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Local Global Watchdogs: Trade, Sourcing and the Internationalization of Social Activism*

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Abstract

International NGO campaigns criticizing firms for infringements along their internationalized value chains are a salient feature of economic globalization. We argue that understanding the international patterns of NGO campaigns requires accounting for the geography of their targets' economic activities. We propose a model of global sourcing and international trade in which heterogeneous NGOs campaign against heterogeneous firms in response to infringements along their international value chains. We find that campaigns are determined by a *triadic* gravity equation where all three bilateral trade costs matter for NGO campaigns. Importantly, the sourcing trade costs between the supplier and the firm, which do not involve the country of the NGO, shape the patterns of NGO campaigns through their effect on the sourcing decision of firms. We use recently available data on NGO campaigns to estimate our triadic gravity equation and find strong support for this prediction.

Keywords: international trade, international sourcing, gravity, NGOs, campaigns, social activism.
JEL Classification: F12, F60, F63, L31, O35.

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1. Introduction

Economic globalization faces a legitimacy crisis that is fueled by scandals along the globalized value chains characterizing modern-day international production.[1] Campaigns by internationally active advocacy (or *watchdog*) NGOs like Greenpeace, Rainforest Action Network, China Labor Watch, etc., play a key role in exposing and creating awareness of what they consider "unethical" practices in international value chains. These NGOs respond to a regulatory gap left open by national governments who have failed to provide binding and enforceable environmental and labor regulation at the international level.[2] With the trend of the internationalization of production unbroken and consumer consciousness continually on the rise (see, e.g., Cone 2013), advocacy NGOs and their campaigns can be expected to remain salient phenomena in the decades to come.

In response to the surge of global value chains and difficulties in directly targeting independent upstream suppliers, NGOs have adjusted their strategies and resort to *value chain campaigns* (Baron 2016). In these campaigns, NGOs target large downstream firms with well-known brands for infringements by upstream suppliers – even if the firms have no legal control over their suppliers. Over the last decades, a large number of firms from a diverse set of industries have become the targets of international value chain campaigns.[3] These observations suggest that the internationalization and geographical structure of *NGO campaigns* are closely intertwined with the patterns of *global production and trade*.

Our aim in this paper is to contribute to a better understanding of the factors that drive the geography of international social activism. More specifically, we ask how advocacy NGOs respond to economic globalization and how global sourcing and exporting decisions of firms shape the internationalization of NGO campaigns.

Guided by novel stylized facts on NGO campaigns, we analyze a model of international trade and global sourcing in which heterogeneous NGOs campaign against heterogeneous firms in response to infringements along their international value chains. Modeling such value chain campaigns links the internationalization of NGO activity to their target firms' international sourcing and trade activity. We show that this leads to a *triadic* gravity equation for NGO campaigns in which bilateral trade costs between all three countries involved matter. Importantly, the sourcing trade costs between the supplier and the firm, which do not involve the country of the NGO, shape the patterns of NGO campaigns through their effect on the sourcing decision of firms. This prediction is specific to our model featuring international sourcing and value chain campaigns. We use a recently available data set on NGO campaigns to bring this prediction to the data. We estimate a triadic gravity equation at the NGO level and find that even when exploiting within-NGO variation only, we find a

[1] The collapse of the Rana Plaza factory building in Bangladesh in 2013 is an example that received global attention.

[2] Battaglini & Harstad (2020) highlight that while over the last decades, democratic countries have signed hundreds of international environmental agreements, most of these agreements are weak, implying that they generally do not include effective enforcement or monitoring mechanisms.

[3] See Herkenhoff & Krautheim (2020, footnote 1) for a list of examples. More examples can be found in, e.g., Baron (2012, 2013) or Krautheim & Verdier (2016).

significant negative effect of the sourcing trade costs on NGO campaigns. We show that – in line with our model – this effect is robust to aggregating at the country level. In both cases, also the other predictions of our model, like the effect of the two remaining bilateral trade costs, including the dummy variables capturing NGO home bias, find support in the data.

There is little systematic evidence on the geographical patterns and determinants of national and international NGO activity. We use data collected by Sigwatch, a consultancy firm that provides international corporations with daily monitoring of NGO activity in their sector. Hatte & Koenig (2020) provide the first exploration of this data set. We use the same data source for a longer time period and restrict the analysis to non-service sectors. In appendix B, we produce stylized facts on the domestic and international dimensions of NGO campaigns as well as NGO and target heterogeneity, which inform our modeling.

One of these stylized facts is that there is a strong *domestic* component (home bias) of NGO activity. This appears unsurprising, given that NGOs tend to rely on the local support of donors, volunteers and activists who provide resources (financial or labor) for free or at least at significant opportunity cost. NGOs may therefore cater to these supporters and therefore focus on issues these motivated agents can best relate to. This directly implies a very local dimension of NGO activity.

At the same time, however, the analysis of the data reveals that there is a significant amount of *international* activity of NGOs in the data, with 60 % of campaigns involving at least one foreign country (from the viewpoint of the NGO). We argue that accounting for the internationalization of the target firms' economic activity can reconcile these two facts. With a surge in the internationalization of sourcing and trade in final goods, infringements in foreign countries may develop a strong domestic dimension when locally consumed goods "embody" these infringements. This is nicely consistent with the observation by Baron (2016) that NGOs shifted their strategy to value chain campaigns. In these campaigns, they attack firms for infringements by independent (often foreign) suppliers in their value chain. This implies that even when the NGO and the target firm are in the same country, the campaign gets an important international dimension when it criticizes an infringement by a foreign supplier.

The analysis of the data reveals a second interesting set of stylized facts concerning the heterogeneity of both firms and NGOs. The distribution of the number of campaigns initiated by a given NGO as well as, at the receiving end, the distribution of campaigns across firms are highly skewed: about 20 % of NGOs account for about 80 % of campaigns and about 80 % of campaigns go against roughly 20 % of firms in the sample. This resonates with the well-known heterogeneity of firms in international trade (e.g., Melitz & Redding 2014).

Building on these observations, we develop a multi-country model of international trade with heterogeneous firms. We take Chaney (2008) as our starting point, but incorporate a purposeful international sourcing decision of firms, heterogeneous NGOs as well as fundraising and endogenous target choice by NGOs. This allows us to explicitly articulate the effect of bilateral trade costs on international sourcing, trade in final goods and the geography

of NGO campaigns. The model involves up to three countries characterizing a campaign: a campaign targets a final goods producer in country i, is carried out by an NGO (and financed by consumers/donors) in country j and targets an infringement by an upstream supplier in country k.

We derive the industry equilibrium of the model and analyze, among other things, the equilibrium trade in inputs between the sourcing country k and the firm country i; as well as the exports of final goods from country i to country j. This allows us to analyze the determinants of the fraction of country k inputs, which are embodied in the final goods produced in i and consumed in j. For NGOs in j, a high prevalence of an input from k in a product from i, which in turn features prominently in the consumption basket in j, provides strong funding opportunities and the NGO is prone to start this particular i-j-k campaign. We derive a triadic gravity equation characterizing the determinants of equilibrium i-j-k campaigns at the NGO level, which accounts for this mechanism. Due to the close link between NGO activity and trade in intermediate as well as final goods, we find that the gravity variables shaping international trade also shape the geography of campaigns at the NGO level.

Our first main result is that all three bilateral trade costs (τ_{ij}, τ_{kj} and τ_{ki}) negatively affect the number of i-j-k campaigns at the NGO level. Two of these trade costs (τ_{ij} and τ_{kj}) involve the NGO country j and could therefore be rationalized by a wide variety of gravity-type models for NGO activity. The third trade cost, τ_{ki}, which we label the *sourcing trade costs*, only matters for NGO campaigns because we explicitly account for the sourcing decision of firms and value chain campaigns. We argue in section 2.4.6 that this prediction differentiates our model from a wide variety of conceivable alternative gravity models, which only link trade costs (or for the empirical purposes: geographic distance) to NGO activity.[4]

We also use the triadic gravity equation to analyze the role of the four different multilateral trade resistance terms that affect the triadic NGO campaigns in our model. Most importantly, the *multilateral sourcing trade resistance* of the firm country i affects i-j-k campaigns through its effect on international sourcing. Together with the sourcing trade cost, τ_{ki}, it affects the prevalence of inputs from any sourcing country k in the input bundle used by firms in country i. It therefore affects how much of a country k input is embodied in a country i final consumption good consumed in country j. This in turn determines the funding opportunities of NGOs in j to start a value chain campaign against a firm in i for an infringement in k.

Moreover, we show how falling trade costs in our model turn local NGOs into "local global watchdogs." As NGO activity in our model is linked to economic activity, infinite bilateral trade costs also imply the absence of international campaigns: all campaigns (just as all economic interactions) take place domestically. When countries open up to trade in inputs and final goods, this internationalization of economic transactions also internationalizes NGO activity. Falling trade costs increase the number of campaigns that involve one or two foreign countries, drawing local NGOs to the international stage.

[4] This could be through accounting for NGO networks (where a planner assigns the closest NGOs in a network to a specific infringement or final goods producer) or by simply imposing some distance related friction in campaigning or information acquisition, or when donors care less about distant countries.

We also derive a triadic gravity equation for *i*-*j*-*k* campaigns at the country level. While this equation does not feature the convenient multiplicative structure that we find at the NGO level, we can still show that the qualitative effects of the three bilateral trade costs are the same when aggregating across NGOs.

Finally, we bring the main testable implications of our model to the data. We use our sample of the Sigwatch data to estimate a triadic (*i*-*j*-*k*) gravity equation at the NGO level. We find that all three bilateral trade cost measures have the predicted negative effects. Most notably, we find strong support for the hypothesis that differentiates our model with international sourcing from other conceivable gravity models of NGO activity: the bilateral distance that does *not* involve the country of the NGO, the sourcing trade cost τ_{ki} in our model, has a highly significant negative effect. These NGO-level results are confirmed when we aggregate over all NGOs within a country and estimate a triadic gravity equation, finding strong support for the country-level predictions of our theory.

At a general level, this paper is motivated by the extensive sociological and political science literature on the emergence of what has been described as "transnational civil activism" (Keck & Sikkink 1998; Batliwala & Brown 2006; Tarrow 2005) or "global civil society" (Edwards & Gaventa 2001; Lipschutz & Rowe 2005). Vogel (2008) provides an extensive review of this literature.

From an analytical perspective, our framework is deeply rooted in the gravity literature in International Trade (see Head & Mayer (2014) for an overview). While the gravity literature is mainly concerned with the analysis of international trade in goods, it has been extended to the analysis of other international activities such as service offshoring (Head, Mayer & Ries 2009), migration flows (Anderson 2011), FDI flows (Head & Ries 2008), financial investment (Portes & Rey 2005) and, most relevant in our context, trade in intermediate goods (e.g., Bergstrand & P. Egger 2010; Conconi, Magerman & Plaku 2020). We extend both the theoretical and the empirical gravity literature to the analysis of international NGO campaigns.

On the theoretical side, we contribute to the gravity literature by extending the model of international trade in Chaney (2008) to trade in intermediate inputs and by embedding NGOs into this framework. From our model we derive a triadic gravity equation for NGO campaigns. Paying close attention to the gravity forces shaping sourcing decisions, our paper relates to recent work on multinational production (Tintelnot 2017; Arkolakis, Ramondo, Rodríguez-Clare & Yeaple 2018; Bernard, Jensen, Redding & Schott 2018; Head & Mayer 2019). In these models, firms decide where to set up production plants and/or which markets to serve from which plant. This implies that, similar to our model, international sourcing matters and three countries are involved. With respect to the sourcing decision, our modeling also relates to Antràs, Fort & Tintelnot (2017) and Bernard, Jensen, et al. (2018). As these studies investigate the structure of multinational production, the models include mechanisms that limit and specify the number of sourcing countries and sourcing relations of a firm. As the focus of our analysis is on NGO campaigns, the exact determinants that shape the geography of multinational production and international sourcing are not our

primary concern. This allows us to use a parsimonious model of international sourcing, which preserves tractability. The key difference to the above papers is our object of study: While models of international sourcing and multinational production stop at the analysis of international trade flows, we take the analysis a step further and analyze how these trade flows shape international social activism.

Our work also connects to research in International Trade and related fields that analyzes the growing discontent with economic globalization, the so-called "globalization backlash" (Colantone, Ottaviano & Stanig 2021; Harms & Schwab 2020). This includes, among others, studies on trade and inequality (e.g., Helpman, Itskhoki & Redding 2010 and H. Egger & Kreickemeier 2012), trade and the environment (e.g., Copeland & Taylor 1994 and, also using a gravity framework, Aichele & Felbermayr 2015), "fair" and "unfair" trade (e.g., Richardson & Stähler 2014 and Zavala 2020) or the influence of lobbies on Free Trade Agreements (e.g., Blanga-Gubbay, Conconi & Parenti 2021). While these are examples for common sources of discontent with economic globalization, some recent studies also analyze this globalization backlash more directly. Grossman & Helpman (2021) study its role in populist trade policy. H. Egger & Fischer (2020) show that it may originate in the effect of increased trade in tasks. We contribute to this analysis by placing advocacy NGOs at center stage: a new type of agent that embodies, channels and institutionalizes this increased resistance to (some aspects of) economic globalization.

With NGOs as a new agent that responds to firms' internationalization decisions, we introduce elements of the literature on "private politics" into the field of International Trade. Starting with Baron (2001, 2003), this literature focuses on activists attempting to affect firm behavior not through lobbying for regulation (public politics) but through campaigns and boycotts of firms (private politics). It takes an Industrial Organization perspective and analyzes the interaction between activists, firms and possibly a regulator in partial equilibrium under different market structures, allowing for strategic interactions between all parties.[5] Strongly cutting back on the specifics of the interactions between activist (NGO) and firm, we take a more macro-level perspective by analyzing the industry equilibrium of our model, which allows us to analyze patterns of the NGO sector as a whole. Moreover, we are interested in the activity of activists (NGOs) in the context of economic globalization. We therefore embed these activists into a model of international sourcing and trade in final goods and thereby bridge the gap to the literature on international trade and global production.

Closest to our work are therefore several other papers that also introduce elements of private politics into the field of International Economics. Conconi (2003) studies the effect of green lobbies on trade and environmental policies. Aldashev & Verdier (2009) analyze the international competition for funds among development-oriented NGOs. Aldashev, Limardi & Verdier (2015) consider the impact of NGO campaigns on industry structure in a setting with endogenous markups and monopolistic competition. Krautheim & Verdier (2016)

[5] Some of the main contributions include Innes (2006), Baron & Diermeier (2007), Lyon & Salant (2013), Baron (2010), as well as Baron (2016), Egorov & Harstad (2017) and Daubanes & Rochet (2019).

analyze the endogenous emergence of a consumer-financed NGO in response to the offshoring decision of a firm. Herkenhoff & Krautheim (2020) introduce ethically concerned consumers and consumer boycotts into a property rights model of the international organization of production.[6]

Our analysis contributes to empirical studies addressing the interaction of activists and firms in the context of global production. Most contributions use qualitative information and case studies (Hendry 2006; Lenox & Eesley 2009; O'Rourke 2005). Some exceptions stand out: Harrison & Scorse (2010) identify a causal effect of the campaign against Nike on wages in the Indonesian textile sector. Couttenier & Hatte (2016) and Couttenier, Fleckinger, Glachant & Hatte (2019) use quantitative information on NGO activity based on a data set with a focus on very large firms. Fontagné & Limardi (2021) study the role of social activists for the effect of preferential market access, granted conditional on compliance with labor rights, on wages in Indonesia. Hatte & Koenig (2020) use an earlier sample of the Sigwatch data. We extend the sample period and focus on non-service sectors. Different from their purely empirical country-level analysis, guided by our model, we estimate theory-consistent triadic gravity equations at the NGO level. Despite this being a very demanding specification, we find strong support for this central implication of our model. Moreover, we use our model to show that the NGO-level campaigns can be aggregated to the country level. This highlights how country-level effects, which we also find in the data, are rooted in NGO-level gravity forces.

The remainder of the paper is structured as follows: Section 2 presents our model of international trade and sourcing with heterogeneous firms, campaign targeting and fundraising by heterogeneous NGOs. Section 3 tests the implications of our triadic gravity equation of international NGO activism at the NGO level and at the country level. Section 4 offers some conclusions and avenues for future research.

2. Theory

In this section we analyze a model of international trade and global sourcing in which NGOs campaign against firms in response to infringements along their international value chains. Our modeling choices are guided by the stylized facts discussed in the introduction and presented in detail in appendix B.

2.1. Setup

We consider N countries. Country i is endowed with L_i units of labor. In each country, there are three sectors producing a homogeneous consumption good, an intermediate input and a

[6] A related emerging literature includes what we would consider the response of firms to activist pressure (Corporate Social Responsibility, Responsible Sourcing, Corporate Codes of Conduct, relational contracts, ...) into the context of international sourcing (Herkenhoff, Krautheim, Semrau & Steglich 2021; Amengual & Distelhorst 2020; Boudreau 2021; Cajal-Grossi, Macchiavello & Noguera 2020). While these papers are interested in the interaction of international sourcing and private politics measures taken by firms, we are interested in the geography of international economic activity shaping the geography of international social activism.

differentiated product, respectively.

2.1.1. Sectors

The homogeneous consumption good h is produced under perfect competition. Total output of the homogeneous good in country i is given by $w_i\ L_i^h$, where w_i represents the exogenous labor productivity in the homogeneous goods sector in country i and L_i^h is the amount of labor allocated to this sector. We use good h as the numéraire. It is freely traded and in line with the literature (Chaney 2008) we consider only equilibria where good h is produced in all countries. With frictionless mobility of labor across sectors, the wage in country i is then equal to w_i. We define the effective labor endowment of country i as $w_i L_i$, which represents total labor in efficiency units expressed in terms of the homogeneous good.

A country-specific intermediate input b is produced in the second sector. Firms operate under perfect competition and we normalize productivity in sector b to 1 in all countries. Therefore, total output of sector b is given by L_k^b, the amount of labor allocated to the production of the intermediate input in country k. Wage equalization between sector h and sector b implies that the (domestic) price of the intermediate input in country k equals w_k.

We now turn to the discussion of the differentiated goods sector. As in Chaney (2008), we assume that the mass of firms in country i is exogenous and proportional to country size, which we capture by the effective labor endowment, $w_i L_i$. Without loss of generality, we normalize the factor of proportionality to 1. Each firm produces a differentiated variety ω and firms operate under monopolistic competition. A firm is characterized by its productivity φ, which is distributed according to a Pareto distribution with the following density function:

$$g_\varphi(\varphi) = \gamma\ \varphi^{-\gamma-1}, \qquad \gamma > 0. \tag{1}$$

This implies a minimum productivity of $\varphi_{\min} = 1$. A firm with productivity φ transforms an input bundle B_i into final output $Q_i(\varphi)$ according to the production function

$$Q_i(\varphi) = \varphi\ B_i. \tag{2}$$

Firms combine the country-specific intermediate inputs into the input bundle B_i with Cobb-Douglas technology:

$$B_i = \prod_{k=1}^{N} b_{ki}^{\beta_k}, \qquad \text{where} \qquad \sum_{k=1}^{N} \beta_k = 1. \tag{3}$$

The country of origin of the intermediate input is indexed by k and b_{ki} is the quantity of the country k input in one unit of the input bundle used by firms in country i. We assume that iceberg trade costs of exporting the intermediate input from country k to country i are given by τ_{ki}. Hence, the price of the intermediate input from k in i is given by $p_{ki}^b = w_k\ \tau_{ki}$.

For trade in differentiated goods, we denote the exporting country by i and the importing country by j, such that trade costs are given by τ_{ij}. For a firm in i with productivity φ,

total cost to deliver q units to j are given by

$$c_{ij}(q) = \frac{P_i^B \, \tau_{ij}}{\varphi} \, q, \tag{4}$$

where P_i^B is the price of one unit of the optimal input bundle.

2.1.2. NGO Activity

In line with anecdotal evidence and the massive home bias in NGO campaigns (40 % of all campaigns in our sample are purely domestic and 74 % have at least one domestic component, see table B.1 in appendix B, columns 1 and 2), we model NGOs as intrinsically domestic agents. This appears plausible as NGOs tend to be founded by local activists, rely at least in part on the work of local volunteers and tend to be financed by domestic donors. They therefore have an incentive to choose those campaigns their domestic donor base and stakeholders can best relate to. This introduces a bias towards issues that are particularly visible for domestic consumers/donors. We will see below that in our model, this visibility is represented by the prominence of the different final consumption products in the domestic consumption basket. While NGO campaigns take their starting point at products in the domestic consumption basket, their campaigns are internationalized by the internationalization of economic activities related to producing and distributing these products. An NGO may pick a product to campaign against from its domestic consumption basket. This product may, however, be produced by a foreign firm, and even if the producer is domestic, the product may still embody a substantial amount of potentially unethical foreign inputs.[7] NGO campaigns are therefore internationalized because the economic activity (both sourcing and trade) of their target firms are internationalized. This reconciles the strong home bias in table B.1 with the second important fact in table B.1, column 5: 60 % of campaigns have an international component.

There is a measure of NGOs in country j proportional to the effective labor endowment, $\psi_j \, w_j L_j$, where $\psi_j > 0$ is an exogenous scaling factor. Equation (3) implies that a firm in country i will source inputs from all other countries. For each of these transactions, there is an exogenous probability δ that NGOs consider it unethical and potentially start a campaign.[8]

[7] Take for example two chocolate bars, one traditionally produced and sold exclusively in the US and the other in Australia only. As US consumers/volunteers/donors are much more exposed to the US chocolate bar (know about it, consume it, see its market share and marketing, ...), US NGOs will find it much easier to secure the support of volunteers and donors if they start a campaign against the US chocolate bar producer than when suggesting a campaign against the widely unknown Australian chocolate bar producer. With increasing trade in final goods, the Australian chocolate bar may, however, enter the US market at large scale, turning the previously unknown producer into a prime target for campaigns by US NGOs. Moreover, assume that both chocolate bars are produced with palm oil from Indonesian plantations, which were established by destroying old-growth rain forest. In this case, the internationalization of the US chocolate bar producer's value chain turns a domestic campaign into an international one.

[8] For the sake of analytical tractability we take δ to be exogenous. This implies that we abstract from any deliberate endogenous choice of the final good producer or the supplier to use unethical technology or not. While some papers like, e.g., Fu, Gong & Png (2018) or Herkenhoff & Krautheim (2020) place the determinants of this technology decision in a specific firm-supplier match at center stage, we are interested

Infringements do not take place at the level of the headquarter, but at the level of the supplier. Baron (2016) argues that after largely unsuccessful attempts to campaign against supplier firms, a major shift in NGO strategy has been the implementation of value chain campaigns. In this case, NGOs leverage the prominence of final goods producers in order to mobilize donors. A campaign κ_{ijk} therefore involves three agents located in up to three different countries: the country of the NGO (j), the country of the final goods producer (i) and the sourcing country (k), where the unethical infringement took place. As an example, take *Greenpeace USA* campaigning against *Nestlé* (Switzerland) for the use of palm oil produced by the independent supplier *Sinar Mas* in Indonesia (see Greenpeace 2010).

The objective of an NGO is to maximize the number of campaigns it runs against unethical infringements. In order to cover the costs of a campaign p_C, NGOs have to attract donations. *Greenpeace USA* may propose other campaigns against *Nestlé* (same firm) for different infringements or against other firms for sourcing palm oil from *Sinar Mas* (same infringement). We assume that a campaign is carried out if and only if it receives the necessary funding.[9]

2.1.3. Salience of a Campaign

Whether a campaign receives sufficient funding crucially depends on its *salience*. The salience of a campaign κ_{ijk} is affected by different elements, one of which is the NGO's fundamental ability to generate salience for the campaigns it proposes. We refer to this ability as the *NGO efficiency*.

NGOs are heterogeneous with respect to their efficiency ξ, which is distributed according to a Pareto distribution with the following density function:

$$g_\xi(\xi) = \epsilon\ \xi^{-\epsilon-1}, \qquad \epsilon > 0. \tag{5}$$

A high efficiency of an NGO increases the *salience* of its campaigns, which makes financing of campaigns by consumers more likely. We can therefore think of this efficiency as a fundraising efficiency, with some NGOs being better than others at convincing donors that their campaigns deserve funding.

Even very efficient NGOs may find it more or less difficult to raise funds for different campaigns. In line with the notion of value chain campaigns, we assume that the salience

in the "big picture" of campaigns emerging from an NGO sector responding to economic globalization.

[9] This may appear as painting an excessively opportunistic picture of the NGOs. One may object that in practice, NGOs are often run by motivated agents, who may not only let the funding opportunities decide on the campaigns to be chosen. We will see in the next section that in our model, this preference for some campaigns over others is attributed to consumers/donors. This approach is isomorphic to attributing an intrinsic preference for high-salience campaigns to motivated agents working in NGOs and combining this with consumers/donors being indifferent with respect to which campaigns are implemented. Ultimately, we simply need the NGO-donor nexus to generate a ranking of the desirability of the different possible campaigns according to their salience. In reality, NGO and donor preferences are hard to distinguish, as they interact in multiple ways with NGOs tailoring campaigns to donor preferences as well as NGOs influencing donor perceptions and priorities towards the NGOs' preferences.

$\mathcal{S}(\kappa_{ijk})$ of a campaign κ_{ijk} is given by:

$$\mathcal{S}(\kappa_{ijk}) = \xi \; s_{ki} \, x_{ij}(\omega) \; X_{kj}. \tag{6}$$

The salience of a campaign increases in the efficiency of the NGO running the campaign (ξ).

Three additional features determine the salience of a campaign and therefore determine whether the campaign gets funded. First, campaigns against products that feature prominently in the consumption basket of domestic consumers (high total sales $x_{ij}(\omega)$) generate higher salience. The intuition is that these products are well known to consumers/donors.

Second, this effect is weighted by the perceived prevalence of input k in the production of variety ω in country i. This prevalence is given by the quantity sourced of input k, relative to the total inputs used to produce variety ω:

$$s_{ki} = \frac{\lambda_k \; b_{ki}}{\sum_{l=1}^{N} \lambda_l \; b_{li}}. \tag{7}$$

The weighting factors λ_k transform the inputs into a common metric.[10] Without loss of generality, we assume $\lambda_k = 1 \, \forall \, k$.

Third, when the country k in which the infringement occurs has itself a higher salience among consumers, this also increases the salience of a campaign against an infringement in this more salient country. In our purely economic model, we use total imports of final products from the foreign country, X_{kj}, as a proxy for a foreign country's salience among domestic consumers.[11]

2.1.4. Consumers/Donors

Consumers in country j derive utility from the consumption of varieties of the differentiated good and the homogeneous good. Moreover, consumers derive "warm glow" utility from financing campaigns.[12] The warm glow is higher for financing campaigns with a higher salience $\mathcal{S}(\kappa_{ijk})$. When financing a campaign with higher salience, consumers are under the impression that their donation matters more.

Preferences are summarized by the following functional form:

$$U_j = \left(q_j(h) + \int_{\mathcal{K}_j} \mathcal{S}(\kappa_{ijk}) \, \mathrm{d}\kappa \right)^{1-\mu} \left[\int_{\Omega_j} q_j(\omega)^{\frac{\sigma-1}{\sigma}} \, \mathrm{d}\omega \right]^{\frac{\sigma}{\sigma-1}\mu}, \tag{8}$$

where $0 < \mu < 1$ and $\sigma > 1$. The quantities $q_j(h)$ and $q_j(\omega)$ denote consumption levels of the homogeneous good and the differentiated varieties, respectively, and Ω_j is the set

[10] The common metric allows to compare the prevalence of inputs in a production process. Consider the example of Nestlé's KitKat chocolate bar. Taking weight in kilograms as the common metric, fat and sugar have a high prevalence (24.5g and 45g per 100g, respectively), while that of salt is low (0.23g per 100g). (Source: https://www.kitkat.co.uk/collection/kitkat-4-finger, accessed on December 7, 2020.)

[11] The intuition here would be that Mexico has a stronger salience among US consumers compared to European consumers and vice versa for Turkey.

[12] We adopt the concept of preferences featuring a "warm glow" of charitable giving from Andreoni (1989, 1990). Introducing donations as an component of the utility function has become standard in the literature on charitable giving.

of varieties available in j (including domestic as well as imported varieties). Moreover, consumers draw warm glow utility from donating for campaigns $\kappa_{ijk} \in \mathcal{K}_j$, where $\mathcal{K}_j$ is the set of all campaigns by j NGOs that receive funding and $\int_{\mathcal{K}_j} \mathcal{S}(\kappa_{ijk})\,\mathrm{d}\kappa$ therefore represents total warm glow from donating.[13]

Besides the warm glow term, this is a standard preference structure. CES preferences determine utility from the consumption of the available varieties of the differentiated good and utility from the consumption of the homogeneous good directly stems from its consumption level. Both elements are then combined with a Cobb-Douglas structure, implying that consumers spend a constant fraction of their income on both components. The warm glow term being added to the consumption of the homogeneous good implies that warm glow utility is traded-off against the consumption of the homogeneous good. This modeling choice has the advantage that it allows for flexible expansion and contraction of NGO donations depending on opportunities to finance campaigns with high salience.[14]

In line with the strong local component of NGO activity that we observe in the data, we assume that consumers only receive warm glow from campaigns conducted by domestic NGOs.[15] Consequently, j consumers donate only to j NGOs.

Consumers in country j have a budget of

$$Y_j = w_j L_j\,(1+\pi), \tag{9}$$

where π depicts dividends per share of a global mutual fund owning all firms that collects aggregate world profits and redistributes them to its shareholders (see Chaney 2008). Each consumer owns a number of shares equal to her productivity in sector h.

2.2. Goods and Input Market Determinants of Salience

We now turn to the economic determinants of the salience function (equation (6)) by characterizing the goods and input market equilibrium of our multi-country model of international trade and global sourcing. The focus of our analysis is on how economic globalization shapes the internationalization of NGO campaigns – not the other way around. For the sake of tractability, we have therefore chosen a modeling structure which implies that the goods and input market equilibrium can be determined independently of the equilibrium on the market for social activism. The intuition is that NGOs observe economic globalization and respond to it by carrying out campaigns to meet demand by consumers.

[13] Note that the salience an NGO can generate for a given campaign opportunity is independent of the number of other NGOs choosing the same campaign opportunity, i.e., there is no crowding out along this dimension.

[14] The obvious alternative would be to have the salience term in a third Cobb-Douglas nesting. In this case, consumers would spend a constant fraction of their income on campaigns no matter whether high-salience campaigns are available. With our modeling, campaigns have to generate sufficient warm glow to compensate for foregone consumption. Moreover, this modeling allows an increased number of attractive target firms (e.g., due to increased amounts of foreign imports) to lead to increased campaign financing without crowding out the financing of campaigns against domestic firms.

[15] This is a stylized representation of the fact that domestic NGOs have privileged access to the domestic donor base.

These campaigns do not feed back, however, into decisions at the firm level.[16] This allows us to first analyze the patterns of production and trade in intermediates as well as final goods in this section. We will then turn to the analysis of the market for social activism in section 2.3 and determine how the underlying goods and input market outcomes drive the patterns of international NGO campaigns.

We first derive the equilibrium in the differentiated goods sector. Consumers maximize utility subject to their budget constraint (equations (8) and (9)). This implies that consumers spend μY_j on the differentiated goods sector. Demand for variety ω is given by

$$q_{ij}(\omega) = p_{ij}(\omega)^{-\sigma} \; P_j^{\sigma-1} \; \mu Y_j, \tag{10}$$

where the price $p_{ij}(\omega)$ is the price charged by an i firm from a j consumer. The price index in country j is

$$P_j = \left(\sum_{n=1}^{N} \int_{\Omega_{nj}} p_{nj}(\omega)^{1-\sigma} \, \mathrm{d}\omega \right)^{\frac{1}{1-\sigma}}, \tag{11}$$

where Ω_{nj} denotes the set of varieties that is exported from country n to j.

Firms maximize profits π_{ij} by choosing their optimal input bundle and setting their price. The optimal input bundle B_i is determined by choosing the cost-minimizing combination of inputs b_{ki}, taking into account input prices p_{ki}^b:

$$\min_{b_{ki}} \sum_{k=1}^{N} p_{ki}^b \; b_{ki} \quad \text{s.t.} \quad B_i = 1.$$

This leads to the following optimal quantity of country k's intermediate input in each input bundle used by i firms:

$$b_{ki} = \left(\frac{w_k \; \tau_{ki}}{\beta_k} \right)^{-1} \; P_i^B, \tag{12}$$

where P_i^B is the price of one unit of the optimal input bundle in i, which is given by

$$P_i^B = \prod_{l=1}^{N} \left(\frac{w_l \; \tau_{li}}{\beta_l} \right)^{\beta_l}. \tag{13}$$

Note that equation (12) is independent of firm productivity, which implies that all firms have the same optimal input bundle.

Using the optimal input quantities from equation (12), we can compute the perceived

[16] This implies that the firm has no reason to be concerned about the impact of, for example, its own sales volume $x_{ij}(\varphi)$ on the salience of a campaign. One could of course also model an incentive for the firm to avoid campaigns, which would introduce an incentive to reduce sales in order to be less visible to consumers and therefore less prone to become the target of a campaign. We do not think that reducing sales in order to be less visible to consumers only to dampen the risk of campaigns is a key mechanism in real-world firm–NGO interactions. Moreover, we do not see reasons to believe that introducing this incentive would alter our main mechanisms or the gravity patterns we seek to model. Even if one wanted to design a model where firm strategies of avoiding or coping with damaging NGO campaigns were at the center of the analysis, one would probably model more appropriate instruments (like advertising, CSR investment or "greenwashing") for firms to respond to the threat of NGOs, rather than reducing their sales in order to be less visible to consumers.

prevalence of input k in the production of variety ω, as defined in equation (7):

$$s_{ki} = \Big(\frac{w_k\ \tau_{ki}}{\beta_k\ \mathcal{C}_i^s}\Big)^{-1}, \tag{14}$$

$$\text{where} \qquad \mathcal{C}_i^s \equiv \Big(\sum\nolimits_{l=1}^{N} \frac{\beta_l}{w_l\ \tau_{li}}\Big)^{-1}. \tag{15}$$

The prevalence of input k in the input bundle of firms in i, s_{ki}, is the first variable from the goods market side that affects NGO campaigns through the salience function in equation (6). We summarize its determinants in the following lemma:

Lemma 1. *The prevalence of inputs from country k in the input portfolio of firms in country i, s_{ki}, decreases in the total cost (factor costs w_k and bilateral trade costs τ_{ki}) of providing the input to firms in i and is higher when the factor intensity of the k input (β_k) is high. Moreover, it increases in $\mathcal{C}_i^s$, which we term* ***multilateral sourcing trade resistance****. It summarizes total costs of providing all N inputs to firms in country i, weighted by their respective factor intensities.*

Proof. Follows from inspection of equations (14) and (15). □

Taking into account costs of the optimal input bundle (equation (13)), firms do standard mark-up pricing:

$$p_{ij}(\varphi) = \frac{\sigma}{\sigma - 1}\ \frac{P_i^B\ \tau_{ij}}{\varphi}. \tag{16}$$

As the prices charged only differ across productivity levels, prices are from here on expressed as $p_{ij}(\varphi)$ instead of $p_{ij}(\omega)$. Wherever appropriate, we do the same for other variables throughout the remainder of the paper.

We follow Chaney (2008) in imposing $\gamma > (\sigma - 1)$. The equilibrium price index is then given by:

$$P_j = \frac{\sigma}{\sigma - 1}\ \Big(1 - \frac{\sigma - 1}{\gamma}\Big)^{\frac{1}{\sigma - 1}}\ \theta_j, \tag{17}$$

$$\text{where} \qquad \theta_j \equiv \Big[\sum_{n=1}^{N} w_n L_n (P_n^B\ \tau_{nj})^{1-\sigma}\Big]^{\frac{1}{1-\sigma}}. \tag{18}$$

Firm-level export sales from country i to consumers in j are given by:

$$x_{ij}(\varphi) = \mathcal{C}^x\ Y_j \Big(\frac{P_i^B\ \tau_{ij}}{\theta_j}\Big)^{1-\sigma} \varphi^{\sigma-1}, \tag{19}$$

$$\text{where} \qquad \mathcal{C}^x \equiv \mu\Big(1 - \frac{\sigma - 1}{\gamma}\Big). \tag{20}$$

Equation (19) constitutes a gravity equation for firm-level export sales. As x_{ij} links the goods market side and the market for social activism through the salience function, we summarize its determinants in the following lemma:

Lemma 2. *Export sales of a firm in country i to consumers in country j are given by equation (19). They increase in the productivity of the firm φ and market size; they decrease in bilateral trade costs, τ_{ij}. Moreover, they increase in θ_j, which we term* ***multilateral consumption trade resistance*** *of country j and decrease in P_i^B, which we label* ***multilateral upstream trade resistance*** *of country i.*

Proof. Follows from inspection of equation (19). □

Multilateral upstream trade resistance P_i^B is the price (index) of the optimal input bundle used in country i. It measures how costly it is for a firm in i to source one unit of the optimal input bundle. This cost crucially depends on all the bilateral trade costs between country i and its input suppliers: high trade resistance against upstream suppliers drives up production cost in country i – and therefore reduces exports of final products. Note that despite the fact that equation (19) is a *bilateral* gravity equation, the *triadic* structure of the model is reflected in the multilateral upstream trade resistance term. The multilateral consumption trade resistance θ_j includes the bilateral trade costs firms from all countries have to incur when exporting final consumption goods to consumers in j. When θ_j is high, the market environment is relatively favorable for firms serving market j from country i.

In order to fully characterize the equilibrium of the goods market side of the model, we derive in appendix E.1 dividends per share of the global mutual fund redistributing these profits to workers, which are given by:

$$\pi = \frac{\mu}{\sigma - \mu}. \tag{21}$$

Lemmas 1 and 2 characterize two of the three variables linking bilateral trade in intermediates and final goods to the triadic salience function in equation (6). The third is total trade in consumption goods between country k and country j, X_{kj}. Aggregate bilateral trade in final goods is readily obtained by aggregating firm-level exports of final goods $x_{kj}(\varphi)$ (see equation (19)) across all firms in country k:

$$X_{kj} = \mu\Big(1 - \frac{\mu}{\sigma}\Big)^{-1} w_k L_k \; w_j L_j \Big(\frac{P_k^B \; \tau_{kj}}{\theta_j}\Big)^{1-\sigma}. \tag{22}$$

Aggregate bilateral trade flows take a standard form.[17] Their determinants are characterized in the following lemma:

Lemma 3. *Aggregate bilateral trade flows between country k and country j are given by equation (22). They increase in the economic country sizes of both countries, $w_k L_k$ and $w_j L_j$, and decrease in bilateral trade costs, τ_{kj}. Moreover, exports increase in the multilateral*

[17] The elasticity of aggregate trade flows with respect to bilateral trade costs is given by $1 - \sigma$. This is a familiar result, e.g. from Krugman (1980). In the model of Chaney (2008), this elasticity is independent of σ and only depends on the shape parameter of the productivity distribution. Despite the fact that our model features heterogeneous firms (like in Chaney (2008)), our model shares the elasticity with Krugman (1980). This is the case as – for analytical tractability – we do not assume fixed costs of exporting and therefore all firms export.

consumption trade resistance of country j (θ_j) and decrease in the multilateral upstream trade resistance of country k (P_k^B).

Proof. Follows from inspection of equation (22). □

We have now derived all the components of trade in intermediates and final goods that we need in order to determine the salience of a triadic NGO campaign in equation (6). This allows us to characterize the equilibrium campaigns arising from the market for social activism. Before turning to the equilibrium on the market for social activism, we consider the (gravity) patterns of trade in intermediate inputs underlying the final goods trade depicted above. These flows of intermediate inputs are the underlying economic processes that turn (dyadic) NGO campaigns targeting a firm in country i into triadic value chain campaigns where firms are criticized for unethically sourcing from a third country k.

Total trade in the intermediate input between country k and country i is obtained by aggregating the inputs imported from k across all firms in country i. Bilateral trade in intermediate inputs is then given by (see appendix E.2)

$$\mathcal{I}_{ki} = \mu \mathcal{C}^{\mathcal{I}} \; w_i L_i \left(\frac{w_k \; \tau_{ki}}{\beta_k}\right)^{-1} P_i^B \; \Phi_i, \tag{23}$$

$$\text{where} \qquad \Phi_i \equiv (P_i^B)^{-\sigma} \sum_{j=1}^{N} w_j L_j \left(\frac{\tau_{ij}}{\theta_j}\right)^{1-\sigma} \tag{24}$$

and $\mathcal{C}^{\mathcal{I}} \equiv \frac{\sigma-1}{\sigma}(1-\frac{\mu}{\sigma})^{-1}$. Also equation (23) features standard gravity elements. Trade in intermediate inputs increases in the economic size of the importing country. The size of the exporting country does not play a role, as for simplicity we chose a setting where input quantities sold are purely demand driven. Equation (23) shares the term in parentheses with s_{ki} in equation (14) as this shapes the (un)attractiveness of input k, which matters relative to the overall costs firms in country i face when sourcing inputs from all countries, captured by P_i^B. It also includes the term Φ_i, which we label *multilateral downstream trade resistance*, summarizing the overall access firms in i have to consumers in all N countries. This shapes total exports by i firms and therefore affects the total amount of inputs these firms source from k. In equation (24), P_i^B occurs once again, because exports of i firms depend negatively on the price of an input bundle in country i.

It is evident from the above equations that even the dyadic gravity equations for intermediates and consumption goods account for the triadic structure of our model through different multilateral resistance terms. In our model, NGOs start campaigns against final goods producers for infringements by their upstream suppliers (value chain campaigns). In order to analyze such campaigns, we need to account for the triadic structure more directly by deriving *triadic* gravity equations.

2.3. Market for Social Activism

The equilibrium patterns of international trade in intermediates and final consumption goods constitute the environment which NGOs observe and respond to. In this section, we

analyze how NGOs offer campaigns on a market for social activism, where consumers/donors have a demand for campaigns that appear relevant to them.

Recall that NGOs are willing to carry out any campaign for which they can raise sufficient funds.[18] Therefore, a campaign is supplied if and only if the necessary funds p_C can be raised from donors. From the perspective of consumers, p_C therefore represents the price of a campaign.

Due to the Cobb-Douglas structure of utility (equation (8)), consumers allocate a fixed fraction $(1-\mu)$ of their income to consumption of good h and donations. To determine the demand for campaigns, we can therefore exclusively focus on the sub-utility $q_j(h) + \int_{\mathcal{K}_j} \mathcal{S}(\kappa_{ijk})\,\mathrm{d}\kappa$. On the one hand, each unit of h that is consumed yields sub-utility of 1 at a price of 1. On the other hand, campaigns provide different levels of warm glow (see equation (6)) for a price of p_C per campaign.

This implies that all campaigns receive funding where the following *funding condition* holds:

$$\mathcal{S}(\kappa_{ijk}) = \xi\ s_{ki}\, x_{ij}(\varphi)\ X_{kj} \geq p_C. \tag{25}$$

The remaining income is spent on good h.[19] Based on our results in lemmas 1 to 3, we are now much better equipped to understand the different components of the salience function and its determinants. We can now see how the salience function links trade and global sourcing of firms to NGO campaigns: the gravity forces shaping international trade in intermediates and final goods in equations (22) and (23) also determine the funding potential of a triadic (i-j-k) value chain campaign.

We now characterize the equilibrium of the market for social activism, analyzing which i-j-k-ξ-φ combinations will lead to NGO campaigns. Put differently, we ask: for a given triad of countries, which combinations of NGO efficiency and firm productivity generate the required salience to raise the necessary funds?

Note that it is the combination of NGO efficiency ξ (its *ceteris paribus* ability to generate higher salience) and the productivity of the firm φ (through $x_{ij}(\varphi)$ in lemma 2) that determine whether a campaign on a country triad receives funding. We define the cutoff productivity $\tilde{\varphi}_{ijk}(\xi)$ as the productivity of a firm in i which implies sales volume (and hence an implied salience) that is just high enough to stimulate donations for a campaign by a j NGO with efficiency ξ criticizing conduct in k. This cutoff productivity makes the funding

[18] Also recall that we discussed in footnote 9 that in reality, NGOs may have their own opinions and priorities over campaigns and so may consumers. We argued that it is not essential which of the two agents generates the ranking of the desirability of campaigns. In our modeling we attribute it to consumers.

[19] Recall that, as standard in the literature, we consider only equilibria in which the homogeneous good is produced in all countries, which amounts to assuming that the size of the differentiated goods sector in the economy is sufficiently small. We make a related assumption regarding the warm glow: we only consider settings where financing NGOs does not entirely crowd out consumption of the homogeneous good. This assumption is complementary to the first assumption, as a small differentiated goods sector also limits the number of possible campaigns.

condition equation (25) hold with equality, for a given ξ and some *i-j-k* triad of countries:

$$\xi \; s_{ki} \, x_{ij}(\tilde{\varphi}_{ijk}) \; X_{kj} \equiv p_C. \tag{26}$$

Plugging in equations (14), (19) and (22) and using the results from the previous section, solving for $\tilde{\varphi}_{ijk}$ yields the following expression for the equilibrium cutoff productivity:

$$\tilde{\varphi}_{ijk}(\xi) = (\delta \; w_i L_i)^{\frac{1}{\gamma}} \; \Delta_{ijk}^{-\frac{1}{\gamma}} \; \xi^{\frac{1}{1-\sigma}}. \tag{27}$$

At this point we first use the *triadic gravity term*, Δ_{ijk}. It collects all the relevant gravity variables shaping the trade in intermediates and final goods that affect the funding of NGO campaigns. As it will be at the core of our main results, we provide a detailed interpretation in the next section. Here, we simply note that it is defined in equation (32) and turn first to a technical aspect of our model.

Note that firm productivities are distributed on $[1, \infty)$ and so are NGO efficiencies. As for tractability we do not truncate the efficiency distribution of NGOs, there will be a small measure of NGOs that are so efficient in generating salience that they could even secure funding for campaigns against firms with productivities below 1. As no such firms exist, for these "hyper-efficient" NGOs, the effective cutoff is equal to 1.[20] While this case can arise in theory, this is clearly not a case with empirical relevance.[21]

We denote the *effective cutoff productivity* as

$$\tilde{\varphi}^*_{ijk}(\xi) \equiv \max \{\tilde{\varphi}_{ijk}(\xi); 1\}. \tag{28}$$

This includes the case of NGOs that are so efficient that they target *all* firms that use questionable inputs in a given *i-j-k* country triad. This is the case for NGOs above the *discontinuity threshold*, which is defined as $\tilde{\varphi}_{ijk}(\bar{\xi}_{ijk}) \equiv 1$ and given by:

$$\bar{\xi}_{ijk} = (\delta \; w_i L_i)^{\frac{\sigma-1}{\gamma}} \; \Delta_{ijk}^{\frac{1-\sigma}{\gamma}}. \tag{29}$$

2.4. The Geography of Social Activism

We have now derived all the elements of the model needed to compute the measure of NGO campaigns at the *i-j-k* level. In section 2.4.1 we find that the measure of *i-j-k* campaigns at the NGO level is pinned down by a triadic gravity equation, which takes a very clear multiplicative form. Based on this equation, we derive and discuss our main theoretical results in sections 2.4.2 to 2.4.4. We show in section 2.4.5 that our main testable implication

[20] This is a common issue that arises in models with heterogeneous agents in the absence of fixed costs; see for example Bernard, Moxnes & Ulltveit-Moe (2018).

[21] In the spirit of Eaton, Kortum & Kramarz (2011), we can think of the observations in the data as the result of a *finite* number of draws from our *continuous* distributions. This implies that while the very small density of almost infinitely efficient NGOs carrying out all possible campaigns occurs in the theory (as for tractability the distributions are not truncated), these NGOs will, however, not be of empirical relevance as in the empirical analysis the number of observations is finite and the theoretical density goes to zero as efficiency approaches infinity.

at the NGO level continues to hold qualitatively when aggregating to the country level. In section 2.4.6, we highlight how explicitly accounting for the internationalization of production leads to implications of our model that differentiate it from other conceivable gravity models for international NGO campaigns.

2.4.1. Triadic Gravity for NGO Campaigns

Our main theoretical results presented in this and the following two subsections concern the equilibrium campaigns of an individual NGO with efficiency ξ. We denote the measure of campaigns conducted by an NGO in j with efficiency ξ targeting firms in i for infringements in k as $n_{ijk}(\xi)$. Recall that δ is the share of ethically questionable sourcing transactions and that the NGO can target all firms with $\varphi \geq \tilde{\varphi}^*_{ijk}(\xi)$. It follows that $n_{ijk}(\xi)$ is given by

$$n_{ijk}(\xi) = \begin{cases} n^S_{ijk}(\xi) = \delta\ w_i L_i \int_{\tilde{\varphi}_{ijk}(\xi)}^{\infty} g_\varphi(\varphi)\,\mathrm{d}\varphi & \text{if} \quad \xi < \bar{\xi}_{ijk} \\ n^L_{ijk} \quad\ = \delta\ w_i L_i \int_{1}^{\infty} g_\varphi(\varphi)\,\mathrm{d}\varphi & \text{if} \quad \xi > \bar{\xi}_{ijk} \end{cases} \tag{30}$$

where the indices S and L stand for "small" and "large", respectively. The latter label is a euphemism in the sense that this describes the case of an NGO being so efficient that it carries out the entirety of all possible campaigns, therefore integrating from $\varphi_{\min} = 1$ to infinity. We argue in footnote 21 that these "large" NGOs are not empirically relevant when the theoretical model is brought to the data. We therefore focus our analysis here on the "small" NGOs, reporting results on the "large" ones only for completeness in appendix C.

Using the productivity distribution and the cutoff $\tilde{\varphi}_{ijk}(\xi)$ (equations (1) and (27)), the NGO-level measure of campaigns $n^S_{ijk}(\xi)$ is

$$n^S_{ijk}(\xi) = \Delta_{ijk}\ \xi^{\frac{\gamma}{\sigma-1}}, \tag{31}$$

where

$$\Delta_{ijk} \equiv \mathcal{C}\ w_i L_i\,(w_j L_j)^{\frac{2\gamma}{\sigma-1}}\,(w_k L_k)^{\frac{\gamma}{\sigma-1}}\ \underbrace{\left(\frac{\tau_{ki}\ w_k/\beta_k}{\mathcal{C}^s_i}\right)^{-\frac{\gamma}{\sigma-1}}}_{G_{ki}}\ \underbrace{\left(\frac{\tau_{ij}\ P^B_i}{\theta_j}\right)^{-\gamma}}_{G_{ij}}\ \underbrace{\left(\frac{\tau_{kj}\ P^B_k}{\theta_j}\right)^{-\gamma}}_{G_{kj}} \tag{32}$$

$$\text{and} \qquad \mathcal{C} \equiv \delta\left(\left(1-\frac{\sigma-1}{\gamma}\right)\left(\frac{\mu\ \sigma}{\sigma-\mu}\right)^2 p_C^{-1}\right)^{\frac{\gamma}{\sigma-1}}. \tag{33}$$

The triadic gravity term Δ_{ijk} is at the core of our paper and the Greek letter representing it is chosen for its triangular shape. It contains all determinants of NGO-level i-j-k campaigns that are common to all NGOs in country j. Combined with the NGO efficiency ξ in equation (31), it delivers an NGO-level triadic gravity equation.

The elements in equation (32) look familiar from standard dyadic gravity equations: a constant term, economic country sizes, bilateral trade costs and terms representing multilateral trade resistance of the countries involved. The striking difference to dyadic gravity equations is that there is more of everything: three economic country sizes, three bilateral distances and four trade resistance terms. The term $\mathcal{C}$ collects constants and $w_i L_i$,

$w_j L_j$ as well as $w_k L_k$ represent economic country sizes. The remaining determinants can be grouped into the tree terms G_{ki}, G_{ij} and G_{kj}. These three terms directly relate to lemmas 1, 2 and 3, respectively, and summarize factors shaping sourcing of inputs between k and i, trade in final goods between i and j and trade in final goods between k and j, respectively.

2.4.2. Triadic Gravity: Bilateral Trade Costs

The triadic gravity equation (31) pins down all determinants of the number of i-j-k observations at the NGO level. It is the established standard in the empirical gravity literature to control for all country-specific variables like economic size and multilateral trade resistance with fixed effects. While especially the latter are very interesting from a theoretical viewpoint, the bilateral variables (here: bilateral trade costs) are of particular importance for the empirical analysis. In this section, we therefore turn to a detailed analysis of the impact of the bilateral trade costs τ_{ki}, τ_{ij} and τ_{kj} on NGO campaigns, how they relate to our empirical approach and how they help to differentiate our model from other conceivable models of international NGO activity. In section 2.4.3 we then turn to the interpretation of country-level determinants of NGO campaigns in the triadic gravity equation.

Proposition 1 (Triadic Gravity: Bilateral Trade Costs)**.** *The measure of campaigns $n^S_{ijk}(\xi)$ conducted by a "small" NGO with efficiency $\xi < \bar{\xi}_{ijk}$ in country j targeting firms in country i for infringements in country k is characterized by the triadic gravity equation (31). This measure of campaigns decreases in all three bilateral trade costs τ_{ki}, τ_{ij} and τ_{kj}.*

Proof. This follows directly from inspection of equation (31) and equation (32). □

Figure 1a illustrates the triadic structure shaping NGO campaigns. Let us consider the impact of τ_{ij} in equation (31) and in figure 1a. It is part of the term G_{ij}, which collects components affecting NGO campaigns through trade between the firm country i and the NGO country j (see lemma 2). The effect of the bilateral trade costs τ_{ij} is straightforward: lower trade costs imply lower prices, which increases the quantities of each good exported from i to j. This implies that the goods from country i feature more prominently in the consumption basket in country j, leading to a higher salience (see equation (6)) and therefore better funding opportunities of NGOs when suggesting a campaign against a firm from country i.

The symmetric argument holds for the impact of τ_{kj}, which enters through the term G_{kj} and relates directly to lemma 3. Its effect stems from the assumption in the salience function that consumers/donors more easily relate to an infringement in country k when the country itself is salient, which we proxy by the total volume of imports of final products. This mechanism is independent of the role of the internationalization of production and is therefore not central to our main point.

The effect of the internationalization of production is represented by the sourcing trade costs between country k and country i, τ_{ki}, as well as the other components in G_{ki} discussed below. The firm in i optimally chooses an input portfolio of all available inputs. Not observable to the firm, some of these inputs may have been produced under unethical

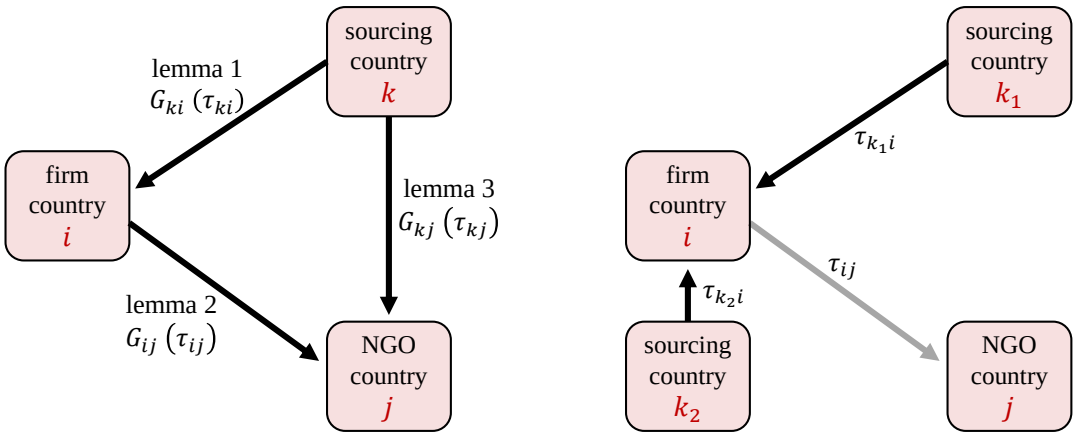


Figure 1: Panel (a) depicts firm country i, NGO country j and sourcing country k, along with the respective lemmas and elements of the triadic gravity equation (31) that shape their bilateral relationships, which determine NGO campaigns in country j. Panel (b) illustrates the role of the sourcing trade costs τ_{ki} for the infringements NGOs from j criticize in their campaigns against firms in i. Due to lower sourcing trade costs, the inputs from country k_2 feature more prominently in the input bundle used by firms in i than the inputs from country k_1. This implies better funding opportunities for NGOs in j to campaign against firms in i for infringements in country k_2 as compared to infringements in country k_1.

conditions and have the potential to trigger an NGO campaign. Lemma 1 implies that the different inputs available do not enter the optimal input bundle in equal shares: lower sourcing costs between k and i imply that inputs from k feature more prominently in the input portfolio of firms in country i. When goods from country i are then exported to the NGO country j, infringements in the sourcing country k are more likely to trigger an NGO campaign the more prominently the input from k features in the input bundle. Figure 1b illustrates how the sourcing decision of the firm in i affects NGO campaigns in j that address infringements in country k: due to the proximity of country k_2 (compared to country k_1) to the firm country i and its inputs embodied in the exports from i, we expect ceteris paribus more NGO campaigns in j criticizing actions in k_2 than in k_1. This effect is unrelated to trade costs between the NGO country j and country k_1 or k_2.

We consider this effect of the sourcing trade costs τ_{ki} a non-trivial implication of our model. It stems from our explicit modeling of the sourcing activity of the final goods producer. As outlined in the introduction, this modeling is motivated by the shift of NGOs towards value chain campaigns (Baron 2016): campaigns where NGOs attack firms for infringements along their global value chains. We argue that this implication distinguishes our model from other conceivable gravity models of NGO activity where gravity patterns simply emerge from imposing some distance cost of the actual NGO activity. We discuss such approaches in section 2.4.6. These may well produce – at least in terms of implications for the empirical estimation – predictions similar to the ones on the bilateral trade costs τ_{ij} and τ_{kj}. They remain, however, silent on the role of the components in lemma 1, especially τ_{ki}. Our model, in contrast, allows us to make a prediction on the effect of the k–i trade costs. A prediction

which – as we will see in section 3 – finds support in the data.

2.4.3. Triadic Gravity: Country Size and Multilateral Trade Resistance

We now turn to the analysis of the remaining determinants of triadic NGO campaigns in equation (31). These are country-level variables like the economic country size and multilateral trade resistance terms. The following proposition summarizes our results.

Proposition 2 (Triadic Gravity: Country Size and Multilateral Trade Resistance)**.** *The measure of campaigns in the NGO-level triadic gravity equation (31)*

(i) increases in the economic country sizes of all three countries involved, $w_i L_i$, $w_j L_j$ and $w_k L_k$;
(ii) decreases in country i's and country k's multilateral upstream trade resistance, P_i^B and P_k^B;
(iii) increases in country j's multilateral consumption trade resistance, θ_j;
(iv) increases in country i's multilateral sourcing trade resistance, $\mathcal{C}_i^s$.

Proof. This follows directly from inspection of equation (31) and equation (32). □

Let us begin with the elements of G_{ij} (other than the trade costs τ_{ij} discussed above) in the triadic gravity equation (31). Multilateral upstream trade resistance of country i is given by P_i^B from equation (13), which is defined as the price of one unit of the optimal input bundle in country i. This price depends on all determinants making sourcing from all other countries more or less attractive and therefore summarizes the trade resistance country i faces when trading with its upstream suppliers. The multilateral upstream trade resistance P_i^B affects campaigns through its impact on trade in final goods between countries i and j (lemma 2). With low trade resistance towards the countries supplying intermediates, inputs are cheaper and firms in i produce at lower total cost and charge lower prices. The intuition for the effect of P_i^B is therefore similar to the one for bilateral trade costs τ_{ij}, outlined in the previous subsection. The term θ_j, as defined in equation (18), represents the essential features of the consumer price index in country j, P_j. As it reflects (by a constant term) the prices of all goods from all countries that are sold in country j, it also provides a summary of the overall trade resistance country j is facing when importing goods for final consumption from all its trading partners. For given bilateral trade costs τ_{ij}, a higher overall trade resistance θ_j favors exports from i to j and therefore increases the number of i-j NGO campaigns.

The symmetric arguments apply to the elements entering equation (31) through G_{kj}, specifically P_k^B and again θ_j. As described in lemma 3, they both shape trade in final goods between country k and country j. As mentioned in the discussion of the effects of τ_{ki} above, this is unrelated to the effect of international sourcing on NGO campaigns and is therefore not central to our main point.

Country i's multilateral sourcing trade resistance, $\mathcal{C}_i^s$, is given by equation (15). It affects triadic campaigns through G_{ki}, which shapes the sourcing of inputs between country k

and country i as summarized in lemma 1. It has similar components as the multilateral upstream trade resistance P_i^B discussed above, but it enters the triadic gravity equation not through its effect on production costs, but through its effect on the perceived prevalence of input k in goods produced in country i, which is given by equation (14) and described in lemma 1. Multilateral sourcing trade resistance is a key element for the analysis of value chain campaigns. It needs to be compared to the (un)attractiveness of sourcing from a specific country k, which is represented by the other elements of G_{ki}: low trade costs τ_{ki}, low production costs in k, w_k, and a high technical relevance of k's input in production, β_k, make sourcing from k attractive. This effect is reinforced by a high value of $\mathcal{C}_i^s$, which reflects a low average attractiveness of sourcing inputs from all other countries, driving up the share of inputs from k in the input bundle used by firms from country i.[22]

We have now analyzed all components of our triadic gravity equation (31). Note that for completeness, in appendix C we also consider the second determinant of $n_{ijk}(\xi)$ in equation (30): $n_{ijk}^L(\xi)$ for "hyper-efficient" NGOs. We show that all results from propositions 1 and 2 are qualitatively unchanged, as long as there are at least some NGOs not conducting the entirety of all possible campaigns (i.e., NGOs with $\xi < \bar{\xi}_{ijk}$).

2.4.4. *Local* Global Watchdogs

In this section, we highlight how an expansion of international trade both in intermediates as well as in final goods can draw NGOs from their intrinsically domestic activity to the global stage: even if NGOs remain oriented towards their domestic donor base and only address issues with a strong relation to the consumption basket of these donors, the internationalization of the firms delivering these consumption goods internationalizes NGO activity. In this section, we analyze how this being drawn into international activity by the internationalization of firms shapes the patterns of domestic and international components of NGO campaigns. For this, we define "internal trade" as NGO/consumer and firm being in the same country ($i = j$); "internal action" as the NGO and the supplier with the criticized action being in the same country ($j = k$); "internal sourcing" as the supplier and the firm being in the same country ($i = k$); and "all-internal" as the case where all three agents are located in the same country ($i = j = k$). The following proposition summarizes our results.

Proposition 3 (Local Global Watchdogs)**.** *NGO campaigns have a home bias but are "globalized" by the economic globalization of firms.*

(i) (local) With intra-national trade costs normalized to unity and international trade costs larger one, there is home bias in NGO campaigns: ceteris paribus, more campaigns occur for internal sourcing ($i = k$); internal trade ($i = j$); internal action ($j = k$); and all-internal ($i = j = k$) than for any other i-j-k combination. When international trade costs go to infinity, the fraction of all-internal observations goes to one.

(ii) (global) When either of the three bilateral trade costs τ_{ki}, τ_{ij} or τ_{kj} falls, the fraction of i-j-k campaigns with at least one foreign component increases.

[22] Note that a term similar to $\mathcal{C}_i^s$ can be found in equation (8) of Antràs et al. (2017), where they also compute the share of intermediate input purchases sourced from a given country.

Proof. See appendix D.1.

Proposition 3 (i) shows the strong home bias of NGOs, while (ii) highlights that lower trade costs make more and more campaigns gain an international dimension. Part (i) may not appear surprising given that we model NGOs as national agents that cater to a purely national donor base. When international trade costs go to infinity, all countries are in autarky and accordingly, all campaigns are purely domestic ($i = j = k$). Part (ii) then shows the effect of falling trade costs: Foreign firms sell larger quantities to domestic consumers and their goods (as well as the products of domestic firms) also contain an increasing fraction of foreign inputs as the sourcing trade costs τ_{ki} fall. This implies that the activity of local NGOs is globalized by the globalization of production and trade – NGOs become "local global watchdogs."

Proposition 3 also highlights that our model implies a strong domestic and a strong international component of NGO activity. In table B.1 in appendix B, we show that the data prominently features this apparently contradictory combination of a strong local and a strong global dimension of NGO campaigns, which our model can rationalize. It is explained by the fact that in a triadic setting with three countries involved, a campaign can be both counted as domestic and international when either the sourcing country or the firm country is foreign, but the other country is equal to the NGO country. Table B.1 shows the importance of international campaigns in the data. Moreover, as a preview of our empirical analysis, note that we include dummy variables indicating internal sourcing ($k = i$); internal trade ($i = j$) and internal action ($j = k$) in our regression analysis in section 3. These dummies capture any difference in intra- and international trade costs that are not captured by our trade costs measures. Proposition 3 informs the interpretation of these dummy variables. Further, note that for the internal sourcing ($k = i$) dummy the same argument as in section 2.4.2 applies: its relevance for the campaign activity of NGOs in a third country j is not straightforward to rationalize when international production linkages are ignored, but can be explained by the internationalization of NGO activity through international sourcing.

2.4.5. NGO Campaigns at the Country Level

In this section we aggregate across NGOs to derive the equilibrium predictions of our model at the country level. We derive a country-level triadic gravity equation and show that the main insights from the NGO-level analysis are qualitatively unchanged.

When aggregating campaigns across NGOs, NGO heterogeneity, which looms large in the Sigwatch data (see appendix B), has to be accounted for. The total measure of campaigns by NGOs in j targeting firms from i for infringements in k (N_{ijk}), is given by

$$N_{ijk} = \psi_j \; w_j L_j \left(\int_1^{\bar{\xi}_{ijk}} g_\xi(\xi) \; n^S_{ijk}(\xi) \, \mathrm{d}\xi + \int_{\bar{\xi}_{ijk}}^{\infty} g_\xi(\xi) \; n^L_{ijk} \; \mathrm{d}\xi \right). \tag{34}$$

Based on the in-depth analysis of the measure of NGO-level campaigns for "small" and for "large" NGOs, $n^S_{ijk}(\xi)$ and $n^L_{ijk}(\xi)$, respectively, it is to be expected that the same

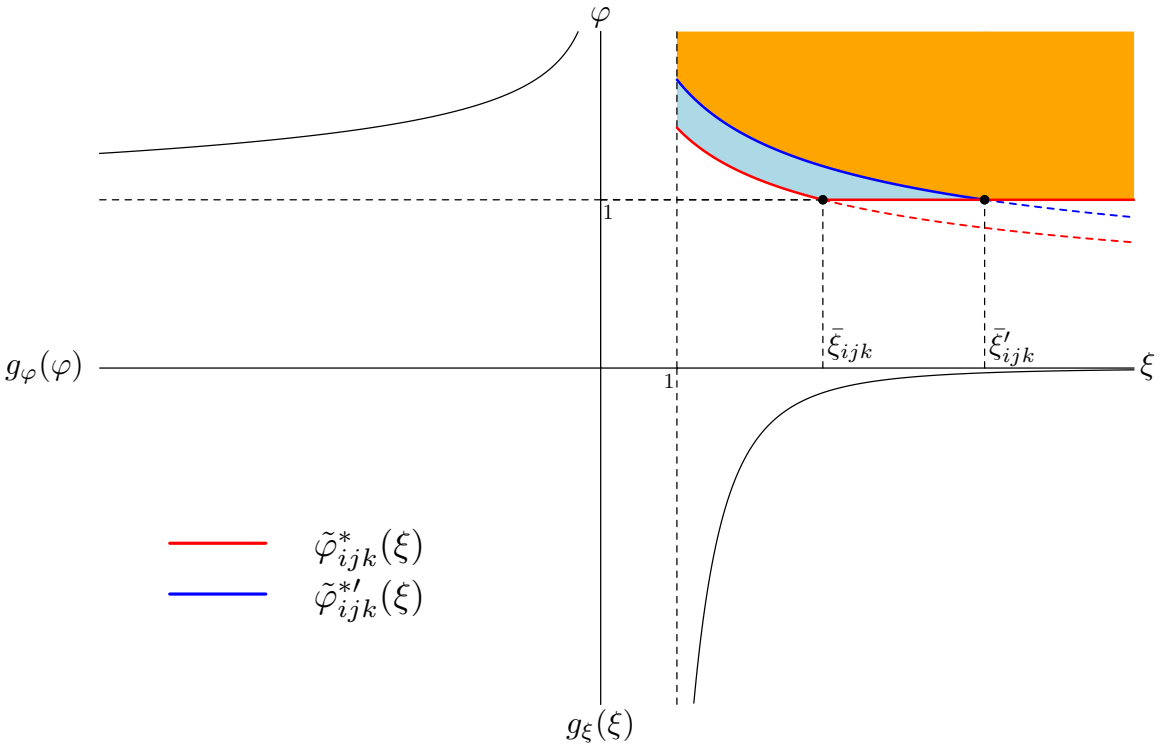
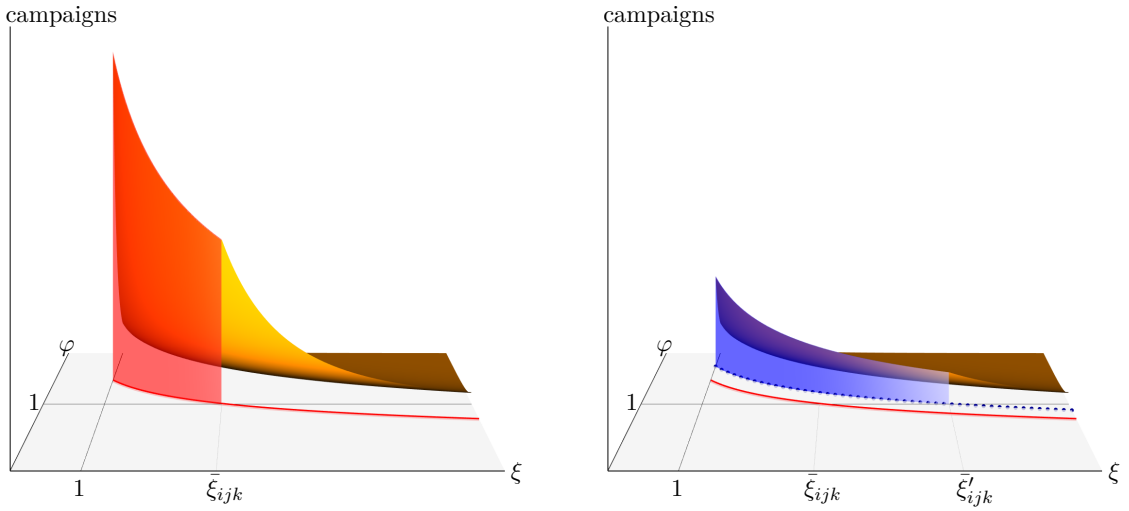


Figure 2: Distribution of firms (top-left) and NGOs (bottom-right). For a j NGO with efficiency ξ, all i firms with productivities above $\tilde{\varphi}^*_{ijk}(\xi)$ (red solid line) are potential campaign targets for infringements in k. Hence, the areas shaded in orange and blue are proportional to all i-j-k campaigns. Higher trade costs shift $\tilde{\varphi}_{ijk}$ to the right (blue line), leading to a reduction of campaigns proportional to the blue area.

determinants should drive country-level NGO campaigns. However, due to the endogenous split between the two types (reflected in the endogenous discontinuity threshold $\bar{\xi}_{ijk}$ as upper and lower bound of the two integrals), the patterns are less clear and the analysis is more involved.

Let us first build some intuition based on figure 2. The top-right panel presents a plot of $\tilde{\varphi}^*_{ijk}$ in the "NGO efficiency – firm productivity" (ξ–φ) space (lower solid curve in red; see equation (28)). For a given NGO efficiency $\xi > 1$ (a given point on the horizontal axis), all points above the function $\tilde{\varphi}^*_{ijk}(\xi)$ (the colored areas) represent productivity levels of target firms that NGOs with this efficiency ξ can campaign against. As there is a minimum productivity level $\varphi_{\min} = 1$, the cases below and above the discontinuity threshold $\bar{\xi}_{ijk}$ need to be considered separately: For the bulk of NGOs with efficiencies below $\bar{\xi}_{ijk}$, the function $\tilde{\varphi}_{ijk}$ determines their set of possible targets (see n^S_{ijk} in equation (30)). NGOs above $\bar{\xi}_{ijk}$, however, are so efficient that they can secure funding for campaigns against all potential targets irrespective of their productivity levels. For these NGOs, $\tilde{\varphi}_{ijk}$ is even below the minimum productivity level of 1 (red dashed curve), which is why for them the *effective* cutoff productivity is 1 (see n^L_{ijk} in equation (30)). This illustrates the structure of equation (34), where campaigns of "small" and "large" NGOs are aggregated separately, weighted by the measure of NGOs with the respective efficiency ($\psi_j\ w_j L_j\ g_\xi(\xi)$).

We can go one step further in the graphical illustration of the aggregation of NGO campaigns at the country level, by adding a third dimension to the plot. Note that the total measure of campaigns by NGOs with efficiency ξ against firms with productivity φ depends on the product of the density of firms with this productivity (top-left panel in figure 2) and the density of NGOs with this efficiency (bottom-right panel), multiplied by a constant factor of $\psi_j \; w_j L_j \; \delta \; w_i L_i$. The latter scales the densities with the total measure of firms in i and NGOs in j and accounts – through δ – for the fact that only a fraction of inputs is of the "unethical" type (see equation (34) in combination with equation (30)). In figure 3a, we plot on the vertical axis the measure of campaigns by NGOs with efficiency ξ against firms with productivity φ, for each point on the ξ–φ plane where $\varphi \geq \tilde{\varphi}^*_{ijk}(\xi)$ and $\xi \geq 1$. This results in the orange space curve, which is bounded by $\xi \geq 1$, $\varphi \geq 1$ and $\varphi \geq \tilde{\varphi}_{ijk}(\xi)$. The latter constraint is depicted by the red vertical surface, which extends vertically above $\tilde{\varphi}_{ijk}(\xi)$. The volume below the orange space curve represents N_{ijk}: country-level i-j-k campaigns.



(a) Baseline: The volume under the space curve is bounded by $\tilde{\varphi}^*_{ijk}(\xi)$.

(b) With higher trade costs, $\tilde{\varphi}_{ijk}$ shifts to the right (from the red solid to the blue dotted line). This decreases the volume under the space curve.

Figure 3: The red solid line and the blue dotted line depict $\varphi_{ijk}(\xi)$ and $\varphi'_{ijk}(\xi)$, respectively. The volume below the orange space curve equals N_{ijk}.

Evaluating equation (34), using equations (5), (29), (31) and (C.1), delivers a triadic country-level gravity equation:

$$N_{ijk} = \psi_j \; w_j L_j \left[\Delta_{ijk} \left(1 - \frac{\gamma}{\epsilon(\sigma-1)}\right)^{-1} - (\delta \; w_i L_i)^{\frac{\epsilon(1-\sigma)}{\gamma}+1} \; \Delta_{ijk}^{\frac{\epsilon(\sigma-1)}{\gamma}} \left(\left(1 - \frac{\gamma}{\epsilon(\sigma-1)}\right)^{-1} - 1\right)\right]. \tag{35}$$

Just as for the NGO-level campaigns in equation (31), the triadic gravity term Δ_{ijk} also shapes the country-level campaigns. This directly implies that the same variables shaping NGO-level gravity also determine aggregate NGO campaigns. The structure is, however, more complex and the convenient multiplicative structure of the NGO-level equation is

lost. This is due to the fact that the measure of campaigns by NGOs below and above the discontinuity threshold are determined by two different functional forms.

For the empirical analysis in section 3, we need to know whether the predicted effects on the three bilateral trade costs survive the additional complexity at least qualitatively. We can indeed show that this is the case:

Proposition 4 (Triadic Gravity for Campaigns at the Country Level)**.** *The measure of campaigns at the country level conducted by NGOs in country j targeting firms in country i for infringements in country k, N_{ijk}, as given by equation (35), decreases in*

(i) bilateral trade costs between firm country i and NGO country j, τ_{ij};
(ii) bilateral trade costs between the sourcing country k and firm country i, τ_{ki};
(iii) bilateral trade costs between sourcing country k and NGO country j, τ_{kj}.

Proof. See appendix D.2.

As all three bilateral trade costs have the same qualitative impact of aggregate campaigns, figures 2 and 3b illustrate the effect of an increase in any of the bilateral trade costs. An increase in trade costs shifts the function $\tilde{\varphi}^*_{ijk}(\xi)$ to the right (as indicated by the blue line in figure 2), leading to an increase in the NGO discontinuity threshold to $\bar{\xi}'_{ijk}$. Figure 2 illustrates how the set of NGO–target combinations decreases by the area shaded in blue. In figure 3, $\tilde{\varphi}_{ijk}$ shifts to the right due to the shock (blue dotted line), and so does the vertical surface above it that clips the orange space curve. Hence, fewer campaigns (graphically: less volume below the space curve) remain.[23] We can see in the graphs that the measure of campaigns by the most efficient NGOs with $\xi > \bar{\xi}'_{ijk} > \bar{\xi}_{ijk}$ – i.e., those that remain above the discontinuity threshold even after the increase in trade costs – is unaffected. For all other NGOs, however, the measure of campaigns decreases, generating the overall negative effect on the total measure of campaigns by NGOs in country j.

2.4.6. Discussion: Alternative Modeling Approaches for NGO Gravity

Before we bring our theoretical predictions on triadic gravity to the data in section 3, it is worth pausing to reflect on the question to which extent our model produces predictions that differ from implications of other conceivable approaches to modeling NGO campaigns. It is well-known from the trade literature that a multitude of models predict that trade flows follow a gravity equation. Gravity patterns in trade data can therefore not be used to distinguish one particular model against the other. In a similar vein, one could argue also for NGOs that identifying gravity patterns in NGO campaign data does not differentiate our model against other, possibly simpler, alternatives.

Consider, for example, the case of coordination between NGOs. In our theory, we assume that all NGO choices are independent from one another. In reality, however, there are networks of NGOs. Greenpeace, for example, consists of its national branches (Greenpeace

[23] Note that only the intersection of the space curve with the vertical cutoff surface moves, whereas the position of the space curve itself is unaffected.

USA, Greenpeace Canada, etc.) who operate independently from Greenpeace International, which has no formal control over the branches' actions. It may, however, be the case that Greenpeace International allows the national branches to coordinate on target choices. In our model, there would be no reason for this, as there is no cannibalization in the sense that the national branches raise funds from their local donors, so that there is no reason why Greenpeace Canada should not campaign when Greenpeace USA also does. But one could think of a setting where it is optimal for a central planner in an NGO network to assign only the branch closest to the action county and the branch closest to the firm country to launch a campaign, while the others remain inactive. Compared to our model, this would strengthen the gravity implication, as now only the closest NGOs get involved. Qualitatively, the prediction concerning the distance (trade costs) between the NGO and the action country, τ_{kj}, and between the NGO and the firm country, τ_{ij}, should be identical to our model.[24]

The key difference in our modeling is that we explicitly account for the sourcing choices of firms. This allows us to analyze value chain campaigns and to obtain a theory-informed prediction on the effect of sourcing trade costs τ_{ki} on the number of campaigns by NGOs in j which criticize infringements in k (proposition 1). This sourcing distance affects NGO campaigns only indirectly through its effects on the sourcing decisions of the firms the NGO chooses as targets. This effect of the sourcing distance is absent in models like the ones sketched above. Therefore, while the effects of τ_{kj} and τ_{ij} cannot be used to distinguish our model from those simpler alternatives, the sourcing distance between the firm and the sourcing country, τ_{ki}, can. We therefore pay special attention to the effects of our proxies for τ_{ki} in the empirical analysis in the next section.

3. Empirics

In this section we take our theoretical predictions to the data. Our data set allows us to estimate triadic gravity equations for NGO campaigns both at the NGO level and at the country level. We focus our analysis on estimating a triadic gravity equation for NGO-level campaigns. The theoretical counterpart is given by equation (31), which takes a neat multiplicative form and directly informs our estimation in section 3.2. We then complement these results with country-level estimations in section 3.3.

3.1. Data Description

The data we use is collected by Sigwatch, a for-profit consultancy firm providing multinational companies with daily information regarding the dynamics of global NGO campaign activity. Sigwatch gathers communications by NGOs worldwide, in which they criticize target firms. Each observation in our data contains the following elements: the year; the name, headquarter

[24] One could probably construct a variety of alternative models where this would also hold. In fact, this should be the case for any model that imposes a distance-related cost of international NGO activity. However, such rather ad hoc modeling approaches would be unable to explain the impact of the sourcing distance on NGO campaigns.

country (i) and sector of the targeted company; the name and headquarter country (j) of the NGO; the country in which the criticized action took place (k); and up to three keywords describing the type of incriminating behavior. In the rest of the paper, we refer to these observations as *campaigns*. Our sample spans from 2010–2019 and contains 102 532 campaigns by 4 343 NGOs from 118 countries. These NGOs target 11 429 firms headquartered in 145 countries, for actions in 172 countries. To stay close to our model of value chain campaigns, we focus our analysis on non-service sectors. This leaves us with 75 % of all campaigns; see table A.1 in appendix A for the list of sectors.

In our analysis, we exploit the fact that each campaign contains i-j-k information on the location of the agents involved. Vietnam is, for example, the action country (country k) in the database when in January 2017, the US-based (country j) NGO *PETA* defending animal rights criticized the French (country i) luxury firm *Louis Vuitton* for inflicting cruel treatment to Vietnamese crocodiles used in the production of leather bags. A different context presents the US (country i) confectionery manufacturer *Mars*, criticized in October 2017 for buying cocoa from illegal and unsustainable sources linked to deforestation in Ivory Coast (country k) by the German (country j) NGO *Rainforest Rescue*.[25]

3.2. NGO-Level Triadic Gravity

Guided by the NGO-level gravity equation (31), we estimate the following equation

$$\ln(n_{ijkz}) = \hat{\tau}_{ij}\ \beta_1 + \hat{\tau}_{ki}\ \beta_2 + \hat{\tau}_{kj}\ \beta_3 + FE_i + FE_k + FE_z + u_{ijkz}, \tag{36}$$

in which our dependent variable is (the log of) the number of i-j-k campaigns by NGO z.[26] The matrix $\hat{\tau}_{lm}$ ($lm \in \{ij,\ ki,\ kj\}$) contains our proxies for bilateral trade costs:

$$\hat{\tau}_{lm} = (\ln(\text{distance}_{lm}) \mid \text{Contiguity}_{lm} \mid \text{Language}_{lm} \mid \text{Colonial History}_{lm} \mid \text{Internal}_{lm})\,. \tag{37}$$

This is our central independent variable of interest, as it allows us to test the prediction in proposition 1. We employ standard controls from the literature (see, e.g., Head & Mayer (2014)), provided by the CEPII (see footnote 29). We use the log of bilateral geographic distance, $\ln(\textit{distance}_{lm})$, as well as the following indicator variables: The dummy *Colonial History*$_{ij}$ equals 1 for pairs of countries i and j having ever shared a colonial relationship (and equivalently for the country pairs k–i as well as k–j). The *Language* dummy variable is

[25] While these two examples from our data nicely illustrate how value chain campaigns enter our data, we cannot be sure that in all observations there is an actual sourcing relationship between the "action country" (k) and the "firm country" (i). It is a limitation of our data set that the action in k may be linked to the firm in i for a reason different from an actual sourcing relationship. Different from Hatte & Koenig (2020) we drop service sectors. We expect this to reduce this concern, as it excludes, for example, campaigns against financial institutions that finance questionable investment projects in developing countries, which is unrelated to value chain campaigns.

[26] In the data, each NGO z is assigned to *one* NGO country j. Technically, this makes the j index obsolete. For expositional convenience, however, we keep the NGO country index j. This allows us to highlight the triadic structure in the clearest possible way, denoting trade costs between firm and NGO as τ_{ij} instead of τ_{iz} and equivalently τ_{kj} instead of τ_{kz} for trade costs with country k.

1 for country pairs that share the common official language and the *Contiguity* dummy is 1 if the respective countries share a border. As highlighted in proposition 3, the domestic nature of NGO activity in our model implies that a home bias in economic activity also leads to a home bias in NGO campaigns. To account for all types of trade facilitation *within* countries that are not otherwise captured, we generate three additional indicator variables: *Internal Trade*$_{i=j}$ is 1 for observations where firm and NGO/consumer are located in the same country; *Internal Sourcing*$_{k=i}$ is 1 for campaigns that are related to the domestic sourcing of a firm; and *Internal Action*$_{k=j}$ is 1 for observations where the criticized action took place in the country of the NGO. In equation (37), *Internal*$_{lm}$ therefore stands for *Internal Trade*$_{i=j}$, *Internal Sourcing*$_{k=i}$ or *Internal Action*$_{k=j}$.[27]

From propositions 1 and 3, we expect trade costs to have a negative effect on campaigns in equation (36). For the variables in $\hat{\tau}_{lm}$, this implies that we expect to find a negative effect of the distance variables and positive effects for the other trade cost proxies, as the latter represent trade facilitation rather than trade cost.

We control for the country sizes and trade resistance terms from proposition 2 using three sets of fixed effects. As we seek to estimate the triadic gravity equation at the NGO level, we include an NGO fixed effect (FE_z). This controls for all time-invariant NGO characteristics, including the NGO's efficiency ξ. At the same time, the NGO fixed effect also controls for all time-invariant country characteristics of the NGO country j, as each NGO is – by definition – observed only in *one* NGO country j (see also footnote 26). This controls for economic size of country j (proposition 2 (*i*)) and multilateral consumption trade resistance of country j (proposition 2 (*iii*)). It therefore makes a country j fixed effect obsolete. Moreover, we control for all time-invariant characteristics of country i, including its economic size (proposition 2 (*i*)), its multilateral upstream trade resistance (proposition 2 (*ii*)) and its multilateral sourcing trade resistance (proposition 2 (*iv*)), with a country i fixed effect (FE_i). By the same token, we include an action country fixed effect (FE_k), which controls for all time-invariant characteristics of country k, including its economic size (proposition 2 (*i*)) and multilateral upstream trade resistance (proposition 2 (*ii*)).

We approach the complete specification in three steps (see table 1). First, we take a purely *dyadic* perspective on our data, in line with traditional gravity estimations: We aggregate our observations across action countries k such that our dependent variable, (the log of) n_{ijz}, is the total number of campaigns in which NGO z from country j targets firms from country i, irrespective of the action country. We use this approach as baseline specification because without knowledge of our theory – which adds a *triadic* dimension to the campaign activity – simply considering campaigns from j NGOs targeting i firms and controlling for

[27] Note that among our trade cost proxies, geographical distance stands out as it is the most commonly used trade cost proxy in the literature. Due to its importance, we also use the internal distance within a country. Internal distances are computed by weighting distances between cities with the cities' population shares in the country's population (Mayer & Zignago 2011). This allows us to identify the distance effect also from observations on domestic "flows." In order not to bias the estimates for the dummies on bilateral colonial history, common official language and contiguity, which are of interest for international interactions, these are all set to 0 when two countries involved are actually the same country. The overall effect of being in the same country is then captured by our *Internal*$_{lm}$ dummies.

Table 1: NGO-level dyadic and triadic gravity regressions. Dependent variable: Campaigns by NGO z from country j directed at firms in i with action in k.

	(1)	(2)	(3)	(4)	(5)	(6)
Method	OLS	PPML	OLS	PPML	OLS	PPML
Dep. var.	$\ln n_{ijz}$	n_{ijz}	$\ln n_{ijkz}$	n_{ijkz}	$\ln n_{ijkz}$	n_{ijkz}
ln distance$_{ij}$	-0.056^{a}	-0.075^{a}	-0.021^{a}	-0.031^{a}	-0.022^{a}	-0.031^{a}
	(0.012)	(0.017)	(0.006)	(0.008)	(0.005)	(0.008)
Internal Trade$_{i=j}$	0.562^{a}	0.803^{a}	0.193^{a}	0.307^{a}	0.199^{a}	0.296^{a}
	(0.034)	(0.048)	(0.019)	(0.025)	(0.018)	(0.025)
Contiguity$_{ij}$	0.068^{b}	0.078^{b}	0.018	0.022	0.023	0.026
	(0.029)	(0.037)	(0.015)	(0.022)	(0.015)	(0.022)
Colonial history$_{ij}$	0.039	0.112^{a}	0.029^{c}	0.038^{c}	0.031^{b}	0.039^{c}
	(0.027)	(0.038)	(0.015)	(0.021)	(0.015)	(0.021)
Language$_{ij}$	0.099^{a}	0.112^{a}	0.012	0.021	0.013	0.021
	(0.022)	(0.030)	(0.012)	(0.016)	(0.012)	(0.016)
ln distance$_{ki}$			-0.011^{a}	-0.008	-0.013^{a}	-0.012^{b}
			(0.004)	(0.005)	(0.004)	(0.006)
Internal Sourcing$_{k=i}$			0.191^{a}	0.345^{a}	0.211^{a}	0.364^{a}
			(0.013)	(0.019)	(0.013)	(0.021)
Contiguity$_{ki}$			0.030^{a}	0.058^{a}	0.035^{a}	0.070^{a}
			(0.011)	(0.016)	(0.011)	(0.017)
Colonial history$_{ki}$			0.014	0.022	0.018^{c}	0.033^{b}
			(0.010)	(0.015)	(0.010)	(0.016)
Language$_{ki}$			0.007	0.013	0.002	0.006
			(0.008)	(0.011)	(0.007)	(0.011)
ln distance$_{kj}$					0.007	0.014
					(0.006)	(0.009)
Internal Action$_{k=j}$					0.294^{a}	0.489^{a}
					(0.018)	(0.030)
Contiguity$_{kj}$					0.003	0.009
					(0.015)	(0.023)
Colonial history$_{kj}$					-0.026^{b}	-0.045^{b}
					(0.011)	(0.018)
Language$_{kj}$					0.045^{a}	0.073^{a}
					(0.010)	(0.015)
Observations	11669	11669	26416	26416	26416	26416
NGO FE	yes	yes	yes	yes	yes	yes
Firm country FE	yes	yes	yes	yes	yes	yes
Action country FE	—	—	yes	yes	yes	yes

Note: n_{ijkz} is the number of campaigns by NGO z from country j targeting firms in i for actions in k. For columns (1) and (2), n_{ijz} is computed as sum of n_{ijkz} over all k. Data is pooled over 2010–2019 and restricted to the 17 non-service sectors. Robust standard errors clustered at the NGO level in parentheses. ^{c} p<0.1, ^{b} p<0.05, ^{a} p<0.01

ij-specific variables ($\hat{\tau}_{ij}$) would be a natural starting point.

We estimate equation (36) using OLS and its exponentiated form using Poisson Pseudo Maximum of Likelihood (PPML) to account for heteroskedasticity, as promoted by Silva & Tenreyro (2006). Regression results for OLS and PPML are presented in table 1, columns (1) and (2), respectively. Our key measure of bilateral trade costs, distance between country i and j, is negative and highly significant in both specifications. The other standard trade cost (reducing) controls have the expected positive signs and are mostly highly significant.

We next turn to our main prediction from proposition 1, which states that the sourcing trade costs between countries k and i should negatively impact i-j-k campaigns at the NGO level. We argued in section 2.4.6 that this prediction sets our model apart from other conceivable gravity models of international NGO activity. We now use (the log of) n_{ijkz} – i.e., NGO-level campaigns in a given i-j-k triad – as dependent variable. In step 2, we keep our ij trade cost measure, $\hat{\tau}_{ij}$, and include our main variable of interest: the trade cost measure between countries i and k, $\hat{\tau}_{ki}$. That is, we control for trade costs along the bilateral connection that does *not* include the country of the NGO. In the light of the model, this implies that we control for the two trade costs that shape the economic activity of firms in our model: international sourcing and exporting for final consumption. In step 3, we account for the complete triadic structure of our model by additionally controlling for trade costs between the action country and the NGO country, $\hat{\tau}_{kj}$. This is our preferred specification, because it is closest to our theoretical gravity equation (31).

We present the regression results for step 2 in columns (3) and (4) of table 1. Overall, the ki-specific controls have the signs predicted by propositions 1 and 3. Most notably, the predicted negative effect of $distance_{ki}$ is highly significant in the OLS specification, and so is the positive effect of the $Internal\ Sourcing_{k=i}$ dummy, both for OLS and PPML.

Results for step 3 are reported in columns (5) and (6) of table 1. The inclusion of $\hat{\tau}_{kj}$ leaves the results on the ij variables essentially unaffected. The same holds true for the $\hat{\tau}_{ki}$ variables, which exhibit improved significance levels. Note in particular that our central variable of interest, $distance_{ki}$, is now significant both in the OLS and the PPML specification, giving strong support to the main prediction of our model.[28]

3.3. Country-Level Triadic Gravity

The NGO-level estimations in section 3.2 are very demanding, as identification only relies on within-NGO variation. To complement our finding from the NGO level, we now turn to triadic gravity regressions on the country level. To this end, we aggregate the campaigns of all NGOs at the level of the NGO country j, to get the total number of campaigns by NGOs from j targeting firms from i for infringements in k, N_{ijk}. The corresponding theoretical equation is (35). While this equation does not have the convenient multiplicative structure

[28] As for trade costs between the sourcing country and the NGO country, $\hat{\tau}_{kj}$, the results do not provide a clear picture. The bilateral distance ($distance_{kj}$) is insignificant with both OLS and PPML. Having the NGO and the action in the same country ($Internal\ Action_{k=j}$), however, has a strongly significant, positive impact on the number of campaigns and so has sharing a common language.

of equation (31), we have shown in proposition 4 that the qualitative predictions regarding all three bilateral trade costs remain unchanged.

We estimate the following specification

$$\ln(N_{ijk}) = \hat{\tau}_{ij}\ \beta_1 + \hat{\tau}_{ki}\ \beta_2 + \hat{\tau}_{kj}\ \beta_3 + FE_i + FE_j + FE_k + u_{ijk} \tag{38}$$

using OLS and its exponentiated form using PPML. Due to aggregation across all NGOs within a country j, compared to the NGO-level specification, a country j fixed effect (FE_j) replaces the NGO fixed effect. Apart from this, equation (38) is analog to equation (36); in particular, we control for the same trade cost proxies $\hat{\tau}_{lm}$ (see equation (37)) as in the NGO-level regressions.

We present the country-level results in table 2. We approach the complete specification in the same three steps as at the NGO level: The first two columns take a purely dyadic ij perspective, where the dependent variable is aggregated across action countries k. In columns (3) and (4), we use the disaggregated i-j-k data and control for ki trade cost proxies ($\hat{\tau}_{ki}$) as well as an additional country k fixed effect. The last two columns finally add the kj trade cost proxies ($\hat{\tau}_{kj}$) and represent our preferred specifications for the country-level regressions.

Overall, the results are qualitatively similar to the NGO-level findings from table 1, with an increased magnitude of most point estimates. Most importantly, the sourcing distance, $distance_{ki}$, is now significant at the 1 % level in all specifications. The same holds true for $Internal\ Sourcing_{k=i}$.

Turning to the proxies for trade costs between the action country and the NGO country, compared to the NGO-level estimates, we now find a statistically significant negative effect of $distance_{kj}$ in the OLS specification. Moreover, the highly significant positive effect of $Internal\ Action_{k=j}$ is maintained in both specifications.

The country-level regressions corroborate our findings from section 3.2. Overall, we interpret the results in tables 1 and 2 as strongly supporting the predictions of our model of trade, sourcing and the internationalization of social activism.

Table 2: Country-level dyadic and triadic gravity regressions. Dependent variable: Campaigns by NGOs in country j directed at firms in i with action in k.

	(1)	(2)	(3)	(4)	(5)	(6)
Method	OLS	PPML	OLS	PPML	OLS	PPML
Dep. var.	$\ln N_{ij}$	N_{ij}	$\ln N_{ijk}$	N_{ijk}	$\ln N_{ijk}$	N_{ijk}
ln distance$_{ij}$	-0.290^{a}	-0.395^{a}	-0.093^{a}	-0.213^{a}	-0.087^{a}	-0.112^{b}
	(0.052)	(0.068)	(0.021)	(0.063)	(0.024)	(0.055)
Internal Trade$_{i=j}$	2.846^{a}	2.131^{a}	0.574^{a}	2.076^{a}	0.733^{a}	1.199^{a}
	(0.198)	(0.211)	(0.057)	(0.201)	(0.069)	(0.200)
Contiguity$_{ij}$	0.600^{a}	0.216	0.112^{b}	0.336^{c}	0.138^{a}	0.175
	(0.127)	(0.150)	(0.048)	(0.190)	(0.050)	(0.108)
Colonial history$_{ij}$	0.233^{b}	0.399^{a}	0.124^{a}	0.252^{a}	0.114^{a}	0.075
	(0.101)	(0.076)	(0.040)	(0.086)	(0.038)	(0.107)
Language$_{ij}$	0.132	0.359^{a}	0.003	0.191	0.001	0.182
	(0.090)	(0.125)	(0.037)	(0.117)	(0.039)	(0.124)
ln distance$_{ki}$			-0.074^{a}	-0.176^{a}	-0.113^{a}	-0.263^{a}
			(0.017)	(0.041)	(0.019)	(0.039)
Internal Sourcing$_{k=i}$			0.605^{a}	2.196^{a}	0.782^{a}	1.416^{a}
			(0.087)	(0.166)	(0.088)	(0.204)
Contiguity$_{ki}$			0.144^{a}	0.407^{b}	0.176^{a}	0.205
			(0.048)	(0.178)	(0.045)	(0.140)
Colonial history$_{ki}$			0.156^{a}	0.199^{a}	0.147^{a}	0.306^{a}
			(0.037)	(0.071)	(0.035)	(0.115)
Language$_{ki}$			-0.033	0.146^{b}	-0.022	0.058
			(0.027)	(0.068)	(0.022)	(0.064)
ln distance$_{kj}$					-0.074^{b}	-0.065
					(0.030)	(0.089)
Internal Action$_{k=j}$					1.333^{a}	2.995^{a}
					(0.090)	(0.149)
Contiguity$_{kj}$					0.069	0.311^{a}
					(0.048)	(0.104)
Colonial history$_{kj}$					0.026	-0.023
					(0.046)	(0.066)
Language$_{kj}$					0.148^{a}	0.349^{a}
					(0.044)	(0.094)
Observations	1780	1780	9798	9798	9798	9798
NGO country FE	yes	yes	yes	yes	yes	yes
Firm country FE	yes	yes	yes	yes	yes	yes
Action country FE	—	—	yes	yes	yes	yes

Note: N_{ijk} is the number of campaigns by NGOs from country j targeting firms in i for actions in k. For columns (1) and (2), N_{ij} is computed as sum of N_{ijk} over all k. Data is pooled over 2010–2019 and restricted to the 17 non-service sectors. Robust standard errors clustered at the level of the NGO country in parentheses. ^{c} p<0.1, ^{b} p<0.05, ^{a} p<0.01

4. Conclusion

Motivated by several stylized facts revealed by recently available campaign-level data on international social activism targeting firms across the globe, this paper highlights a framework to analyze the determinants of international NGO campaigns. More specifically, we propose a model of global sourcing and international trade in which heterogeneous NGOs campaign against heterogeneous firms in response to infringements along their international value chains. A central conclusion of the paper is that the global pattern of campaigns can be characterized by triadic gravity equations, jointly including bilateral trade costs between three locations. The country of the NGO, the country of the firm and the sourcing country all affect the pattern of campaigns. These triadic gravity equations at the NGO level as well as at the country level find strong support in our data. Our analysis also points at a number of interesting avenues for future research.

In the present setup, most of the action on the donation market comes from the supply side of donations and is determined by two main features: the salience of campaigns to donors (affected by trade and sourcing decisions of firms) and the warm glow of donations associated to it. Conversely, the demand side of the donation market is characterized by two exogenous objects: the cost of campaigning and the distribution of heterogeneous efficiency among NGOs to generate salience. In this context, an interesting extension could be to embed the present framework into a model with some explicit pattern of competition between NGOs spending resources to attract the attention of donors, as for instance in Aldashev & Verdier (2009, 2010).

Another extension relates to the fact that NGOs tend to develop interactions with firms that go beyond targeted boycott and information campaigns. As pointed out by a large descriptive business sociology and political science literature, many NGOs, rather than confronting aggressively the corporate sector, prefer to enter into cooperative labeling and regulatory agreements with international firms (Bartley 2007; Falkner 2003; Vogel 2008). Introducing such features into our setup could help characterize the geography of these private international governance agreements that emerge to regulate global production conditions and sourcing decisions in the world.

Another line of research worth pursuing could focus on the role of national policies in the evolution and patterns of international social activism. Indeed, demands for social regulation can be satisfied both through private cooperative or non-cooperative interactions emerging between NGOs and firms. They may, however, also result in the implementation of national policies (trade agreements and regulatory policies) through lobbying or civil society pressure on domestic governments. Incorporating such aspects into our setup of trade, sourcing and NGO campaigning may be fruitful to better understand the relative role of private and public regulatory frameworks in which modern-day international production and trade activities take place.

While these extensions and others are beyond the scope of the present paper, we hope that the framework presented here and its empirical applications can be the stepping stone for future research in this area.

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Appendix A. Data Description

This section provides some additional information on the data we use in our empirical analysis. As outlined in section 3, the data on NGO campaigns has been collected by *Sigwatch*, a for-profit consultancy that keeps its clients informed about recent developments in the NGO nexus. The data collection process is detailed in Hatte & Koenig (2020). For the empirical analysis, we reshape the raw Sigwatch data for the years 2010–2019, such that each observation refers to one campaign by an NGO z (located in country j), criticizing a firm in country i for an action in country k (n_{ijkz}). For the country-level analysis in section 3.3, we aggregate the NGO level data across NGOs in a given country, such that N_{ijk} is the total number of campaigns in a given triad. Of all campaigns, we keep only those that Sigwatch coded as having a negative "tone", i.e., where the NGO *criticizes* the firm. Moreover, we keep only campaigns targeting firms assigned to the non-service sectors listed in table A.1, leaving us with 75 % of all negative campaigns.

For the gravity analysis in section 3, we complement the Sigwatch campaign data with standard gravity variables provided by the CEPII:[29] bilateral geographic distance, contiguity, colonial history and common language. All variables are defined in section 3.2.

Appendix B. Key Patterns in the Data

In this section we use our data to highlight a set of stylized facts, which inform our modeling. Table B.1 illustrates the domestic and the international dimension of the NGO campaigns in our sample. Apart from the country of the NGO, a campaign features the country of the firm and the action country. This implies that from the perspective of the NGO, either the firm country and the action country are both domestic (column 2), both foreign (column 4) or one is domestic and the other is foreign (column 3). As this fully describes all possible cases, columns 2, 3 and 4 sum to 100 %.

Let us consider the question whether NGO campaigns tend to be rather domestic or internationalized. Two seemingly contradictory conclusions could be drawn from table B.1, each represented by one of the two following stylized facts.

Fact 1. NGO campaigns have a strong domestic component: 74 % of campaigns have either the targeted firm or action, or both, in the same country as the NGO. This follows directly from column 1 in table B.1, which adds up columns 2 and 3. This implies a strong home bias in NGO activity. It is very clear from this that the home country plays a very important and special role for NGOs. This may well be related to the fact that NGOs heavily rely on the work and support of local volunteers and a local donor base who may be particularly concerned about issues with a domestic element.

At the same time, however, table B.1 can be read as highlighting a strong internationalization of NGO activity:

[29] Available at http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=8; see Head, Mayer & Ries (2010) and Head & Mayer (2014), with data updated on December 18, 2020.

Table A.1: Descriptive Statistics – Non-service sectors.

ISIC	Industry name	# of Firms	# of NGOs	% of Campaigns
4000	Extraction, manuf and distrib of all energies	2573	2435	34.14
1500	Mf of food products and beverages	2309	959	13.65
1300	Mining of metal ores	1026	1064	8.53
5210	Non-specialized retail trade in stores	758	758	7.38
5232	Retail of textiles, clothing, footwear goods	741	452	6.37
3000	Mf of computer and related activities	651	589	5.22
0100	Agriculture, hunting and related	793	751	5.13
2400	Mf of chemicals and chemical products	316	803	4.23
2424	Mf of soap, detergents, perfumes	612	377	3.04
2423	Mf of pharma., medicinal and botanical products	388	578	2.94
2900	Mf of machinery and equipment	255	317	2.32
2100	Mf of paper and paper products	349	314	2.20
3400	Mf of motor vehicles	207	344	1.83
0500	Fishing, aquaculture	211	163	1.10
3694	Mf of games and toys	150	139	.80
1600	Mf of tobacco products	56	120	.64
2500	Mf of plastic products	34	172	.49

Source: Authors' calculations based on Sigwatch data. Sectors are classified according to ISIC Rev. 3.1. Sectors excluded from the analysis are the following: 3700 Recycling; 4100 Water collection, purification and distribution; 4500 Construction; 5500 Hotels and restaurants; 6000 Land transport; 6200 Air transport; 6300 Auxiliary transport activities; 6500 Finance and insurance; 7400 Other business activities; and 9200 Recreation, Media, cultural, sporting activities.

Table B.1: Domestic and international dimension of campaigns, 2010–2019.

Domestic dimension			International dimension	
(1)	(2)	(3)	(4)	(5)
Firm or action (or both) domestic	Firm *and* action domestic	1 foreign and 1 domestic element	Firm *and* action are foreign	Firm or action (or both) foreign
75 693	41 479	34 214	26 839	61 053
74 %	40 %	34 %	26 %	60 %

Source: Sigwatch campaign data in 17 non-service sectors. The total number of campaigns is 102 532. Note that columns 2, 3 and 4 add up to 100 % of campaigns; columns 2 and 3 add up to column 1; and columns 3 and 4 add up to column 5. Moreover, note that the actual share in column 3 is 33.4 % of campaigns. In the table we round this to 34 % to assure that despite rounding in columns 2 and 4, columns 2, 3 and 4 still add up to the logically required 100 %.

Fact 2. Advocacy activity has a strong international dimension: 60 % of campaigns have either the targeted firm or action, or both, in a foreign country. This follows directly from column 5 in table B.1, which adds columns 3 and 4. This implies a strong internationalization of NGO activity.

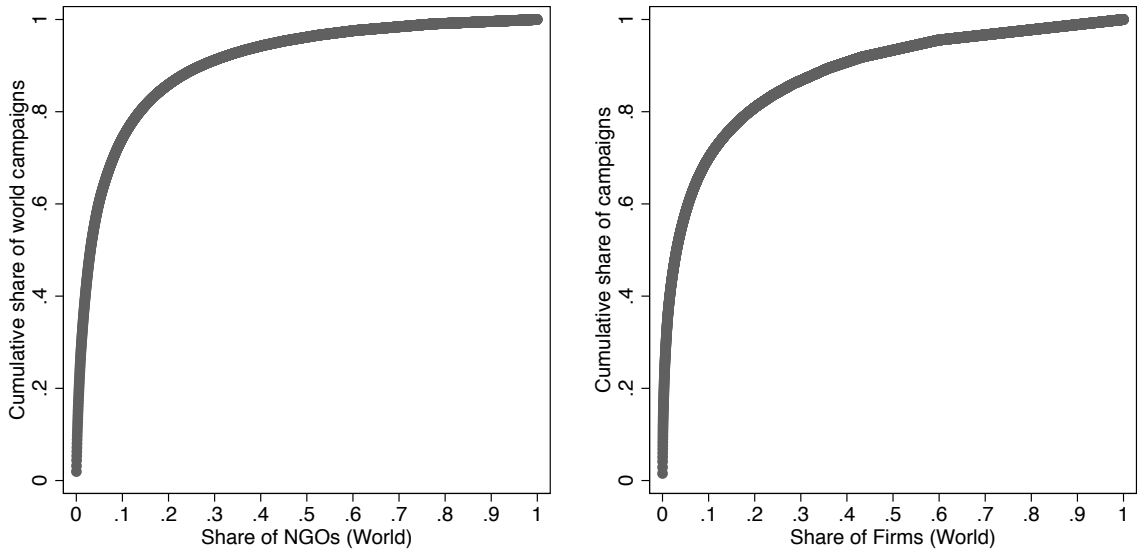
It is clear from column 3 in table B.1 that these strong domestic and strong international dimensions are not a logical contradiction: one third of all campaigns have a domestic *and* a foreign component. We believe that the combination of Fact 1 and Fact 2 constitutes an important pattern of NGO campaigns in our data: In three quarters of all campaigns there is a domestic component (Fact 1), but at the same time internationalization looms large in the data (Fact 2). In our model the combination of local NGOs catering to a local donor base, combined with an internationalization of potential targets through international sourcing and international trade in final goods can reconcile these seemingly contradictory observations. In our model this leads to the result in proposition 3 characterizing NGOs as local global watchdogs.

Another salient feature in the data concerns heterogeneity both among NGOs and their targets. With respect to the latter, the highly skewed size distributions of firms are a well-documented regularity. We also find substantial heterogeneity in our data set.

Fact 3. The distribution of the number of campaigns across NGOs is highly skewed: about 20 % of NGOs account for 80 % of campaigns. Figure B.1a illustrates this pattern. It plots the cumulative share of campaigns against the share of NGOs that carry out the campaigns. The average number of campaigns per NGO over the period is 23; it ranges from 1 to 1 992. The distribution is highly skewed: relatively few of the 4 343 NGOs in our sample account for a large fraction of campaigns. The largest 20 % of NGOs account for 80 % of campaigns and the largest 1.5 % of NGOs account for more than 30 % of campaigns.

Fact 4. The distribution of the number of campaigns across target firms is highly skewed: roughly 80 % of campaigns go against 20 % of firms. Figure B.1b illustrates this pattern. It plots the cumulative share of campaigns against the share of firms that are campaign targets. The distribution is highly skewed, implying that roughly 80 % of campaigns go against 20 % of firms and roughly 5 % of firms attract 25 % of campaigns.

This double-heterogeneity of both the number of campaigns across NGOs and also the number of campaigns per target firm suggest that heterogeneity of both NGOs and firms are an important feature the theory should account for. We do so by introducing heterogeneous NGOs who campaign against heterogeneous target firms in our model.



(a) (b)

Source: Sigwatch data, 2010–2019, 102 532 campaigns, 17 non-service sectors.

Figure B.1: Cumulative shares of campaigns (panel a) and target firms (panel b).

Appendix C. Campaigns at the NGO Level – Large NGOs

While proposition 1 constitutes the main result of the theoretical analysis of NGO-level gravity for campaigns, in this appendix we also consider the second determinant of $n_{ijk}(\xi)$ in equation (30): $n^L_{ijk}(\xi)$ for "hyper-efficient" NGOs.

Such NGOs are so efficient that they can cover all possible campaigns. While the existence of these "hyper-efficient" NGOs in the model is the price we pay for analytical tractability, they do not affect the results qualitatively, especially with respect to testable implications of the model. Computing n^L_{ijk} from equation (30), the measure of campaigns by these NGOs is simply given by

$$n^L_{ijk} = \delta \; w_i L_i. \tag{C.1}$$

Equation (C.1) only depends on the economic size of county i, as this determines the measure of possible target firms exporting from i to j, thereby defining the maximum number of possible campaigns. This allows us to state the following corollary:

Corollary C.1. *When also "large" NGOs with efficiencies of $\xi > \bar{\xi}_{ijk}$ are included in the analysis of $n_{ijk}(\xi)$ as defined in equation (30), results from propositions 1 and 2 are qualitatively unchanged, but only hold weakly. The impact of economic size of country i is the only exception, as its effect is the same as in proposition 2.*

Proof. To see this, simply note that the effect of economic size of country i is the same in equations (31) and (C.1). All other variables shaping NGO-level campaigns in equation (31) and presented in propositions 1 and 2 are absent in equation (C.1). □

We argue in footnote 21 that NGOs with an efficiency above the discontinuity threshold

are not expected to have any empirical relevance, as they should not arise when the model is mapped from the theoretical continuous distributions to a finite number of NGOs in the data. Corollary C.1 provides a second reason why the fact that in the theory some "hyper-efficient" NGOs carry out all possible campaigns does not affect the empirical analysis in section 3: even in the presence of such NGOs, the testable implications do not change qualitatively.

Appendix D. Proofs

D.1. Proof of Proposition 3

Part (i): local This follows from the fact that intra-national trade costs are always smaller than international trade costs, combined with proposition 1. When domestic trade costs are fixed at unity and international trade costs going to infinity, this implies that international campaigns go to zero whereas all-internal campaigns are unaffected such that the share of the latter goes to one.

Part (ii): global By proposition 1, the measure of campaigns decreases in all three bilateral trade costs. A decrease in bilateral trade costs affects only campaigns with at least one foreign element, because internal trade costs are normalized to unity. Therefore, the measure of all-internal campaigns is unaffected by rising trade costs, whereas the measure of campaigns with at least one foreign element increases when bilateral trade costs fall, which increases the fraction of the latter. □

D.2. Proof of Proposition 4

Note that $\frac{\partial \bar{\xi}_{ijk}}{\partial \tau} > 0$, where $\tau \in \{\tau_{ij}, \tau_{ik}, \tau_{jk}\}$. To see this, first note that proposition 1 in combination with equation (31) implies $\frac{\partial \Delta_{ijk}}{\partial \tau} < 0$. Then, equation (29) directly implies $\frac{\partial \bar{\xi}_{ijk}}{\partial \tau} > 0$. Denote by $\bar{\xi}'_{ijk}$ the level of $\bar{\xi}_{ijk}$ after an increase of τ. By equation (34), there are three types of NGOs that differ in their response to an increase in τ:

(i) NGOs with $\xi < \bar{\xi}_{ijk} < \bar{\xi}'_{ijk}$: Campaigns of each of these NGOs is determined by n^S_{ijk} (equation (31)). By proposition 1, $\frac{\partial n^S_{ijk}}{\partial \tau} < 0$.

(ii) NGOs with $\bar{\xi}_{ijk} < \xi < \bar{\xi}'_{ijk}$ target all unethical firms before the shock but only a subset of firms after the shock. I.e., each of these NGOs conducts $n^S_{ijk}(\xi)$ instead of n^L_{ijk} campaigns after the shock, which means less campaigns. To see the latter, consider equation (30): The expressions for the two cases differ only with respect to the lower bound of the integral ($\tilde{\varphi}_{ijk}$ vs. 1). Given the definition of $\bar{\xi}_{ijk}$ ($\tilde{\varphi}_{ijk}(\bar{\xi}_{ijk}) \equiv 1$) and $\frac{\partial \tilde{\varphi}_{ijk}}{\partial \xi} < 0$ (see equation (27)), $1 < \tilde{\varphi}_{ijk}$ for $\xi < \bar{\xi}_{ijk}$. Therefore, $n^S_{ijk}(\xi) < n^L_{ijk}$.

(iii) NGOs with $\bar{\xi}_{ijk} < \bar{\xi}'_{ijk} < \xi$: Each of these NGOs conducts n^L_{ijk} campaigns before and after the shock, see equation (C.1).

As each individual NGO conducts the same measure of campaigns or less after an increase in τ, the aggregate of these campaigns computed in equation (34) must also decrease: $\frac{\partial N_{ijk}}{\tau} < 0$. □

Appendix E. Derivations

E.1. Aggregate Profits

Denote an i firm's profits from serving j as $\pi_{ij}(\varphi)$. These profits are given by:

$$\pi_{ij}(\varphi) = \frac{\mathcal{C}^x}{\sigma}\, Y_j \left(\frac{P_i^B\ \tau_{ij}}{\theta_j}\right)^{1-\sigma} \varphi^{\sigma-1}. \tag{E.1}$$

Recall that π denotes dividends per share of the global mutual fund and that there are $\sum_{n=1}^{N} w_n L_n$ shares in total. Hence, $\pi \sum_{n=1}^{N} w_n L_n$ equals aggregate world profits and can be computed as the sum of all firms' profits in all markets:

$$\pi \sum_{n=1}^{N} w_n L_n = \sum_{n=1}^{N} w_n L_n \int_1^\infty g_\varphi(\varphi) \sum_{l=1}^{N} \pi_{nl}(\varphi)\, \mathrm{d}\varphi. \tag{E.2}$$

Plug in equations (1) and (E.1) and factor out the integral:

$$= \frac{\mathcal{C}^x}{\sigma} \int_1^\infty \gamma\ \varphi^{\sigma-\gamma-2}\, \mathrm{d}\varphi \sum_{n=1}^{N} w_n L_n \sum_{l=1}^{N}\ Y_l \left(P_n^B\ \tau_{nl}\right)^{1-\sigma}\ \theta_l^{\sigma-1};$$

evaluate the integral using $\gamma > (\sigma - 1)$ and cancel using equation (20):

$$= \frac{\mu}{\sigma} \sum_{n=1}^{N} w_n L_n \sum_{l=1}^{N}\ Y_l \left(P_n^B\ \tau_{nl}\right)^{1-\sigma}\ \theta_l^{\sigma-1};$$

plug in equation (9) and change order of summation:

$$= (1+\pi)\ \frac{\mu}{\sigma} \sum_{l=1}^{N} w_l L_l \sum_{n=1}^{N} w_n L_n\ \left(P_n^B\ \tau_{nl}\right)^{1-\sigma}\ \theta_l^{\sigma-1};$$

plug in equation (18) and cancel:

$$\pi = (1+\pi)\ \frac{\mu}{\sigma},$$

$$\pi = \frac{\mu}{\sigma - \mu}. \tag{21}$$

E.2. Gravity for Intermediate Inputs

Let $\mathfrak{i}_{ijk}(\varphi)$ be the quantity sourced at the firm–destination level, i.e. the quantity of inputs an i firm with productivity φ sources from k to serve market j. As sales in j are $x_{ij}(\varphi)$, the quantity the i firm has to produce is $\tau_{ij}\ p_{ij}(\varphi)^{-1} x_{ij}(\varphi)$. By equation (2), each unit of output requires $1/\varphi$ input bundles, whereof each contains b_{ki} units of the intermediate input from k (see equations (3) and (12)). Therefore, an i firm with productivity φ sources $\mathfrak{i}_{ijk}(\varphi) = b_{ki}\ \frac{\tau_{ij}\ p_{ij}(\varphi)^{-1}\ x_{ij}(\varphi)}{\varphi}$ units of intermediate inputs from k in order to serve market j. Using equations (9), (12), (16), (19) and (21), this gives

$$\mathfrak{i}_{ijk}(\varphi) = \mathcal{C}^x \mathcal{C}^{\mathcal{I}}\ w_j L_j\ \frac{\beta_k\ P_i^B}{w_k\ \tau_{ki}}\ (P_i^B)^{-\sigma} \left(\frac{\tau_{ij}}{\theta_j}\right)^{1-\sigma} \varphi^{\sigma-1}, \tag{E.3}$$

where $\mathcal{C}^{\mathcal{I}}$ is defined on page 15.

Denote the quantity of country k inputs that are embedded in final products from country

i and imported by country j as $\mathcal{I}^X_{ijk} = w_i L_i \int_1^\infty g_\varphi(\varphi)\ \mathfrak{i}_{ijk}(\varphi)\,\mathrm{d}\varphi$. Using equations (1), (20) and (E.3), this equals

$$\mathcal{I}^X_{ijk} = \mu \mathcal{C}^{\mathcal{I}}\ w_i L_i\ w_j L_j\ \left(\frac{w_k\ \tau_{ki}}{\beta_k\ P_i^B}\right)^{-1}\ (P_i^B)^{-\sigma} \left(\frac{\tau_{ij}}{\theta_j}\right)^{1-\sigma}. \tag{E.4}$$

To compute all inputs i firms source from k ($\mathcal{I}_{ki}$), sum over the inputs used to serve all destination markets j, i.e. $\mathcal{I}_{ki} = \sum_{j=1}^N \mathcal{I}^X_{ijk}$. This gives

$$\mathcal{I}_{ki} = \mu \mathcal{C}^{\mathcal{I}}\ w_i L_i\ \left(\frac{w_k\ \tau_{ki}}{\beta_k}\right)^{-1} P_i^B\ \Phi_i, \tag{23}$$

where Φ_i is defined in equation (24).

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