defender Killings, 2002-2018

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	EDKilled1	EDKilled2	EDKilled3	EDKilled4	EDKilled4
(asinh)FDI	.582*** (.149)	.610*** (.147)	.600*** (.143)	.462 (.290)	.451 (.300)
Natural Res. Rents	-.021 (.016)	-.020 (.016)	-.019 (.016)	.002 (.021)	.006 (.022)
Deforestation	-2.03*** (.540)	-2.06*** (.549)	-2.16*** (.598)	-2.30*** (.307)	-1.93*** (.363)
Native Population	.037*** (.009)	.041*** (.009)	.028** (.009)	.039** (.015)	.034* (.016)
Local Government	.964* (.465)	1.19* (.482)	1.22** (.471)	2.32*** (.525)	2.16*** (.531)
Regime	3.70 (3.27)	3.27 (3.17)	.572 (3.08)	-6.11 (3.14)	-2.22 (3.09)
Regime_Sq	-.831 (3.13)	-.250 (3.04)	2.77 (3.03)	3.31 (3.04)	5.61 (2.97)
Judicial Corruption	-.500*** (.135)	-.520*** (.128)	-.528*** (.123)	-.647* (.261)	-.662* (.266)
Human Rights	.764*** (.168)	.855*** (.168)	.999*** (.171)	.921*** (.228)	1.09*** (.216)
MEPV	.038 (.077)	.013 (.072)	-.016 (.073)	.018 (.081)	.027 (.074)
Protest	.0003 (.011)	-.003 (.011)	-.001 (.011)	-.002 (.015)	-.006 (.015)
Info Flow	.029 (.020)	.026 (.019)	.032 (.019)	.007 (.025)	.022 (.026)
Under Reported	-2.11** (.778)	-2.03** (.786)	-2.18** (.782)	-2.86*** (.834)	-2.74*** (.784)
(ln) GDP percap	5.42*** (1.47)	5.43*** (1.45)	5.73*** (1.47)	8.74*** (1.81)	9.21*** (1.80)
(ln) GDP percap_Sq	-.330*** (.091)	-.327*** (.087)	-.352*** (.090)	-.533*** (.118)	-.571*** (.119)
(ln)Population	.723*** (.092)	.716*** (.089)	.681*** (.082)	.853*** (.096)	.383* (.174)
Inflation - (ln)Population					-1.45** (.470)
Cut 1		45.084 (6.033)	45.403 (6.088)		
Cut 2		45.773 (6.038)	47.555 (6.112)		
Ln Alpha				1.677 (.165)	1.325 (.255)
Observations	2,172	2,172	2,172	2,172	2,172
Wald Chi2(30)	252.72	279.39	305.45	521.20	367.47
Prob > Chi2	.0000	.0000	.0000	.0000	.0000
Pseudo R2	.4085	.3607	.3671	.2318	

*p < .05, **p < .01, ***p < .001. Robust standard errors included in parentheses.

Yearly fixed effects included in models but results not presented.

Figure 2. Predictive Probabilities of Environmental Defender Killing by level of FDI

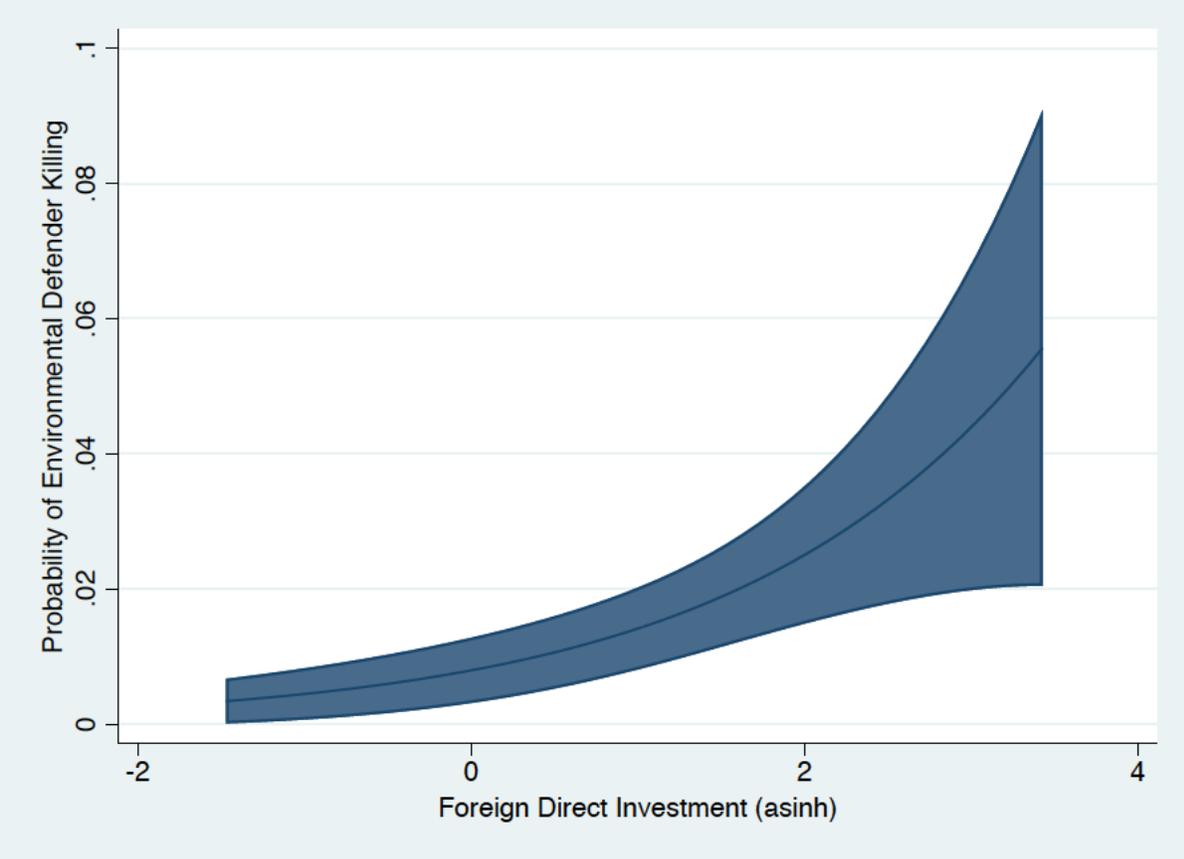


Figure 3. Predictive Probabilities of Environmental Defender Killing by Percentage Change in Forest Area

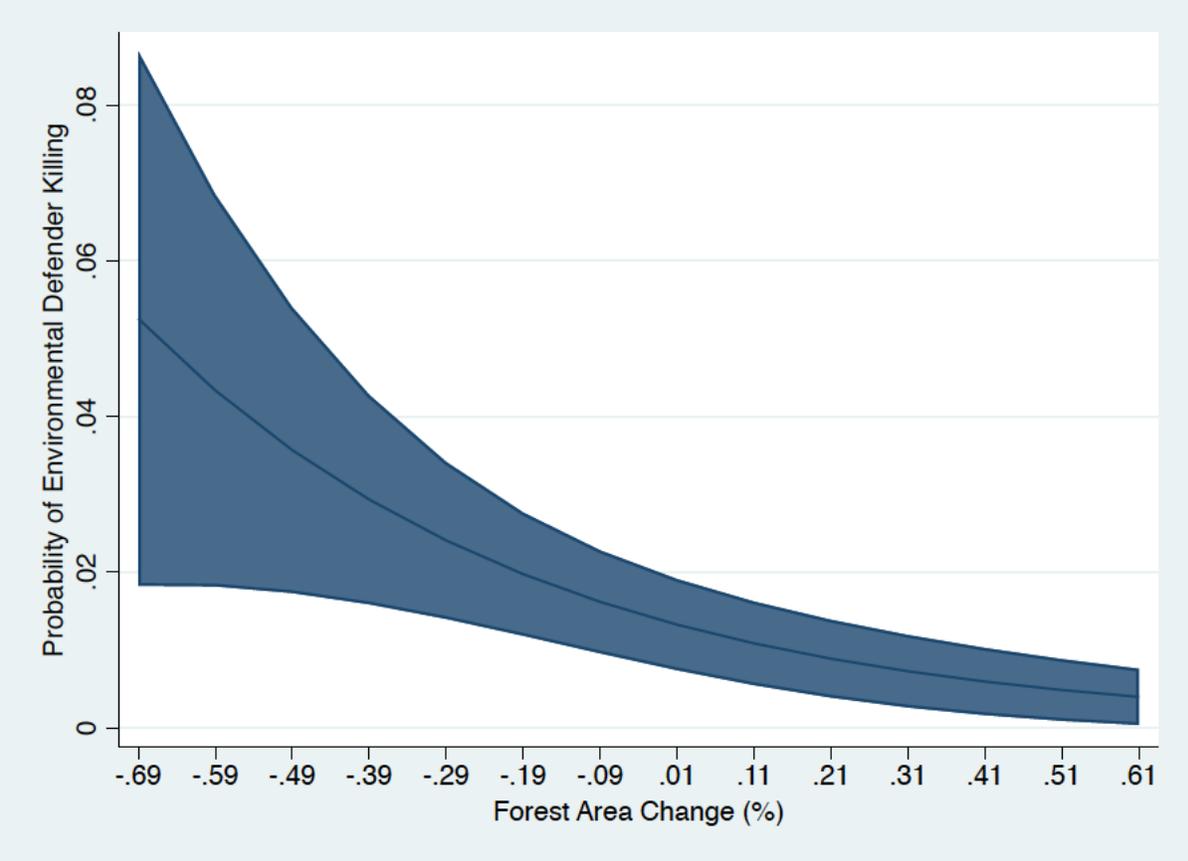


Figure 4. Predictive Probabilities of Environmental Defender Killing by Percentage of Indigenous Population

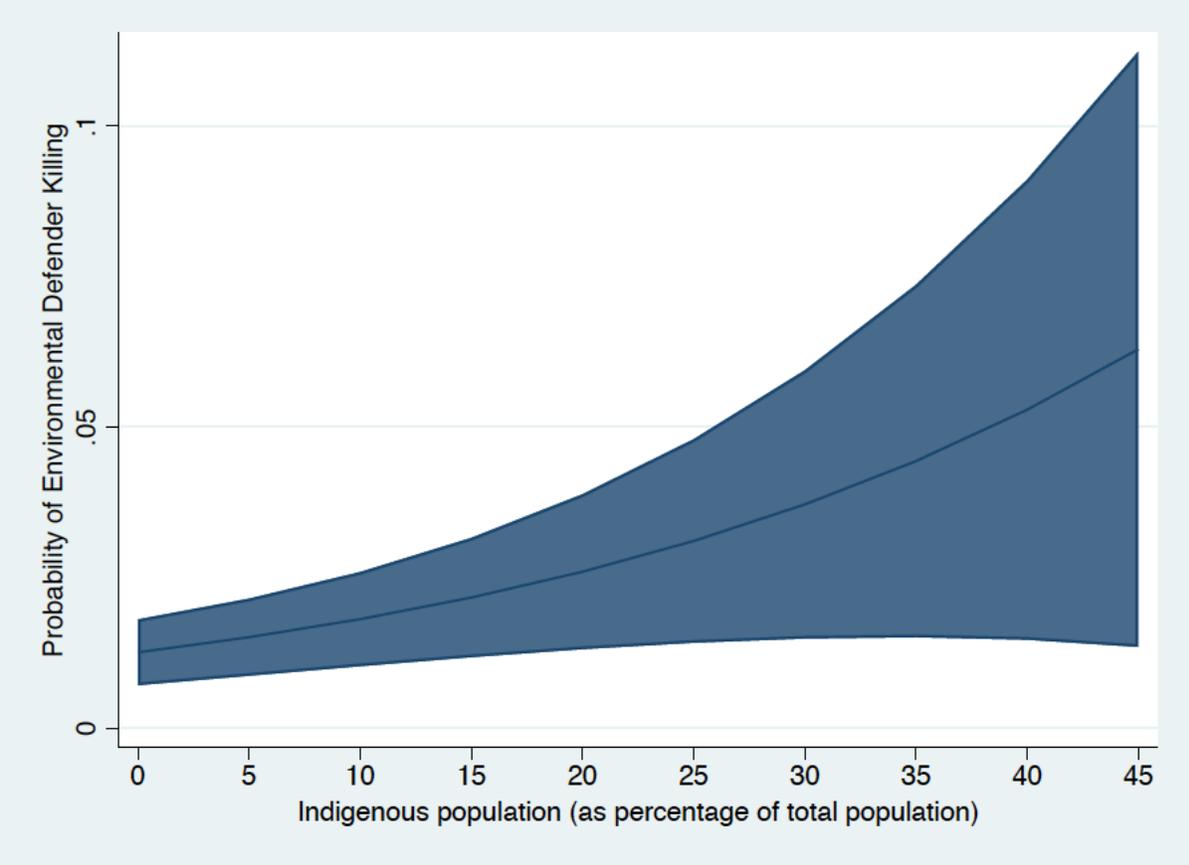


Figure 5. Predictive Probabilities of Environmental Defender Killing by Level of Autonomy of Local Government

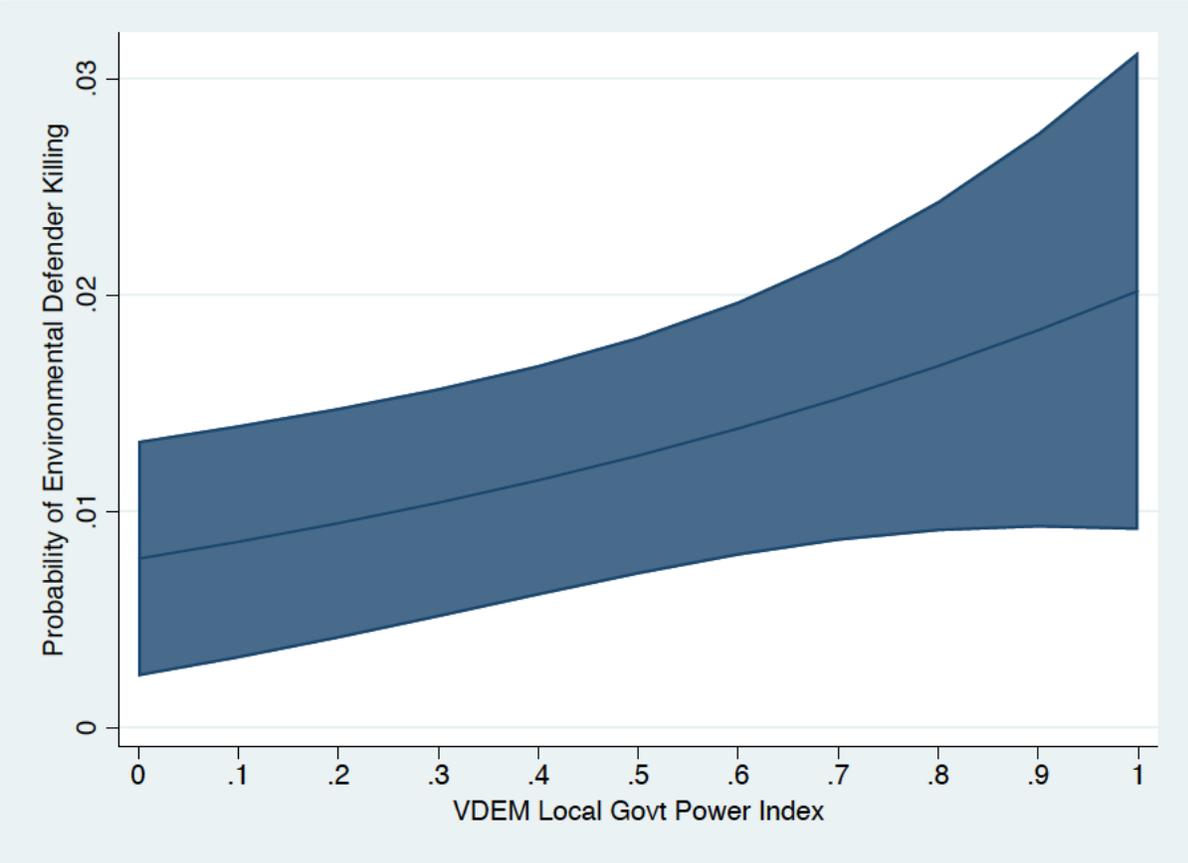


Figure 6. Predictive Probabilities of Environmental Defender Killing by Level of Judicial Corruption

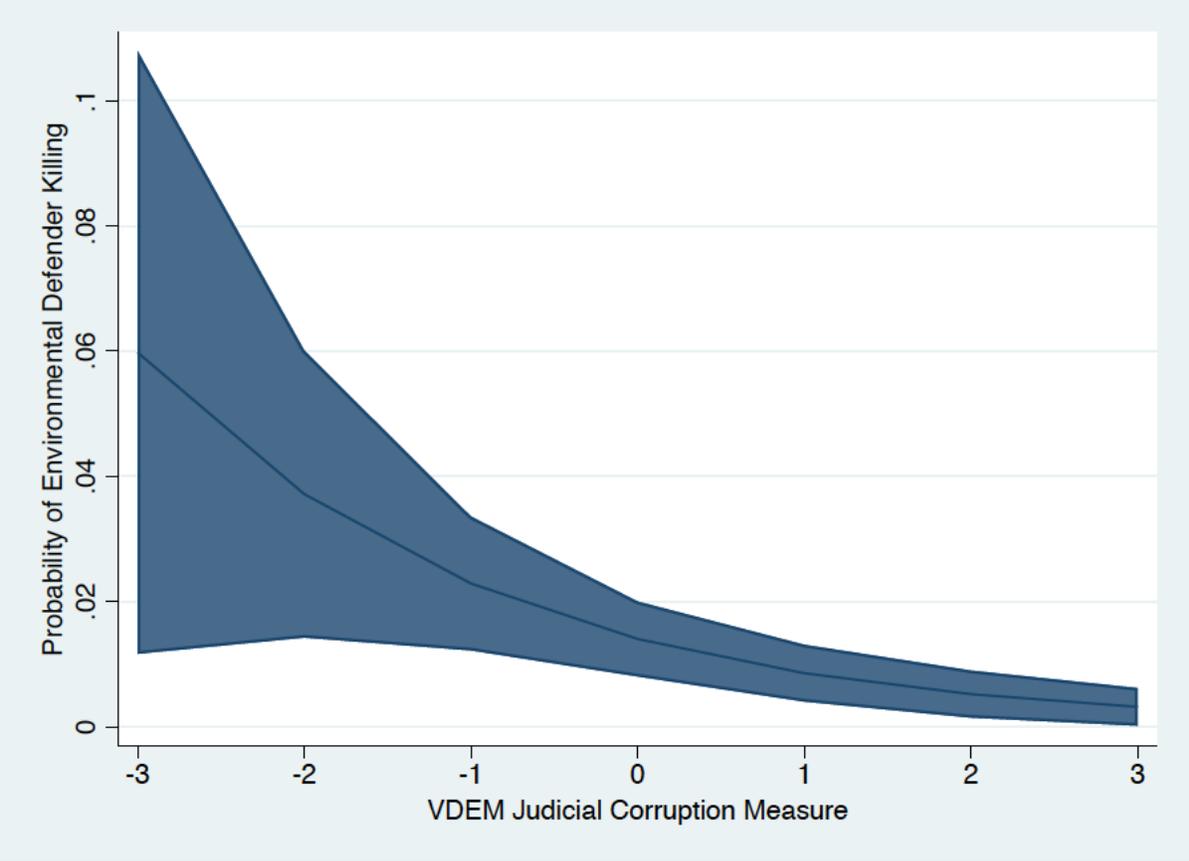


Figure 7. Predictive Probabilities of Environmental Defender Killing by Level of GDP per capita

