ERF Working Papers Series

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ECONOMIC RESEARCH FORUM
منتدى البحوث الاقتصادية

Working Paper No. 1519
December 2021

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The author thanks Burim Prenaj and Adelina Zeqiri for scientific assistance with the econometric parts. The author also thanks Fatma Gtari, Ichrak Klai, Oumaima Guena, and Aziz Ajmi for help during the data collection stage.

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First published in 2021 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Abstract

The role of non-governmental organizations (NGOs) in climate policy and the green transition (conservation of biodiversity, energy transition, climate change) is becoming increasingly important worldwide. This paper examines the contribution of NGOs to drafting and implementing climate policy in Tunisia, engaging in climate negotiation processes and activities, and formulating effectiveness criteria related to climate change lobbying at the local, national, and international levels. First, we show that improved working conditions have a positive effect on NGO involvement in climate change actions. Second, greater professionalism has a substantial effect on Elaboration Resilience 2050, Elaboration of a Low Carbon Economy 2050, and climate change training, whereas the effect of the Conferences of the Parties (COPs) is marginally negatively significant. Third, exclusion from the drafting of government laws is a major determinant of involvement in climate change actions. Fourth, NGOs which cooperate with the government and receive funds from international organizations are more likely to be involved in climate change actions, climate policy, climate negotiations, and NGO projects. Fifth, NGOs working on project implementation do not have sufficient resources to undertake several activities simultaneously. Sixth, budget increases and the number of funding sources seem to be positively correlated to engagement in policy changes/negotiations and the implementation of climate projects.

Keywords: Climate policy, climate action, climate negotiations, NGOs, Tunisia.
JEL Classifications: Q5

ملخص

أصبح دور المنظمات غير الحكومية في سياسة المناخ والتحول الأخضر (حفظ التنوع البيولوجي، والتحول إلى الطاقة النظيفة، وتغير المناخ) أكثر أهمية في جميع أنحاء العالم. تتناول هذه الدراسة مساهمة المنظمات غير الحكومية في صياغة وتنفيذ سياسة المناخ في تونس، والمشاركة في عمليات وأنشطة التفاوض بشأن المناخ، وصياغة معايير الفعالية المتعلقة بجهود الضغط لصالح قضية تغير المناخ على المستويات المحلية والوطنية والدولية. أولاً تظهر الدراسة أن تحسين ظروف العمل له تأثير إيجابي على مشاركة المنظمات غير الحكومية في إجراءات تغير المناخ. ثانيًا وجد أن زيادة الاحترافية لها تأثير كبير على تحقيق التكيف مع التغير المناخي 2050، والوصول إلى اقتصاد منخفض الكربون 2050، والتدريب على تغير المناخ، في حين أن تأثير مؤتمرات الأطراف (**COPs**) هو تأثير هامشي سلبي ملحوظ. ثالثًا يعد الاستبعاد من صياغة القوانين الحكومية محددًا رئيسيًا للمشاركة في إجراءات تغير المناخ. رابعاً من المرجح أن تشارك المنظمات غير الحكومية التي تتعاون مع الحكومة وتتلقى الأموال من المنظمات الدولية في إجراءات تغير المناخ، وسياسة المناخ، والمفاوضات المناخية، ومشاريع المنظمات غير الحكومية. خامساً المنظمات غير الحكومية التي تعمل على تنفيذ المشاريع لا تمتلك الموارد الكافية للسماح لها بالقيام بالعديد من الأنشطة في وقت واحد. سادسًا يبدو أن زيادة الميزانية وعدد مصادر التمويل مرتبطان ارتباطًا إيجابيًا بالمشاركة في فعاليات تغيير / مفاوضات السياسات وتنفيذ مشاريع المناخ.

1. Introduction

Climate change is one of the most significant challenges facing the international community. The United Nations Framework Convention on Climate Change (UNFCCC, 1992) defines climate change as "a change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable periods of time."

Climate change governance across the globe involves a range of different actors, the most important of which are states. However, as the need to mitigate and adjust to climate change becomes more urgent and complex, actors such as non-governmental organizations (NGOs) are assuming a more important role and having a greater impact on climate policy and governance. NGOs are defined as groups or institutions independent of the government that have primarily humanitarian or cooperative (rather than commercial) objectives (World Bank, 1992).

The contribution of environmental NGOs is becoming more crucial for climate governance. The main role of civil society in climate change policy is to incorporate long-term climate risks and greater equity in the relations between the state and the population at both the national and local levels. The involvement of NGOs in climate policy provides more opportunities for societal access to climate information in order to ensure that the most vulnerable groups can participate in and be heard at climate change negotiations, in addition to enabling the participation of all actors in inter-institutional coordination spaces at the local and national levels. NGOs contribute to policy formulation, institutional capacity, and interaction with civil society by enabling more sustainable lifestyles. In the context of the environment and climate change, NGOs play at least three complementary roles: institutional, economic, and social.

First, in their institutional role, NGOs significantly contribute to the national institutional environment. The construction and provision of an appropriate institutional framework are vital for national economic development (Grief and Tabellini, 2010). Van der Heijden (1997) emphasizes that the degree of NGO institutionalization is determined by the specific political context in which the NGOs are embedded. More institutionalized NGOs can become large, complex, technically oriented, and apolitical organizations that can be exploited by governments and large international donors (Ogliastri et al., 2016; Uvin et al., 2000). However, NGOs that do not engage with politics are also able to influence the political context. They may work to improve existing institutions by formulating new rules and laws related to environmental protection and combatting climate change. They encourage authorities to move towards greater sustainability and adopt new regulations and laws.

Second, the economic role occupied by NGOs is important, especially in countries where government revenues and capacity are limited. NGOs can promote economic growth and

community resilience. The fostering of a social and solidarity economy (SSE) is heavily dependent on the activities of NGOs. From an environmental perspective, SSE organizations aim to reduce their carbon footprint in the interest of environmental sustainability and sustainable production systems. The SSE enables effective participation in the achievement of the United Nations sustainable development goals (UNSDC) through collaborative activity. The link between environmental NGOs and SSE organizations is being strengthened by their common pursuit of sustainable living and economic development.

Third, NGOs are important for the promotion of social development at all scales. Their local-level connections provide them with good quality information on the impacts of climate change and the economic and social actors on the ground. NGOs also play a pivotal role in identifying the impacts of climate change and adaptation policies. They also fulfill a social role by helping the poor and providing basic aid. Disadvantaged populations are more likely to accept interventions promoted by NGOs compared to those offered by the state. In the case of crises and extreme climate-related events, the contribution of NGOs is crucial since they tend to have better knowledge about local communities and the building of resilience.

NGOs have played an important part in international climate negotiations since the first Conference of the Parties (COP) in 1995 (Pandey, 2015; Kuyper and Bäckstrand, 2016). Climate change and environmental NGOs are generally considered advocacy and interest groups (Betzold 2013) that take on the roles of experts, mediators, and brokers to achieve certain outcomes within negotiation processes (Albin 1999; Nasiritousi et al., 2016; Chan, 2020). For example, for the fourth review of the Adaptation Fund, it was agreed to "Invite Parties to the Kyoto Protocol, Parties to the Paris Agreement, observer organizations, as well as other interested international organizations, stakeholders and non-governmental organizations involved in the activities of the Adaptation Fund, as well as implementing entities accredited by the Adaptation Fund Board, to submit their views on the fourth review of the Adaptation Fund based on the terms of reference set out in the annex via the submission portal by 31 March 2022, for consideration by the Subsidiary Body for Implementation at its fifty-sixth session" (June 2022). This allowed NGOs to express their views and influence the adaptation fund agenda.

The participation of NGOs in climate negotiations and climate policy has increased and become more influential. One year after the adoption of the Paris Agreement, around 5,500 non-state actors attended the UNFCCC meetings. This included larger representation from the developing countries that lack the human resources to send multiple delegates to participate in climate negotiations. NGOs try to redress this imbalance and support countries whose governments are unable to implement climate policies on their own.

However, the role of NGOs in climate change governance differs across countries due to different political and legislative contexts (Dolšak, 2013; Schipani, 2014). Several authors argue that NGOs are more likely to be present in countries with stable democracies (Hershey, 2013; Fisher, 2013; Maclean et al., 2015) because they are likely to receive more support from the government. However, there is no consensus on this aspect. In some politically restricted countries, such as Kazakhstan, the role of NGOs in climate policy-making is limited (Luong, Weinthal, 1999). In others, such as Nepal, NGOs are very active and are considered crucial for many processes and decision-making activities despite weak governance (Mayhew, 2005). In China, the most active NGOs are environmental NGOs due to their smaller political and cultural influence, which enables them to contribute to climate policy activities (Liu et al., 2017).

Tunisia's climate policy activities include a range of actors and levels, and NGOs play a major role in Tunisia's climate change policy. In 2020, Tunisia published a law related to fostering the SSE. The aim is for ten percent of the GDP to come from the SSE by 2030. Tunisian NGOs have been key to the stabilization of the country and were awarded a Nobel Prize in 2015 for their decisive contribution.

There is a large literature exploring the role of NGOs in different contexts, but few studies focus on the role played by NGOs in climate governance, climate policy, and climate negotiations. The literature focuses mainly on describing and analyzing their contribution to climate change policy and lacks empirical evidence. To our knowledge, there is no empirical evidence of how much NGOs contribute to climate policy implementation in the Middle East and North Africa (MENA) region.

This paper examines the part played by NGOs in climate policy in Tunisia, their engagement in the climate negotiation process, and their effectiveness in lobbying over climate change at the local, national, and international levels. First, we found that the improvement of working conditions has a positive effect on NGO involvement in climate change actions. Second, professionalism growth has quite a large effect on Elaboration Resilience 2050, Elaboration of Low Carbon Economy 2050, and Climate change training, while COPs have a marginally significant negative effect. Third, exclusion from government law-drafting is one of the key determinants that explain the involvement in climate change actions. Fourth, NGOs that cooperate with the government and receive funds from international organizations are more likely to be involved in climate change actions as well as climate policy actions, climate negotiations, and implementing projects by NGOs. Fifth, NGOs working on project implementation don't have enough resources and means to undertake several activities at the same time. Finally, budget increases and the number of funding sources seem to be positively correlated with engagement on policy change/negotiations but also on the probability of implementing projects.

The paper is structured as follows: section two reviews the relevant literature, section three describes the methodology, section four presents the results and the main findings, and section five offers some conclusions and implications for policy.

2. Literature review

The role of NGOs in different domains has been studied in some depth. Several papers investigate the contribution of NGOs to solving economic problems (Shanahan and Hopkins, 2007; Arenas et al., 2009), social issues (Karwacka and Kitzman, 2014; Drewniak, 2015; Sanzo et al., 2015; Herlin and Solitander, 2017; Huszlak, 2017), and environmental problems (Holmes and Smart, 2009; Sanzo et al., 2015). Some studies investigate the part played by NGOs in national development (Skouloudis et al., 2015) and local expansion (Holmes et al., 2015; Moldovan et al., 2016).

The involvement of NGOs in climate policy has been explored by several authors, including Giorgetti (1998), Szarka (2014), Bernauer et al. (2016), Kadirbeyoglu et al. (2017), Carter and Childs (2017), McGregor et al. (2018), Gereke and Brühl (2019), and Haris et al. (2020). These studies focus mainly on environmental NGOs and their influence on climate policy and climate policy implementation. Some argue that NGOs are major climate policy implementation actors and are allowed to intervene in the policy-making process.

Policy-making and political processes can be impacted by NGOs in different ways. According to Osmani (2008), NGOs can participate in climate governance by identifying policy options, contributing to policy formulation, engaging in policy implementation, and monitoring and evaluating the effects of policies. NGOs use different strategies to negotiate international environmental agreements (Rietig 2016, Allan and Hadden, 2017) and influence policy-making at the domestic and national levels. Their impact relies on direct lobbying, educational campaigns, and capacity-building activities (Andia and Chorev, 2017; Curran and Eckhardt, 2017). They also collaborate with local governments, which enables them to influence policy at the subnational level (Tukahirwa et al., 2010).

The state-NGO relationship has been a subject of debate for some time. Some argue that NGOs are important in civil society (Migdal, 1997), while others consider the state to be central (Skocpol, 1985). State-NGO interaction differs depending on the national political situation. In some cases, these interactions are positive, and in other cases, governments ignore NGOs. Thus, interactions between states and NGOs can be collaborative, confrontational, or based on cooptation (Migdal, 2001; Paker et al., 2013). Such relationships or interactions can be decisive for NGO involvement in policy-making. Positive collaborations between NGOs and the state can result in greater NGO participation in climate governance (Kalesnikaite, 2019).

The interactions involving NGOs and other non-state actors are also important. Pacheco-Vega (2015) proposes a double grid framework to examine the interaction between NGOs and other non-state actors and their role in policy-making. They suggest that there are two main determinants of NGO influence over policy-making: level of adaptation of the domestic political climate and the political environment for citizen participation; and NGO capacity to interact with international intergovernmental institutions. This grid framework identifies the level of NGO influence in the country. Pacheco-Vega (2020) emphasizes the need for a more powerful NGO sector with lobbying strength and networking capabilities. NGOs with a higher number of connections and lobbying strengths will be more likely to have influence compared to those with less lobbying experience and small networks.

Several studies examine the role of NGOs in climate change policies and negotiations (Dolšak, 2013; Schipani, 2014; Pandey, 2015). They analyze the role of environmental NGOs in climate change negotiation and policy processes. Rietig (2016) investigates NGO participation in climate negotiations and emphasizes that governments value NGO involvement to ensure legitimacy and signal public support. Chan (2020) examined the inequality delegation for climate negotiations and how this affects NGO participation and suggests that NGO negotiating support has been neglected and under-explored. However, we need a better understanding of when NGOs are most effective and how they can best contribute to better climate governance through their activities. We need to identify the circumstances under which their contribution is considered a prerequisite for productive climate negotiations.

There is an ongoing debate on the effectiveness of NGOs in climate policy, climate negotiations, and climate-related actions. This includes the situation of less democratic countries, where the actions and participation of NGOs are more limited and not favored by the government. Bäckstrand et al. (2017) examined the effectiveness of NGOs in climate governance and suggests that their influence should be increased through continuous participation and commitment to climate governance. Clearly defined actions and goals are needed to increase effectiveness.

While NGOs are becoming key players in climate change negotiations and policies, they still face considerable obstacles. Berny and Rootes (2018) believe that NGOs are not to blame for the failure to solve environmental issues and consider that many other actors are equally responsible. The limited participation of NGOs is a governance issue that should be resolved to achieve more effective and better climate change governance.

3. Methodology

3.1. Data collection

We are interested in NGOs' roles in climate policy and the climate negotiation process, as well as the effectiveness of NGO lobbying at the local, national, and international levels. We utilize the

results of a survey of 345 Tunisian environmental NGOs. Questionnaires were distributed among 1,024 NGOs and 345 responses were collected (34 percent response rate).

Data were collected through a questionnaire created by the author, which was pilot-tested with a small group of the author's friends and colleagues and revised based on their comments. The questionnaire was prepared in English and translated into French and Arabic. It was distributed face-to-face and online among the NGOs in our database and identified on other platforms. Sample representativeness was ensured through the inclusion of a range of NGOs working in different parts of Tunisia and involved in different activities.

The survey questions covered the following areas: (a) general information about the NGO; (b) the NGO's main activities related to climate change; (c) the NGO's perception of climate events and adaptation and mitigation measures; (d) the role of the NGO in climate policy; (e) the role of the NGO in climate negotiation processes; and (f) the NGO's projects and funding.

3.2. Data description

Table 1 offers a detailed description of the variables included in our empirical model. The first panel defines the dependent variables: the first seven refer to the involvement of NGOs in climate change activities and the other three refer to NGO engagement in climate change policy and climate change negotiation processes, and whether the NGO is involved in a climate change project.

The second panel presents the independent and control variables as well as the variables of interest. The independent variables include improved working conditions, perceived increased professionalism related to climate change issues, existence of cooperation with the government, whether the NGO was involved in drafting climate change laws, and the number of employees working full time on environmental and climate change. We include an indicator for whether the NGO has received a budget increase in the previous five years. We also include variables for the number of and main NGO funding sources, as well as three controls for the type of organization, region (location), and years since establishment.

Table 1. Variables included in the empirical model

	Variable	Definition	Measures
		DEPENDENT VARIABLES	
Involvement in C.C activities	Elab. NDC Tunisia	Involvement in the elaboration of the NDC of Tunisia.	Binary: 0- if NGO is not involved; 1- if NGO is involved
	Elab. Adaptation Strategy	Involvement in the elaboration of the Adaptation Strategy.	Binary: 0- if NGO is not involved; 1- if NGO is involved
	Elab. Resilience 2050	Involvement in the elaboration of the Resilience 2050 Strategy.	Binary: 0- if NGO is not involved; 1- if NGO is involved
	Elab L.C.E 2050	Involvement in the elaboration of the Low Carbon Economy 2050 Strategy.	Binary: 0- if NGO is not involved; 1- if NGO is involved
	Ministry Workshops	Participation at workshops organized by the Ministry in matter of Climate change.	Binary: 0- if NGO is not involved; 1- if NGO is involved
	Climate change training	Participation at training sessions on matters of climate change.	Binary: 0- if NGO is not involved; 1- if NGO is involved
	COPs	Participation at the Conferences of the Parties (COPs).	Binary: 0- if NGO is not involved; 1- if NGO is involved
Engagement on C.C policy		Engagement in the climate change policy.	Binary: 0- No; 1- Yes
Engagement on C.C negotiations		Engagement in the climate change negotiation processes.	Binary: 0- No; 1- Yes
Implementing C.C project currently		An indicator which shows whether NGOs are currently implementing any project related to the mitigation and adaptation of climate change.	Binary: 0- No; 1- Yes
		INDEPENDENT VARIABLES	
Work. cond. impr.		Improvement of working conditions as a result of government help.	Binary: 0- No; 1- Yes
Prof. growth		Growing professionalism of organizations' activities on matters of climate change as a result of government help.	Binary: 0- No; 1- Yes
Coop. with gov.		An indicator that shows whether NGOs have established any kind of cooperation with the government on matters of climate change.	Binary: 0- No; 1- Yes
Exc.C.C law-drafting		An indicator that shows whether the NGOs were not consulted in law-drafting for civil society in matters of climate change.	Binary: 0- No; 1- Yes
No. employees		Number of full-time employees working in the section of environmental and climate change.	Continuous

Budg. increase		An indicator that shows if the organization's budget has increased in the last five years.	Binary: 0- No; 1- Yes
No. fund. Sources		Number of funding sources from the set of choices: subventions from Tunisian environmental funds; financial support from the external donors; financial support from other international organizations; financial support for private sector; donations from its members	Discrete
Main funding source	International org.	An indicator that shows if the main funding source is an international organization	Binary: 0- No; 1- Yes
	External Donors	An indicator that shows if the main funding source are other external donors	Binary: 0- No; 1- Yes
Control variables	Type of organization	This variable shows whether the NGO is: international, national, regional, or local	Ordinal: 1-International; 2- National; 3-Regional; 4- Local
	Region	Region in which the NGOs resides	Discrete
	Years in operation	Total years that the NGO is active	Continuous

3.3. Descriptive statistics

This section describes the sample NGOs and a descriptive analysis of the relationships among the main study variables.

Table 2 reports the means by type of organization and for the overall sample. Table 2 shows that, on average, NGOs in the sample have been active for around 13 years, with local NGOs being the longest established on average (around 18 years), and regional NGOs more recent (around 11 years). Table 2 also shows that regional NGOs benefit from more sources of funding (average of 2.29 sources), followed by local NGOs (average of two sources). International NGOs benefit from only 1.3 sources of funding on average, which might be because international NGOs mostly depend on external donors rather than the private sector or national environmental subventions. The average number of full-time employees is around six for the whole sample, with national NGOs averaging ten paid workers followed by the international NGOs with around seven workers, and regional and local NGOs only two and less than one, respectively. Local and regional NGOs seem to rely more on volunteers, with regional organizations reporting around 38 volunteers, local NGOs around 29 volunteers, national NGOs around 31 volunteers, and international NGOs 17 volunteers, indicating their greater reliance on paid employees compared to local organizations. However, international organizations have fewer paid members (9.7) compared to national (15.57) and local (16.56) NGOs. The NGOs with the smallest number of paid members are regional NGOs, with only around two paid members. Finally, in terms of sample composition, 46 percent are national NGOs, followed by 29 percent regional NGOs and 17 percent local NGOs, with international NGOs accounting for only eight percent of the sample.

Table 2. Main characteristics of the sample

	Type of organization				
	International	National	Regional	Local	Total
Years in operation	17.33	11.27	11.06	18.67	12.96
No. fund. sources	1.333	1.796	2.290	2	1.935
No. employees	7.333	10.39	1.968	0.889	6.093
Number of volunteers	17.22	31.80	37.90	28.67	31.81
Number of paid members	9.778	15.57	2.097	16.56	11.35
Share in the sample	0.08	0.46	0.29	0.17	1.00
Observations	321				

Table 3 shows the shares of organizations in day-to-day climate change activities. It suggests that the NGOs focus mostly on education, the development of climate change actions and mitigation policies, water pollution, and lobbying. The main activities of international NGOs seem to be climate change education, developing international cooperation, lobbying, and the development of actions and mitigation policies. Similarly, the most frequent activities for national, regional, and local NGOs are climate change education and the development of actions and mitigation policies, with national NGOs also taking part in lobbying, and regional and local NGOs involved in water pollution.

Table 3. Day-to-day activities of NGO by type

	Type of organization				
	International	National	Regional	Local	Total
C.C Education	0.667	0.717	0.848	0.750	0.757
Air pollution	0.111	0.358	0.364	0.300	0.330
Water pollution	0.444	0.415	0.515	0.450	0.452
Lobbying or regional level	0.333	0.434	0.424	0.450	0.426
Lobbying or national level	0.444	0.528	0.364	0.350	0.443
Developing int. cooperation	0.556	0.396	0.394	0.450	0.417
Soc. Cont. of polluters (companies)	0.222	0.283	0.212	0.450	0.287
Protests threats to the environment	0.222	0.358	0.424	0.550	0.400
Prom. Str. for adap, & mit.	0.222	0.377	0.364	0.300	0.348
Dev. Act. Of Climate Justice	0.111	0.283	0.303	0.250	0.270
Dev. act of adaptation to C.C	0.222	0.415	0.364	0.400	0.383
Dev. Act. of Mit. Policies	0.444	0.472	0.576	0.450	0.496
Observations	345				

Figure 2. Plots the share of organizations by type regarding their perception of the impact of environmental inspectors in combating climate change

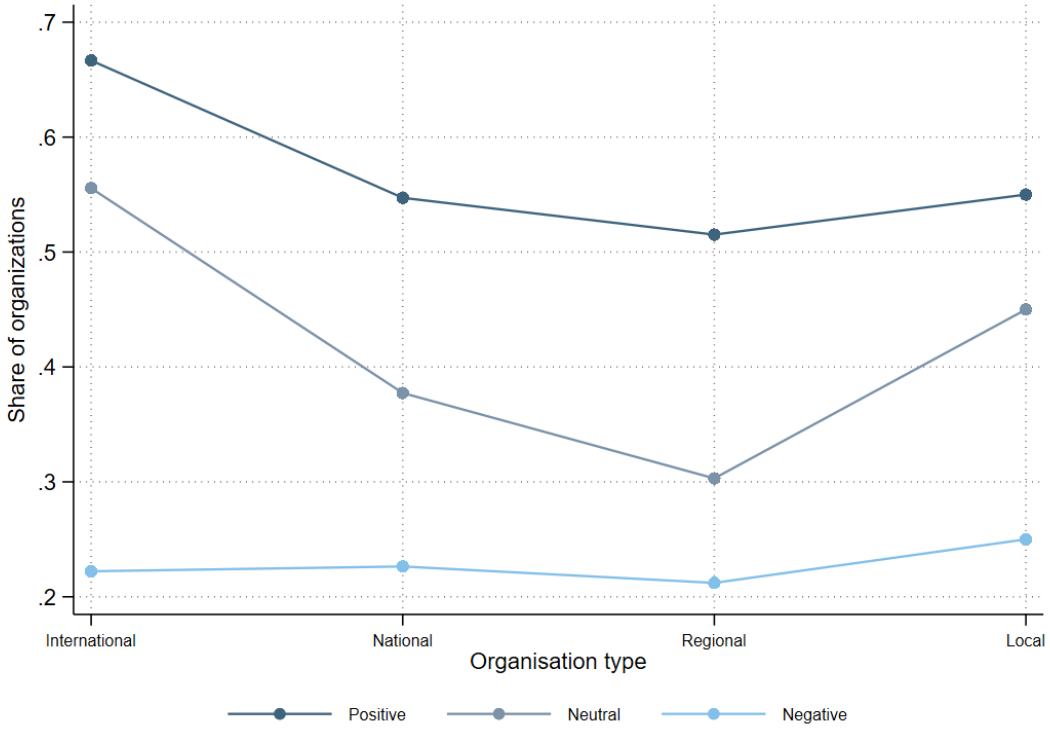

Figure 2 shows the share of organizations by type in relation to their perception of the impact of environmental inspectors for combating climate change. In general, most NGOs perceive the involvement of environmental inspectors as positive. However, this share is highest among international NGOs and lowest among local NGOs.

Figure 3: Panel (a) plots the share of organizations who believe that stakeholders have had a positive impact in combating climate change, while panel (b) plots the share of organizations who suggest that stakeholders were supportive of climate change actions

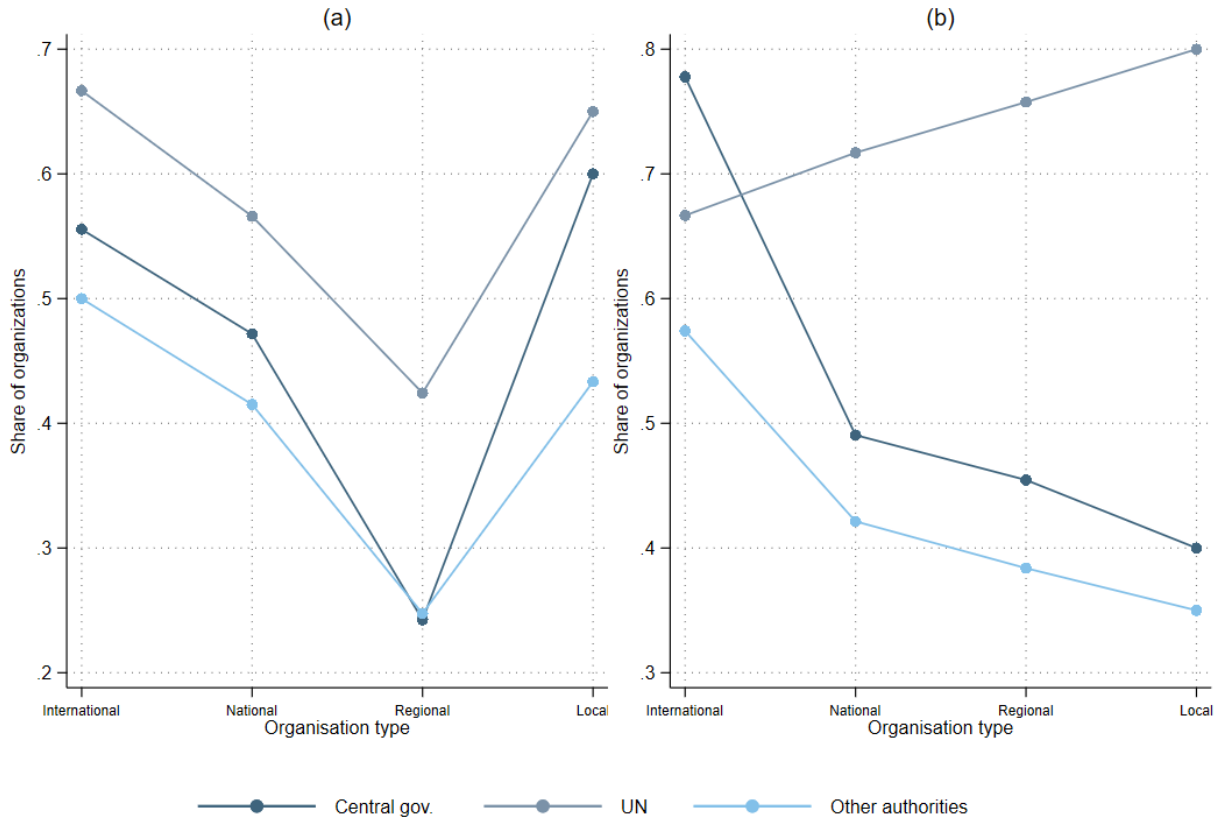

Figure 3(a) depicts NGOs' perceptions of the contribution of different stakeholders to combating climate change. Most of the NGOs agreed that UN agencies had a positive impact on combating climate change, with international and local NGOs showing a highly positive perception. The impact of the central government seems to be higher for local NGOs.

Figure 3(b) plots the share of NGOs that consider stakeholders supportive of climate change actions. Among international NGOs, the most supportive stakeholders are the central government followed by UN agencies and other authorities. For the national, regional, and local NGOs, the most supportive of climate change actions are UN agencies, followed by the central government and other authorities.

Table 4. Positive role of stakeholders as perceived by type of organization

	International	National	Regional	Local	Total
OECD	0.333	0.396	0.242	0.350	0.339
United Nations	0.556	0.604	0.424	0.600	0.548
World Bank	0.444	0.491	0.364	0.400	0.435
WWF	0.778	0.660	0.636	0.600	0.652
Green peace	0.778	0.642	0.576	0.500	0.609
UNDP	0.556	0.660	0.576	0.600	0.617
GIZ	0.667	0.660	0.697	0.600	0.661
UNEP	0.778	0.509	0.424	0.450	0.496
AFED	0.444	0.396	0.212	0.350	0.339
Fridays for Future	0.556	0.396	0.212	0.250	0.330
Friends of Earth	0.667	0.415	0.273	0.350	0.383
Observations	345				

Table 4 shows the positive role of different stakeholders according to the type of NGO. Most international NGOs state that the most positive effects of combating climate change are the outcome of the efforts of the World Wildlife Fund (WWF) (78 percent), Green Peace (78 percent), and the UN Environment Programme (78 percent). National NGOs consider the WWF, the UN Development Programme (UNDP), and GIZ to be the most effective stakeholders for combating climate change. GIZ and the WWF are perceived by regional NGOs as having the most positive effect. Local NGOs consider the WWF, GIZ, UNDP, and Green Peace to be the most effective.

Overall, the stakeholders that have the most positive effect are GIZ (66 percent), WWF (65 percent), and UNDP (62 percent). Those with the least positive effects on combating climate change are Fridays for Future, OECD, and Friends of the Earth.

Figure 4. Plots the share of organizations regarding their perception of the positive impact of government on selected dimensions

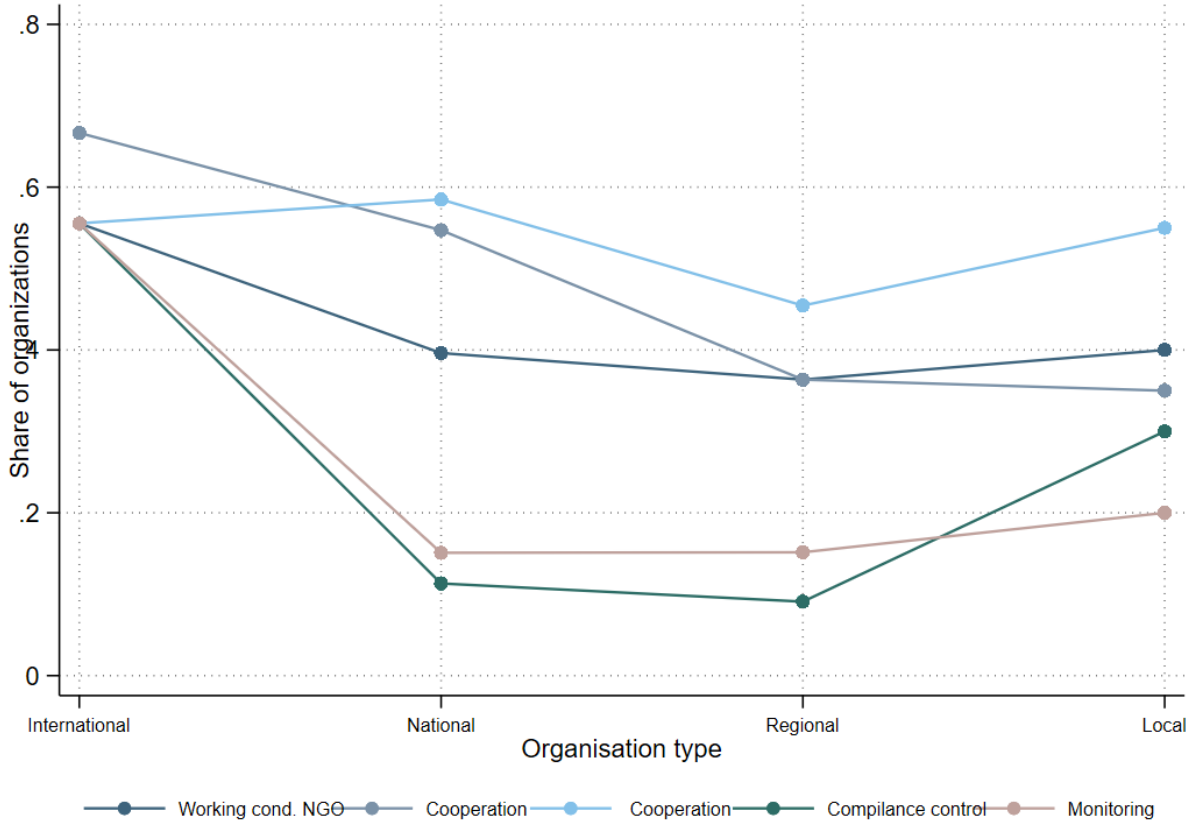

Figure 4 depicts the share of organizations in relation to their perceptions of the impact of the government in different dimensions of their work. For international NGOs, the changes to Tunisia's climate policy in collaboration with the state have had the most positive effect, while for national NGOs, the most positive effect is perceived as due to cooperation among NGOs. Local and regional NGOs have experienced the most positive effects on their overall working conditions due to changes to Tunisia's climate policy.

Figure 5. Sources of funding by organization type

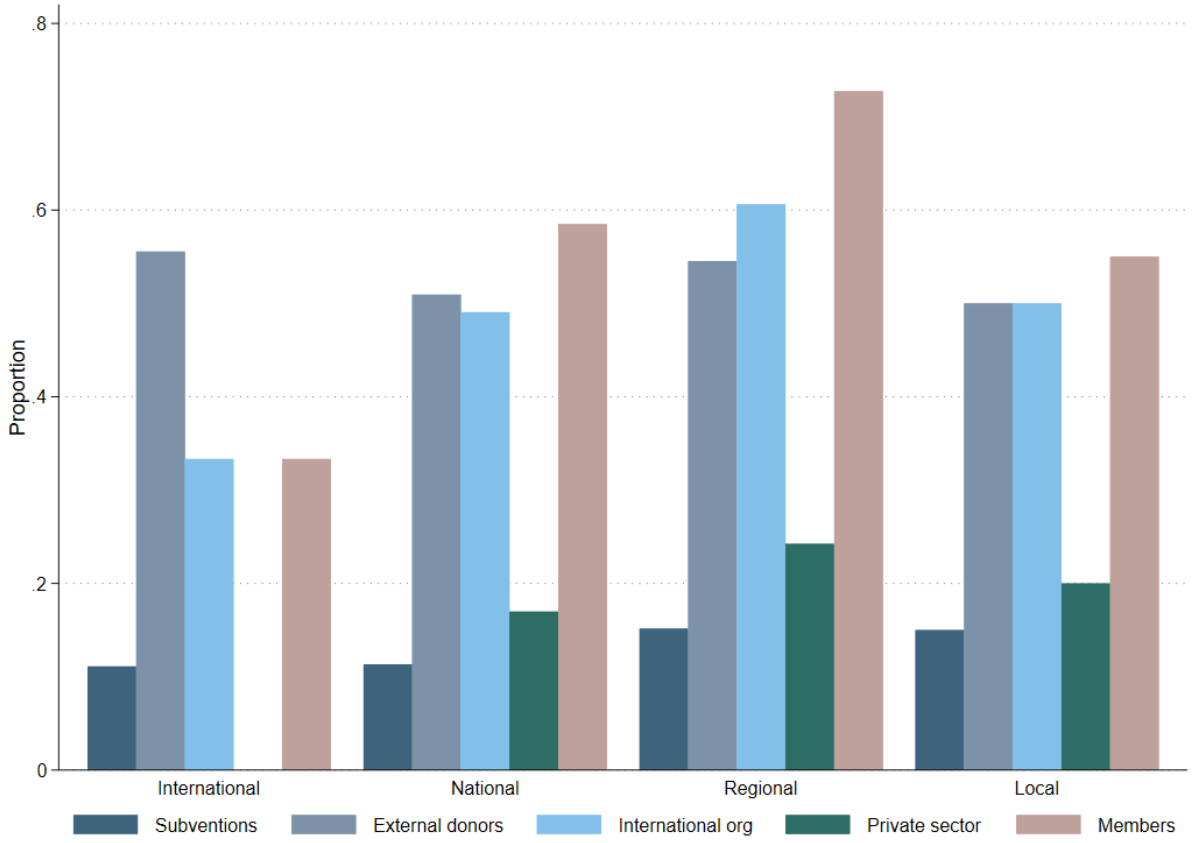

Figure 5 shows the sources of funding by organization type. Most international NGOs depend on external donors, followed by other international organizations and subventions. Most of the funding for national, regional, and local NGOs comes from their members.

Figure 6. Involvement of NGOs in climate change activities by organization type

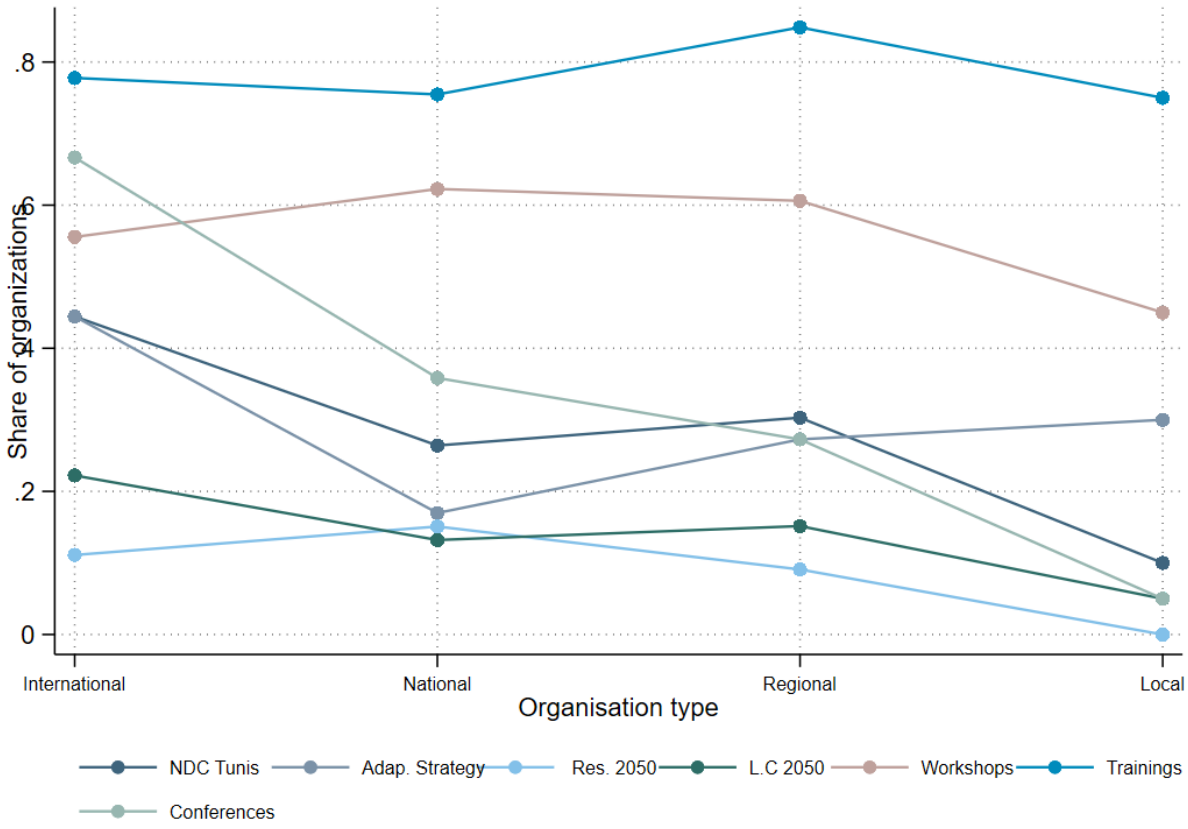

Figure 6 shows the involvement of NGOs in climate change activities by organization type. Local NGOs seem to be less involved in the formulation of nationally determined contributions (NDCs), adaptation strategies, the resilience 2050 strategy, the low carbon 2050 strategy, and workshops and training linked to climate change. Around 42 percent of international NGOs are involved in the preparation of NDCs, followed by regional, national, and local NGOs. Training and workshops seem to be the activities with the highest NGO involvement.

Figure 7. Engagement of NGOs in climate change policies, climate change negotiations, and climate change projects being implemented

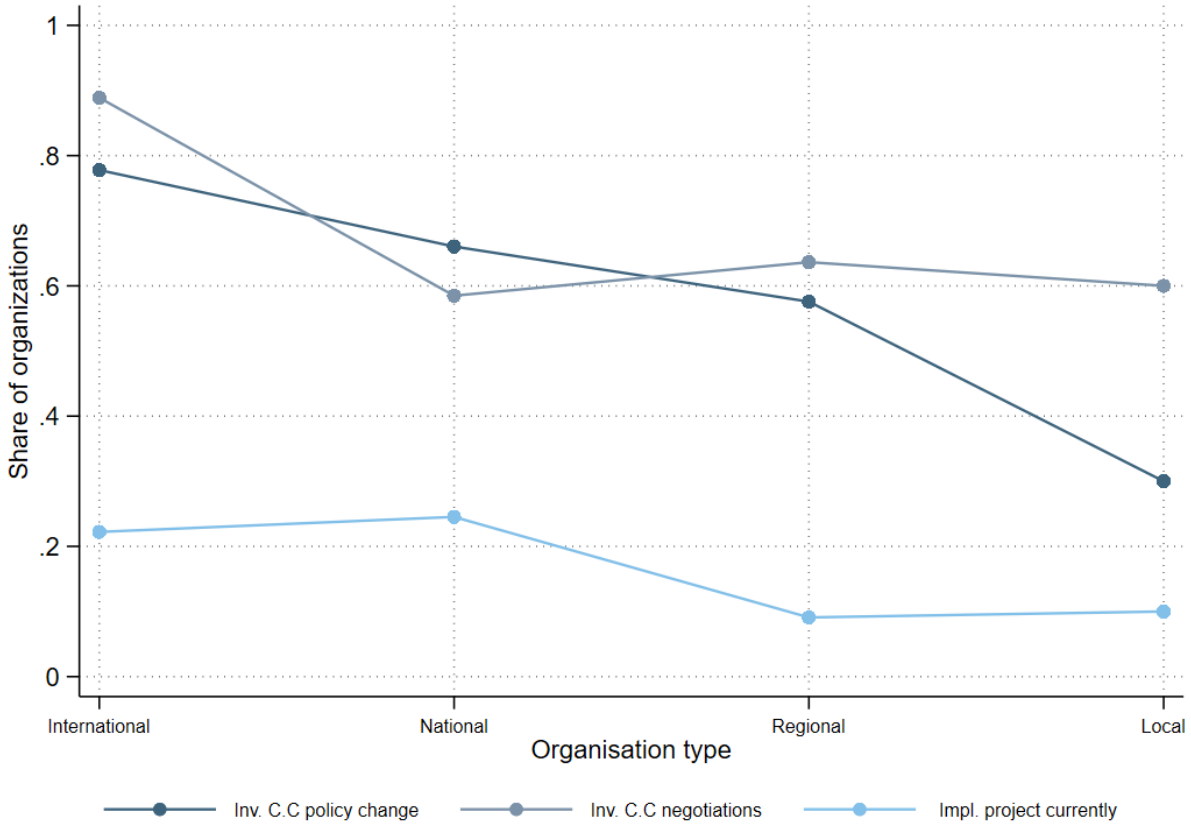

Figure 7 depicts NGO engagement in climate change policies, climate change negotiations, and climate change projects. In the first case, most international NGOs seem to be involved compared to only a small percentage (30 percent) of local NGOs. Around 90 percent of international NGOs are involved in climate negotiations, followed by regional NGOs (65 percent), local NGOs (60 percent), and national NGOs (58 percent). In general, only a small percentage of NGOs have implemented climate change projects, although national and international NGOs have some involvement in climate change project implementation.

3.4. The empirical model

This section describes the empirical approach adopted for this study. As already noted, we are interested in the determinants of the successful involvement of NGOs in climate change activities and policy formulation. We use data on a sample of Tunisian NGOs and their involvement in climate change issues, their characteristics, and their behaviors.

The most frequent econometric method (ordinary least squares (OLS)), in the case of dichotomous outcome variables, requires a linear probability model. In some cases, this is an appropriate method

and the results can be interpreted directly as marginal effects. However, using OLS to model binary outcomes is generally inappropriate since, in the case of independent variables with high values, OLS can predict outcome probabilities outside the 0-1 range.

The alternative is to use logistic or probit regressions, which, in practice, do not have significant differences unless the sample contains outlier observations. However, it is not possible to directly compare the point estimates of logistic and probit models due to the logistic distribution in logit models. Probit models use an inverse standard normal distribution based on the assumption of a normal distribution of the independent variables in the model. This is a more appropriate method in terms of our data structure.

We employ a probit model to identify the association between a set of factors for a selected set of dependent variables. Here, the probit models the inverse standard normal distribution of the probability as a combination of the predictors. Robust standard errors are used and clustered at the NGO regional level. Formally, we estimate the following probit model:

$$Pr\ Pr\ (Y_i = 1|X) = \phi(\beta_0 + \beta_1 WCI_i + \beta_2 PG_i + \beta_3 CG_i + \beta_4 EXLD_i + \beta_5 NE_i + \beta_6 BI_i + \beta_7 NFS_i + \beta_8 IO_i + \beta_9 ED_i + \beta' X_i + \varepsilon_i)$$

where: $Pr\ Pr\ (Y_i = 1|X)$ is the probability that the NGO is involved in climate policy actions, and Y_i captures the set of 20 dependent variables in table X. ϕ is the cumulative normal distribution function, β_0 is the constant, and β_1- β_9 are the coefficients of the determinants of interest. **β'** is a vector of the control variable coefficients.

The determinants of interest include improved work conditions (WCI), professionalism growth (PG), cooperation with the government (CG), exclusion from law-drafting (EXLD), number of employees (NE), budget increase (BI), number of funding sources and source of funding (NFS), international organization funder (IO), and external donor (ED). These variables capture the behaviors of the government and other external agents towards NGOs and NGO characteristics. The vector X_i includes three control variables: type of NGO, years of operation, and region, which control for potential regional differences and NGO experience (age and type of organization).

4. Results and discussion

Table 5. Dy/Dx effects on selected climate change activities

	(1) Elab. NDC Tunisia	(2) Elab. Adaptation Strategy	(3) Elab. Resilience 2050	(4) Elab L.C.E 2050	(5) Ministry Workshops	(6) Climate change training	(7) COPs
Work. cond. impr.	0.171***	0.060	-0.056	0.128***	0.298***	-0.041	0.043
	(0.051)	(0.056)	(0.051)	(0.040)	(0.060)	(0.065)	(0.061)
Prof. growth	-0.038	-0.011	0.161**	0.105*	-0.083	0.299***	-0.114*
	(0.057)	(0.062)	(0.069)	(0.059)	(0.058)	(0.061)	(0.064)
Coop. with gov.	-0.031	0.239***	0.083	-0.018	0.281***	-0.004	0.142**
	(0.058)	(0.047)	(0.079)	(0.055)	(0.057)	(0.072)	(0.061)
Exc.C.C law-drafting	-0.211***	-0.053	0.030	0.206***	-0.212***	-0.400***	0.034
	(0.052)	(0.055)	(0.057)	(0.053)	(0.060)	(0.067)	(0.067)
No. employees)	-0.002	-0.011***	-0.010	0.000	-0.003**	-0.002***	-0.001***
	(0.003)	(0.003)	(0.009)	(0.000)	(0.002)	(0.001)	(0.001)
Budg. increase	-0.083	0.130	0.000	-0.017	-0.109	0.089	0.010
	(0.074)	(0.080)	(.)	(0.084)	(0.081)	(0.072)	(0.094)
No. fund. sources	0.027	0.019	0.009	-0.046**	0.016	-0.059**	-0.028
	(0.024)	(0.021)	(0.023)	(0.022)	(0.025)	(0.025)	(0.025)
International org.	0.355***	-0.231***	-0.004	0.223**	0.250***	-0.141**	0.555***
	(0.098)	(0.072)	(0.069)	(0.094)	(0.077)	(0.072)	(0.101)
External Donors	0.626***	0.120	-0.002	0.540***	0.174	-0.003	0.822***
	(0.119)	(0.112)	(0.110)	(0.123)	(0.115)	(0.102)	(0.115)
Type of organization FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	288	276	156	237	264	234	270
R-squared	0.21	0.28	0.20	0.42	0.28	0.25	0.22

Standard errors in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5 reports the effects of selected factors on seven climate change actions to identify the most important elements associated with NGOs' involvement in climate change issues. It also reports the average marginal effects of the probit model. The pseudo R^2 ranges from 0.21 to 0.42, indicating that the models have reasonable explanatory power. Further diagnostic analysis confirms that the models are free from specification error and multicollinearity problems.

The first aspect considered is improved working conditions, which seems to be an important element since an improvement in NGO working conditions tends to be associated with a higher probability of involvement in climate change actions on average. Specifically, the average marginal effects show that the probability of participating in the elaboration of Tunisia's NDCs increases by around 17 percent. Similarly, involvement in the elaboration of a low carbon economy increases by around 13 percent, while the probability of participating in ministry workshops increases by around 30 percent. However, the non-significant or negative point estimates suggest only limited effects of improvements in working conditions on involvement in other climate actions.

Improved working conditions are prerequisites for involvement in the preparation of strategy documents and climate change training organized by the government and the UNFCCC. Most NGOs involve only one or two key members of staff. If their work conditions (structured activities, a physical office space…etc.) improve, the probability of involvement in policy debates increases.

The average marginal effects for increased professionalism show that while it has a sizeable effect on Elaboration Resilience 2050 (16 percent), Elaboration of Low Carbon Economy 2050 (10.5 percent), and climate change training (30 percent), it mostly has no statistically significant effect on any other factors apart from the COP meetings (-11 percent) where the effect is marginally significantly negative.

In our context, professionalism refers to recruitment and dedicated staff. NGOs are non-profit organizations, but in the Tunisian culture, they are associated with benevolent and non-remunerated activities. This constrains their management. Some NGOs are changing their business models to allow for the involvement of paid staff, which implies that they have greater responsibilities and more involvement. Heijden (1997) shows that NGO professionalism leads to increased membership and financial resources.

The negative sign for participation in the COPs meetings may be explained by the fact that as NGOs become professional, they pay more attention to their use of time and the costs/benefits of their activities. Qualitative analysis based on survey responses shows that more professional NGOs have a more negative perception of the COPs meeting and see them as very costly activities with

a small impact. They prefer to spend more time implementing projects and other activities.

Cooperation with the government is associated with a higher chance of involvement in climate change actions. Overall, the model suggests that if the NGO has established cooperation with the government, the probability of involvement in climate change actions increases, especially participation in elaborating adaptation strategies (24 percent), ministry workshops (28 percent), and COPs meetings (14 percent).

For several years, the Tunisian authorities – especially the Ministry of Environment and Local Affairs' climate change unit – have been trying to put in place a strategy to allow for the involvement of NGOs in climate policy. These efforts seem to have been successful as shown by the results of the estimation.

The model suggests that a major negative effect is the exclusion of NGOs from the drafting of climate change laws. The average marginal effects suggest that this factor has large negative effects on involvement in climate change actions. Specifically, if NGOs are excluded from law-drafting, this is associated with around a 20 percent decrease in the probability of involvement in elaborating the Tunisian NDCs, Resilience 2050 and ministry workshops, and a 40 percent decrease in involvement in climate change training.

The next three factors considered are the number of full-time employees, budget increases in the previous five years, and the number of funding sources. The model suggests that for all the outcome variables, the effects of these factors are very limited and mostly non-significant. It is particularly surprising that an increase in the number of funding sources seems to have a marginally significant negative effect on the elaboration of Low Carbon Economy 2050. Overall, the results for these factors are inconclusive.

These mixed results might be explained by the fact that as the number of funding sources increases, the NGOs' workload also increases, leaving less time available for activities related to the drafting of strategic documents and participation in ministry workshops. Also, an increased number of funding sources leads the NGO to become more politically neutral, thereby preferring not to participate in public policy debates or implement climate projects.

The last aspect considered is the type of main funding source with NGO members as the reference group. The results suggest that, in most cases, if the main funding sources are external donors or international organizations, the NGO is more likely to be involved in climate change actions compared to if the main funding sources are NGO members. Specifically, if the NGO is funded by an international organization or external donors, it will have a 35-62 percent higher probability of participating in the elaboration of the Tunisian NDCs, a 22-54 percent higher probability of participating in the elaboration of the Low Carbon Economy, and a 55-82 percent higher likelihood

of participating in the COPs meetings. In the case of participation in formulating an adaptation strategy and participating in climate change training, funding by external donors or international organizations is associated with a lower probability (respectively -23 percent and -14 percent) of participation compared to NGOs with members as the main sources of funding.

Table 6 reports the effects of selected factors on engagement in climate change policy and climate change negotiation processes and the probability of current involvement in the implementation of a climate change project. Again, we report the average marginal effects of the probit model. The pseudo R^2 of the models ranges from 0.25 to 0.44, suggesting reasonable explanatory power. The diagnostic analysis confirms that the models are not affected by specification errors or multicollinearity. The results of these models are more mixed, and the effects are smaller overall.

Table 6. Dy/Dx effects on selected climate change policy, negotiations, and projects implemented

	(1) Engagement on C.C policy	(2) Engagement on C.C negotiations	(3) Implementing C.C project currently
Work. cond. impr.	-0.002	-0.006	-0.056
	(0.054)	(0.042)	(0.060)
Prof. growth	-0.071	-0.067	-0.103
	(0.062)	(0.045)	(0.066)
Coop. with gov.	0.182***	0.237***	0.157**
	(0.058)	(0.036)	(0.066)
Exc.C.C law-drafting	0.134**	0.070	0.114**
	(0.056)	(0.045)	(0.056)
No. employees	0.044***	0.003	0.002
	(0.008)	(0.003)	(0.001)
Budg. Increase	0.113	0.202***	0.250***
	(0.070)	(0.055)	(0.086)
No. fund. Sources	0.004	0.123***	0.102***
	(0.026)	(0.019)	(0.024)
International org.	0.215***	0.226***	0.056
	(0.075)	(0.062)	(0.079)
External Donors	0.194*	0.110	0.296**
	(0.112)	(0.109)	(0.120)
Type of organization FE	Yes	Yes	Yes
Region FE	Yes	Yes	Yes
Years in operation FE	Yes	Yes	Yes
Number of observations	288	222	264
R-squared	0.25	0.44	0.21

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In contrast to the models in table X4 where the first two factors are shown to have quite large effects, here, the first two factors (improvements in working conditions and increased professionalism) have no effect; in all three models, the point estimates are almost zero and are non-significant.

However, cooperation with the government remains a strong predictor in these models and is associated with a much higher probability of engagement in climate change actions. Specifically, the model suggests that if the NGO has established cooperation with the government, the probabilities of contributions to climate change policy, engagement in climate change negotiations, and involvement in the implementation of a current climate change project increase respectively by around 18 percent, 24 percent, and 16 percent.

The exclusion of NGOs from the drafting of climate change laws has more mixed results. While the average marginal effects suggest that this factor is associated with around a 13 percent decrease in the probability of contributing to climate change policy, it seems to be associated positively with having a climate change project under implementation.

NGOs working on project implementation do not have enough resources to undertake other activities, which reduces the probability of their participation in drafting climate policy. This suggests some degree of specialization whereby some NGOs are more likely to implement projects and others are more likely to participate in policy formulation (strong result).

For the number of full-time employees, the model suggests that, like the models already discussed, this factor has mostly limited (practically zero) effects on the outcome variables, with the exception of engagement in climate change policy.

Budget increases and the number of funding sources are among the most important predictors of the outcome variables. A budget increase is associated with a 20 percent increase in the probability of engagement in climate change negotiations and a 25 percent increase in the probability of implementing a current climate change project. However, although the point estimate for engagement in climate change policy is positive, it is non-significant. Similarly, the funding source is associated with a 12 percent increase in the probability of participation in climate change negotiations and a ten percent increase in the probability of having a climate change project under implementation, while the effect on contribution to climate change policy is practically non-existent.

The last two factors considered are dummies for the type of main funding source with NGO members as the reference group. Like the previous models, the results suggest that, in most cases, if the main funding source is external donors or international organizations, NGOs will have a higher probability of participation in climate change policy/negotiations or having a climate change project under implementation. Specifically, the NGO will have a 19-21 percent higher probability of contributing to climate change policy if it is funded by an international organization or external donors, a 23 percent higher chance of participation in climate change negotiations if funded by an international organization, and a roughly 30 percent higher likelihood of being

involved in the implementation of a current climate change project if funded from external donors compared to NGOs with members as their main donors.

5. Concluding remarks and limitations

We studied the part played by NGOs in climate policy in Tunisia, their engagement in climate negotiation processes, and their local, national, and international level lobbying effectiveness.

First, we found that improved working conditions have a positive effect on NGO involvement in climate change actions. Second, greater professionalism has quite a large effect on participation in Resilience 2050, Low Carbon Economy 2050, and climate change training, but not participation in COPs (marginally significant negative effect). Third, exclusion from government law-drafting is a determinant of involvement in climate change actions. Fourth, NGOs that cooperate with the government and receive funds from international organizations are more likely to be involved in climate change actions and climate policy, climate negotiations, and project implementation. Fifth, NGOs engaged in implementing projects lack the resources to undertake other activities. Finally, a budget increase and the number of funding sources seem to be correlated positively with participation in policy changes/negotiations and the probability of implementing projects.

5.1. Main contributions

Our paper makes at least three contributions.

First, it contributes to the debate on the effectiveness of NGOs in climate policy design. The literature explores a range of factors influencing the impact of NGOs on climate change policy and actions, but the results are inconclusive. We contribute by analyzing the effect of different dimensions of NGO involvement in climate change actions and policies.

Second, it contributes to work on the political economy of climate change regulation and policy implementation by highlighting the role of NGOs. Our results should be informative for policymakers and allow for greater involvement of NGOs in climate policy and improved regulatory and legislative climate change frameworks.

Third, it contributes by highlighting the different roles played by NGOs in climate actions: raising awareness, putting pressure on regulators, implementing projects, participating in policy formulation, contributing to the drafting of strategy documents…etc. Our results show that the increased professionalism of the NGO has a sizeable effect on its contribution to Resilience 2050, Low Carbon Economy 2050, and climate change training.

5.2. Policy implications

Our paper has several policy implications.

First, it highlights the need for NGOs to be more involved in the formulation of climate policy. The involvement of NGOs can enhance climate action and climate negotiations. NGOs that are supported by the government and are able to improve their working conditions are more effective. Involving them in climate policy and making them more effective will result in better climate governance.

Second, Implementing the NDCs requires appropriate effort and commitment and transparent communication among different actors and stakeholders, including NGOs.

Third, the advocacy skills and capacities of NGOs should be strengthened to allow them to increase their participation in and influence over public policy related to climate change.

Fourth, national sovereignty should be protected by controlling NGO funding. The Tunisian government should provide more resources to allow NGOs to be less dependent on external donors. In turn, this would increase their effectiveness in relation to climate actions and climate policy.

Fifth, providing support to NGOs would enable their involvement in implementing climate projects and simultaneously participating in climate actions, which would attract more NGO funding.

Sixth, climate policies need to be more participatory and involve wide consultation. Policy-making practices need to change to include NGOs in the whole process.

5.3. Limitations

Despite its contributions, this paper has some limitations.

First, we achieved a low response rate. Among roughly 1,200 NGOs contacted, only 345 sent back completed surveys. Many NGOs are no longer active or are hampered from responding due to a lack of time and human resources. We are extending the data collection deadline to the end of December 2021, after which we can update our findings.

Second, the restrictions imposed by the COVID-19 pandemic affected data collection and caused delays. The current improved situation should allow for better access to NGOs and result in a better response rate.

Third, we tested alternative models such as multinomials but, due to our sample size, they did not provide improved results. The use of other models such as partial least squares could be explored. This would need new constructs to test the effectiveness of NGO climate actions.

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