Moving Out: Geoeconomic Policy and the Relocation of Foreign Affiliates*

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Governments increasingly use trade and industrial policy to reshape where multinationals produce, yet standard measures of this geoeconomic pressure are aggregate, and cannot detect origin-specific discrimination. We build a bilateral, directional index of relative protectionism that measures how restrictive a destination is toward a given origin. We combine it with bilateral geopolitical risk indices and global ownership links over 2010-2021, and estimate a gravity-type PPML model with three-way fixed effects. Our results show that, where bilateral protectionism is greater, foreign-affiliate presence is markedly smaller: a one percentage point increase in the index is associated with 1.3% fewer subsidiaries than that origin-destination pair would otherwise have. The main mechanism runs through an operational hostility channel (e.g. discriminatory subsidies, procurement exclusion), which outweighs an offsetting tariff-jumping channel and concentrates in non-tradable sectors, where serving the market requires local presence. The estimates show no evidence of anticipation and are robust to longer lags and sample splits. Bilateral geopolitical risk enters with the same negative sign, adding a smaller but complementary layer of fragmentation risk to the effect of geoeconomic policy.

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1 Introduction

The growing use of economic instruments for strategic purposes and the resurgence of geopolitical rivalry have placed geoeconomics and geopolitics at the centre of macroeconomic analysis. Economic ties once valued mainly for efficiency and risk sharing now serve as channels of influence and coercion. A large recent literature documents this shift. Governments have turned to a broad array of trade, industrial, and financial policies (tariffs, export controls, investment and capital controls, public procurement rules, subsidies, and trade-defence instruments) to shape firms' incentives and redraw cross-border production (Clayton, Coppola, Maggiori, and Schreger, 2025). Because these instruments operate through global value chains and a small number of strategic nodes, firms' location choices have become highly sensitive to security tensions and to policy-driven market access.

Why multinational firms relocate activities across borders is a long-standing empirical question, and the literature has emphasised taxation, institutions, and market access (Basile, Castellani, and Zanfei, 2008; Voget, 2011; Valentino, Schmitt, Koch, and Nell, 2019; Nilsen, Tørset, Gutiérrez, Cherchi, and Andersen, 2020). More recent work documents that geopolitical and political risk affects foreign direct investment (FDI), firm performance, and the organisation of multinational networks (Hassan, Hollander, van Lent, and Tahoun, 2019; Aiyar, Malacrino, and Presbitero, 2024; D'Orazio, Ferriani, and Gazzani, 2024; Basco, Felice, Merlevede, and Mestieri, 2024). Yet two gaps remain central for understanding current firm behaviour. The first is measurement. "Geoeconomic pressure" is typically proxied by coarse tariff measures or sanction dummies, while the actual policy toolkit is far broader, spanning goods, services, investment, technology, and finance. The second is direction. Existing measures are country-level, so they cannot distinguish discrimination against a particular origin from a destination's overall openness. However, policy is enacted bilaterally, by an implementing jurisdiction against an affected one, and a destination can restrict investors from one origin while remaining open to others.

This paper addresses both gaps, and the geoeconomic index we build is its central contribution. The index is bilateral and directional, derived from the Global Trade Alert (GTA) database, which records active policy interventions, harmful and liberalising, for each implementing-affected country pair. It traces the direction and persistence

of policy pressure across domains (tariffs, export controls, subsidies and state aid, trade defence, investment and capital controls, public procurement), mapping more closely than existing proxies to the channels through which governments reprice or ration market access for foreign firms (Global Trade Alert, 2025). Our index therefore captures enacted, discriminatory policy, not perceived tension. To analyse that separate channel, we also use bilateral geopolitical-risk indices from Alonso-Alvarez, Diakonova, and Pérez (2025), which quantify how origin-country media portray specific foreign partners as sources of geopolitical risk. We merge both indicators with the Multinational Revenue, Employment, and Investment Database (MREID), which reports worldwide ownership links over 2010-2021, so we can track how affiliates are reallocated across destinations (Ahmad, Bergstrand, Paniagua, and Wickramarachi, 2023). The analysis here is aggregate; the project's ultimate aim is to build firm-level measures from ORBIS and directly study the micro-level mechanisms.

Our empirical strategy is a gravity-style Poisson Pseudo-Maximum Likelihood (PPML) model with origin-destination, origin-year, and destination-year fixed effects (Santos Silva and Tenreyro 2006, 2011). Only within-pair, over-time variation in the policy stance contributes to the estimates.

Our results show that where the bilateral stance is more protectionist, the targeted origin holds a smaller affiliate presence. A higher lagged geoeconomic index is associated with about 1.3% fewer subsidiaries than than the model predicts for that pair, conditional on origin- and destination-year factors. Results on greenfield investment, which capture new entry alone, go in the same direction. This suggests that protectionism may deter new investment, operating through the extensive margin.

The operational-hostility channel accounts for this net effect: discriminatory subsidies, procurement exclusion, investment restrictions, and capital controls. It outweighs an offsetting tariff-jumping channel, which operates in the expected, FDI-attracting direction but is the weaker of the two. The response is also far from uniform across sectors. It concentrates in services and infrastructure, where local establishment is the only mode of supply and tariff-jumping cannot operate, and is muted or absent in goods-producing, trading, and financial sectors. Bilateral geopolitical risk enters with the same negative sign, but with a smaller, complementary effect than geoeconomic policy, indicating that enacted policy and perceived risk are empirically distinct. Finally,

the geoeconomic effect shows no evidence of anticipation, persists at longer lags, and strengthens in the second half of the sample, when bilateral protectionism intensified.

The paper makes three contributions to this literature. First, our bilateral geoeconomic index is, to our knowledge, the first policy measure that varies at the *implementing-affected country pair* level. It records whether destination d discriminates against investors from origin o relative to alternative hosts, and covers the full policy toolkit in a unified framework. Country-level trade restriction scores cannot distinguish bilateral targeting from aggregate openness; ours can (see also Ahir, Bettarelli, Furceri, Frangiamore, Ostry, and Scianna, 2026, for a concurrent study using country-level measures and FDI flows). Second, we place enacted geoeconomic policy and perceived geopolitical risk within a single framework, and show that they are empirically distinct forces, with enacted policy the primary driver of subsidiary location. Third, the index splits into FDI-discouraging and FDI-promoting components, so we can isolate which channel dominates: the risk-and-hostility channel outweighs tariff-jumping. All three results rest on a PPML specification with three-way fixed effects (pair, origin-time, destination-time), fitted to the *stock* of foreign affiliates and to greenfield investment rather than to aggregate FDI flows. This is a cleaner measure of long-run location decisions, and it avoids the profit-shifting and pass-through distortions that affect flow-based data.

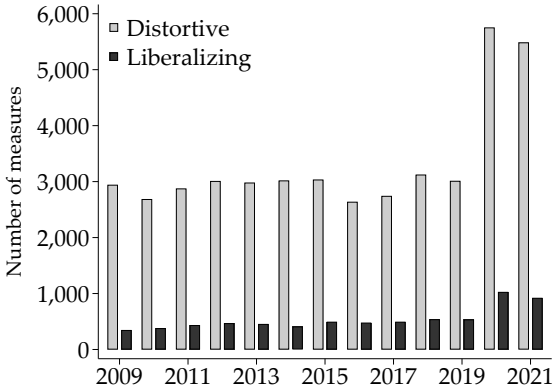
The remainder of the paper is organised as follows. Section 2 introduces our bilateral geoeconomic policy index and its construction from the Global Trade Alert database. Section 3 describes the firm-ownership data and the bilateral geopolitical risk indices. Section 4 sets out the gravity-style empirical model and identification strategy. Section 5 presents the main results: baseline estimates, the policy-type decomposition, and the heterogeneity analysis. Section 5.3 then examines geopolitical risk as a complementary, second-order driver of subsidiary location. Section 6 reports robustness checks, and Section 7 concludes.

2 The Geoeconomic Protectionist Index

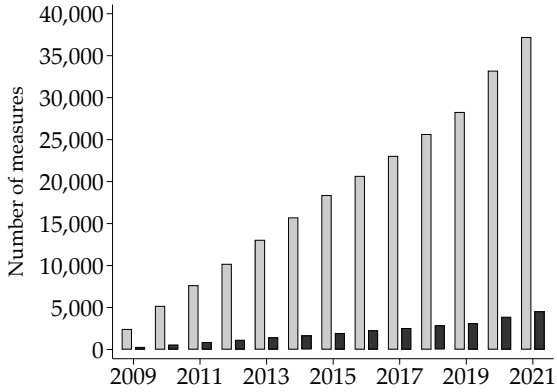
To measure this bilateral relative exposure, we draw on the Global Trade Alert (GTA) database. It records unilateral policy changes in goods, services, investment, and labour markets for a wide range of jurisdictions. Coverage is broad: tariffs and trade defence,

Figure 1: Global Trade Alert measures

(a) Flow: new measures per year



(b) Stock: active measures in force



Notes: This figure reports the number of protective (distortive) and liberalizing measures implemented by the 60 countries included in the baseline analysis, as recorded in the GTA database. Panel (A) shows the annual flow of newly implemented measures; Panel (B) shows the stock of active measures in force in each year. Light bars denote protective measures, dark bars liberalizing ones. Protective measures account for the vast majority of interventions throughout the sample period. See Appendix A for details on the construction and cleaning of the GTA data.

but also investment restrictions, export controls, subsidies, and public procurement. Liberalizing actions are recorded too, such as the conclusion of a free trade agreement. Each measure is checked against a standard taxonomy and tied to an official source, then classified as either distortive (protective) or liberalizing.[1] For more details, see the data and methodology in Global Trade Alert (2025).

We clean the raw GTA database under a set of assumptions (detailed in Appendix A) and build a yearly panel of active interventions. Our unit of measurement is the *stock* of measures in force in a given year t. A measure enters this stock on its implementation date and stays until it is removed or expires. Every intervention pairs an implementing country, which introduces the policy, with one or more affected countries, whose economic activity is influenced by that measure. This maps directly onto the MREID database. The implementing country is the destination country (d), where foreign subsidiaries operate; while the affected country is the origin country (o), home to the parent firm.

[1] According to GTA, an intervention is classified as liberalizing if it facilitates the access of foreign commercial interests into the destination jurisdiction's market, and as distortive if it raises trade barriers or discriminates between domestic and foreign actors.

Figure 1 highlights two features of the GTA data that motivate our index. Panel (A) shows the annual flow of newly implemented measures; panel (B) plots the cumulative stock in force. The flow of new protective (distortive) measures holds broadly steady through the 2010s, at roughly 3,000 a year, then jumps to around 5,500 in 2020–2021, as industrial and trade interventions surged during the COVID-19 pandemic. That inflow accumulates: the stock of protective measures climbs steeply from about 2,500 in 2009 to nearly 37,000 by 2021. This growth is broad-based across countries rather than concentrated in a few pairs, so a bilateral measure built on raw counts would mostly track the common upward trend and reveal little about whether d is turning more restrictive toward o in particular. We therefore avoid simple counts. Instead, we scale d's activity toward o by the total worldwide activity affecting o that year; the resulting share-based index nets out the common trend and isolates the bilateral signal. Liberalizing measures (dark bars), by contrast, stay small throughout, in both flow and stock, realtive to protective ones (light bars). For this reason, we build the index on protective measures alone.

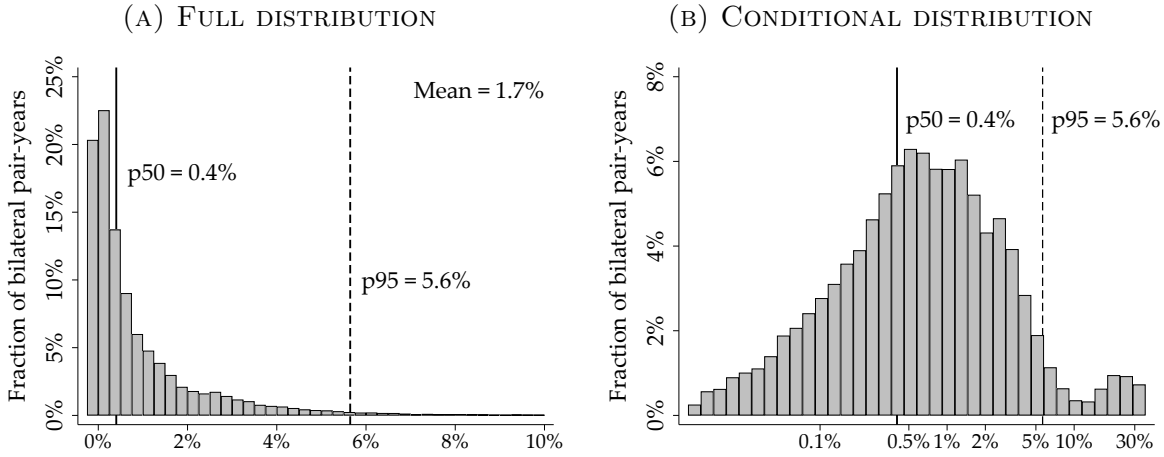
The Geoeconomic Protectionist Index (GEPI) measures the relative protectionist stance of destination d toward origin o: the share of all protective measures imposed on o worldwide that is attributable to d alone,

$$\text{GEPI}_{od,t} = \frac{P_{od,t}}{P_{od,t} + \sum_{k \neq d} P_{ok,t}}, \tag{1}$$

where $P_{od,t}$ is the stock of protective measures imposed by destination d on origin o in year t, and $\sum_{k \neq d} P_{ok,t}$ is the stock of protective measures imposed on o by all other destinations. By construction, the index lies between zero and one. A value of zero means d imposes no protective measure on o that year, while a value near one indicates that d accounts for the vast majority of those affecting o worldwide. The measure is therefore *relative*: what matters is how restrictive d is toward o compared with other hosts. A high GEPI for the China-United States pair, for instance, means that China accounts for a large share of all protective measures imposed on US-owned firms worldwide, relative to other host countries.[2]

[2]The index counts measures rather than weighting them by size, since GTA records ad-valorem magnitudes only for some instruments and only in recent years. It therefore captures how often, rather than how intensely, d discriminates against o.

Figure 2: Distribution of the Geoeconomic Protectionist Index



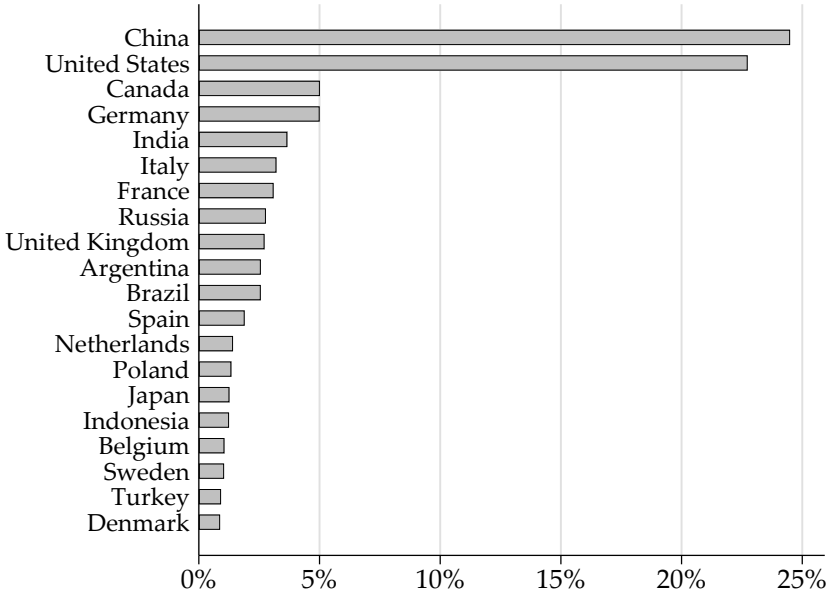
Notes: This figure plots the distribution of the Geoeconomic Protectionist Index (GEPI) across all origin-destination pairs among the 60 countries included in the baseline analysis, 2009-2021. Panel (A) shows the full distribution, including zeros, which account for approximately 20 percent of all pair-year observations. Panel (B) shows the distribution conditional on strictly positive values, plotted on a $\log_{10}$ scale given the pronounced right skew of the index among pairs with at least one protective measure in force.

Figure 2 shows the distribution of the index. Panel (A) plots the full distribution, including the zeros that arise whenever d records no protective intervention toward o in a given year; Panel (B) conditions on strictly positive values and uses a $\log_{10}$ scale. The index is heavily right-skewed. The median pair-year sits at just 0.4%, the mean at 1.7%, and the 95th percentile at 5.6%, so most destinations account for only a small part of the protective measures affecting a given origin. Conditional on being positive, the index is approximately log-normal (Panel B) but with a pronounced upper tail: a thin set of pair-years exceeding 10% captures the dominant bilateral pairs that drive most of the action in the index.

Because the index is relative, a destination can record a high GEPI only by concentrating a large share of the world's protective measures against a given origin. Figure 3 reports the average GEPI by implementing country. Two destinations dominate: China (24%) and the United States (23%) together account for roughly half of all relative protectionism in the sample. The remaining destinations account for substantially smaller shares: Canada and Germany record 5%, and all others fall below 3%.

Figure 4 traces how the average GEPI evolved for the leading implementers, with

FIGURE 3: TOP 20 DESTINATIONS BY RELATIVE PROTECTIONISM



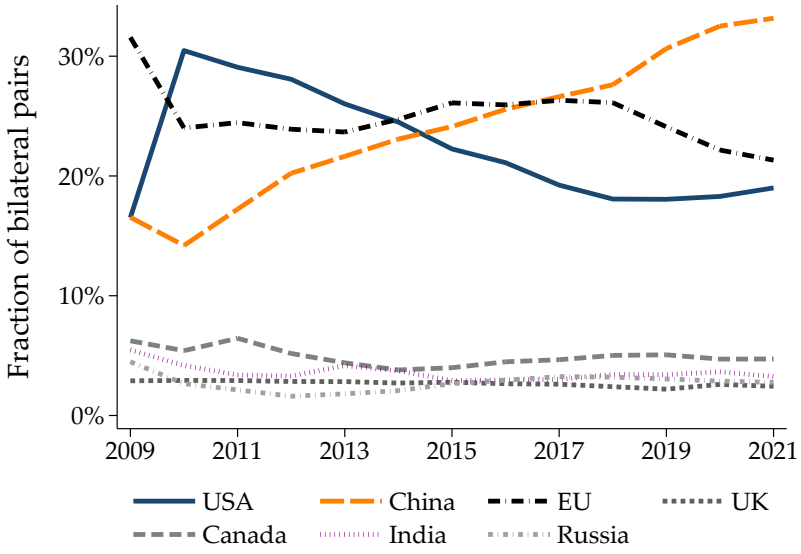
Notes: This figure plots the top 20 destination countries by average Geoeconomic Protectionist Index (GEPI) over 2009–2021, in descending order. The average is taken across all origin countries in the baseline sample. The index measures the share of all protective measures affecting a given origin that is attributable to a given destination.

the European Union aggregated across member states.[3] This aggregate concentration masks substantial changes in the relative ranking of implementers over time. In 2009 the European Union recorded the highest relative protectionism (32%), and the United States peaked at around 30% in 2010; China started well below both (17%). Over the following decade China rose steadily, overtaking the United States and the European Union around 2016-2017 and reaching roughly 33% by 2021. The United States and the European Union declined over the same period, to about 19% and 21% respectively. All other destinations remained flat and relatively low throughout.

The figures above collapse the origin dimension, averaging the index across all origins for each destination, so they display only its destination side. The variation we exploit in the empirical analysis is considerably richer. It comes above all from how a given destination's relative protectionism differs *across origins*: one host can target some home countries far more than others. The cross-destination concentration and the

[3]The European Union aggregate includes the following member states: Austria, Belgium, the Czech Republic, Germany, Denmark, Spain, Finland, France, Greece, Croatia, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Slovakia, Slovenia, and Sweden.

FIGURE 4: EVOLUTION OF RELATIVE PROTECTIONISM: TOP GLOBAL IMPLEMENTERS



Notes: This figure plots the evolution of the average Geoeconomic Protectionist Index (GEPI) between 2009 and 2021 for the seven destinations with the largest global shares in 2021. The EU is treated as an aggregate of member states. Values represent the share of global protective measures affecting a given origin that is attributable to a given destination.

shifts in relative ranking add further variation. Our fixed-effects specification, moreover, absorbs the destination-level and origin-level patterns visible in these figures, so identification rests on the residual bilateral, within-pair variation in $\text{GEPI}_{od,t}$ over time.

2.1 Decomposition by expected effect on FDI

The aggregate index combines instruments whose effects on inward FDI work in opposite directions, so its coefficient identifies only a weighted average of competing forces. A small or insignificant aggregate effect is therefore not a sign that geoeconomic policy is irrelevant: it may instead reflect an FDI-deterring channel that offsets an FDI-attracting one. To recover these forces separately, we decompose the index into three components according to the expected sign of each instrument on the foreign-affiliate presence a destination receives,

$$\text{GEPI}_{od,t} = \text{GEPI}_{od,t}^{Neg} + \text{GEPI}_{od,t}^{Pos} + \text{GEPI}_{od,t}^{Amb}.$$

The classification rests on two opposing channels, plus a residual of instruments whose net sign is ambiguous. The first channel is FDI-attracting. Measures that raise the cost of serving the market through exports (tariffs, trade defense instruments, quantitative restrictions, and other tariff-equivalent frictions) induce firms to substitute exports with local production. Trade barriers then complement rather than substitute for local affiliate activity: this is the classic horizontal market-seeking motive, or *tariff-jumping* (+). The second channel is FDI-deterring. Here the *operational-hostility* mechanism (−) is at work: measures that penalise the presence, operation, or competitive position of foreign firms within the destination (investment restrictions, discriminatory subsidies and state aid, procurement exclusion, and capital and export controls) lower the expected return on a local subsidiary regardless of the trade regime, and so deter FDI. A residual set of instruments carries an *a priori* ambiguous net sign. This happens either because they activate both channels at once (e.g. localisation requirements) or because their effect hinges on the firm's motive and on whether foreign affiliates can access the measure on equal terms (e.g. export subsidies, which may attract export-led investment yet, as discriminatory measures, need not benefit foreign firms). We assign each GTA/MAST instrument to its expected dominant channel, drawing on economic theory and the empirical literature. Table 1 summarises the categorisation; Appendix B documents the mechanism and evidence behind each assignment.

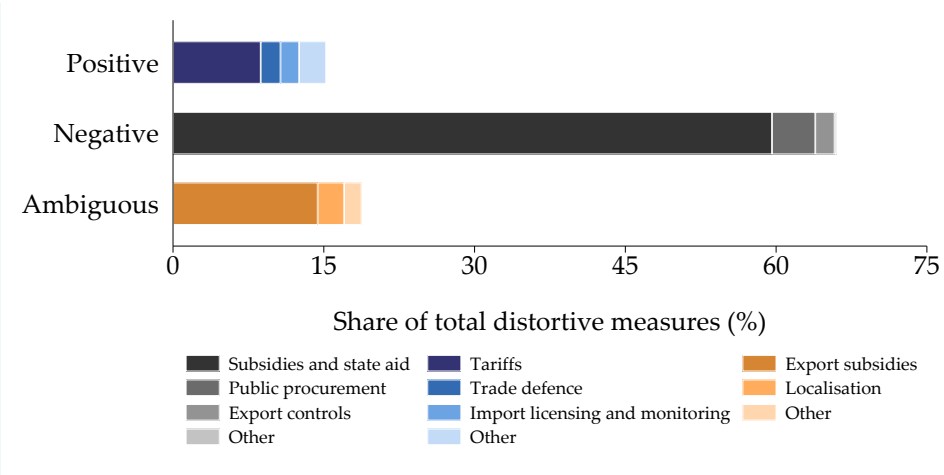
Table 1: Categorization of Geoeconomic Instruments by Expected Effect on Inward FDI

Expected effect	Instruments
Negative (−)	Subsidies and state aid; public procurement; capital controls; export controls; FDI measures; import incentives.
Positive (+)	Tariffs; trade defence; import quotas and prohibitions; import licensing and monitoring; internal taxes on imports; intellectual property protection.
Ambiguous (±)	Export subsidies; localisation requirements; sanitary and phytosanitary measures; technical barriers to trade; migration measures; distribution and port restrictions.

Notes: Each GTA/MAST instrument category is assigned to the component (GEPI^{Neg}, GEPI^{Pos}, GEPI^{Amb}) corresponding to its expected dominant effect on inward FDI. Appendix B (Table B.1) provides the detailed mapping, the underlying mechanism, and the supporting references.

Figure 5 shows the relative weight of each instrument in the data. The composition is markedly asymmetric. FDI-deterring (negative) instruments account for roughly two-thirds of all distortive measures (66%), overwhelmingly driven by subsidies and state aid (59%), with public procurement and export controls accounting for far less. FDI-attracting (positive) instruments make up a much smaller share (15%) and consist almost entirely of border measures such as tariffs (9%) and trade defence instruments. The positive component therefore maps cleanly onto the tariff-jumping channel. The ambiguous component (18%) is dominated by export subsidies (14%), whose effect on inward FDI is *a priori* sign-indeterminate, for the reason given above. Because the aggregate index is heavily tilted toward the operational-hostility channel, we expect the net aggregate coefficient to be negative. The reported shares, however, reflect only how often each type of measure occurs, not how strongly it moves affiliate location. The net effect is therefore an empirical question, which the estimates in Section 5 address.

FIGURE 5: COMPOSITION OF DISTORTIVE MEASURES BY EXPECTED EFFECT ON FDI



Notes: This figure decomposes the stock of protective (distortive) measures recorded in the GTA database for the 60 countries in the baseline sample, 2009-2021, into three components defined by their expected effect on inward FDI: FDI-attracting (Positive), FDI-deterring (Negative), and Ambiguous. The categorization follows Table 1. Each bar reports the share of all protective measures accounted for by that component, broken down by instrument family; the largest families are shown separately and the remainder pooled under "Other." Shares are computed over the count of measures in force and sum to 100 percent across the three components. Appendix B provides the detailed mapping of instruments to components, together with the underlying mechanisms and supporting references.

3 Firm-Ownership and Geopolitical-Risk Data

In this section, we combine the geoeconomic policy indices described in Section 2 with two further data sources. Our outcome variable comes from the Multinational Revenue, Employment, and Investment Database (MREID), which measures bilateral subsidiary activity across country pairs. In addition, we add bilateral Geopolitical Risk (GPR) indices derived from national media narratives, to separate geopolitical tensions from geoeconomic policy and to examine how the two interact.

The data are organised as an annual panel of bilateral origin–destination pairs at the country level. Each observation links a country of origin (the home of a shareholder parent) to a country of destination (the host of an owned subsidiary) over the period 2010–2021. The following subsections describe each source and the resulting sample.

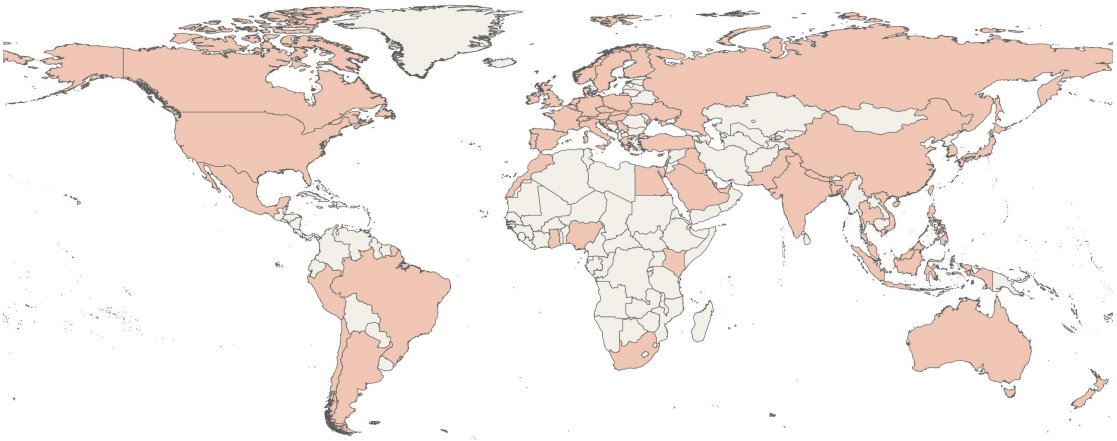
3.1 Multinational affiliate data (MREID)

Our measure of multinational activity comes from the Multinational Revenue, Employment, and Investment Database (MREID), a country-level panel of foreign direct investment (FDI) compiled and made publicly available through the U.S. International Trade Commission (Ahmad et al., 2023). Although built from firm-level ORBIS records, MREID is a country-level dataset: it aggregates parent-subsidiary relationships of multinational enterprises up to the bilateral country level. It covers 185 countries and 25 industries at annual frequency from 2010 to 2021. For each origin-destination pair, MREID records the count of foreign affiliates, that is, majority-owned subsidiaries in a destination country controlled by a parent firm from an origin country, along with aggregated measures of affiliate activity such as revenue, employment, and assets. The underlying compilation identifies foreign-controlled affiliates from ORBIS's global-ultimate-owner information, using a majority-control threshold (above 50% ownership). Banks and state-owned enterprises are excluded, as are affiliates below a minimum size threshold or those that are not economically active. A cleaning procedure is then applied to remove implausible values (see the official documentation for details).[4]

Our outcome variable is the bilateral count of parent–subsidiary links, that is, the number of affiliates owned by firms from each origin country in each destination. For the

[4] `https://www.usitc.gov/data/gravity/mreid.htm`.

FIGURE 6: GEOGRAPHICAL COVERAGE OF THE BASELINE SAMPLE (60 COUNTRIES)



Notes: This figure shows the geographical coverage of the baseline sample. Each of the 60 shaded countries acts both as an origin (the home country of a parent firm) and as a destination (a host of subsidiaries). This yields the 60×60 matrix of origin–destination pairs used in the baseline analysis of Section 5. Unshaded countries are not included in the sample.

sectoral analysis we also exploit the industry dimension, aggregated to one-digit NAICS sectors. While MREID spans 185 countries, our baseline sample is the 60 economies that Global Trade Alert tracks as both implementing and affected jurisdictions (see Appendix A). All are covered by MREID, so GTA availability determines the 60×60 matrix of origin–destination pairs mapped in Figure 6.[5]

Table C.1 in Appendix C summarises, for each origin country, the bilateral coverage of the sample on both the outward and inward margins, together with average subsidiary counts. On the outward margin, coverage is extensive for advanced economies. The United Kingdom is present in all 60 host countries in every sample year (100%), followed by the United States (97%), France (95%), Switzerland and Japan (92%), and Germany (91%); it remains high for most other origins. Coverage is thinner only for a group of smaller emerging markets whose firms invest in relatively few destinations. Ukraine and Pakistan, for instance, appear in only 13 and 12 destinations respectively, and for the smallest economies in the sample coverage falls to single digits.

[5]The 60 countries are: Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, Chile, China, Croatia, Czechia, Denmark, Egypt, Finland, France, Germany, Ghana, Greece, Hong Kong, Hungary, India, Indonesia, Iraq, Ireland, Italy, Japan, Kenya, Malaysia, Mexico, Morocco, Nepal, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Qatar, Russia, Saudi Arabia, Serbia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, and Vietnam.

Coverage is more complete on the inward margin, where the same countries appear as hosts of foreign affiliates. Several economies poorly represented as origins are much better covered as destinations: Ghana has 2% outward coverage but 53% inward, with a similar asymmetry for Serbia, Poland, and Russia. Average subsidiary counts are also highly concentrated. The United States and China hold the largest affiliate stocks at home, the United States the largest presence abroad, and the United Kingdom and Germany the most inward affiliates.

We retain all available origin–destination–year observations and let country-pair and time fixed effects absorb these differences in coverage. Additional robustness checks by sector and alternative sample partitions follow in Section 6.

3.2 Geopolitical risk indices

Geoeconomic policy is only one of the two forces we consider. Location decisions are also sensitive to geopolitical tensions, which operate through a distinct channel: heightened geopolitical risk raises uncertainty about the security of assets, the stability of bilateral trade relationships, and the reliability of host-country institutions, all of which increase the perceived cost of maintaining or expanding a foreign presence (Caldara and Iacoviello, 2022; Aiyar et al., 2024). Geopolitical risk is also directional. The threat that a firm headquartered in country o perceives from developments in country d differs from the threat perceived in the reverse direction, and it differs across origin countries even when the source of tension is the same. We therefore use bilateral, directional measures of geopolitical risk alongside our geoeconomic index. Adding this channel to the model lets us assess whether perceived geopolitical risk is an independent driver of affiliate location. It also addresses the concern that the baseline geoeconomic estimate is partly capturing geopolitical tension with which policy is correlated.

For our Geopolitical Risk (GPR) indicators, we rely on the bilateral database constructed by Alonso-Alvarez et al. (2025) and Alonso-Alvarez, Bukina, Diakonova, Khitarishvili, Pérez, and Piqueras (2026). The underlying framework comes from Caldara and Iacoviello (2022), who proxy geopolitical risk through the relative intensity of geopolitics-related narratives in the media. Alonso-Alvarez et al. (2025) show that standard US-centric indices miss important country-specific narratives, and that national media sources give a more accurate picture of how geopolitical risk is locally perceived.

The same pattern is documented by Bondarenko, Lewis, Rottner, and Schüler (2024). The companion database of Alonso-Alvarez et al. (2026) extends this framework to 34 countries. It builds bilateral monthly GPR indices from a dictionary-based textual analysis of national press sources accessed via Factiva, with queries translated into 15 languages. A bilateral GPR for country A focused on region B measures how far country A's domestic media perceive region B as a source of geopolitical risk.

The bilateral indices focus on four macro-regions as sources of geopolitical threat: Russia, China, the Middle East and North Africa (MENA), and the Western Bloc. These four regions capture the main axes of contemporary geopolitical rivalry. They are also the focal points for which the indices have been constructed and validated, through statistical robustness checks and a systematic narrative analysis of index peaks (Alonso-Alvarez et al., 2026).[6]

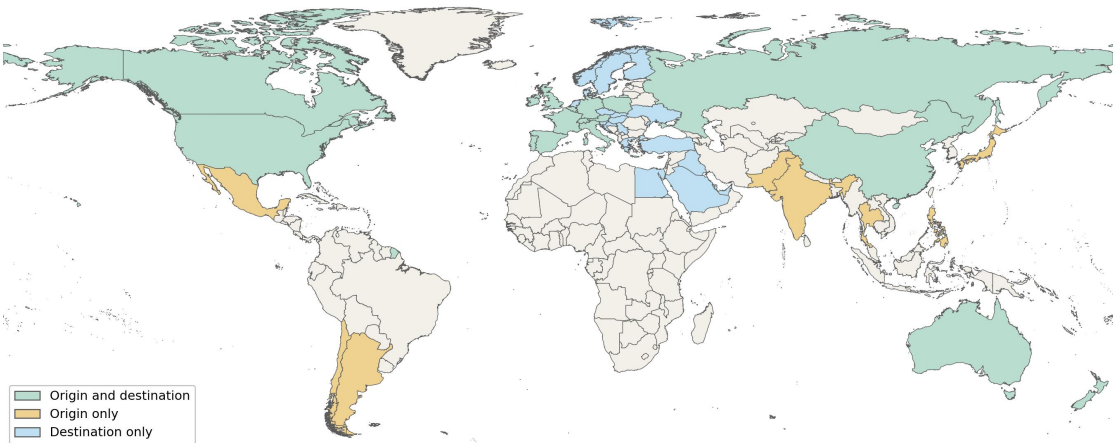
For the analyses that incorporate geopolitical risk, we intersect the 34 countries in the bilateral GPR database with the origins available in MREID, which leaves 26 common economies.[7] We then restrict destinations to the 36 that can be unambiguously assigned to one of the four macro-regions (Russia, China, MENA, or the Western Bloc), each inheriting the bilateral GPR of its region.[8] The mapping is detailed in Appendix D. This yields a restricted 26×36 sample, against the full 60×60 baseline of Section 5. Figure 7 maps the geographical coverage of this restricted sample, distinguishing countries that enter only as origins, only as destinations, or as both. Figure 6, by contrast, depicts the full 60-country baseline. We return to the role of geopolitical risk in Section 5.3.

[6] We deliberately rely on these validated indices rather than construct our own. Narrative validation is what makes press-based indicators credible, and it cannot be reproduced at a finer level of geographic disaggregation, such as the bilateral origin-by-destination-country level. The indices can be downloaded from the Banco de España website.

[7] The 26 origin (home) countries for which bilateral GPR indices are available are: Argentina, Australia, Austria, Belgium, Canada, Chile, China, France, Germany, India, Ireland, Italy, Japan, Mexico, New Zealand, Pakistan, Philippines, Poland, Portugal, Russia, Singapore, Spain, Switzerland, Thailand, United Kingdom, and United States.

[8] The 36 destination countries mapped into the four macro-regions are: Australia, Austria, Belgium, Canada, China, Croatia, Czechia, Denmark, Egypt, Finland, France, Germany, Greece, Hungary, Iraq, Ireland, Italy, Netherlands, New Zealand, Norway, Poland, Portugal, Qatar, Russia, Saudi Arabia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Arab Emirates, United Kingdom, and United States.

FIGURE 7: GEOGRAPHICAL COVERAGE OF THE GPR SAMPLE (26 ORIGINS, 36 DESTINATIONS)



Notes: This figure shows the geographical coverage of the restricted sample used in the geopolitical-risk analysis. It comprises the 26 origin countries (parent headquarters) for which bilateral GPR indices are available and the 36 destination countries (hosts) that can be unambiguously assigned to one of the four macro-regions. These yield the 26×36 matrix used in Section 5.3. Green denotes the 17 countries that act as both origins and destinations; orange the 9 that enter only as origins; and light blue the 19 that enter only as destinations. Each destination is assigned the bilateral GPR of its macro-region (Russia, China, MENA, or the Western Bloc). Appendix D details the mapping of destinations to regions. The 45 countries shown are a subset of the 60-country baseline in Figure 6; the remaining 15 baseline countries fall outside the restricted sample and are therefore unshaded.

4 Empirical Model

In this section, we estimate a gravity-style model to examine how geoeconomic policy relates to the foreign affiliate presence of multinational firms, using the indices and data introduced in Sections 2 and 3. The baseline model includes the geoeconomic index alone and is estimated on the full 60×60 sample; Section 5.3 augments it with the bilateral geopolitical-risk index on the restricted 26×36 sample.

Specification. The dependent variable is the count of foreign subsidiaries from origin country o operating in destination country d in year t, denoted Sub_{odt}. The key regressor is the bilateral, directional geoeconomic policy stance index ($GEPI_{od,t-1}$) defined in Section 2, which measures the relative protectionist stance of destination d vis-à-vis investors from origin o. It enters in levels and is lagged by one year, so that the model links subsequent affiliate counts to pre-determined policy conditions. The lag also mitigates simultaneity concerns. Standard errors are clustered at the origin–destination

pair level throughout.

We estimate the model using Poisson Pseudo-Maximum Likelihood (PPML), as is standard in gravity applications (Santos Silva and Tenreyro, 2006). Estimation uses the high-dimensional fixed-effects routine of Correia, Guimarães, and Zylkin (2020). The baseline specification is:

$$Sub_{odt} = \exp\big[\,\beta\, GEPI_{od,t-1} + \gamma_{od} + \gamma_{ot} + \gamma_{dt}\,\big] \cdot \eta_{odt}, \tag{2}$$

where η_{odt} is an idiosyncratic error with $\mathbf{E}[\ln \eta_{odt} \mid \cdot] = 0$. The coefficient β is the semi-elasticity of foreign subsidiary counts with respect to the lagged geoeconomic index.

The estimation includes both foreign pairs ($o \neq d$) and domestic pairs ($o = d$), following the structural gravity literature's treatment of internal flows (Yotov, Piermartini, Monteiro, and Larch, 2016). Excluding domestic observations would confound two phenomena: the reallocation of multinational activity across foreign destinations, and the broader offshoring-versus-domestic-investment margin. When a firm in country o evaluates where to open a subsidiary, the relevant outside option is not only another foreign market but also investing at home. A model that omits this margin would bias both β and the multilateral-resistance fixed effects. For domestic pairs we set the geoeconomic index to zero. This is inconsequential for the identification of β. For any domestic pair the index varies only at the country–year level, and that variation is entirely absorbed by the origin–time and destination–time fixed effects. β is therefore identified exclusively from bilateral, cross-country variation in foreign pairs. Domestic pairs also sharpen the estimation of γ_{ot} and γ_{dt}, which can draw on the domestic investment mass when absorbing multilateral resistance terms.

Identification. The specification includes three sets of high-dimensional fixed effects. Origin-destination pair fixed effects (γ_{od}) absorb all time-invariant bilateral factors, such as geography, historical ties, and baseline trade openness. Origin-year fixed effects (γ_{ot}) absorb any time-t shocks common to all destinations of origin o, such as economy-wide outward investment trends or macroeconomic conditions in the home country. Destination-year fixed effects (γ_{dt}) absorb all time-t factors common to all origins investing in destination d, such as changes in host-country market size or general FDI

policy. Together, these fixed effects non-parametrically control for multilateral resistance forces in the gravity sense: the changing outward push from o and the inward pull to d each year. They require no explicit measures of GDP or other macroeconomic aggregates (Anderson and van Wincoop, 2003).

Identification of β therefore comes from within-pair, over-time variation in the bilateral geoeconomic stance, conditional on the aggregate outward investment environment of o and the aggregate inward FDI attractiveness of d in each year. Consider the US and China. When geoeconomic tensions between them intensify in a given year, we ask whether US-China affiliate counts change relative to their typical level for that pair, holding fixed US-wide outward FDI conditions and China's overall inward FDI attractiveness at that time. This strategy absorbs general-equilibrium reallocation of investment toward or away from third countries that operates at the origin-year or destination-year level.

Decomposition by policy type. As described in Section 2, the geoeconomic index can be decomposed into three subcomponents, according to the expected effect of each instrument on FDI: FDI-discouraging measures ($GEPI^{Neg}_{od,t}$), FDI-promoting measures ($GEPI^{Pos}_{od,t}$), and measures with an ambiguous a priori effect ($GEPI^{Amb}_{od,t}$). To assess whether the aggregate estimate masks heterogeneous responses across policy types, we estimate an augmented specification that replaces the aggregate index with its three lagged subcomponents:

$$Sub_{odt} = \exp\big[\,\beta_N\, GEPI^{Neg}_{od,t-1} + \beta_P\, GEPI^{Pos}_{od,t-1} + \beta_A\, GEPI^{Amb}_{od,t-1} + \gamma_{od} + \gamma_{ot} + \gamma_{dt}\,\big] \cdot \eta_{odt}. \quad (3)$$

This decomposition allows us to distinguish two channels. Through the tariff-jumping channel, trade barriers may induce firms to substitute exports with local production, implying $\beta_P > 0$. Through the operational-hostility channel, investment restrictions and discriminatory policies deter foreign presence, implying $\beta_N < 0$. Section 5 reports which channel dominates in the aggregate.

Endogeneity. We associate our geoeconomic index with the subsidiary stock. A possible concern is reverse causality: bilateral investment outcomes might themselves shape policy if destinations are more likely to impose measures on origins whose firms already have a substantial presence in their market. We mitigate this concern by entering the index with a one-year lag, so that affiliate counts relate to pre-determined policy. Section 6 tests it directly with a dynamic specification that includes leads and lags.

Another endogeneity concern is omitted variables bias. To address this we impose the three-way fixed-effects structure described above, which non-parametrically removes all time-invariant bilateral confounders and all origin- and destination-specific annual shocks. Identification therefore rests on within-pair variation in the bilateral policy stance. Sections 5.3 and 6 subject this residual variation to a series of further checks.

A remaining concern is the endogeneity of policy enactment itself: governments choose which measures to impose on which origins, and this selection could correlate with unobserved, time-varying bilateral investment prospects. Absent an exogenous source of policy variation, we refrain from making a strict causal claim. We interpret β as the change in affiliate presence associated with the bilateral geoeconomic policy stance, net of these confounders. Section 6.4 returns to this question once the evidence is in hand.

5 Results

5.1 Baseline results

Table 2 reports the baseline estimates for the stock of foreign subsidiaries. Column (1) introduces the aggregate geoeconomic index; columns (2)-(4) introduce each expected-sign component on its own; column (5) enters the three jointly. All specifications are estimated by PPML with the full set of origin-destination, origin-year, and destination-year fixed effects.

The aggregate estimate is negative and strongly significant (-1.3%, column 1), and the decomposition traces it to the operational-hostility channel. The FDI-deterring component $GEPI^{Neg}$ is negative and highly significant whether entered alone (-1.2%,

column 2) or jointly (−1.1%, column 5). The FDI-attracting component $GEPI^{Pos}$ carries its expected positive sign and remains significant in both cases (1.4% alone, column 3; 0.8% jointly, column 5). Because this component comprises border measures (tariffs and trade defence), its positive coefficient isolates the tariff-jumping margin.[9] The ambiguous component is small and not robust across specifications. On net, the hostility channel dominates tariff-jumping: a more protectionist bilateral stance is associated with fewer foreign affiliates.

The composition of the index, shown in Figure 5, helps interpret these estimates. Because protective (distortive) measures lean heavily toward the operational-hostility channel, the composition already points toward a negative net coefficient, broadly in line with what we estimate. Subsidies and state aid account for the bulk of the negative component. The aggregate index therefore reflects, to a large extent, the recent expansion of industrial policy, and the negative-channel estimate is best understood as capturing discriminatory subsidies in particular rather than FDI-deterring policy in general.

The coefficient is a semi-elasticity, giving the percentage change in the expected number of affiliates associated with an increase in the bilateral protectionism index. Because the index is a share that is near zero for most pairs and sizeable only for the dominant, China- and US-centred corridors, the implied effect is negligible for the median pair and economically meaningful for the few corridors where relative protectionism is concentrated. The negative sign, moreover, should be read as a counterfactual rather than as a prediction that affiliate networks shrink. The origin–year and destination–year fixed effects absorb the strong secular rise in multinational activity over the sample period, including the rapid growth of foreign subsidiaries in destinations such as China. The coefficient is therefore net of these trends: for pairs facing rising relative protectionism, the affiliate stock grew by less than it otherwise would have.[10]

[9]The three components are far from collinear. Across the origin-destination pairs in the baseline sample of Tables 2 and 3, their pairwise correlations are moderate at most: 0.44 between the positive and negative components, 0.43 between the negative and ambiguous, and 0.20 between the positive and ambiguous. The three carry largely independent information.

[10]Because MREID excludes state-owned enterprises, our estimates speak to the location choices of privately owned multinationals. For our purposes this is a conservative feature: state-controlled investment is precisely the segment most exposed to national-security screening and other discriminatory geoeconomic measures, so its omission is likely to attenuate rather than inflate the estimated effects.

Table 2: Subsidiary Activity and Geoeconomic Protectionist Index

	(1)	(2)	(3)	(4)	(5)
GEPI_{t-1}	-1.268***				
	(0.194)				
GEPI_{t-1}^{Neg}		-1.248***			-1.115***
		(0.181)			(0.211)
GEPI_{t-1}^{Pos}			1.433***		0.764***
			(0.230)		(0.209)
GEPI_{t-1}^{Amb}				-0.171*	0.238***
				(0.088)	(0.068)
Observations	24,536	24,536	24,536	24,536	24,536

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of the number of subsidiaries on the lagged Geoeconomic Protectionist Index (GEPI), 2010-2021. The dependent variable is the number of subsidiaries owned by firms from 60 origin countries in 60 destination economies (including the home country), so the unit of observation is an origin-destination-year pair. Alternative specifications replace the aggregate index with its components GEPI^{Pos}, GEPI^{Neg}, and GEPI^{Amb}. These grouped geoeconomic policy measures are expected, on the basis of economic theory and the empirical literature, to have a positive, negative, or a priori ambiguous effect on FDI. All specifications include origin-destination, origin-year, and destination-year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

Table 3 repeats the exercise for greenfield investment (a flow of newly established projects rather than the accumulated stock of affiliates). The results are qualitatively unchanged. The aggregate estimate is negative and statistically significant (-1.2%, column 1), and the operational-hostility component is large and highly significant whether entered alone or jointly (-1.8%, columns 2 and 5). The tariff-jumping component is significant and larger in magnitude than for subsidiaries (1.5%, column 3). This is what one would expect, since greenfield investment adds new productive capacity, the margin on which tariff-jumping incentives operate most directly. The net effect remains negative because the hostility channel outweighs tariff-jumping.

Which margin adjusts? The two outcomes speak to different margins of multinational activity, and contrasting them shows where the adjustment occurs. The stock of subsidiaries combines an extensive margin (whether new affiliates arrive) with an intensive margin (whether those already in place are retained and expanded). Greenfield investment isolates the extensive margin of entry alone. A more protectionist stance

Table 3: Greenfield Investment Activity and Geoeconomic Protectionist Index

	(1)	(2)	(3)	(4)	(5)
GEPI_{t-1}	-1.224*				
	(0.626)				
GEPI^{Neg}_{t-1}		-1.756***			-1.760***
		(0.514)			(0.522)
GEPI^{Pos}_{t-1}			1.540*		1.176
			(0.929)		(0.866)
GEPI^{Amb}_{t-1}				0.267	0.582**
				(0.291)	(0.288)
Observations	19,717	19,717	19,717	19,717	19,717

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of greenfield investment on the lagged Geoeconomic Protectionist Index (GEPI), 2010-2021. The dependent variable is the number of greenfield projects established by firms from 60 origin countries in 60 destination economies (including the home country), so the unit of observation is an origin-destination-year pair. Alternative specifications replace the aggregate index with its components GEPI^{Pos}, GEPI^{Neg}, and GEPI^{Amb}. These grouped geoeconomic policy measures are expected, on the basis of economic theory and the empirical literature, to have a positive, negative, or a priori ambiguous effect on FDI. All specifications include origin-destination, origin-year, and destination–year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

may therefore operate through entry, if new investment fails to arrive, or arrives more slowly, or through incumbents, if they divest or expand by less than they otherwise would.

The negative coefficient on greenfield shows that the entry margin contributes: protectionism slows the arrival of new investment, not only the behaviour of firms already present. The robust and more precisely estimated effect on the subsidiary stock is consistent with this entry channel but also leaves room for an incumbent response. Our data cannot fully separate the two. MREID is a country-level panel of counts and aggregates, not a firm-level panel that tracks individual affiliates over time. We therefore cannot decompose changes in the stock into entry, exit, and within-firm growth, nor distinguish active disinvestment from slower expansion. The evidence does show that the effect is not confined to incumbents and that new entry also responds. Separating the extensive margins of entry and exit from the intensive margin of affiliate size would require firm-level ownership panels such as the underlying ORBIS records. That

micro-level extension is the ultimate goal of this project.

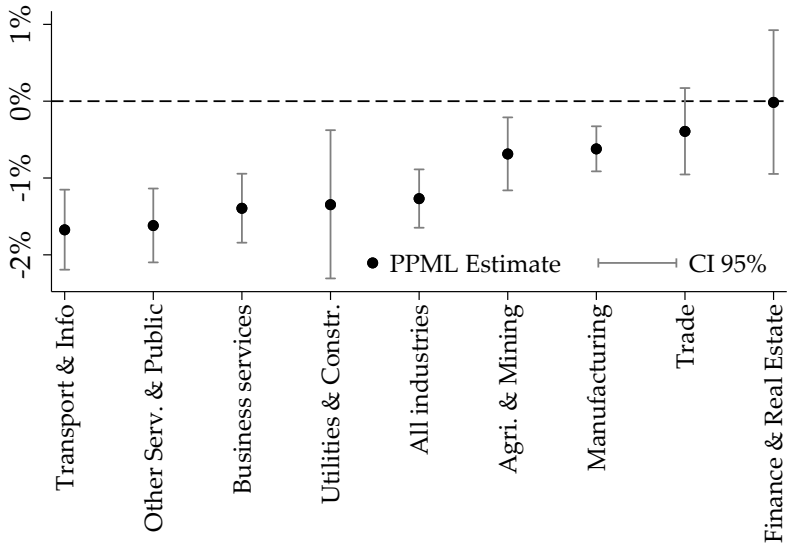
5.2 Heterogeneity

The aggregate estimate averages over potentially important differences across sectors. Multinationals vary widely in how exposed their foreign operations are to host-country policy, depending on what they produce and how they serve markets. The response of affiliate presence to geoeconomic protectionism need not be uniform. We therefore re-estimate the baseline separately by the one-digit (NAICS) sector of the parent firm. Figure 8 plots the resulting semi-elasticity of subsidiary counts with respect to the lagged geoeconomic index for each sector, together with its 95% confidence interval and the all-industries benchmark.

The effect is negative in almost every sector, so the baseline result is not driven by a single industry. Its magnitude, however, varies substantially. It is most pronounced in service-oriented sectors: largest and significantly negative for transport and information, other (largely public) services, and business services. The response weakens considerably in the goods-producing, trading, and financial sectors. For agriculture and mining and for manufacturing it remains negative but smaller; for wholesale and retail trade and for finance and real estate it is statistically indistinguishable from zero. We discuss below what might account for this sectoral gradient.

This gradient maps onto the channel decomposition. What varies across sectors is the tradability of output, and with it the relative weight of the two channels. In goods-producing sectors such as manufacturing and, to a lesser extent, agriculture and mining, output crosses borders and can be supplied to the destination through exports rather than local production. Affiliate presence is therefore less sensitive to the destination's policy stance, and responds only weakly to either channel, muting the net effect. Services and infrastructure are different: the non-storability of services imposes a proximity burden, whereby the supplier must locate where the customer is, so that the foreign affiliate is itself the mode of delivery (Francois and Hoekman, 2010). There is no cross-border good whose taxation could induce local production, so the tariff-jumping margin is absent. The barriers that bind are instead the operational-hostility instruments: licensing, discriminatory regulation and subsidies, investment restrictions, and procurement exclusion, which fall most heavily on network and public-service sectors

FIGURE 8: SUBSIDIARY ACTIVITY AND GEOECONOMIC PROTECTIONIST INDEX, BY INDUSTRY



Notes: This figure reports coefficient estimates from Poisson Pseudo-Maximum Likelihood (PPML) regressions of the number of subsidiaries on the lagged Geoeconomic Protectionist Index (GEPI), estimated separately by the one-digit NAICS sector of the parent firm, 2010-2021. The dependent variable is the number of subsidiaries owned by firms from 60 origin countries in 60 destination economies (including the home country), so the unit of observation is an origin-destination-year pair. All specifications include origin-destination, origin-year, and destination-year fixed effects. Standard errors are clustered at the bilateral pair level. Error bars show 95% confidence intervals around the point estimates, and the all-industries benchmark is shown for comparison. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

(Mistura and Roulet, 2019; Van Assche, Pasha, Cernat, and Voss, 2024). With only the negative channel in play, the estimated response is strong. The sectoral pattern therefore mirrors our headline result: the response is largest where tariff-jumping cannot operate.[11]

We repeat the sectoral exercise separately for the three expected-effect components of the index, and report the results in Appendix B (Figure B.1). They corroborate this reading. The decomposition lines up with the a priori classification: the FDI-discouraging component (GEPI^{Neg}) accounts for the negative sectoral responses, while

[11]Two sectors warrant a brief note. Wholesale and retail trade is a service yet responds weakly, consistent with our own classification, which treats distribution and port restrictions as broadly neutral. Finance and real estate shows essentially no effect, which we read with caution rather than as evidence: MREID excludes banks, leaving a thin, heterogeneous category in which real-estate FDI is anchored to local assets and financial regulation is near-universal.

the FDI-promoting component (GEPI^{Pos}) enters with a positive sign where it is active. The ambiguous component (GEPI^{Amb}) is negligible throughout. The service-oriented sectors that drive the aggregate result do so through the negative component, where local presence is the only way to serve the market. Goods-producing sectors such as manufacturing respond weakly to both components, consistent with the lower policy-sensitivity of tradable-goods affiliates.

5.3 The Role of Geopolitical Risk

The bilateral GPR indices cover fewer economies than the geoeconomic index, and they are defined vis-à-vis four macro-regions rather than individual countries. We therefore restrict this part of the analysis to the 26×36 sample described in Section 3.2. Because this sample is a subset of the baseline 60×60 dataset, we re-estimate the effect of the geoeconomic index on the same observations, ensuring that the two channels are compared on identical observations.

Geopolitical risk as a shock. We let geopolitical risk enter through its movements rather than through its standing level, for reasons specific to our setting. Foreign affiliate networks are slow-moving and already embed the risk conditions that have prevailed for some time. A firm operating in a persistently tense environment has long since adapted its footprint to it. What moves the marginal location decision is news: a deterioration in perceived risk relative to the recent past. This is the sense in which investment responds to innovations in uncertainty rather than to its level (Bloom, 2009), and it matches how the applied FDI literature treats geopolitical risk, working with movements and short-run responses (Aiyar et al., 2024). A feature of news-based measures reinforces the choice. Media attention spikes at the onset of an episode and fades as the situation persists, the issue-attention cycle documented by Bybee, Kelly, Manela, and Xiu (2024) and Traag, Reinanda, and van Klinken (2016). The change in the index is therefore a cleaner signal of arriving tension than its level. The geoeconomic index, by contrast, is a stock variable. It counts the discriminatory measures a destination has in force against an origin at a given time, so its standing level describes how protectionist the corridor currently is. A location decision responds to that level, lagged one year. Entering the index in changes would register a measure only in the year it is enacted, discarding the continuing deterrent effect of the measures that

remain in force, which is what the stock is designed to capture. Each transformation therefore matches the variable it applies to: a policy stock enters in levels, a perception of risk in changes.

Operationalisation. We accordingly work with two transformations of the bilateral GPR, both responding to movements in the series, and treat them as mutual robustness checks.[12] Our baseline is the one-year lagged change in the annual index, $\Delta GPR_{od,t-1}$, where the annual value is the average of the four quarterly observations within the year. This is the natural transformation given how the literature treats the series: Caldara and Iacoviello (2022) identify the geopolitical-risk shock from movements in the index rather than from its level.[13] The second measure is a peak indicator. Building on Alonso-Alvarez et al. (2026), we flag a peak whenever the quarter-on-quarter change in the bilateral GPR exceeds a threshold of one, two, or three standard deviations of its own distribution. The annual indicator equals one in years containing at least one such peak. Using the quarterly series to detect peaks exploits the higher-frequency information, and like the first difference, keeps the definition based on changes. The two measures isolate the same object, the onset of new tension. We report them jointly below, with the smaller-threshold peak variants in the appendix.

Results. Tables 4 and 5 report the estimates for the number of subsidiaries and for greenfield investment, respectively. Each table first re-estimates the geoeconomic effect on the restricted sample and then adds the two geopolitical-risk measures, one at a time. The geoeconomic effect is essentially unaffected by the inclusion of geopolitical risk. For subsidiaries it remains negative, sizeable, and highly significant throughout,

[12]For domestic pairs ($o = d$) included in the estimation, the bilateral GPR is set to zero. This is the natural choice conceptually. Alonso-Alvarez et al. (2026) construct the bilateral index by requiring articles to reference a focal region that excludes the origin country itself. Bilateral GPR for a domestic pair would therefore capture risk perceived from the origin's own macro-region minus itself, a quantity without a clear economic interpretation. Setting it to zero is also inconsequential for identification. $GPR_{oo} = 0$ is constant across time for each domestic pair, so these observations carry no within-pair variation in the regressor and contribute nothing to the identification of ρ. They enter the estimation solely through the dependent variable, where they help pin down the multilateral-resistance fixed effects. This is the same logic applied to the geoeconomic index in the baseline model (Section 4).

[13]Caldara and Iacoviello (2022) isolate the shock as the innovation in the index: in their macroeconomic VAR they order the index first in a Cholesky decomposition of the reduced-form residuals (their Section III.A); in validating the index they construct its largest shocks as the residuals of a regression of the monthly series on its own lags (their Table 2); and in their firm- and industry-level regressions they enter the change in the index directly (their equations 4–5).

Table 4: Subsidiary Activity and the Geoeconomic Protectionist Index with GPR

	(1)	(2)	(3)	(4)	(5)
$GEPI_{t-1}$	-1.809***			-1.797***	-1.606***
	(0.224)			(0.223)	(0.220)
ΔGPR_{t-1}		-0.994***		-0.276	
		(0.354)		(0.262)	
$3sdGPR_{t-1}$			-1.475**		-1.394*
			(0.740)		(0.787)
Observations	8,323	8,323	8,301	8,323	8,301

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of the number of subsidiaries on the lagged Geoeconomic Protectionist Index, the lagged change in geopolitical risk (GPR), and a lagged indicator for large positive GPR peaks, 2010-2021. The dependent variable is the number of subsidiaries owned by firms from 26 origin countries in 36 destination economies (including the home country), so the unit of observation is an origin-destination-year pair. All specifications include origin-destination, origin-year, and destination-year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. ΔGPR is standardized, so coefficients correspond to a one standard deviation increase. To construct the 3sdGPR indicator, we first compute the standard deviation of GPR changes for each origin–destination pair. The indicator equals one when the change in GPR is positive and exceeds three standard deviations of that pair-specific distribution, and zero otherwise. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$.

between roughly -1.6% and -1.8%, whether or not a GPR measure is included. The same holds for greenfield, where it stays between about -2.3% and -3.0%. Enacted policy and perceived risk are thus empirically distinct: the protectionist channel does not merely proxy for geopolitical tension. Geopolitical risk enters with the expected negative sign but with a markedly smaller and less robust effect than geoeconomic policy. For subsidiaries, a one-standard-deviation increase in the lagged change in bilateral GPR lowers affiliate counts by about 1% on its own, but this effect shrinks and loses significance once the geoeconomic index is included. The effect is concentrated in the largest episodes. A year containing a three-standard-deviation peak in bilateral GPR is associated with roughly 1.5% fewer subsidiaries, and this estimate survives the inclusion of GEPI, if marginally. Smaller-threshold peaks are statistically indistinguishable from zero (Appendix Table D.2 in Appendix D).

The two channels operate in the same direction but with a clear difference in relevance: enacted geoeconomic policy is the main driver of multinational location, while perceived geopolitical risk has a smaller complementary impact. It operates mainly

Table 5: Greenfield Investment Activity and the Geoeconomic Protectionist Index with GPR

	(1)	(2)	(3)	(4)	(5)
$GEPI_{t-1}$	-2.945***			-2.950***	-2.255**
	(0.816)			(0.817)	(0.932)
ΔGPR_{t-1}		-0.332		0.142	
		(1.453)		(1.407)	
$3sdGPR_{t-1}$			-6.800		-6.611
			(7.115)		(7.061)
Observations	7,204	7,204	7,162	7,204	7,162

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of greenfield investment on the lagged Geoeconomic Protectionist Index, the lagged change in geopolitical risk (GPR), and a lagged indicator for large positive GPR peaks, 2010-2021. The dependent variable is the number of greenfield projects established by firms from 26 origin countries in 36 destination economies (including the home country), so the unit of observation is an origin-destination-year pair. All specifications include origin-destination, origin-year, and destination-year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. ΔGPR is standardized, so coefficients correspond to a one standard deviation increase. To construct the 3sdGPR indicator, we first compute the standard deviation of GPR changes for each origin-destination pair. The indicator equals one when the change in GPR is positive and exceeds three standard deviations of that pair-specific distribution, and zero otherwise. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$.

through large, discrete escalations, and primarily on the stock of subsidiaries rather than on new greenfield flows, with only the most severe episodes showing statistically significant effects.

6 Robustness

6.1 The timing of the policy effect

We probe the robustness of the baseline to the timing of the geoeconomic index in two ways. The first varies the lag length, re-estimating the baseline with the index lagged two and three years rather than one. The second is a dynamic specification with leads and lags of the index. It tests whether affiliate counts respond to policy *before* it is enacted, that is, whether the baseline relationship reflects anticipation rather than a response to realized policy.

Table 6 reports the first exercise. The estimated effect is not specific to the one-year

Table 6: Subsidiary and Greenfield Investment Activity and Geoeconomic Protectionist Index with Two- and Three-Period Lags

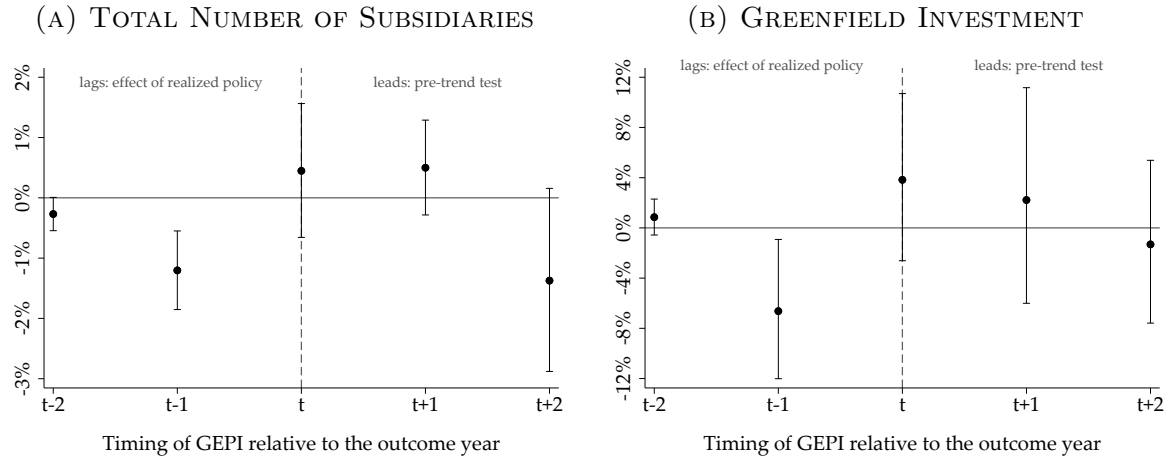
	Subsidiaries			Greenfield		
	(1)	(2)	(3)	(4)	(5)	(6)
$GEPI_{t-1}$	-1.268***			-1.224*		
	(0.194)			(0.626)		
$GEPI_{t-2}$		-1.149***			-1.134*	
		(0.182)			(0.623)	
$GEPI_{t-3}$			-0.998***			-1.075*
			(0.169)			(0.594)
Observations	24,536	22,495	20,453	19,717	17,766	15,827

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of subsidiaries and greenfield investment on the Geoeconomic Protectionist Index, lagged by one, two, and three years, 2010-2021. The dependent variables are the number of subsidiaries and the number of greenfield projects, for firms from 60 origin countries in 60 destination economies (including the home country), so the unit of observation is an origin-destination-year pair. All specifications include origin-destination, origin-year, and destination-year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. Coefficients are reported as percentage changes, computed as $(\exp(\beta \Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

lag: the semi-elasticity remains negative and statistically significant when the index is lagged two and three years. For the number of subsidiaries, the point estimates are about -1.1% at the two-year lag and -1.0% at the three-year lag, close to the one-year-lag baseline of roughly -1.3%. The greenfield estimates are similar in sign and magnitude, though less precisely estimated. The estimates decline only mildly and monotonically across horizons, so the response is persistent rather than transitory. Affiliate networks continue to reflect the geoeconomic stance several years after it is set, consistent with location decisions that adjust slowly.

The second exercise turns from persistence to anticipation. If multinationals anticipate future geoeconomic tensions and begin to reshape their footprint before policy is enacted, the negative association between GEPI and subsidiary counts would reflect firms moving ahead of policy rather than responding to it. The one-year lag in the baseline already mitigates simultaneity concerns, but it does not by itself rule out anticipation. We therefore augment the baseline with two leads and two lags of the geoeconomic index, alongside its contemporaneous value. The specification retains the

FIGURE 9: LEADS AND LAGS OF GEPI ON SUBSIDIARY AND GREENFIELD INVESTMENT



Notes: This figure reports Poisson Pseudo-Maximum Likelihood (PPML) estimates from a distributed-lag specification relating subsidiary counts and greenfield investment to the Geoeconomic Protectionist Index, 2010-2021. The dependent variable is the number of subsidiaries in Panel (A) and the number of greenfield projects in Panel (B). The specification includes two leads, the contemporaneous term, and two lags of the index, together with origin-destination, origin-year, and destination-year fixed effects. The lead coefficients are jointly insignificant, consistent with the absence of anticipation (Panel A: p-value = 0.20; Panel B: p-value = 0.87). Error bars denote 95% confidence intervals. Standard errors are clustered at the bilateral pair level. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

full set of origin–destination, origin–year, and destination–year fixed effects:

$$\text{Sub}_{odt} = \exp\left(\sum_{k=-2}^{2} \beta_k \, \text{GEPI}_{od,t+k} + \gamma_{od} + \gamma_{ot} + \gamma_{dt}\right) \eta_{odt}. \tag{4}$$

The specification is a distributed-lag model in which the leads serve as a falsification test. The lead terms ($GEPI_{od,t+1}$ and $GEPI_{od,t+2}$) ask whether current affiliate counts co-move with future policy. A systematic relationship would signal anticipation, since firms would be adjusting before the geoeconomic stance has changed. The lag terms ($GEPI_{od,t-1}$ and $GEPI_{od,t-2}$) trace the response to realized policy, with the one-year lag corresponding to the coefficient estimated in the baseline. If the estimates reflect a response to enacted policy rather than anticipation, the leads should be jointly indistinguishable from zero and the response should load on the lags.

Figure 9 reports the estimates, for the number of subsidiaries in Panel (A) and for greenfield investment in Panel (B). The leads are jointly indistinguishable from zero,

with $p = 0.20$ for subsidiaries and $p = 0.87$ for greenfield. Nor do the individual leads show the pattern anticipation would produce. Repositioning ahead of policy would load on the near lead and build toward the year of enactment; instead $GEPI_{od,t+1}$ is small and, if anything, positive, and only the more distant lead is marginally negative. Affiliate presence shows no sign of moving in the one to two years preceding a change in the geoeconomic stance. The response instead loads on the lagged terms, where it is negative and most pronounced at the one-year horizon, consistent in sign and magnitude with the baseline semi-elasticity.

The two exercises locate the effect in time. The estimates show no response before policy is enacted; the response appears once policy is in force and persists at longer lags. This timing is what a causal reading would predict and is difficult to reconcile with reverse causality, though it does not by itself establish exogeneity (Section 6.4).

The one-year lag should not, however, be read as an implausibly fast reaction. Because the index enters lagged, the affiliate stock in year t is related to the geoeconomic stance already in place in $t - 1$, so the specification measures a lagged response by construction rather than a contemporaneous one.[14] Nor should the coefficient be read at the level of the individual firm. The dependent variable is the total number of affiliates that all parents from a given origin hold in a given destination, so the estimates are corridor-level semi-elasticities rather than the response of any one parent to a specific measure. The coefficient aggregates many small and heterogeneous adjustments (delayed entries, foregone expansions, and occasional exits) across all the firms and measures active in a corridor, and is silent on the timing of any single firm's decision. Such dynamics require firm-level data, and we leave them to the micro extension.

6.2 Estimation by subperiod

The sample spans a decade over which geoeconomic and geopolitical tensions intensified markedly. Protective measures and geopolitical shocks are concentrated in its second half, the era of the US-China trade conflict and of the surge in industrial and trade interventions around the pandemic. We therefore split the panel into two subperiods,

[14] Interventions are dated by their implementation. Measures enacted in the final quarter of a year are coded as active only from the following year (Appendix A). Thus, the horizon from a measure taking effect to the response we observe in the stock is one to two years rather than a single year.

Table 7: Subsidiary Activity and GEPI with Lagged GPR Changes by Subperiod (2010–2015 vs. 2016–2021)

Panel A: 2010-2015

	(1)	(2)	(3)	(4)
$GEPI_{t-1}$	-0.204**		-1.410***	-1.383***
	(0.097)		(0.209)	(0.210)
ΔGPR_{t-1}		1.248***		0.360
		(0.393)		(0.288)
Observations	11,913	3,692	3,692	3,692

Panel B: 2016-2021

	(1)	(2)	(3)	(4)
$GEPI_{t-1}$	-1.259***		-1.570***	-1.237***
	(0.250)		(0.275)	(0.245)
ΔGPR_{t-1}		-1.531***		-0.981***
		(0.267)		(0.214)
Observations	12,278	4,555	4,555	4,555

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of subsidiaries on the lagged GEPI and the lagged change in geopolitical risk (GPR), estimated separately for two subperiods: 2010-2015 (Panel A) and 2016-2021 (Panel B). The dependent variable is the number of subsidiaries owned by firms from 60 origin countries in 60 destination economies (including the home country), so the unit of observation is an origin-destination-year pair. Column (1) uses the full 60×60 sample; and columns (2)-(4) use the restricted (26×36) GPR sample. All specifications include origin-destination, origin-year, and destination-year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. ΔGPR is standardized, so coefficients correspond to a one standard deviation increase. Coefficients are reported as percentage changes, computed as $(\exp(\beta \Delta X) - 1) \times 100$.

2010-2015 and 2016-2021, and re-estimate. This checks whether the baseline is driven by a single part of the sample and shows where the identifying variation lies. Tables 7 and 8 report the results for the geoeconomic channel for the number of subsidiaries and greenfield investment, respectively, alongside the corresponding estimates for the geopolitical-risk channel.

For the number of subsidiaries (Table 7), the geoeconomic effect is negative and statistically significant in both subperiods. On the full sample it strengthens markedly in the second, from about -0.2% in 2010–2015 to about -1.3% in 2016–2021, tracking

Table 8: Greenfield Investment and GEPI with Lagged GPR Changes by Subperiod (2010–2015 vs. 2016–2021)

Panel A: 2010-2015

	(1)	(2)	(3)	(4)
$GEPI_{t-1}$	-0.114		-4.319***	-4.185***
	(0.648)		(1.415)	(1.402)
ΔGPR_{t-1}		3.902		1.766
		(3.295)		(3.047)
Observations	9,065	3,058	3,058	3,058

Panel B: 2016-2021

	(1)	(2)	(3)	(4)
$GEPI_{t-1}$	3.006		3.286	6.567**
	(2.129)		(2.399)	(2.785)
ΔGPR_{t-1}		-3.380**		-5.331***
		(1.305)		(1.579)
Observations	8,130	3,518	3,518	3,518

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of greenfield investment on the lagged GEPI and the lagged change in geopolitical risk (GPR), estimated separately for two subperiods: 2010-2015 (Panel A) and 2016-2021 (Panel B). The dependent variable is the number of greenfield projects established by firms from 60 origin countries in 60 destination economies (including the home country), so the unit of observation is an origin-destination-year pair. Column (1) uses the full 60×60 sample; columns (2)-(4) use the restricted (26×36) GPR sample. All specifications include origin-destination, origin-year, and destination-year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. ΔGPR is standardized, so coefficients correspond to a one standard deviation increase. Coefficients are reported as percentage changes, computed as $(\exp(\beta \Delta X) - 1) \times 100$.

the timing of policy: bilateral protectionism intensified in the later years, when most protective measures were enacted. On the smaller GPR-restricted sample the effect is large and significant throughout, at around -1.5% in both subperiods.

The geopolitical-risk channel displays a sharper temporal split. The change in bilateral GPR enters negatively and significantly only in the second subperiod, at about -1.5% on its own and -1.0% once the geoeconomic index is included. By contrast, in the first subperiod the coefficient is positive and significant on its own, and indistinguishable from zero once GEPI is controlled for. This pattern largely reflects when the

geopolitical shocks occurred. Because the GPR measure captures innovations, identification relies on episodes of rising geopolitical tensions, most of which occur after 2015. As a result, nearly all the relevant variation is concentrated in the latter half of the sample. With so little movement to work with, the first-subperiod GPR coefficient is imprecisely estimated, and we do not read anything into its positive sign: it reflects the lack of variation, not a reversal of the channel.[15] The geoeconomic index, however, retains usable within-pair variation in both subperiods (the standard deviation of the standarized variable is about 1.4), which is why its effect is estimated consistently throughout.

For greenfield investment (Table 8), the geopolitical-risk channel mirrors the subsidiary results, entering negative and significant only in the second subperiod. The geoeconomic estimates are less stable: negative in the first subperiod, imprecise and positive in the second. Greenfield is a flow rather than a stock, and splitting the sample halves the observations available to estimate it, so the subperiod estimates are less informative than the full-sample result. We therefore read the subsidiary estimates as the better evidence on how the geoeconomic effect varies across subperiods, while greenfield corroborates the geopolitical-risk channel.

6.3 Further robustness checks

Multinational activity rises steadily over the sample. A first concern is whether the estimated effect reflects this secular expansion of cross-border investment rather than bilateral policy. The origin-year and destination-year fixed effects already absorb any annual shock common to all pairs of a given origin or destination, but they cannot separate the time path of foreign pairs from that of domestic ones. Because the geoeconomic index is zero for domestic pairs and positive only for foreign ones, such a differential foreign-versus-domestic trend could in principle be loaded onto the index. We therefore add a full set of year effects interacted with an indicator for foreign pairs. These absorb

[15] The within-pair variation in ΔGPR is far smaller in 2010-2015 than in 2016-2021 (0.7 versus 1.1, respectively). Similarly, the bilateral GPR peaks (defined as changes exceeding 2 standard deviations of pair's own historical quarterly changes) are largely concentrated after 2016: around 5 % of such episodes occur in 2010-2015, versus 95% in 2016-2021. The early episodes are linked to specific regional events, for instance, Japan/Philipines-China maritime tensions (2010) and Arab Spring-related Middle East shocks (2011). The later period reflects shocks widely shared by many countries, such as the 2015 European migration crisis, 2018 US-China trade dispute, and 2020 geopolitical frictions surrounding China during the COVID-19 pandemic.

any common trend specific to cross-border activity, including the global growth of FDI itself, so that identification rests on differences across foreign pairs within each year. The coefficients retain their sign and significance, with only a modest attenuation in magnitude (Appendix Tables E.1 and E.2).

A final concern is whether the baseline effect reflects broad-based variation across the panel or is instead driven by a few influential observations. Appendix F reports influence diagnostics. Using the score contributions of the PPML estimator, we identify the origin-destination pairs that exert the strongest upward and downward pressure on the coefficient, and re-estimate the baseline after sequentially removing the most influential pairs in each direction. We also drop each origin country, and separately each destination country, one at a time. The two pair-exclusion exercises bracket the estimate and confirm that its sign does not depend on a handful of pairs. The leave-one-out exercise leaves the coefficient negative and within a narrow band whichever single economy is excluded.

6.4 Assessing the causal interpretation

Section 4 set out three threats to a causal reading of β: reverse causality, omitted variables, and the endogeneity of policy enactment itself. We now revisit each in light of the results presented above.

Reverse causality would require affiliate presence to move ahead of policy. The distributed-lag specification shows that it does not. The leads are jointly indistinguishable from zero, the individual leads do not follow the pattern anticipation would produce, and the response loads on the lagged terms.

Omitted variables would have to survive the three-way fixed effects and vary bilaterally over time. Two natural candidates are ruled out directly. Perceived geopolitical tension, the most obvious correlate of enacted policy, leaves the geoeconomic coefficient essentially unchanged when controlled for (Section 5.3). A generic divergence between cross-border and domestic activity is absorbed by year effects interacted with a foreign-pair indicator, and the coefficients retain their sign and significance with only modest attenuation.

Two further features of the results point the same way. The estimate does not depend

on a few influential observations: the pair-exclusion exercises bracket it, and the leave-one-out estimates remain negative and within a narrow band whichever single origin or destination is dropped (Appendix F). And where theory predicts a sign, the estimated component carries it, with the FDI-deterring component negative, the FDI-attracting component positive, and the ambiguous component small.

The endogeneity of policy enactment nonetheless remains. Governments choose which measures to impose on which origins, and we have no exogenous source of policy variation with which to break that link. We therefore read the evidence as consistent with a causal interpretation, while stopping short of claiming one.

7 Conclusions

The strategic use of economic policy has made the location of multinational production sensitive to both geoeconomic interventions and geopolitical tensions. We study this with a novel bilateral, directional index of relative protectionism, built from Global Trade Alert data to capture how restrictive each destination is toward a given origin relative to all others. We combine it with bilateral geopolitical-risk indices and worldwide ownership links from MREID, in a gravity-style PPML model with high-dimensional fixed effects. We find that a more protectionist bilateral stance is associated with a lower foreign-affiliate presence for the targeted origin. The operational-hostility channel accounts for this association rather than tariff-jumping, and the effect is concentrated in services and infrastructure. It survives checks for anticipation, longer lags, and sample splits. Geopolitical risk works in the same direction playing a secondary, complementary role. Enacted policy and perceived risk are thus distinct forces in the geography of multinational firms, with geoeconomic policy as the primary driver. Extending the analysis to firm-level ORBIS data, to uncover the micro-level mechanisms, is the natural next step.

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Appendix

A Global Trade Alert database

Our geoeconomic indices are built from the Global Trade Alert (GTA), an independent repository of government interventions affecting international commerce. GTA is a neutral, non-profit initiative, launched in 2009, that documents credible announcements of unilateral policy changes across goods, services, investment, and labour. Each intervention is evaluated against a fixed baseline (1 January 2009) and classified as either *distortive*, if it restricts market access or favours local interests, or *liberalising*, if it opens access on a non-discriminatory basis or improves policy transparency. Full details on coverage and methodology are available on the GTA website[16] and in the accompanying handbook (Global Trade Alert, 2025).

In the publicly available database, each record is a government intervention defined by one or more *implementing jurisdictions* (those taking the action) and one or more *affected jurisdictions* (the trading partners whose commercial interests the measure affects). Each record also carries the affected products (HS 6-digit) and the announcement, implementation, and removal dates. A partner is recorded as affected either when the measure names it explicitly or, for product-specific measures, when its bilateral trade with the implementer in the affected product exceeded USD 1 million in the year before the policy change. No affected jurisdiction is recorded when no partner clears this threshold, or when the measure carries no product codes. Interventions span a small set of policy-instrument families: import tariffs, non-tariff measures, export policies, export incentives, subsidies, investment and capital-account measures, and sanctions. Each also carries the government's stated motivation, recorded as national security or geopolitical concern, resilience or security of supply, strategic competitiveness, or climate-change mitigation. In this public format, however, each intervention is a single record whose implementing jurisdictions, affected jurisdictions, and affected products are stored as collapsed lists, so the underlying bilateral (implementer–affected) relationships cannot be traced.

To build directional bilateral indices we rely on a more granular version of the same database, obtained from GTA under a dedicated agreement and updated monthly. It

[16] `https://globaltradealert.org`.

unpacks each intervention to the level of the individual implementer–affected-jurisdiction–product triplet, so that we observe exactly which product is affected, in which partner country, and by which implementer. For each triplet it also reports the value of trade covered by the measure, together with the relevant trade aggregates. This granularity is what makes our index possible. We align the GTA structure with MREID by treating the implementing country as the destination country (d), where foreign subsidiaries operate, and the affected country as the origin country (o), where the parent firm is headquartered. This mapping allows us to construct the yearly bilateral indices, defined in Section 2, by counting active distortive and liberalising measures across these origin–destination pairs.

We impose a set of assumptions to clean the raw GTA database and build a yearly panel of active interventions. The GTA data report precise implementation start dates and, when applicable, removal dates; when no removal date is recorded, we treat the intervention as remaining in force. An intervention is coded as active in year t if its implementation date falls in the first three quarters of year t; if implementation occurs in the fourth quarter, it is instead coded as active from year $t + 1$. Symmetrically, an intervention is coded as having ended by the end of year $t - 1$ if its removal date falls in the first quarter of year t; if removal occurs in the last three quarters of year t, it is coded as ending in year t. We then assign each measure to all years in which it is active and construct a bilateral panel across 60 implementing and affected jurisdictions. We restrict the bilateral analysis to interventions for which the affected jurisdiction is identified, since some measures do not target any specific partner and would make bilateral exposure hard to interpret. Each measure is uniquely identified by its entry ID, and measures affecting multiple products are counted only once per country pair and year.

The implementing and affected jurisdictions in the GTA database are drawn from the same set of 60 countries. There are no observations in which the implementing and affected countries coincide, so the geoeconomic index is zero for domestic pairs (Section 4). The 60 countries are: Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, Chile, China, Croatia, Czechia, Denmark, Egypt, Finland, France, Germany, Ghana, Greece, Hong Kong, Hungary, India, Indonesia, Iraq, Ireland, Italy, Japan, Kenya, Malaysia, Mexico, Morocco, Nepal, Netherlands, New Zealand, Nige-

ria, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Qatar, Russia, Saudi Arabia, Serbia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, and Vietnam.

The geoeconomic indices are constructed for each origin–destination pair-year arising from the 60 implementing (d) and affected (o) jurisdictions. We further classify interventions according to their expected effect on inward FDI, distinguishing positive, negative, and ambiguous effects. We then construct a separate index for each type, using the same aggregation procedure. Finally, we combine the resulting pair-year indices with the MREID dataset (see Appendix C) on country pair and year, linking each index to the corresponding bilateral affiliate data.

B Decomposing Expected Effect on Inward FDI Index

The policy-type decomposition introduced in Section 2.1 splits the geoeconomic index into three components according to the expected effect of the underlying instruments on inward FDI: FDI-deterring measures (GEPI^{Neg}), FDI-attracting measures (GEPI^{Pos}), and measures with an a priori ambiguous effect (GEPI^{Amb}). This appendix documents the classification underlying that decomposition, the economic mechanism behind each sign assignment, and the supporting literature. Table B.1 summarises the resulting mapping from GTA/MAST instrument families to expected signs.[17] The classification rests on two channels through which a destination-country policy can affect the inward FDI that destination receives from a given origin.

- **The tariff-jumping channel (+).** When a measure raises the cost of *crossing the destination's border with goods*—through tariffs, quantitative restrictions, or tariff-equivalent frictions—a foreign firm that previously served the market through exports may find it profitable to relocate production inside the barrier. Barriers to trade in goods then act as complements to, rather than substitutes for, local affiliate activity. This is the classic horizontal, market-seeking FDI motive.
- **The operational-hostility channel (−).** When a measure instead penalises the *presence, operation, or competitive position of foreign firms within the destination*—through investment restrictions, discriminatory subsidies, procurement exclusion, or capital controls—it lowers the expected return on a local subsidiary regardless of the trade regime, and so deters FDI.

The two channels are not mutually exclusive: some instruments activate both, and the net effect is then an empirical question. We classify each instrument by its expected dominant channel and flag genuinely ambiguous cases explicitly. Instruments are organised into four groups—positive (tariff-jumping), negative (operational hostility), ambiguous, and neutral or indirect.

[17] GTA refers to the Global Trade Alert database; MAST refers to the Multi-Agency Support Team classification of non-tariff measures used by UNCTAD.

Group 1: Expected Positive Effect (+)

Tariffs (TARIFF). *Instruments: Import tariff.* An import tariff raises the landed cost of the foreign good relative to a locally produced substitute. Where the destination market is large enough to justify the fixed cost of establishing a subsidiary, the foreign firm responds by producing inside the barrier rather than absorbing the duty. Moder and Spital (2025) find that tariff increases are associated with a rise in greenfield FDI, consistent with horizontal tariff-jumping into local-market-serving production.

Trade defence (D1, D2, D31, D32). *Instruments: Anti-dumping, anti-circumvention, anti-subsidy (countervailing duties), safeguard, special safeguard.* Antidumping and countervailing duties, safeguards, and anti-circumvention measures are functionally equivalent to tariffs in their trade-restricting effect. The tariff-jumping incentive is especially strong here, as trade-defence actions typically target sectors in which the foreign firm already has a substantial export presence, making local production a natural response. Belderbos (1997) finds that antidumping actions have a substantial positive effect on Japanese direct investment, with EU duties inducing duty-jumping roughly twice as often as US duties.

Import quotas and prohibitions (E2, E3, E6). *Instruments: Import quota, import ban, import tariff quota.* Quantitative restrictions impose a hard ceiling on import volumes and, unlike tariffs—which permit any quantity at a higher price—can close the export channel entirely above the limit. Levinsohn (1989) shows that once FDI is feasible the profit-maximising responses to a tariff and to a quota coincide, since demand above the quota threshold can be served only through local production; the tariff-jumping incentive is therefore at least as strong as under tariffs.

Import licensing, monitoring, and channel restrictions (D, E1, I2, X, H1). *Instruments: Import monitoring, import licensing requirement, trade balancing measure, import-related non-tariff measure, and state-trading enterprises for importing and other selective import-channel restrictions (under MAST chapter H1).* Non-automatic licensing requirements, import monitoring obligations, and trade-balancing measures raise the effective cost of serving the destination market via exports through delays, documentation burdens, and access uncertainty. The H1 instruments operate through

the same logic from a different angle: by routing imports through state-trading enterprises or a restricted set of designated importers, they ration access to the import channel itself, so that establishing local production becomes the more reliable way to serve the market. In Kee, Nicita, and Olarreaga (2009)'s Trade Restrictiveness Index, non-automatic licensing and quantity-control measures of this kind are classified as "core non-tariff barriers" with an ad valorem equivalent—placing them in the same economic category as border charges and generating the same tariff-jumping incentive for FDI (Moder and Spital, 2025). The expected effect is positive but moderate, reflecting the typically lower magnitude of these frictions relative to explicit tariffs.

Internal taxes on imports (F7). *Instruments: Internal taxation of imports, import price benchmark, minimum import price, other import charges.* Internal taxes on imports, import price benchmarks, and minimum import prices raise the landed cost of imported goods exactly as a tariff does, and are sometimes used as de facto tariff substitutes when WTO bindings constrain formal tariff increases. UNCTAD (2013) classifies all Chapter F instruments as para-tariff measures—those that raise the cost of imports in a tariff-like manner—so the tariff-jumping mechanism carries over directly.

Intellectual-property protection (N). Stronger intellectual-property protection raises the expected return on technology-intensive FDI by reducing the risk that proprietary technology is appropriated through theft or forced transfer. Smarzynska Javorcik (2004) finds that a weak intellectual-property protection regime deters foreign investment in high-technology sectors in transition economies, thereby implying that stronger protection is expected to attract FDI to the destination country.

FDI financial incentives (FDI). *Instruments: FDI financial incentive.* Unlike the other instruments in the MAST FDI family, financial incentives are investment-promotion tools—tax breaks, grants, and subsidised financing offered to attract foreign investors—that lower the after-tax cost of establishing or operating a local affiliate and therefore raise the expected return on inward FDI. The expected sign is thus positive, the opposite of the FDI-restriction instruments. de Mooij and Ederveen (2003) synthesise the empirical literature and report that the reduction in the host-country tax rate raises inward FDI —and Klemm and Van Parys (2012) find that lower corporate

income-tax rates and longer tax holidays are effective in attracting FDI.

Group 2: Expected Negative Effect (−)

FDI restrictions (FDI). *Instruments: FDI entry and ownership rule, FDI treatment and operations.* Entry and ownership rules—foreign-equity caps, screening and approval requirements, sector-specific prohibitions, and mandatory joint ventures—directly restrict the ability of foreign firms to establish or expand a subsidiary, while treatment-and-operations restrictions—discriminatory regulation and limits on profit repatriation—raise the cost of running an existing affiliate. The MAST FDI instruments map almost one-to-one onto the OECD FDI Regulatory Restrictiveness Index. Mistura and Roulet (2019) use that index to show that statutory liberalisation raises bilateral FDI stocks, with foreign-equity caps identified as the strongest individual deterrent.

FDI and investment-control restrictions (FDI, I9). *Instruments: FDI entry and ownership rule, FDI treatment and operations, and corporate control orders (under MAST chapter I9).* Entry and ownership rules—foreign-equity caps, screening and approval requirements, sector-specific prohibitions, and mandatory joint ventures—directly restrict the ability of foreign firms to establish or expand a subsidiary, while treatment-and-operations restrictions—discriminatory regulation and limits on profit repatriation—raise the cost of running an existing affiliate. The I9 corporate-control orders extend this logic to control of the firm after entry: government acts that force divestment, block or unwind a foreign acquisition, or impose control conditions on foreign-owned entities curtail an investor's ability to acquire or retain a controlling stake, and so deter inward FDI through the same operational-hostility channel. The MAST FDI and investment-control instruments map almost one-to-one onto the OECD FDI Regulatory Restrictiveness Index. Mistura and Roulet (2019) use that index to show that statutory liberalisation raises bilateral FDI stocks, with foreign-equity caps identified as the strongest individual deterrent.

Subsidies and state aid (L, L9, L13). *Instruments: capital injections and equity stakes, state loans, financial grants, in-kind grants, production subsidies, interest-payment subsidies, loan guarantees, tax or social-insurance relief, consumption subsi-*

dies, financial assistance in foreign markets, price stabilisation, and debt purchases. Domestic subsidies do not restrict imports—and so do not trigger tariff-jumping—but they distort competition within the destination. A subsidy improves the competitive position of its recipient and shifts profits and market share toward it at the expense of its rivals: Collie (2000) shows this in an oligopolistic integrated market—the rationale behind the EU's prohibition of state aid —and Buts, Jegers, and Jottier (2013) document a significant positive effect of subsidies on recipient firms' market shares. The recipients, in turn, are predominantly domestic incumbents and national champions, reflecting the political logic of state aid: it is allocated toward domestic employment and constituencies, and politicians use it to signal diligence to voters (Besley and Seabright, 1999; Dewatripont and Seabright, 2006). A foreign affiliate is in principle eligible for such support, and for some categories—R&D subsidies in particular—it may receive aid on terms comparable to domestic firms; but as a net non-recipient in the markets where it actually competes, it faces a structurally uneven playing field against subsidised domestic rivals. The expected dominant effect on inward FDI is therefore negative.

Public procurement (M1, M2, M3, M5). *Instruments: Public procurement access, public procurement preference margin, public procurement localisation, public procurement.* When governments reserve contracts for domestic suppliers, apply local preference margins, or require domestic production for public orders, foreign-owned subsidiaries lose access to a significant revenue stream, particularly where the public sector is a large buyer—infrastructure, defence, healthcare, energy, and IT. Van Assche et al. (2024) document this home bias and the limited procurement share captured by foreign-owned firms, implying a negative expected effect on inward FDI.[18]

Capital controls (CAP, G). *Instruments: Repatriation and surrender requirements, controls on commercial transactions and investment instruments, controls on credit operations, control on personal transactions, competitive devaluation, trade payment measure.* Repatriation and surrender requirements, controls on credit operations, and competitive devaluation reduce the profitability of FDI by restricting the flow of returns to the parent and raising the cost of local financing. Using data on US multinational affili-

[18]The negative sign is unambiguous for access and preference sub-categories (M1, M2), which exclude foreign-owned firms regardless of where they produce. Localisation requirements (M3) could in principle induce a positive response, as firms establish local presence to qualify as domestic suppliers.

ates, Desai, Foley, and Hines (2006) find that capital controls significantly reduce foreign direct investment, with affiliates in capital-control countries substantially smaller than comparable affiliates elsewhere, and the effect reversing cleanly upon liberalisation.

Export controls (P5, P9, P11, P12, P13). *Instruments: Export ban, export quota, foreign customer limit, export tariff quota, export licensing requirement, export tax, export-related non-tariff measure.* Export restrictions target the export-platform motive for FDI. Part of inward FDI uses the host not to serve the local market but as a low-cost production platform for exports to third markets; Ekholm, Forslid, and Markusen (2007) formalise this motive and show that such affiliates depend critically on host-country export conditions. Export bans, quotas, and licensing on the relevant product directly undermine that rationale. The effect is concentrated on export-oriented and GVC-integrated subsidiaries and is largely irrelevant for purely domestic-market-serving FDI.

Import incentives (L, import policy). *Instruments: duty drawbacks, bonded zones, and similar schemes that lower the cost of importing.* By making supply through exports more attractive than local production, import incentives weaken the tariff-jumping incentive and are therefore expected to deter inward FDI. Consistent with the proximity-concentration trade-off, Brainard (1997) shows that affiliate production rises relative to exports as trade costs and barriers increase and falls as they decline.[19]

Group 3: Ambiguous Effect ($\pm$)

Localisation (I1). *Instruments: Local content incentive, local content requirement, local labour incentive, local labour requirement, local operations incentive, local operations requirement, local supply requirement for exports, local value added incentive, local value added requirement, localisation.* The ambiguous sign reflects two sources of indeterminacy. First, the GTA I1 category bundles localisation *requirements*—mandatory domestic sourcing that raises operating costs—with localisation *incentives*—voluntary benefits-for-compliance arrangements that may attract FDI. Second, even among requirements the sign is firm- and market-specific: Qiu and Tao (2001) model local-

[19] As the GTA records import incentives as liberalising, the negative sign attaches to the granting of the incentive; a withdrawal would carry the opposite sign.

content requirements alongside the export-versus-FDI decision and find the outcome conditional, with stringent requirements inducing FDI under some technology configurations but splitting firms across entry modes under cost-based asymmetries. The ambiguity is therefore genuine rather than a matter of measurement.

Sanitary and phytosanitary measures (A) and technical barriers to trade (B). Standards-type non-tariff measures activate two opposing channels. Compliance and certification costs at the border resemble tariffs, raising the cost of importing and tipping the make-or-buy decision toward local production (+); but the same standards also apply to local production, imposing regulatory costs on subsidiaries within the destination (−). Which dominates is context-dependent: Ghodsi (2020) finds tariff-jumping prevailing only weakly in Central and Eastern Europe, yielding a slightly positive net sign there, while a sufficiently stringent domestic regulatory regime could reverse it. The net direction is empirically uncertain.

Export subsidies (P7, P8). *Instruments: Export subsidy, tax-based export incentive, trade finance, other export incentive, export price benchmark.* Export subsidies activate two opposing channels, and we classify the instrument as ambiguous on this basis. Through a state-aid channel (-), an export subsidy is, like any subsidy, in principle open to all firms producing in the destination, but a foreign affiliate may be unable to capture it; if so, it competes against subsidized rivals in the export markets it serves and is left at a competitive disadvantage. This is the same operational—hostility mechanism that governs general state aid, discussed in Group 2 below. Through an export-platform channel (+), by contrast, the same subsidy lowers the cost of producing locally for sale abroad and thereby raises the expected return on an export-oriented affiliate: it directly subsidizes the export-platform FDI motive formalized by Ekholm et al. (2007), and where foreign investors can access the scheme—as in the export processing zones historically deployed to attract export-oriented FDI UNCTAD (2003)—it makes the destination a more attractive base for serving third markets. Which force dominates depends on whether foreign affiliates can access the subsidy and on the relative weight of export-oriented versus market-seeking FDI; the net effect on inward FDI is therefore a priori ambiguous.

Group 4: Neutral or Indirect Effect (≈ 0)

Migration measures (MIG). *Instruments: Labour market access, post-migration treatment.* Restrictions on the cross-border mobility of key personnel raise operational costs for foreign subsidiaries. Mistura and Roulet (2019) include this category in the OECD FDI Regulatory Restrictiveness Index but assign it the lowest weight among the four components— accounting for roughly 2% of total measured restrictiveness— making the deterrent effect real but second-order.

Distribution restrictions (J1) and port restrictions (C3). Restrictions on distribution services and port access create logistical frictions that affect both the import channel (raising costs for exporters) and local operations (raising costs for subsidiaries). The two effects partially cancel, leaving the net impact on inward FDI negligible and ambiguous.

Table B.1: Classification of GTA Policy Instruments by Expected Effect on Inward FDI

Instrument	MAST	Sign	Mechanism
Group 1 — Expected positive effect (+)			
Tariffs	TARIFF	+	Tariff-jumping: local production avoids border cost
Trade defence	D1, D2, D31, D32	+	Tariff-jumping: targeted duties on specific products
Import quotas & prohibitions	E2, E3, E6	+	Hard ceiling on imports forces local production
Import licensing, monitoring & channel restrictions	D, E1, I2, X, H1	+	Administrative and channel frictions raise import costs
Internal taxes on imports	F7	+	Functionally equivalent to tariffs
Intellectual property	N	+	Stronger protection reduces appropriation risk, attracting technology-intensive FDI

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Table B.1 (continued)

Instrument	MAST	Sign	Mechanism
FDI financial incentives	FDI	+	Investment-promotion tool: lowers after-tax cost of investing
Group 2 — Expected negative effect (−)			
FDI & investment-control restrictions	FDI, I9	−	Direct restriction on entry, ownership, and control of foreign affiliates
Subsidies & state aid	L, L9, L13	−	Competitive disadvantage vs. subsidized domestic firms
Public procurement	M1, M2, M3, M5	−	Exclusion from government contracts
Capital controls	CAP, G	−	Profit extraction barriers, currency risk
Export controls	P5, P9, P11, P12, P13	−	Penalizes export-platform FDI
Import incentives	L (import policy)	−	Lower import costs favour exporting over local production
Group 3 — Ambiguous effect (±)			
Localisation	I1	±	Requirements → forced presence (+ short run, − long run); incentives → +
SPS measures	A	±	Tariff-jumping (+) vs. regulatory burden on local production (−)
Technical barriers to trade	B	±	Tariff-jumping (+) vs. regulatory burden on local production (−)
Export subsidies	P7, P8	±	Export-platform channel (+): lowers the cost of producing locally for export; state-aid channel (−): foreign affiliates may not capture it and face subsidized rivals

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Table B.1 (continued)

Instrument	MAST	Sign	Mechanism
Group 4 — Neutral or indirect effect (≈ 0)			
Migration measures[a]	MIG	$\approx 0/-$	Restricts expatriate staffing
Distribution & port restrictions	J1, C3	≈ 0	Minor logistical frictions

Notes: The table maps GTA/MAST instrument families to their expected sign on inward FDI, used to construct the GEPI^{Pos}, GEPI^{Neg}, and GEPI^{Amb} components of the geoeconomic index. "Sign" denotes the expected dominant effect: + (tariff-jumping), − (operational hostility), ± (ambiguous), ≈ 0 (neutral/indirect). The mechanism summarises the dominant channel; the supporting references for each assignment are given in the text. [a] The expected sign of migration measures is negative, but because the deterrent effect operates only indirectly—through higher staffing costs for foreign affiliates rather than a direct restriction on FDI—the instrument is included in Group 4 with the neutral or indirect measures rather than in Group 2.

Applying the classification criteria summarised in Table B.1 to the full set of protective bilateral measures recorded in GTA produces, for each year, a breakdown into Positive, Negative, and Ambiguous shares, reported in Table B.2. Shares are computed over the total number of protective measures recorded in that year and sum to 100 percent, up to rounding; the bottom row reports the total number of measures assigned to each category over the full sample.

This breakdown reveals two main patterns. First, FDI-deterring measures dominate the sample throughout the period: Negative already accounts for the largest share in 2009 (48%, against 25% Positive and 27% Ambiguous), and its share rises in every single year of the sample, reaching 72% by 2021. Positive and Ambiguous measures decline almost monotonically over the same period—from 25% to 13%, and from 27% to 15%, respectively—with only isolated reversals (e.g., Positive ticks up slightly in 2012 and 2017–2018). Second, the aggregate counts confirm that this is not merely a recent-year phenomenon: of the more than 2 million bilateral protective measures recorded over 2009–2021, 66% are classified as Negative, against 15% Positive and 19% Ambiguous.

Table B.2: Distribution of Distortive Bilateral Geoeconomic Measures by Expected Effect on Inward FDI

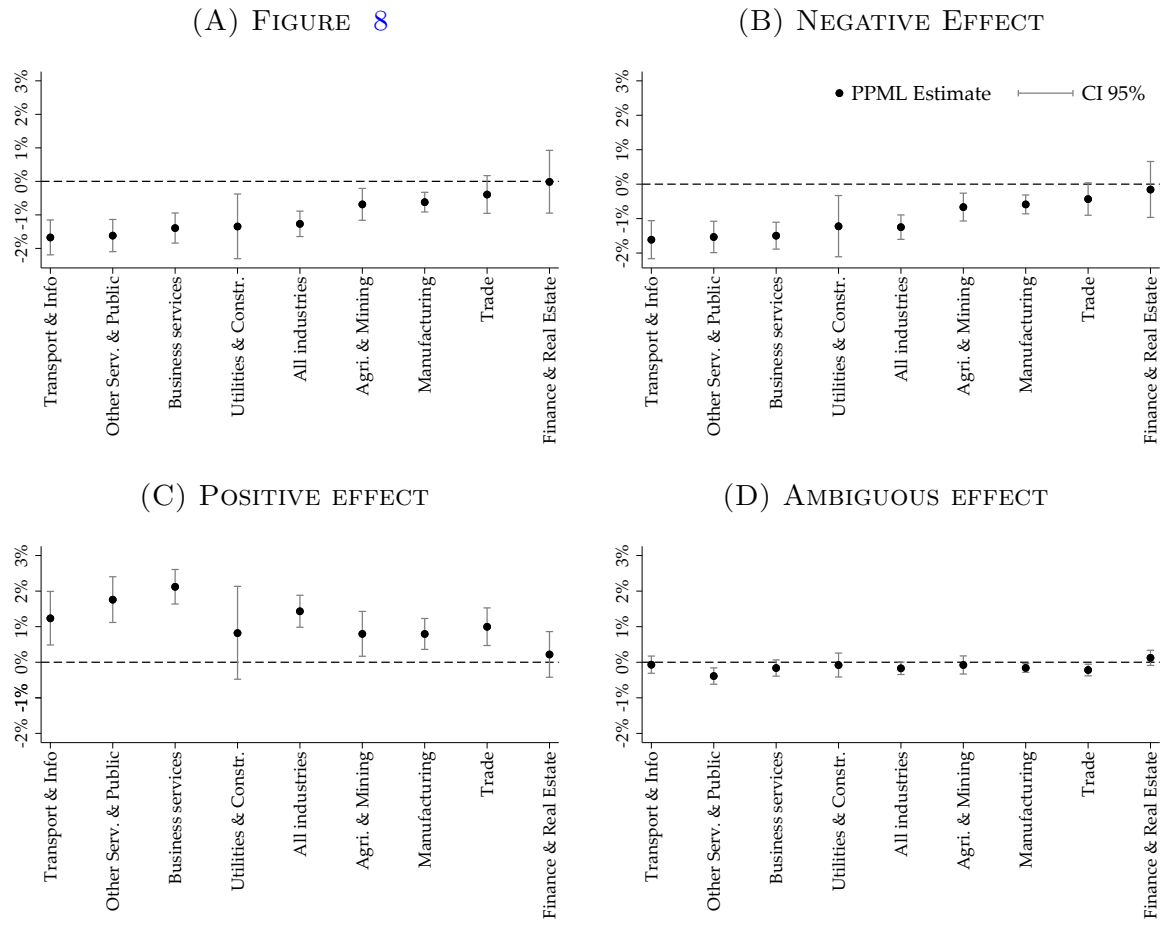
	Percentages (%)		
Year	Positive	Negative	Ambiguous
2009	25	48	27
2010	18	54	28
2011	17	58	25
2012	18	58	24
2013	17	60	23
2014	16	61	23
2015	16	63	21
2016	15	65	20
2017	16	65	19
2018	16	66	18
2019	15	68	17
2020	14	71	15
2021	13	72	15
Total number of measures	358,107	1,552,432	440,894

Notes: For each year, columns report the share of distortive bilateral geoeconomic measures classified by their expected effect on inward FDI: Positive (measures expected to encourage FDI), Negative (expected to deter it), and Ambiguous (mixed or uncertain expected effect). Shares are rounded to the nearest integer and sum to 100% in each year. The bottom row reports the total number of measures in each category over the full 2009–2021 sample.

Overall, this composition indicates that the rise in geoeconomic activity is not a uniform increase in policy intervention, but one increasingly concentrated in measures whose dominant expected effect is to deter, rather than attract, inward FDI.

Finally, Figure B.1 reproduces the by-industry specification of Figure 8 separately for each expected-effect component of the index. The panels confirm that the negative sectoral responses documented in the main text are carried by the FDI-discouraging component, that the FDI-promoting component enters with the opposite sign, and that the ambiguous component is close to zero throughout.

FIGURE B.1: SUBSIDIARY ACTIVITY AND GEOECONOMIC PROTECTIONIST INDEX BY INDUSTRY AND EXPECTED EFFECT



Notes: Each panel reproduces the by-industry specification of Figure 8, replacing the aggregate index with one of its three expected-effect components: the FDI-discouraging component GEPI^{Neg} (upper-right), the FDI-promoting component GEPI^{Pos} (bottom-left), and the ambiguous component GEPI^{Amb} (bottom-right). Each panel plots the PPML semi-elasticity of subsidiary counts with respect to the lagged component, by one-digit NAICS sector of the parent firm, together with 95% confidence intervals and the all-industries benchmark. All specifications include origin–destination, origin–year, and destination–year fixed effects; standard errors are clustered at the bilateral pair level. Coefficients are reported as percentage changes, $(\exp(\beta \Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

C Details on Firm Data (MREID)

Table C.1: Bilateral Coverage and Subsidiary Activity by Origin Country

	Outward			Inward			Avg. subs.		
Origin country	Obs.	Cov.	Hosts	Obs.	Cov.	Sources	Home	Out.	In.
United Kingdom	720	100	60	660	92	55	66,064	307	746
United States	696	97	58	619	86	52	128,363	1,181	251
France	684	95	57	600	83	50	32,383	282	260
Japan	660	92	55	444	62	37	25,827	379	37
Switzerland	660	92	55	468	65	39	874	119	75
Germany	657	91	55	576	80	48	20,663	341	356
Canada	640	89	54	415	58	36	3,284	92	65
Ireland	636	88	53	504	70	42	1,969	92	114
Italy	624	87	52	612	85	51	19,818	121	155
Netherlands	624	87	52	624	87	52	8,091	163	242
India	612	85	51	564	78	47	9,975	59	149
Australia	612	85	51	468	65	39	2,610	72	100
Sweden	600	83	50	492	68	41	31,445	166	149
Belgium	597	83	50	528	73	44	7,602	98	127
China	593	82	50	564	78	47	111,982	77	271
South Korea	588	82	49	417	58	35	3,208	37	43
Spain	588	82	49	576	80	48	22,828	107	196
Brazil	576	80	48	552	77	46	32,818	12	197
Denmark	576	80	48	492	68	41	3,605	76	99
Finland	576	80	48	468	65	39	6,784	51	57
Norway	570	79	48	492	68	41	13,780	69	77
Singapore	564	78	47	576	80	48	5,236	55	219
Austria	552	77	46	492	68	41	2,152	62	95
Taiwan	528	73	44	171	24	16	318	57	5
UAE	516	72	43	408	57	34	96	19	7
Thailand	508	71	43	444	62	37	3,435	18	91
South Africa	507	70	43	132	18	12	46	26	2
Malaysia	499	69	42	444	62	37	11,549	41	90
Mexico	479	67	40	396	55	33	215	17	31
Hong Kong	476	66	40	336	47	28	78	72	22
Portugal	472	66	40	504	70	42	7,792	34	83
Turkey	436	61	37	437	61	37	423	8	14
Poland	435	60	37	552	77	46	4,594	12	141
Greece	409	57	35	392	54	33	737	6	19
Russia	408	57	34	528	73	44	8,778	12	88

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Table C.1 (continued)

	Outward			Inward			Avg. subs.		
Origin country	Obs.	Cov.	Hosts	Obs.	Cov.	Sources	Home	Out.	In.
New Zealand	384	53	32	372	52	31	129	10	31
Hungary	372	52	31	492	68	41	1,522	12	39
Philippines	362	50	31	372	52	31	726	9	25
Czech Republic	355	49	30	528	73	44	10,232	36	92
Slovenia	324	45	27	396	55	33	665	7	16
Saudi Arabia	288	40	24	321	45	27	185	5	5
Chile	288	40	24	456	63	38	3,212	12	49
Slovak Republic	252	35	21	504	70	42	1,881	17	61
Croatia	240	33	20	408	57	34	628	6	26
Egypt	216	30	18	317	44	27	90	2	5
Vietnam	209	29	18	425	59	36	1,124	2	43
Morocco	204	28	17	408	57	34	181	5	18
Indonesia	168	23	14	221	31	19	48	15	5
Qatar	168	23	14	120	17	10	22	7	2
Serbia	156	22	13	492	68	41	353	2	25
Ukraine	156	22	13	480	67	40	1,713	6	34
Pakistan	144	20	12	191	27	17	48	2	3
Argentina	108	15	9	168	23	14	138	4	5
Bangladesh	84	12	7	91	13	8	2	3	1
Peru	72	10	6	191	27	16	20	4	5
Nigeria	72	10	6	96	13	8	13	6	3
Kenya	24	3	2	120	17	10	9	8	2
Iraq	24	3	2	48	7	4	4	4	1
Ghana	12	2	1	384	53	32	6		7
Nepal	12	2	1	24	3	2	12		2

Notes: This table reports summary statistics on bilateral coverage and subsidiary activity by origin country. "Obs." denotes the number of non-missing origin–destination–year observations. "Cov." is the percentage share of observed bilateral pairs relative to all feasible origin–destination–year combinations. Outward statistics refer to observations in which firms from the origin country operate in a destination economy, while inward statistics refer to observations in which foreign firms operate in the origin country. In both cases, the set of potential pairs includes the origin/destination country itself. "Hosts" denotes the number of destination countries in which firms from a given origin country are present, and "Sources" denotes the number of foreign origin countries investing in a given country. "Home", "Out.", and "In." report the average number of subsidiaries in the home country, in foreign host countries (outward), and by foreign firms operating domestically (inward), respectively. "Out." is computed at the destination–year level, whereas "In." is computed at the origin–year level. "Home" is averaged over time for each country.

D Details on GPR indicators and additional results

The bilateral GPR indices are taken from Alonso-Alvarez et al. (2026), who construct them for 34 economies (about 78% of world GDP) using the dictionary-based, national-media methodology of Alonso-Alvarez et al. (2025). For each origin country a *local* GPR index measures the share of national-press articles discussing geopolitical risk; a *bilateral* index is obtained by additionally requiring, through Factiva's regional classification, that the article refer to a given focal region, so that it captures the geopolitical risk the origin country perceives *as originating from* that region. The bilateral series are published at quarterly frequency. The indices are validated through statistical robustness checks and a narrative analysis of peaks: the largest spikes in each series are identified and verified against known geopolitical events, following the approach of Caldara and Iacoviello (2022) and Alonso-Alvarez et al. (2025); full details on source selection, query construction, and validation are provided in Alonso-Alvarez et al. (2026).

Alonso-Alvarez et al. (2026) define four focal regions: *Russia*, *China*, the *Western Bloc*, and the *Middle East and North Africa (MENA)*. Russia and China are single-country regions; the Western Bloc comprises Europe together with the United States, Canada, Australia, and New Zealand; and MENA groups Egypt, Israel, Jordan, Kurdistan, Lebanon, Palestine, the Persian Gulf countries, Syria, Turkey, Yemen, Afghanistan, and Cyprus (together with references to ISIS/Daesh). By construction the focal region excludes the origin country itself, so that, for example, the Western-Bloc index for a European origin measures the risk that origin perceives from the *rest* of the bloc.

Because the indices are defined vis-à-vis these four regions rather than individual countries, we assign to each origin–destination pair the bilateral GPR of the macro-region to which the destination belongs. Of the 60 countries in the baseline sample, 36 fall into one of the four focal regions and are therefore mappable destinations; the remaining 24—which lie outside all four regions (e.g. Japan, South Korea, India, Brazil, Mexico)—are dropped from the geopolitical-risk analysis. Bilateral indices are available for 26 of the origins, yielding the 26×36 sample used in Section 5.3. Table D.1 reports the destination-to-region mapping. Note that all destinations within a given region share, for a given origin and year, the same bilateral GPR value, so identification of the effect comes from variation across origins, regions, and time rather than across individual destinations within a region.

Table D.1: Mapping of Destination Countries to Macro-Regions

Macro-region	Destination countries in the sample
Western Bloc (28)	Australia, Austria, Belgium, Canada, Croatia, Czechia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, New Zealand, Norway, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, United States
MENA (6)	Egypt, Iraq, Qatar, Saudi Arabia, Turkey, United Arab Emirates
China (1)	China
Russia (1)	Russia

Notes: Macro-regions follow Alonso-Alvarez et al. (2026), who define four focal regions (Russia, China, the Western Bloc, and MENA). We map destination countries in our sample to these regions; of the 60 countries in the baseline sample, 36 can be assigned, while the remaining countries lie outside all regions and are excluded from the analysis. The Western Bloc comprises advanced economies and European countries; MENA refers to Middle Eastern and North African economies. China and Russia are treated as stand-alone regions.

The peak-based GPR measure introduced in Section 5.3 can be sharpened along two dimensions: the *direction* of the shock and the *threshold* that defines it. We re-estimate the subsidiary regressions replacing the change in bilateral GPR with indicators for extreme positive and extreme negative quarter-on-quarter movements, flagged when the change exceeds one, two, or three standard deviations of each pair's own distribution in any quarter of the year (Alonso-Alvarez et al., 2026). Tables D.2 and D.3 report the positive- and negative-shock estimates: columns (1)–(3) enter the three thresholds in turn, and columns (4)–(6) add the lagged geoeconomic index GEPI_{t-1}.

Only the most extreme *positive* shocks matter (Table D.2). The one- and two-standard-deviation indicators are insignificant, but the three-standard-deviation shock (3sdGPR_{t-1}) is negative and statistically significant across specifications: an exceptionally large rise in bilateral geopolitical risk is associated with about 1.5% fewer subsidiaries. The estimate barely moves when GEPI_{t-1} is added (from -1.5% to -1.4%), so it does not simply proxy for geoeconomic policy. Firms thus react only to severe geopolitical escalations, not to moderate increases in risk.

Negative shocks, by contrast, play no role (Table D.3). Across all three thresholds the

TABLE D.2: SUBSIDIARY ACTIVITY WITH LAGGED POSITIVE GPR SHOCKS

	(1)	(2)	(3)	(4)	(5)	(6)
$1sdGPR_{t-1}$	0.598			-0.037		
	(1.161)			(1.360)		
$2sdGPR_{t-1}$		-0.653			-1.371	
		(1.362)			(1.452)	
$3sdGPR_{t-1}$			-1.475**			-1.394*
			(0.740)			(0.787)
$GEPI_{t-1}$				-1.606***	-1.608***	-1.606***
				(0.220)	(0.220)	(0.220)
Observations	8,301	8,301	8,301	8,301	8,301	8,301

Notes: This table reports aggregate regressions of the number of subsidiaries on lagged geoeconomic indices and the lagged positive GPR shock. The dependent variable is the number of subsidiaries owned by firms from 26 source countries across 36 destination economies (including the home country), with the unit of observation defined as an origin–destination–year pair. All specifications are estimated using Poisson Pseudo-Maximum Likelihood (PPML). Standard errors, reported in parentheses, are clustered at the bilateral pair level. To construct the shock variables (1sdGPR, 2sdGPR, and 3sdGPR), we first compute the standard deviation of the distribution of GPR changes for each origin–destination pair. We then define indicator variables equal to one when the change in GPR is positive and exceeds one, two, or three standard deviations of the respective pair-specific distribution, and zero otherwise. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

coefficient is statistically insignificant—with no consistent sign or magnitude—whether or not $GEPI_{t-1}$ is included. There is no evidence that sharp declines in perceived geopolitical risk affect where firms locate subsidiaries.

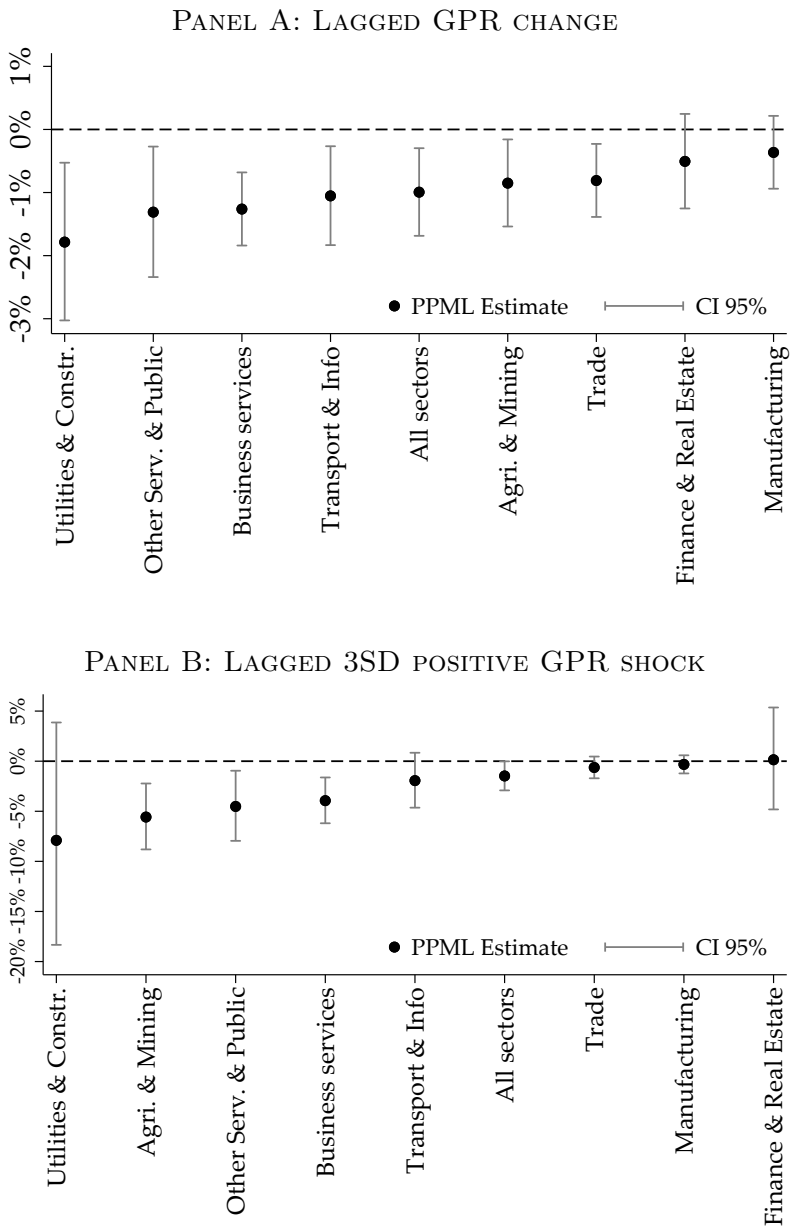
Finally, we re-estimate these GPR specifications separately by the one-digit (NAICS) sector of the parent firm. Figure D.1 plots the sectoral semi-elasticities for the lagged change in GPR (Panel A) and the three-standard-deviation positive shock (Panel B), with 95% confidence intervals and the all-industries benchmark. As in the geoeconomic results of Section 5, the effect is negative in almost every sector—so it is not driven by a single industry—but its magnitude varies markedly: the largest declines appear in utilities and construction, agriculture and mining, and other (largely public) services, while trade, manufacturing, and finance and real estate are close to zero or statistically insignificant.

Table D.3: Subsidiary Activity with Lagged Negative GPR Shocks

	(1)	(2)	(3)	(4)	(5)	(6)
$1sdGPR_{t-1}$	0.158			-0.409		
	(1.086)			(1.199)		
$2sdGPR_{t-1}$		1.156			0.625	
		(1.384)			(1.536)	
$3sdGPR_{t-1}$			1.991			0.753
			(3.904)			(4.319)
$GEPI_{t-1}$				-1.608***	-1.605***	-1.605***
				(0.220)	(0.220)	(0.220)
Observations	8,301	8,301	8,301	8,301	8,301	8,301

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of the number of subsidiaries on lagged geoeconomic indices and the lagged negative GPR shock. The dependent variable is the number of subsidiaries owned by firms from 26 source countries across 36 destination economies (including the home country), with the unit of observation defined as an origin–destination–year pair. To construct the shock variables (1sdGPR, 2sdGPR, and 3sdGPR), we first compute the standard deviation of the distribution of GPR changes for each origin–destination pair. We then define indicator variables equal to one when the change in GPR is negative and exceeds one, two, or three standard deviations of the respective pair-specific distribution, and zero otherwise. All specifications include origin-destination, origin-year and destination-year fixed effects. Standard errors, reported in parentheses, are clustered at the bilateral pair level. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

Figure D.1: Subsidiary Activity and GPR Estimates by Industry



Notes: This figure presents Poisson Pseudo-Maximum Likelihood (PPML) regressions of subsidiaries on lagged GPR by industry. The dependent variable is the number of subsidiaries owned by firms from 26 source countries in 36 destination economies (including the home country), so that the unit of observation is an origin–destination–year pair. All specifications include origin-destination, origin-year and destination-year fixed effects. Standard errors are clustered at the bilateral pair level; in the figure, they are represented by 95% confidence intervals (error bars) around the point estimates. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

E Robustness to the Global Trend in Cross-Border Activity

Appendix Tables E.1 and E.2 reproduce the baseline specifications of Tables 2 and 3—for the number of subsidiaries and for greenfield investment, respectively—adding the full set of year effects interacted with a foreign-pair indicator. The estimates remain very close to the baseline in sign, significance, and overall interpretation, although the magnitude of the coefficients is slightly smaller. The aggregate geoeconomic index remains negative, significant, and economically meaningful in both outcomes, and the policy-type decomposition is unchanged throughout: the FDI-deterring component GEPI^{Neg} stays negative and highly significant, the FDI-attracting component GEPI^{Pos} keeps its positive sign, and the ambiguous component remains small. Absorbing the global expansion of cross-border activity therefore reduces the estimated effects somewhat, but leaves their sign, significance, and overall pattern unchanged, confirming that the estimated effects are not an artifact of the secular rise in multinational activity.

Table E.1: Subsidiary Activity and Geoeconomic Protectionist Index with Year Fixed Effects Interacted with a Foreign-Pair Indicator

	(1)	(2)	(3)	(4)	(5)
GEPI_{t-1}	-1.165***				
	(0.213)				
GEPI^{Neg}_{t-1}		-1.100***			-1.057***
		(0.196)			(0.227)
GEPI^{Pos}_{t-1}			1.033***		0.413**
			(0.209)		(0.198)
GEPI^{Amb}_{t-1}				-0.128*	0.197***
				(0.076)	(0.069)
Observations	24,536	24,536	24,536	24,536	24,536

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of subsidiaries on lagged geoeconomic protectionist index (GEPI). The dependent variable is the number of subsidiaries owned by firms from 60 source countries in 60 destination economies (including the home country), so that the unit of observation is an origin–destination–year pair. Alternative specifications reported in the table replace the aggregate index with its components GEPI^{Pos}, GEPI^{Neg}, and GEPI^{Amb}, which correspond to subsets of geoeconomic policy measures that, based on a review of the existing literature, are expected to have a positive effect on FDI, a negative effect, or an a priori ambiguous effect, respectively. All specifications control for origin-destination, origin-year, and destination-year fixed effects, and include a full set of year dummies interacted with a foreign-pair indicator. Standard errors are clustered at the bilateral pair level and reported in parentheses. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

TABLE E.2: GREENFIELD INVESTMENT ACTIVITY AND GEOECONOMIC PROTECTIONIST INDEX WITH YEAR FIXED EFFECTS INTERACTED WITH A FOREIGN-PAIR INDICATOR

	(1)	(2)	(3)	(4)	(5)
$GEPI_{t-1}$	-1.565**				
	(0.643)				
$GEPI^{Neg}_{t-1}$		-1.943***			-1.934***
		(0.512)			(0.518)
$GEPI^{Pos}_{t-1}$			1.520		1.093
			(0.957)		(0.884)
$GEPI^{Amb}_{t-1}$				0.150	0.483
				(0.314)	(0.297)
Observations	19,717	19,717	19,717	19,717	19,717

Notes: This table reports Poisson Pseudo-Maximum Likelihood (PPML) regressions of greenfield investment activity on lagged geoeconomic protectionist index (GEPI). The dependent variable is the number of greenfield projects owned by firms from 60 source countries in 60 destination economies (including the home country), so that the unit of observation is an origin–destination–year pair. Alternative specifications reported in the table replace the aggregate index with its components $GEPI^{Pos}$, $GEPI^{Neg}$, and $GEPI^{Amb}$, which correspond to subsets of geoeconomic policy measures that, based on a review of the existing literature, are expected to have a positive effect on FDI, a negative effect, or an a priori ambiguous effect, respectively. All specifications control for origin-destination, origin-year, and destination-year fixed effects, and include a full set of year dummies interacted with a foreign-pair indicator. Standard errors are clustered at the bilateral pair level and reported in parentheses. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

F Influence Diagnostics for the Baseline Estimates

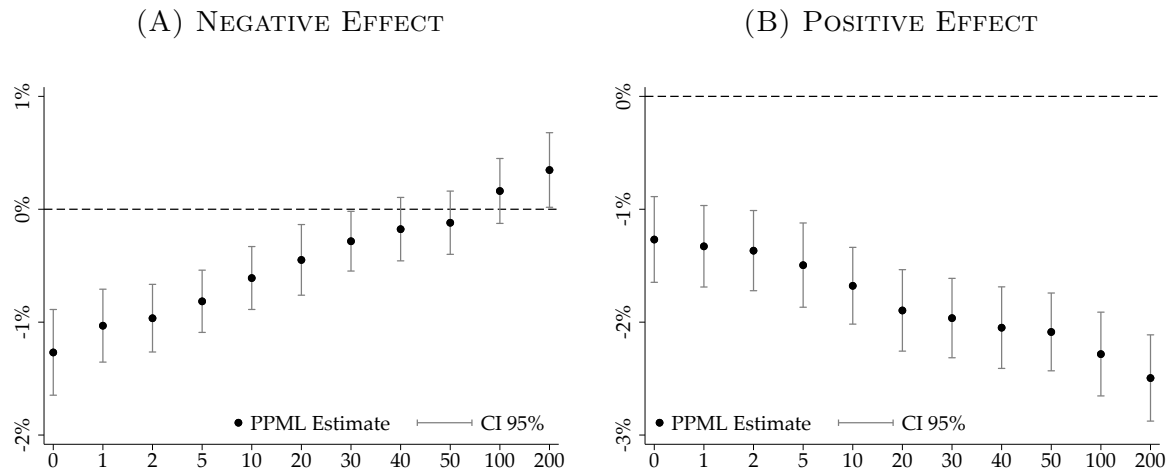
To assess the robustness of the baseline coefficient on the geoeconomic index to influential observations, we implement three complementary influence diagnostics based on observation-level score contributions.

Most influential pairs. We measure how much each origin–destination pair contributes to the estimated coefficient. For the PPML estimator, $\hat{\beta}$ solves the first-order condition $\sum_i \tilde{x}_i \, u_i = 0$, where $u_i = y_i - \hat{\mu}_i$ is the (response) residual and $\tilde{x}_i$ is the lagged geoeconomic index demeaned with respect to the full set of high-dimensional fixed effects and weighted by the fitted mean $\hat{\mu}_i$ (Santos Silva and Tenreyro, 2006; McCullagh and Nelder, 1989; Correia et al., 2020). In practice, $\hat{\mu}_i$ is recovered from the baseline `ppmlhdfe` estimation and $\tilde{x}_i$ from a weighted regression of the index on the fixed effects with weights $\hat{\mu}_i$ (the Frisch–Waugh–Lovell representation of the estimator). Each pair's contribution is the sum of $\tilde{x}_i \, u_i$ across its years: pairs with large negative contributions pull the estimate down, those with large positive contributions push it up. We use these contributions only to *rank* pairs by their first-order influence on $\hat{\beta}$; the actual effect of removing a pair is then measured directly by re-estimating the model on the reduced sample, as described next.

Sequential pair exclusion. Starting from the full sample, we progressively exclude the k pairs with the most negative (or most positive) aggregate score contributions — for $k \in \{0, 1, 2, 5, 10, 20, 30, 40, 50, 100, 200\}$ — and re-estimate the baseline specification on the remaining sample. The negative-exclusion exercise reveals whether the estimated sign and magnitude survive the removal of pairs that most strongly depress the coefficient. The positive-exclusion exercise provides the symmetric check, identifying whether pairs that push the coefficient toward zero are similarly driving the result. Together, the two exercises bracket the range of the estimate under selective sample variation and assess the stability of the conclusion. For the baseline regression, the five pairs with the largest negative contributions are United States–United Kingdom, China–France, Japan–China, China–United Kingdom, and China–Brazil, while the top five positive contributors are China–Ireland, China–Singapore, Canada–United States, United States–Germany, and Singapore–China.

Figure F.1 reports the sequential-exclusion exercise. Removing the pairs that con-

FIGURE F.1: SEQUENTIAL EXCLUSION OF THE MOST INFLUENTIAL ORIGIN–DESTINATION PAIRS



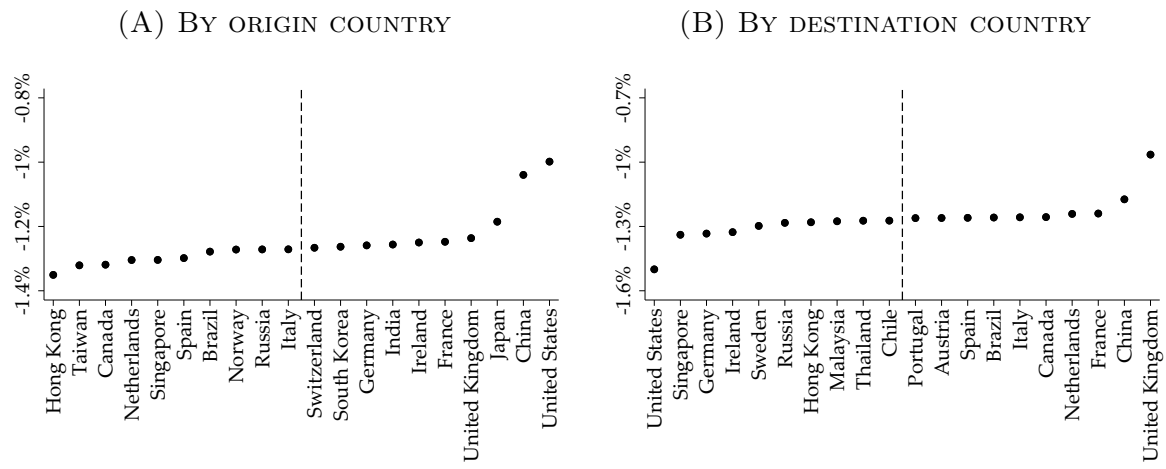
Notes: This figure reports robustness checks based on the baseline PPML specification that regresses the number of subsidiaries on the lagged GEPI. Panel (A) sequentially excludes the origin–destination pairs with the largest negative contributions to the aggregate score. Panel (B) performs the symmetric exercise for positive contributions. Both specifications include origin–destination pair, origin×year, and destination×year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta X) - 1) \times 100$, and can be interpreted as semi-elasticities.

tribute most negatively (panel A) attenuates the coefficient monotonically, from -1.3% in the full sample to statistical insignificance only after roughly 30–40 pairs are dropped, and to a small positive value after 100–200. The symmetric exercise on the most positive contributors (Panel B) strengthens the estimate, to about -2.5% once 200 pairs are excluded, significant throughout. The estimate is therefore not driven by a few influential pairs: it remains negative and significant when small numbers are removed, and disappears only under the exclusion designed to be most adverse to it.

Leave-one-out by origin and destination country. As a further exercise, we sequentially exclude each origin country — and separately each destination country — from the sample and re-estimate the baseline specification. This identifies individual economies whose bilateral relationships are critical to the sign or magnitude of the baseline estimate, whether through their role as investing nations or as host markets for multinational subsidiaries.

Figure F.2 presents the leave-one-out exercise. Excluding any single origin keeps the

FIGURE F.2: LEAVE-ONE-OUT BY ORIGIN AND DESTINATION COUNTRY



Notes: This figure reports robustness checks based on the baseline PPML specification that regresses the number of subsidiaries on the lagged GEPI. Panel (A) implements a leave-one-out exercise by origin country: starting from the full sample, all observations associated with a given origin are excluded one at a time, and the model is re-estimated on the remaining sample. Panel (B) performs the analogous exercise by destination country, sequentially excluding all observations associated with each destination. For clarity, each graph reports only the most influential cases: the 15 exclusions yielding the smallest estimated coefficients (to the left of the vertical dashed line) and the 15 yielding the largest coefficients (to the right), after ordering estimates from lowest to highest. The leftmost point therefore corresponds to the exclusion of the country whose removal generates the most negative change in the aggregate effect of the regression. All specifications include origin–destination pair, origin×year, and destination×year fixed effects. Standard errors are clustered at the bilateral pair level and reported in parentheses. Coefficients are reported as percentage changes, computed as $(\exp(\beta\Delta \mathrm{X}) - 1) \times 100$, and can be interpreted as semi-elasticities.

coefficient within a narrow range, approximately between -1.4% and -1.0%, while excluding any single destination yields a range of about -1.6% to -0.9%. The largest shifts arise when excluding the United States or China as origins: in both cases, the estimate moves closest to zero, but only to around -1.0%, remaining economically large and clearly negative. All other exclusions—across both origins and destinations—produce smaller deviations, leaving the coefficient close to the -1.3% baseline. Overall, no single economy, however large, drives the result.