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Abstract

International NGO campaigns against the value chains of leading firms in a diverse set of industries are a salient feature of economic globalization. What determines the patterns of the internationalization of NGO campaigns? Stylized facts obtained from recently available data containing 102532 campaigns by 4343 NGOs targeting 11429 firms from 145 countries guide our theoretical analysis. 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, i.e. bilateral trade costs between the country of the NGO, the country of the firm and the sourcing country affect campaigns. Most notably, the latter implies that by advancing the internationalization of production, falling trade costs boost the internationalization of NGO campaigns. We use our data to estimate the NGO level triadic gravity equation implied by our model and find strong support for our predictions.

JEL Classification: F12, F14, F60, L31, O35

Keywords: international trade, international sourcing, Gravity, NGOs, campaigns, Social activism

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

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Abstract

International NGO campaigns against the value chains of leading firms in a diverse set of industries are a salient feature of economic globalization. What determines the patterns of the internationalization of NGO campaigns? Stylized facts obtained from recently available data containing 102 532 campaigns by 4 343 NGOs targeting 11 429 firms from 145 countries guide our theoretical analysis. 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, i.e. bilateral trade costs between the country of the NGO, the country of the firm *and* the sourcing country affect campaigns. Most notably, the latter implies that by advancing the internationalization of production, falling trade costs boost the internationalization of NGO campaigns. We use our data to estimate the NGO level triadic gravity equation implied by our model and find strong support for our predictions.

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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.

The paper makes three main contributions. First, we exploit a unique recently available data set on NGO campaigns against firms to uncover several stylized facts that characterize the patterns of international NGO activism. Second, motivated by these observations, 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. The model highlights how the geography of international NGO campaigns is shaped by their target firms' international sourcing and trade activity. In particular, we show that international activism can be characterized by a *triadic* gravity equation in which bilateral trade costs between the country of the NGO, the country of the firm and the *sourcing country* matter for the pattern of NGO campaigns.[4] Finally, we use our data to

[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).

[4] For trade in intermediates and final goods, Arkolakis et al. (2018, p. 2147) estimate a gravity equation for "aggregate sales of firms that originate in country i, produce in country l, and sell in country n." Head & Mayer (2019) have coined the term "triadic gravity" for this.

estimate at the NGO level and at the country level the implications of the triadic gravity equation implied by our model and find strong support for our predictions.

The starting point of our analysis are insights from a unique recently available data set on NGO campaigns against firms. The data is collected by Sigwatch, a consultancy firm that provides international corporations with daily monitoring of NGO activity in their sector. Our data set contains 102 532 campaigns by 4 343 NGOs targeting 11 429 firms from 145 countries over the 2010–2019 period. Importantly, the data exhibit a triadic structure: for each observation (campaign), the data includes the country of the headquarter of the criticized firm, the country of the NGO and what we label the *action country*, which is the country where the criticized action occurred, protests took place, or both.

Using the Sigwatch data, we highlight several stylized facts that characterize the patterns of international NGO activism. On the one hand, we highlight the existence of a strong home bias in NGO activity: 74 % of campaigns have either the targeted firm or action, or both, in the same country as the NGO. On the other hand, NGO activity is strongly internationalized: 60 % of campaigns involve at least one foreign element (firm or action country).[5] How to reconcile the home bias and international activity of NGOs? Our take is that NGOs 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 and therefore focus on issues these motivated agents can best relate to. This directly implies a very local dimension of NGO activity.[6] However, international trade and the internationalization of production add an international dimension to issues that have local relevance. As a matter of fact, in a globalized world economy, attractive targets for campaigns (firms with well-known products with a large domestic market share) may be *foreign* firms. Similarly, to the extent that firms internationalize their value chains, even a campaign against a *domestic* firm may tackle an issue in a *foreign* country.[7]

The Sigwatch data further reveals a second interesting set of stylized facts concerning the heterogeneity of both firms and NGOs. Typically, 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.

Building on these stylized facts, we develop a multi-country model of international trade with heterogeneous firms. We take Chaney (2008) as our starting point, but incorporate a

[5] Note that one third of all campaigns have both a domestic and a foreign component, explaining why the two numbers do not add up to 100 %. Refer to table 1 for details.

[6] 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 find the support of volunteers and donors if they start a campaign against the US chocolate bar than when suggesting a campaign against the widely unknown Australian chocolate bar.

[7] Sticking to the example from the previous footnote, with increasing trade in final goods, the Australian chocolate bar may 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.

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 *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 "unethical" action of an upstream supplier in country k. This modeling naturally fits the triadic structure of the Sigwatch data with up to three different countries per campaign: the firm's headquarter country (i), the location of the NGO (j) and the action country, i.e. the country where the criticized action takes place, which we take to correspond to the sourcing country k in the model.

The main theoretical result concerns *campaigns at the NGO level*. 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 even at the NGO level. That is, we derive a triadic gravity equation at the NGO level. This implies that in the data the number of campaigns of a given NGO in country j involving a certain action country (k) and a certain firm country (i) is expected to depend negatively on *all three* bilateral distances involved.

Quite intuitively, a higher $distance_{kj}$ between the NGO and the action country and a higher $distance_{ij}$ between the firm and the NGO both lead to less campaigns at the NGO level. Explicitly modeling the underlying economic structure involving global sourcing of firms, however, reveals an additional and less obvious effect: over and above the effect of the two distances involving the NGO country, the *sourcing distance* ($distance_{ki}$) between the sourcing country and the firm also affects the number of *i-j-k* campaigns at the NGO level. This implies that the distance between the supplier and the firm affects NGO campaigns even if the NGO is located in a third country. The intuition is that when the distance between the supplier providing a given input and the firm is low, larger quantities of the input are being used in production. This in turn implies that in case of an infringement along this k–i connection, it will be easier for an NGO to raise funds for a campaign against the firm and its final product as the "unethical" input features prominently in the input portfolio of the final product.

The last part of the paper tests the implications of our triadic gravity equation on international NGO campaigns. First, we estimate our theoretical NGO level gravity equation that links all three bilateral distances in a clear and simple multiplicative way to the number of NGO level campaigns. We find that all three distances have the predicted negative effect on the number of NGO level campaigns. Most notably, the distance between country k and country i (the "sourcing distance" in the model) has a highly significant negative effect.

Aggregating across NGOs, we show that both model and data can be used to analyze NGO campaigns on the country level. This delivers a triadic gravity equation at the country level. The qualitative predictions from the NGO level are maintained in the aggregate, though somewhat clouded by the algebraic complexity of the resulting gravity equation. We show that the model implies negative effects of all three bilateral distances also for the

number of *i-j-k* campaigns at the country level. Using our data to estimate triadic gravity equations on the aggregate (country) level, we also find support for the predicted negative effects of all three bilateral distances.

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" (Batliwala & Brown 2006; Keck & Sikkink 1998; Tarrow 2005), or "global civil society" (Edwards & Gaventa 2001; Lipschutz & Rowe 2005).[8] In economics, we contribute to an emerging empirical literature on the interaction of activists and firms. Most contributions use qualitative information and case studies (Hendry 2006; Lenox & Eesley 2009; O'Rourke 2005). Few 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 et al. (2019) use quantitative information on NGO activity based on a data set with a focus on very large firms.

Our paper also connects to the literature on *private politics*, a term coined by 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 under different market structures, allowing for strategic interactions between all parties. Some of the main contributions include Innes (2006), Baron & Diermeier (2007), Lyon & Salant (2013), Baron (2010), as well as Baron (2016) and Egorov & Harstad (2017).

In this respect, closest to our work are a handful of papers introducing elements of private politics into International Economics. Aldashev & Verdier (2009) analyze the international competition for funds among development-oriented NGOs. Aldashev et al. (2015) consider the impact of NGO campaigns on industry structure in a setting with endogenous markups and monopolistic competition. Krautheim & Verdier (2016) 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.

From an analytical perspective, our framework relates directly to the Gravity literature explaining international trade patterns (see Head & Mayer (2014) for an overview), as well as other international activities such as service offshoring (Head et al. 2009), migration flows (Anderson 2011) and FDI flows (Head & Ries 2008) or financial investment (Portes & Rey 2005). We extend the Gravity literature to the analysis of international NGO campaigns.

On the empirical side, our analysis builds upon previous work in Hatte & Koenig (2020). Using an earlier sample of the Sigwatch data (2010–2015) and including target firms from very diverse sectors, they analyze determinants of the geography of NGO campaigns at the country level. Their analysis provides several interesting insights, which in our view call for a more in-depth investigation in the context of value chain campaigns. In order to maintain a close link between theory and empirics, we restrict the empirical analysis to non-service

[8] See Vogel (2008) for an extensive review of this literature.

sectors. The key difference to their empirical analysis is that 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 show that the NGO level campaigns can be aggregated to the country level, highlighting how country level effects are rooted in NGO level gravity forces.

The remainder of the paper is structured as follows: section 2 presents the Sigwatch data and highlights several stylized facts on the patterns of international NGO campaigns. Section 3 presents our model of international trade and sourcing with heterogeneous firms, campaign targeting and fundraising by heterogeneous NGOs. Section 4 tests the implications of our triadic gravity equation of international NGO activism at the NGO level and at the country level. Section 5 offers some conclusions and avenues for future research.

2. A Glance at the Data

The data we use has been collected since 2010 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 for specific actions about all types of issues (e.g., sourcing palm oil from plantations that destroyed old growth rain forests in Indonesia). Each observation in our data contains the following elements: the year; the name, headquarter 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. As opposed to Hatte & Koenig (2020), we focus on non-service sectors in order to fit the value chain campaigns described by our model. 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*.

Table 1 highlights the domestic and the international dimension of the NGO campaigns in our sample. Apart from the country of the NGO, a campaign contains 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

Table 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 %.

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 1, each represented by one of the two following stylized facts.

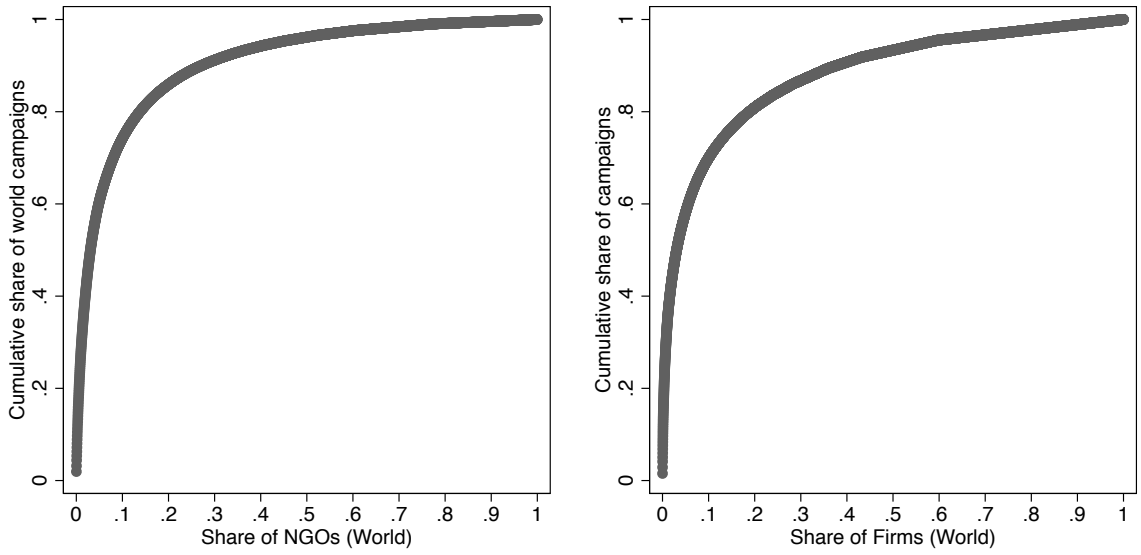
Fact 1. NGO campaigns have a strong domestic component: 74 % of campaigns have either the targeted firm or action, or both, in the same country as the NGO. This follows directly from column 1 in table 1, which adds up columns 2 and 3. This implies a strong home bias in NGO activity. It is very clear 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 1 can be read as highlighting a strong internationalization of NGO activity:

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 1, which adds columns 3 and 4. This implies a strong internationalization of NGO activity.

It is clear from column 3 in table 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). Before we explain our approach to reconciling the two observations and how this shapes our modeling setup in section 3, we highlight two more facts that feature prominently in the data and which we also take into account in our modeling: firm and NGO heterogeneity.

Fact 3. The distribution of the number of campaigns across NGOs is highly skewed: about 20 % of NGOs account for 80 % of campaigns. Figure 1a illustrates



(a) (b)

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

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

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.[9]

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 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.

Our interpretation of the data (specifically, Facts 1 and 2) and of anecdotal evidence is that NGOs have a strong home bias in their activity. This may be the case because the NGO sector as a whole has a strong grass-roots component. 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 choose campaigns that their domestic donor base as well as their domestic volunteers can relate to. This introduces a bias towards issues that are particularly visible for domestic consumers/donors. Our hypothesis is therefore, that NGOs are indeed very local organizations that focus on their local donor bases and tend to campaign against firms that are active on their *national market* (Fact 1). Their campaigns are, however, internationalized *because the economic activity (both production and sales) of*

[9] In our database, the largest NGOs (measured in terms of total number of campaigns) are Sierra Club USA., Friends of the Earth US, Rainforest Action Network, Greenpeace USA, Greenpeace Canada, Clean Clothes Campaign International, Natural Resources Defense Council, International Labor Rights Forum. These NGOs alone account for about 10 % of all campaigns.

their target firms are internationalized: they may be sourcing from abroad and they may be foreign firms becoming an attractive target for the NGO by serving consumers in the NGO's country (Fact 2).

3. 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 presented in the previous section.

3.1. 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 differentiated product, respectively.

3.1.1. 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 1 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 1 unit of the optimal input bundle.

3.1.2. NGO Activity

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. NGOs take issue with "unethical" production practices in the intermediate input sectors in all sourcing countries (regarding for example violations of labor standards or environmental damages).[10] 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.[11]

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,

[10] We do not consider the normative question what "ethical" or "unethical" practices are. In our model, an "unethical" practice is one that allows NGOs to raise funds to campaign against it.

[11] 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 et al. (2018) or Herkenhoff & Krautheim (2020) place the determinants of this technology decision in a specific firm-supplier match at center stage, we are interested in the "big picture" of campaigns emerging from an NGO sector responding to economic globalization.

take *Greenpeace USA* campaigning against *Nestlé* (Switzerland) for the use of palm oil produced by the independent supplier *Sinar Mas* in Indonesia (cf. 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.[12]

3.1.3. 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 $\mathcal{S}(\kappa_{ijk})$ 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.[13]

[12] 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.

[13] Footnote 6 in the introduction further illustrates the intuition.

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.[14] 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.[15]

3.1.4. 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.[16] 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 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.[17]

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

[14] 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.)

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

[16] 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.

[17] 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.

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.[18]

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.[19] 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.

3.2. 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. These campaigns do not feed back, however, into decisions at the firm level.[20] 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

[18] 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.

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

[20] 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.

section 3.3 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 1 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 prevalence of input k in the production of variety ω, as defined in equation (7):

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

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

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:

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

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

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

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

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

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 1 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 D.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:

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

Aggregate bilateral trade flows take the a standard form.[21] 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 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 doing this in the following section, here we briefly outline the (gravity) patterns of trade in intermediate inputs underlying the final goods trade depicted above.

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

[21] 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.

intermediate inputs is then given by (see appendix D.2)

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

where $\mathcal{C}^{\mathcal{I}} \equiv \frac{\sigma-1}{\sigma} \left(1 - \frac{\mu}{\sigma}\right)^{-1}$ and $\Theta_i \equiv \sum_{j=1}^{N} w_j L_j \left(\frac{P_i^B \; \tau_{ij}}{\theta_j} \right)^{1-\sigma}$. Also this equation 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. As it refers to the total imports of the intermediate from k, it also includes the term Θ_i, which one could term *multilateral downstream trade resistance*, summarizing the overall access firms in i have to consumers in all N countries.

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.

3.3. 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.[22] 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:

$$\mathcal{S}(\kappa_{ijk}) = \xi \; s_{ki} \, x_{ij}(\varphi) \; X_{kj} \geq p_C. \tag{24}$$

[22] Also recall that we discussed in footnote 12 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.

The remaining income is spent on good h.[23] 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 condition equation (24) hold with equality, for a given ξ and some i-j-k triad of countries:

$$\xi \; s_{ki} \, x_{ij}(\tilde{\varphi}_{ijk}) \; X_{kj} \equiv p_C. \tag{25}$$

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:

$$\tilde{\varphi}_{ijk}(\xi) = (\delta \; w_i L_i)^{\frac{1}{\gamma}} \;\; \Delta_{ijk}^{-\frac{1}{\gamma}} \;\; \xi^{\frac{1}{1-\sigma}}. \tag{26}$$

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 (31) 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. While this case can arise in theory, this is clearly not a case with empirical relevance.[24]

[23] 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 good sector also limits the number of possible campaigns.

[24] In the spirit of Eaton et al. (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

We denote the *effective cutoff productivity* as

$$\tilde{\varphi}^*_{ijk}(\xi) \equiv \max\{\tilde{\varphi}_{ijk}(\xi); 1\}. \tag{27}$$

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:

$$\bar{\xi}_{ijk} = (\delta\ w_i L_i)^{\frac{\sigma-1}{\gamma}}\ \ \Delta_{ijk}^{\frac{1-\sigma}{\gamma}}. \tag{28}$$

3.4. Geography of Social Activism: Gravity for NGO Campaigns

We now have derived all the elements of the model needed to compute the measure of NGO campaigns at the *i*-*j*-*k* level. We first analyze the determinants of the measure of campaigns at the NGO level, i.e. for an individual NGO with productivity ξ. We then aggregate across all NGOs, delivering the determinants of NGO campaigns at the country level. These are the implications of the model that we bring to the data in section 4.

3.4.1. Campaigns at the NGO Level

The aim of this paper is to contribute to a better understanding of the determinants of the geographical patterns of NGO activity. To do so, we start from the campaigns of an individual NGO with productivity 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

$$n_{ijk}(\xi) = \begin{cases} n^S_{ijk}(\xi) = \delta\ w_i L_i \int_{\tilde{\varphi}_{ijk}(\xi)}^{\infty} g_\varphi(\varphi)\,\mathrm{d}\varphi & \text{if} \quad \xi < \bar{\xi}_{ijk} \\ n^L_{ijk} \quad\ = \delta\ w_i L_i \int_{1}^{\infty} g_\varphi(\varphi)\,\mathrm{d}\varphi & \text{if} \quad \xi > \bar{\xi}_{ijk} \end{cases} \tag{29}$$

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 24 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 B.

Using the productivity distribution and the cutoff $\tilde{\varphi}_{ijk}(\xi)$ (equations (1) and (26)), the NGO level measure of campaigns $n^S_{ijk}(\xi)$ is

$$n^S_{ijk}(\xi) = \Delta_{ijk}\ \xi^{\frac{\gamma}{\sigma-1}}, \tag{30}$$

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.

where

$$\Delta_{ijk} \equiv \mathcal{C}\; w_i L_i \left(w_j L_j\right)^{\frac{2\gamma}{\sigma-1}} \left(w_k L_k\right)^{\frac{\gamma}{\sigma-1}} \underbrace{\left(\frac{\tau_{ij}\; P_i^B}{\theta_j}\right)^{-\gamma}}_{G_{ij}} \underbrace{\left(\frac{\tau_{ki}\; w_k/\beta_k}{\mathcal{C}_i^s}\right)^{-\frac{\gamma}{\sigma-1}}}_{G_{ki}} \underbrace{\left(\frac{\tau_{kj}\; P_k^B}{\theta_j}\right)^{-\gamma}}_{G_{kj}} \tag{31}$$

$$\text{and} \qquad \mathcal{C} \equiv \delta \left(\left(1-\frac{\sigma-1}{\gamma}\right)\left(\frac{\mu\;\sigma}{\sigma-\mu}\right)^2 p_C^{-1}\right)^{\frac{\gamma}{\sigma-1}}. \tag{32}$$

While the term $\mathcal{C}$ simply collects constants, the term Δ_{ijk} is at the core of our paper. We label it the *triadic gravity term* and the Greek letter representing it is chosen for its triangular shape. The triadic gravity term represents all determinants of NGO level *i*-*j*-*k* campaigns, with the exception of the NGO's efficiency. This implies that equation (30) is a triadic gravity equation, highlighting the determinants of *i*-*j*-*k* campaigns at the NGO level. It contains all the gravity variables from lemmas 1 to 3. The following proposition summarizes the main properties:

Proposition 1 (Triadic Gravity for Campaigns at the NGO Level)**.** *The measure of campaigns $n_{ijk}^S(\xi)$ conducted by a "small" NGO with productivity $\xi < \bar{\xi}_{ijk}$ in country j targeting firms in country i for infringements in country k is characterized by the triadic gravity equation (30). This measure of campaigns*

(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 all three bilateral trade costs τ_{ij}, τ_{kj} and τ_{ki};
(iii) decreases in country i's and country k's multilateral upstream trade resistance, P_i^B and P_k^B;
(iv) increases in country j's multilateral consumption trade resistance, θ_j;
(v) increases in country i's multilateral sourcing trade resistance, $\mathcal{C}_i^s$.

Proof. This follows directly from inspection of equation (30) and equation (31). □

Note that by equation (30) all statements in proposition 1 equally apply to the triadic gravity term Δ_{ijk}. The economic sizes of the three countries are given by $w_i L_i$, $w_j L_j$ and $w_k L_k$, which all have a positive impact on the measure of NGO level campaigns. The three terms G_{ij}, G_{ki} and G_{kj} in equation (31) include bilateral trade costs and multilateral trade resistance terms.

Let us begin with the interpretation of the term G_{ij}, the components of which are analyzed in lemma 2. The effect of the bilateral trade costs τ_{ij} is straightforward: higher trade costs imply higher prices. Ceteris paribus, this reduces trade in final goods and therefore reduces salience in country j for infringements along the value chains of firms in country i (see equation (6)). With lower salience, less campaigns get funded. The term P_i^B is defined in equation (13). It constitutes multilateral upstream trade resistance, summarizing the multilateral trade resistance of country i with respect to its imports of intermediate inputs. With low trade resistance towards the countries supplying intermediates, inputs are cheaper and firms in i produce at lower total cost. Therefore, for the impact of P_i^B on the measure

of NGO level campaigns, the same mechanisms as for the bilateral trade costs τ_{ij} applies. Finally, 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 counties 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. Taking these three elements together, G_{ij} can be interpreted as follows: the measure of i-j-k campaigns by an NGO with efficiency ξ depends positively on the value of exports of final consumption goods from country i to country j. This quantity is higher when the costs of serving consumers in country j (represented by τ_{ij} and P_i^B) for firms in i are low *relative* to the cost of their competitors from other countries in market j (θ_j).

The mechanism just described stems from our assumption in the salience function (equation (6)) that a campaign targeting a final product that features prominently in the *domestic* consumption bundle finds more support among domestic donors. The second key assumption in the salience function is that donors are more prone to giving when the infringement occurs in the production of an intermediate product that features prominently in the input portfolio of the final good in question. In the salience function, this is accounted for by the prevalence s_{ki} of input k in the total inputs used by firms from country i. The term G_{ki} reflects this effect. Its components are analyzed in lemma 1. The term $\tau_{ki}\, w_k/\beta_k$ summarizes how (un)attractive the use of input k is for production in country i: higher trade and production costs make its use less attractive, while a higher technology parameter β_k turns it into an important input. Ceteris paribus, a high $\tau_{ki}\, w_k/\beta_k$ reduces the use of input k in the production of final consumption goods in country i, reducing the salience and therefore the scope for funding a campaign. However, not only the absolute value of the (un)attractiveness of an input matters. It rather matters how (un)attractive input k is *relative* to the (un)attractiveness of all other potential inputs. The latter is represented by country i's multilateral sourcing trade resistance $\mathcal{C}_i^s$. It is given by equation (15) and summarizes the measures of (un)attractiveness across all different inputs.

Finally, the term G_{kj} 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 the final consumption good. As it also affects the measure of NGO level campaigns through exports of final goods (though aggregated across all firms), it has the same structure as G_{ij}.

While the above constitutes the main results of this section, for completeness, we also consider the second determinant of $n_{ijk}(\xi)$ in equation (29), i.e. $n_{ijk}^L(\xi)$ for "hyper-efficient" NGOs, in appendix B. We show that all results from proposition 1 are qualitatively unchanged when considering $n_{ijk}(\xi)$, as long as at least some NGOs have $\xi < \bar{\xi}_{ijk}$.

3.4.2. NGO Campaigns at the Country Level

In the previous section we presented our main theoretical results. The NGO level gravity equation (30) delivers neat theoretical predictions. We will see in section 4 that the Sigwatch data allow us to bring the NGO level equation to the data. That specification, however, is

very demanding, as it only uses within-NGO variation. We therefore complement our main empirical analysis on the NGO level with an analysis on the country level. This section lies the theoretical foundations for the estimation of a country level triadic gravity equation for NGO campaigns.

We can move the level of analysis to the country level by aggregating the NGO level results. The total measure of campaigns by NGOs in j targeting firms from i for infringements in k (N_{ijk}), is given by

$$N_{ijk} = \psi_j \; w_j L_j \left(\int_1^{\bar{\xi}_{ijk}} g_\xi(\xi) \; n_{ijk}^S(\xi) \, \mathrm{d}\xi + \int_{\bar{\xi}_{ijk}}^{\infty} g_\xi(\xi) \; n_{ijk}^L \; \mathrm{d}\xi \right). \tag{33}$$

Based on the in-depth analysis of the measure of NGO level campaigns for "small" and for "large" NGOs, $n_{ijk}^S(\xi)$ and $n_{ijk}^L(\xi)$, respectively, it is to be expected that the same 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 (27)). 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_{ijk}^S in equation (29)). 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_{ijk}^L in equation (29)). This illustrates the structure of equation (33), 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 (33) in combination with equation (29)). 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

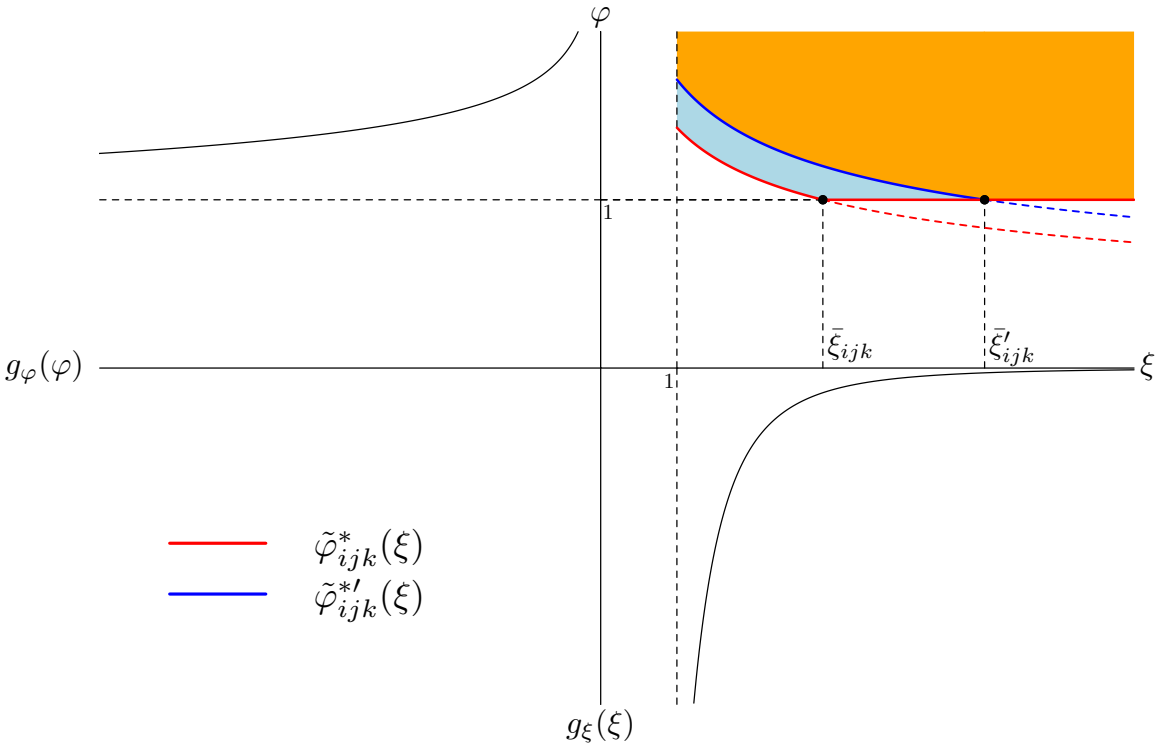


Figure 2: Distribution of firms (top-left) and NGOs (bottom-right). For a j NGO with efficiency ξ, all i firms with productivities above $\tilde{\varphi}^*_{ijk}(\xi)$ (red solid line) are potential campaign targets for infringements in k. Hence, the areas shaded in orange and blue are proportional to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

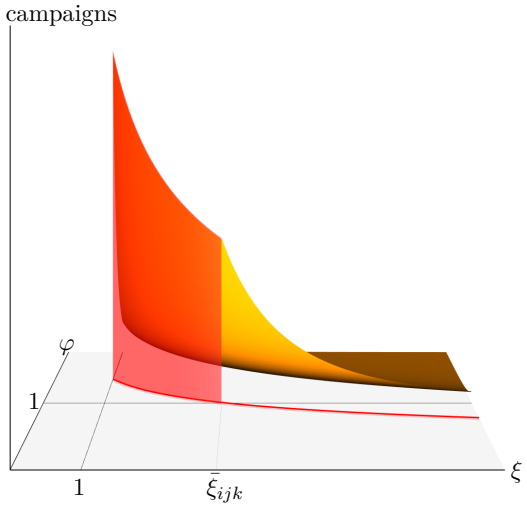
constraint is depicted by the red vertical surface, which extends vertically above $\tilde{\varphi}_{ijk}(\xi)$. The volume below the orange space curve represents N_{ijk}: country level i-j-k campaigns.

Evaluating equation (33), using equations (5), (28), (30) and (B.1), delivers a triadic country level gravity equation:

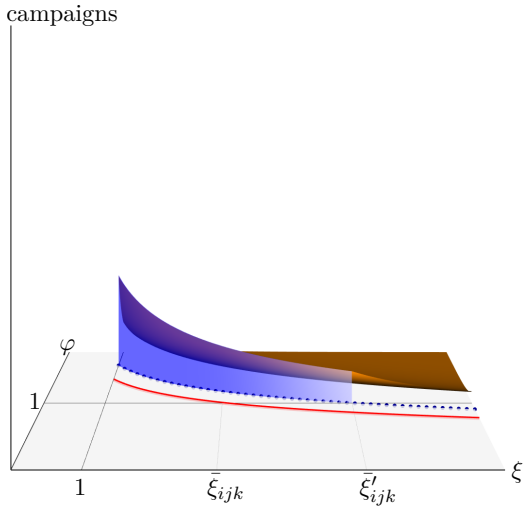
$$N_{ijk} = \psi_j \; w_j L_j \left[\Delta_{ijk} \left(1 - \frac{\gamma}{\epsilon(\sigma-1)}\right)^{-1} - (\delta \; w_i L_i)^{\frac{\epsilon(1-\sigma)}{\gamma}+1} \Delta_{ijk}^{\frac{\epsilon(\sigma-1)}{\gamma}} \left(\left(1 - \frac{\gamma}{\epsilon(\sigma-1)}\right)^{-1} - 1 \right) \right]. \tag{34}$$

Just as for the NGO level campaigns in equation (30), 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 4, 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:



(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}.

Proposition 2 (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 (34), 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 C.

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.[25] 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.

[25] 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.

4. Empirics

Section 2 highlights two seemingly contradictory characteristics of NGO campaigns against firms: campaigns exhibit at the same time an important international component as well as strong domestic elements. In our model, we reconcile both facts by developing a framework in which NGO campaigns travel "piggyback" with the companies serving domestic consumers: foreign sourcing and international trade in final goods may well turn a campaign that is tailored to a *domestic* audience into an *international* campaign. In the model, this leads to triadic gravity equations both at the NGO level and at the country level (equations (30) and (34)).

The Sigwatch database (see appendix A) allows us to take both theoretical equations to the data. Most notably, it allows us to estimate our NGO level gravity equation (30) using an estimation equation that is directly informed by our theory. The focus of our analysis is on estimating gravity for NGO level campaigns, which emerge from the model in a very neat and purely multiplicative form. We then complement these results with country level estimations in section 4.2.

4.1. NGO Level Triadic Gravity

Guided by the NGO level gravity equation (30), we estimate the following equation

$$\ln(n_{ijkz}) = \hat{\tau}_{ij}\ \beta_1 + \hat{\tau}_{ki}\ \beta_2 + \hat{\tau}_{kj}\ \beta_3 + FE_i + FE_k + FE_z + u_{ijkz}, \tag{35}$$

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, our central independent variable of interest:

$$\hat{\tau}_{lm} = (\ln(\text{distance}_{lm}) \mid \text{Contiguity}_{lm} \mid \text{Language}_{lm} \mid \text{Colonial History}_{lm} \mid \text{Internal}_{lm})\,. \tag{36}$$

We employ standard controls from the literature (see e.g. Head & Mayer (2014)), provided by the CEPII. We use the log of bilateral geographic distance, $\ln(distance_{lm})$, 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 1 for country pairs that share the common official language and the *Contiguity* dummies are 1 if the respective countries share a border.

Note that our data also contains information on domestic "flows" (i.e., campaigns with the action or the target or both in the same country as the NGO). As we have seen in section 2, NGOs have a strong home bias. To take this into account in our regressions, we use the

[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.

internal distance within a country, allowing us to keep these observations when estimating the gravity equations.[27] To account for all types of trade facilitations *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 (36), *Internal*$_{lm}$ is either *Internal Trade*$_{i=j}$, *Internal Sourcing*$_{k=i}$ or *Internal Action*$_{k=j}$.

In line with proposition 1, we expect trade costs to have a negative effect on campaigns in equation (35). 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.

Besides our trade cost proxies, we add three sets of fixed effects, most notably 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 effects also control 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 includes the country's multilateral consumption trade resistance (lemma 3) and makes a country j fixed effect obsolete. We control for all time-invariant characteristics of country i, including its multilateral sourcing trade resistance (lemma 1) and its multilateral upstream trade resistance (lemma 2), with a unilateral country i fixed effect (FE_i). Moreover, we include an action country fixed effect (FE_k), which controls for all time-invariant characteristics of country k, including its multilateral upstream trade resistance.

We approach the complete specification in three steps (see table 2). 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 ij-specific variables ($\hat{\tau}_{ij}$) would be a natural starting point.

We estimate equation (35) 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 2, 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.

Acknowledging that campaign activity at the NGO level is in fact triadic (proposition 1),

[27] The respective dummy variables for bilateral colonial history, common official language and contiguity are set to 0 for all observations where the "two" countries involved are actually the same country. Internal distances are computed by weighting distances between cities with the cities' population shares in the country's population (Mayer & Zignago 2011).

we use (the log of) n_{ijkz}, i.e. NGO level campaigns in a given ijk triad, as dependent variable in step 2 and 3. In step 2, we add controls for the proxies for trade costs between the country of the firm i and the sourcing country k, $\hat{\tau}_{ki}$. The relevance for these k–i variables for campaigns by NGOs from country j is the most important implication of our model. It stems from explicitly modeling the international sourcing patterns of firms and would easily be overlooked in a traditional gravity specification without theoretical foundations. 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 (30).

We present the regression results for step 2 in columns (3) and (4) of table 2. Overall, the ki-specific controls have the signs predicted by our model. Most notably, the predicted negative effect of $distance_{ki}$ is highly significant in the OLS specification, and so is the 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 2. 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. 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.

Comparing our coefficients for the ij controls from the dyadic specifications in columns (1) and (2) to the complete triadic specifications in columns (5) and (6), two observations stand out: On the one hand, qualitatively our findings are unchanged; all effects keep their initial signs. On the other hand, the magnitude of the effects is reduced across the board (by more than 50 % in case of $distance_{ij}$). Our interpretation is that the dyadic specifications overestimate the relevance of ij linkages. This is due to the aggregation across action countries as well as neglecting ki- as well as k-specific variation, i.e. because these specifications omit the triadic structure of campaigns.

Overall, it should be noted that the NGO level estimations are very demanding, as identification only relies on within-NGO variation. It is therefore interesting to see that the complete triadic specifications in columns (5) and (6) provide strong support for the predictions of the model (see proposition 1), in particular concerning the two pivotal bilateral distances: $distance_{ij}$ and – most notably – $distance_{ki}$.

4.2. Country Level Triadic Gravity

The NGO level specification is very demanding, as identification of trade costs relies only on within-NGO variation. To use all variation and to complement our NGO level analysis, 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

Table 2: 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

of campaigns by NGOs from j targeting firms from i for infringements in k, N_{ijk}. The corresponding theoretical equation is (34). While this equation does not have the convenient multiplicative structure of equation (30), we have shown in proposition 2 that the qualitative predictions regarding all three bilateral trade costs remain unchanged.

We estimate the following specification

$$\ln(N_{ijk}) = \hat{\tau}_{ij}\ \beta_1 + \hat{\tau}_{ki}\ \beta_2 + \hat{\tau}_{kj}\ \beta_3 + FE_i + FE_j + FE_k + u_{ijk} \tag{37}$$

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 (37) is analog to equation (35); in particular, we control for the same trade cost proxies $\hat{\tau}_{lm}$ (see equation (36)) as in the NGO level regressions.

We present the country level results in table 3. We approach the complete specification in the same three steps as on 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 2, with an increased magnitude of most point estimates. We again find the pattern that the coefficients of the ij variables decline in absolute value when moving from the dyadic to the triadic specifications. 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 4.1. Overall, we interpret the results in tables 2 and 3 as strongly supporting the predictions of our model of trade, sourcing and the internationalization of social activism.

Table 3: 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

5. 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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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.

A. Data Description

This section provides details on the data we use in our empirical analysis. As outlined in section 2, the data on NGO campaigns has been collected by Sigwatch. The data collection process is detailed in Hatte & Koenig (2020). For the empirical analysis, we reshape the raw Sigwatch data, 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 4.2, 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. Further, in order to fit the value chain campaigns described by our model, 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 4, we complement the Sigwatch campaign data with standard gravity variables provided by the CEPII:[28] bilateral geographic distance, contiguity, colonial history and common language. All variables are defined in section 4.1.

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

B. 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 (29), i.e. $n^L_{ijk}(\xi)$ for "hyper-efficient" NGOs.

In the latter case, 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 (29), the measure of campaigns by these NGOs is simply given by

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

Equation (B.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 B.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 (29), results from proposition 1 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 1.*

Proof. To see this, simply note that the effect of economic size of country i is the same in equations (30) and (B.1). All other variables shaping NGO level campaigns in equation (30) and presented in proposition 1 are absent in equation (B.1). □

We argue in footnote 24 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 B.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 4: even in the presence of such NGOs, the testable implications do not change qualitatively.

C. Proof of Proposition 2

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 (30) implies $\frac{\partial \Delta_{ijk}}{\partial \tau} < 0$. Then, equation (28) 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 (33), 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 (30)). 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 (29): 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 (26)), $1 < \tilde{\varphi}_{ijk}$ 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 (B.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 (33) must also decrease: $\frac{\partial N_{ijk}}{\tau} < 0$. □

D. Derivations

D.1. Aggregate Profits

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

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

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:

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

Plug in equations (1) and (D.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:

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

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

D.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

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

where $\mathcal{C}^{\mathcal{I}}$ is defined on page 16.

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 (D.3), this equals

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

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

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

where Θ_i is defined on page 16.