Geopolitical Conflict and Trade: Montesquieu Revisited*

Jonas Adolph, Wilhelm Kohler, and Gernot J. Müller

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Abstract

A temporary increase in geopolitical risk permanently reduces bilateral trade. We establish this result empirically by combining a structural gravity framework with local projections on a large panel of bilateral trade flows. We then develop a theory, in the spirit of Montesquieu, that rationalizes this result. The underlying model features a complementarity between trade integration and a lower risk of policy-induced trade disruptions, jointly determined in equilibrium. As a result, an exogenous increase in geopolitical risk can induce country pairs to transition from a high-trade steady state with low disruption risk to one with low trade and high disruption risk.

Keywords: Geopolitical risk, Interstate conflict, Trade flows, Trade disruption risk, Sourcing, Multiple equilibria

JEL-Codes: F13, F14

*Adolph: University of Tübingen, jonas.adolph@uni-tuebingen.de, Kohler: University of Tübingen and CESifo, wilhelm.kohler@uni-tuebingen.de, Müller: University of Tübingen, CEPR, and CESifo, gernot.mueller@uni-tuebingen.de. We thank our discussants, Ana Antonova, Giovanni Rosso, and Adam Spencer for very helpful feedback; Emily Blanchard, Meredith Crowley, Thierry Mayer, Dima Mukhin, and Mathias Thoenig for helpful comments and encouragement; and various seminar audiences for valuable comments. Part of this paper was written while Adolph was visiting Mathias Thoenig in Lausanne. We gratefully acknowledge his hospitality. The usual disclaimer applies.

"Peace is the natural effect of trade."
Montesquieu (1748)

1 Introduction

In the liberal tradition, trade is viewed as a force for peace. By generating beneficial economic interdependence, trade reduces geopolitical conflict—an idea dating back to Montesquieu and reiterated in many forms since. Consistent with this view, Martin et al. (2008) show that the probability of interstate conflict declines with bilateral trade. At the same time, peace facilitates trade. This complementarity raises the possibility of a virtuous circle in which greater trade and lower risk of geopolitical conflict reinforce each other. Europe's economic integration is a prominent showcase, with deepening trade ties widely credited with lasting peace on the continent.

Yet the Montesquieu logic cuts both ways. If conflict risk reduces trade, declining trade dependence in turn lowers the cost of conflict, causing an adverse feedback loop. This raises the specter of multiplicity: countries may move toward a world of high trade and low conflict risk or, alternatively, a world of low trade and high conflict risk. Recent evidence supports to this notion: despite decades of increasing global trade integration, geopolitical tensions are rising amid signs of growing trade fragmentation (Fernández-Villaverde et al. 2024; Bonadio et al. 2025; Gopinath et al. 2025).

In this paper, we first show empirically that temporary spikes in geopolitical risk can permanently reduce trade—consistent with the notion of multiplicity. To document this pattern, we combine a structural gravity framework with local projections to estimate the dynamic response of bilateral trade to geopolitical risk shocks using the index of Caldara and Iacoviello (2022).

Second, we develop a model that—in the spirit of Montesquieu—jointly determines bilateral trade and the risk of conflict, defined as policy-induced trade disruption. In our model, firms are weighing the cost advantage of global sourcing against the risk of a trade disruption. Their atomistic decisions determine external dependence, which in turn shapes the government's incentive to pursue a geopolitical incentive at the cost of a disruption. The resulting feedback between trade integration and disruption risk gives rise to multiple steady states. In the model, a temporary geopolitical risk shock can permanently shift the economy from a high-trade to a low-trade steady state. To illustrate this, we calibrate the model to U.S.–China relations and compute the implied impulse responses, which we find to be broadly consistent with the evidence.

The delicate nature of global supply chains is at the heart of our analysis. They provide substantial cost advantages in the absence of conflict, but they also render trade disruptions particularly costly. When these potential costs are anticipated by policymakers, they impose discipline in the geopolitical sphere, thereby reducing the likelihood of conflict, precisely as envisioned by Montesquieu. And while this effect may appear desirable insofar as it promotes peace, it can also limit policymakers' capacity to pursue certain strategic objectives in the face of geopolitical shocks. Conversely, this capacity is enhanced if supply chains are less global, but this comes at the expense of efficiency gains–and with higher conflict risk.

A case in point is the Russian invasion of Ukraine—a geopolitical shock from the perspective of the West. In this case, a disruption of supply chains would have amounted to an abrupt halt in natural resource imports from Russia, which was widely discussed at the time (see, for instance, Bachmann et al. 2024). However, policymakers in the West were initially reluctant to impose trade sanctions, fearing adverse domestic consequences. Shifting the perspective eastward, there are also instances when geopolitical objectives outweigh economic costs. NATO's eastward expansion arguably constituted a geopolitical shock to Russia, which ultimately chose to escalate the conflict by invading Ukraine—despite the economic costs associated with the anticipated trade disruptions it entailed.

Looking ahead, similar trade-offs may arise in the context of geopolitical tensions between China and the West (see, for instance, Crowley 2019) or, more recently, even within the West itself. Retaliatory measures in response to large geopolitical shocks, such as the announcement of massive tariffs by U.S. President Trump in April 2025, may appear warranted—or even desirable—from a geopolitical perspective but come with potentially large economic costs. Our analysis highlights that the anticipation of such scenarios already shapes trade relationships ex ante and therefore the economic costs governments face when geopolitical tensions escalate.

In the first part of the paper, we examine how bilateral trade responds to geopolitical risk shocks. A growing literature studies the role of geopolitical factors in trade, typically within a static gravity framework that abstracts from adjustment dynamics. Our contribution is to focus precisely on these dynamics. To do so, we combine local projections with a structural gravity framework to estimate the dynamic response of bilateral trade to geopolitical risk shocks while accounting for exporter-time and importer-time fixed effects.

We use bilateral trade data for 168 countries over the period 1966–2020 and, following standard practice in gravity models, includes both domestic and international trade flows in the estimation. We measure geopolitical risk at the exporter level based on geopolitical risk (GPR) index compiled by Caldara and Iacoviello (2022) for individual countries. We interact this measure with an indicator for cross-border trade, allowing us to identify the differential impact of geopolitical risk on cross-border relative to domestic trade Following (Mulabdic and Yotov 2025). Across a range of specifications, we find that cross-border trade declines in response to geopolitical risk shocks and that these effects are permanent—even though geopolitical risk itself rises only temporarily. These findings imply that geopolitical shocks can permanently reshape international trade, consistent with the notion of an adverse feedback loop between geopolitical conflict and trade integration.

We develop a model that formalizes this notion. Time is infinite. In each period, heterogeneous firms decide whether to incur a fixed cost that allows them to source inputs more cheaply from abroad, as in Antràs (2015). Importantly, once this cost is sunk, offshoring may be negated by a trade disruption imposed by the domestic government. Firms affected by such a disruption are unable to produce during that period because they are cut off from foreign suppliers. Offshoring is therefore an investment with an uncertain return, and firms' sourcing decisions depend on the perceived likelihood of a trade disruption.

The government, in turn, responds to a geopolitical shock that materializes after firms have made their sourcing decisions. The shock creates a situation in which pursuing a geopolitical objective—for example, achieving a reputational or strategic gain by standing firm against a foreign actor perceived as a threat—generates a certain benefit that the government weighs against the economic costs of disrupting trade. The shock is drawn from a uniform distribution. A larger upper bound of this distribution corresponds to a larger potential geopolitical gain from disrupting trade. The government weighs this potential gain against the economic costs of a trade disruption. When making its decision, the government does not observe the current share of firms that have chosen invest into offshoring. Instead, it forms expectations based on past sourcing decisions. Firms are atomistic and rationally anticipate this behavior when making their sourcing choices.

Under these assumptions, the model yields tractable dynamics and admits a closed-form solution. We show that it features multiple steady states: a high-trade steady

state associated with a low likelihood of trade disruption and a low-trade steady state associated with a high likelihood of disruption. This result highlights an important implication of Montesquieu's hypothesis. While trade integration can lock countries into a high-trade steady state with low disruption risk steady state, it can equally lock them into a low-trade steady state state with high disruption risk.[1] A similar result obtains in Blanchard and Willmann (2011) in a related context, albeit through a different mechanism: in their framework, multiplicity in trade outcomes is driven by the interaction between trade policy and education decisions rather than geopolitical risk.[2]

For the adjustment dynamics in our model, it is crucial that intermediate steady states are unstable. Small deviations cause countries to drift toward one of the two extreme configurations. In the model, a geopolitical risk shock corresponds to an unexpected increase in the potential geopolitical gains from disrupting trade. Using a calibrated version of the model, we show that such a shock can even induce a transition from a high-trade, low conflict steady state to the opposite steady state with permanently lower trade—even after the shock itself has dissipated—sustained by a persistently higher probability of trade disruption.[3]

The remainder of the introduction situates the paper in the literature and clarifies its contribution. The next section presents new evidence on the dynamic effects of geopolitical risk on bilateral trade. Section 3 develops and solves the model in closed form. Section 4 presents a quantitative analysis based on a calibrated version of the model. A final section concludes.

Related Literature. Geopolitical tensions and trade disruptions are not complete strangers to the literature. Early contributions examined how the mere threat of a trade embargo affects the volume of (free) trade and whether this warrants policy

[1]While our model features multiple steady states, it remains rooted in the liberal paradigm: it predicts a negative relationship between conflict probability and trade integration. This distinguishes it from the "realist" view, according to which deeper trade integration may increase rivalry among countries—particularly potential hegemons—and thus raise the probability of conflict (Thoenig 2024; Broner et al. 2025).

[2]In their model, multiplicity arises from expectations-driven educational decisions and voting behavior: expectations of future protection may sustain an existing protectionist policy, while expectations of future liberal policies may sustain a pre-existing liberal policy.

[3]Blanchard and Willmann (2022) develop a model that, like ours, highlights how temporary macroeconomic shocks can have lasting effects. The mechanism, however, differs: it relies on differences in the speed of economic and political adjustment, with labor market frictions slowing economic adjustment and a populist government swiftly implementing protection.

intervention (Bhagwati and Srinivasan 1976; Mayer 1977; Tolley and Wilman 1977; Arad and Hillman 1979; Bergström et al. 1985; Cheng 1989).[4] Grossman et al. (2023) revisit this issue with particular emphasis on firms' risk diversification through sourcing decisions. Consistent with this idea, a number of recent studies document de-risking strategies and decoupling trends at both the firm and country level (Alfaro and Chor 2023; Goldberg and Reed 2023). Our contribution is to show that trade disruption is an endogenous policy choice that depends on trade dependence, which itself arises from firms' sourcing decisions under geopolitical risk.

We share this perspective with a second strand of the literature that studies the relationship between political alignment and trade. Kleinman et al. (2024) propose a model and present empirical evidence suggesting that economic dependence fosters political friendship among states. Broner et al. (2025) develop a theory in which hegemons simultaneously promote policy alignment and trade integration. Meyer and Wesseler (2025) show how two competing hegemons may use carrots and sticks to win over third countries. The geoeconomic framework advanced by Clayton et al. (2026) emphasizes the limited enforceability of trade contracts, which a hegemon may exploit to its advantage when shaping international trade relationships.

Our analysis differs from this strand in that we allow for conflict to escalate in equilibrium rather than bargaining between countries—a key feature we share with the seminal study of Martin et al. (2008). They examine governments' decisions to let political tensions escalate into conflict, which entails a breakdown of trade and whose likelihood depends on the level of trade integration. In their framework, however, this possibility does not enter firms' decisions, which are modeled through a standard gravity structure. Instead, their focus is on the distinction between bilateral and multilateral trade as determinants of interstate conflict. In a related context, Thoenig (2024) and Mayer et al. (2025) identify and quantify a "fundamental security dilemma": diversifying import sources makes a country more resilient in the event of conflict but also increases the risk of war by lowering the opportunity cost of fighting. There is, in other words, a trade-off between the extensive and intensive margins of war. In contrast, in our model policymakers trade off deeper trade integration ex ante against reduced scope for geopolitical action ex post.

Lastly, an emerging empirical literature studies how geopolitical tensions affect

[4]The literature has also documented the adverse effects of war on trade (Glick and Taylor 2010; Federle et al. 2026).

trade and international capital flows (for instance, Niemann 2023; Pellegrino et al. 2025). Some contributions rely on the geopolitical risk (GPR) index, as we do. Using country-specific geopolitical risk measures in gravity-style settings, Nair and Tripathi (2026) find that higher geopolitical risk reduces bilateral services trade, while Hou et al. (2024) show that it raises bilateral trade costs, particularly for agricultural goods. Khalil et al. (2025) also examine the dynamic response of trade to geopolitical risk shocks but rely on simple local projections rather than the gravity framework we employ and find that the effects of geopolitical risk on trade are transitory rather than permanent.

2 Evidence

In this section, we examine how international trade adjusts over time following an increase in geopolitical risk. By focusing on adjustment dynamics, our approach differs from the emerging literature that links trade outcomes to geopolitical factors, which typically relies on static gravity models and abstracts from dynamic adjustment processes.

2.1 Empirical framework

We integrate a structural gravity framework with local projection methods. More specifically, we estimate a sequence of horizon-specific gravity regressions in which future trade flows are projected on contemporaneous exporter-specific geopolitical risk, while maintaining the standard exporter-time and importer-time fixed effects. This approach preserves the discipline of gravity while allowing for flexible, non-parametric impulse responses. Unlike conventional dynamic panel specifications, local projections do not impose a specific adjustment structure, allowing us to remain agnostic about how geopolitical risk affects international trade over time. Formally, we estimate the following baseline specification:

$$X_{ij,t+h} = \exp\Big\{\gamma_h \ln(1 + X_{ij,t-1}) + \lambda_{ij}^h + \lambda_{it}^h + \lambda_{jt}^h + \beta_h \text{GPR}_{ij,t} + \varepsilon_{ij,t+h}\Big\}. \quad (1)$$

Here, $X_{ij,t+h}$ denotes imports of country j from i, (equivalently, exports of i to j), in year $t+h$ for $h \geq 0$. Imports are measured either in current dollars or relative to GDP. We include lagged trade (in logs) to account for persistence and improve precision.

Jordà et al. (2024) show that local projections, when appropriately augmented with lags as in our case, are able to detect the effects of shocks at very long horizons. Acknowledging gravity theory, the specification includes dyadic fixed effects λ_{ij} and exporter-time and importer-time fixed effects, λ_{it} and λ_{jt}.

Our main interest lies in how trade adjusts to geopolitical risk, $\text{GPR}_{ij,t}$. We focus on exporter-specific risk and construct $\text{GPR}_{ij,t}$ by interacting the (log) country-specific geopolitical risk index compiled by Caldara and Iacoviello (2022), denoted by $\text{GPR}_{i,t}$, with an indicator for cross-border trade. Formally, we have: $\text{GPR}_{ij,t} = \mathbf{1}_{\{i \neq j\}} \cdot \text{GPR}_{i,t}$. This approach follows Mulabdic and Yotov (2025), who apply it to a global measure of geopolitical risk, whereas we use exporter-specific risk. Since country-level $\text{GPR}_{i,t}$ data are available only for a subset of countries, the estimation sample is restricted to exporters for which this measure is observed, while retaining the full set of countries as potential importers. We estimate equation (1) using Poisson pseudo-maximum likelihood (PPML), which accommodates zero trade flows and remains consistent under heteroskedasticity.

Identification exploits the inclusion of both international and domestic trade flows in our sample. Because geopolitical risk varies at the exporter–time level, exporter–time fixed effects absorb its common macroeconomic effects on all shipments—both domestic and international—from a given exporter in a given year. As a result, β_h is identified from the differential response of cross-border relative to domestic trade. The coefficient therefore isolates how an increase in geopolitical risk in exporter i affects its international sales relative to domestic absorption, net of importer-time shocks and time-invariant dyadic heterogeneity.

To set the stage for our analysis of international trade, we first examine the dynamics of global geopolitical risk as such, based on a simple local projection:

$$\text{GPR}_{i,t+h} = \alpha_i^h + \alpha_t^h + \beta_h \text{GPR}_{i,t} + \sum_{\ell=1}^{p} \gamma_{h,\ell} \text{GPR}_{i,t-\ell} + \varepsilon_{i,t+h}, \qquad h = 1, 2, \ldots \quad (2)$$

where $\text{GPR}_{i,t}$ is the (log) country-level geopolitical risk index compiled by Caldara and Iacoviello (2022) for selected countries. The terms α_i^h and α_t^h denote country and time fixed effects. In this case, we begin at $h = 1$ to avoid the mechanical regression of $\text{GPR}_{i,t}$ on itself. Specification (2) traces the dynamic response of geopolitical risk to a contemporaneous increase in $\text{GPR}_{i,t}$, conditional on its lagged history. Including lags ensures that the estimated coefficients capture the propagation of changes in

geopolitical risk beyond predictable persistence.[5]

In addition, we estimate panel local projections to study the adjustment of country-level output to geopolitical risk:

$$y_{i,t+h} = \alpha_i^h + \alpha_t^h + \beta_h \text{GPR}_{i,t} + \sum_{\ell=1}^{p} \gamma_{h,\ell} \text{GPR}_{i,t-\ell} + \delta_h y_{i,t-1} + \varepsilon_{i,t+h}, \qquad h = 0, 1, \ldots \quad (3)$$

where $y_{i,t+h}$ denotes log real output in country i, and $\text{GPR}_{i,t}$ is the (log) country-level geopolitical risk index compiled by Caldara and Iacoviello (2022) for selected countries. The terms α_i^h and α_t^h denote country and time fixed effects. We estimate equations (2) and (3) using OLS, setting $p = 4$.

2.2 Data

Our dataset is compiled from three primary sources. First, we draw on bilateral trade flow data from the TradeProd database (Mayer et al. 2023), which provides annual observations for 168 countries over the period 1966–2020. For each country pair, we aggregate sectoral imports across nine merchandise sectors to construct a measure of total bilateral imports. A key advantage of the TradeProd database is its reporting of intranational trade flows. This feature enables us to incorporate domestic trade alongside international trade in the estimation, which is central to our identification strategy, as outlined above.

Second, we rely on two sources for GDP data. We use the CEPII Gravity database as a source of nominal GDP (Conte et al. 2022). Nominal GDP is measured in current U.S. dollars and is used below to scale nominal imports. The database provides data for over 200 countries and covers the years 1949 to 2021. We rely on the Gravity database because of its compatibility with the TradeProd data. Our combined dataset covers the period 1966–2020 and includes 167 countries. We also obtain data on GDP measured in constant 2021 international dollars from the World Development Indicators compiled by the World Bank. These data cover the period 1990–2024 and 266 countries.

Last, we rely on the Geopolitical Risk indices compiled by Caldara and Iacoviello (2022). They quantify adverse geopolitical risk based on newspaper coverage and are

[5]Given the descriptive nature of this exercise and the limited time-series dimension, we adopt a parsimonious specification that controls only for lagged geopolitical risk and includes country and year fixed effects.

available at a monthly frequency from 1900 onward. We aggregate the monthly series to the annual level using simple averages, as this corresponds to the frequency at which trade data are available for the large country panel on which we rely. Country-level data for the GPR are available for 44 countries. In the gravity estimations using country-specific geopolitical risk, these countries constitute the set of exporters, while the full country sample is retained on the importer side. For both the global and the country-level measures, we consider the log of the GPR below.

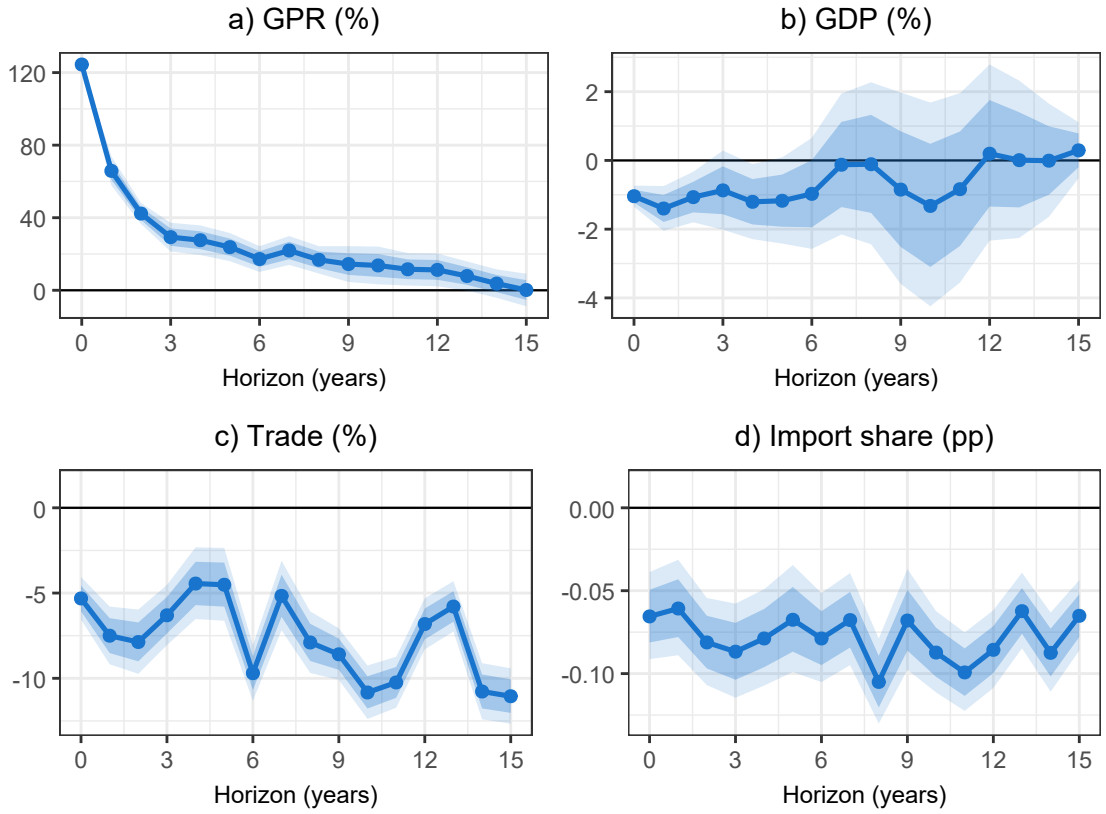
2.3 Results

Figure 1 reports impulse response functions for a one standard-deviation increase in country-specific geopolitical risk. In each panel, the solid line represents the point estimate, while the shaded areas indicate the 68 and 90 percent confidence intervals. The upper-left panel displays the response of geopolitical risk to a one-standard-deviation innovation in $\text{GPR}_{i,t}$, obtained from estimating specification (2) on annual data for 1966–2020, with confidence bands based on Driscoll-Kraay standard errors. The innovation is orthogonal to past realizations of $\text{GPR}_{i,t}$, and the response is expressed in percent (vertical axis), with the horizontal axis measuring years since the innovation. Geopolitical risk increases following this innovation but gradually declines, returning to its baseline level after approximately six years. This dynamic pattern is consistent with Caldara and Iacoviello (2022), who, using a VAR model estimated on quarterly U.S. data, document a temporary rise in global GPR_t that dissipates within two to three years.

The upper-right panel of Figure 1 reports the response of output, estimated using specification (3) on annual data for 1990–2020. Because we rely on the country-specific measure of GPR in this case, the sample is restricted to 42 countries, and confidence intervals are computed using Driscoll–Kraay standard errors. Output declines by approximately 1 percent following a one-standard-deviation increase in geopolitical risk, in line with Caldara and Iacoviello (2022), who also find that GPR increases are recessionary, although they do not report the response of GDP. However, the effect on GDP shown in panel (b) becomes statistically insignificant after three years, and we cannot reject the hypothesis that output returns to its pre-innovation level.

Finally, we turn to the response of trade, shown in the bottom panels of Figure 1. In this case, the estimates are based on specification (1) using observations for the

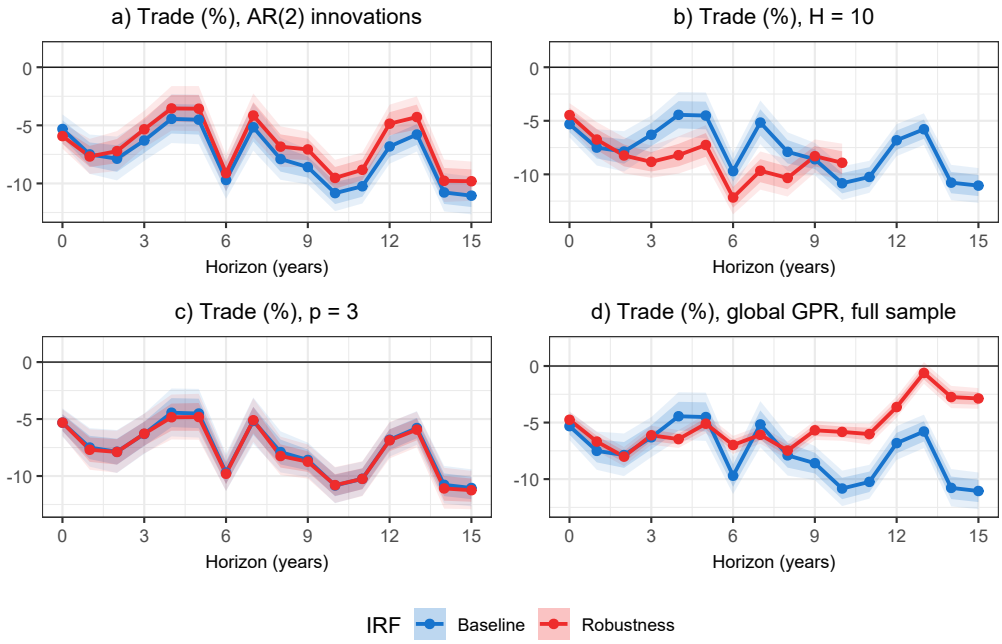
Figure 1: Dynamic adjustment to geopolitical risk



Notes: The figure shows the effect of a one standard-deviation increase in geopolitical risk on the GPR index itself (panel a), on output (panel b), as well as on bilateral trade and the import share (panels c and d). Projections in panels a and b include the lag of the dependent variable, as well as the log GPR index with four lags. Projections in panels c and d include the log of the lagged dependent variable, as well as the log GPR index interacted with an international-trade indicator. All panels are estimated on a balanced sample. Reported are 68% confidence bounds (dark blue) as well as 90% confidence bounds (light blue).

period 1966–2020 and restricting the set of exporters to countries for which the country-specific geopolitical risk measure is available, while retaining the full set of countries as potential importers; standard errors are clustered at the country-pair level. Panel (c) shows the response of trade flows, measured as imports of country i from country j in current dollars. Panel (d) instead reports the response of imports relative to GDP. In both cases, we observe a sizeable decline in international trade following an increase in exporter-specific geopolitical risk. As discussed above, the estimates

Figure 2: Robustness to alternative specifications



Notes: The figure shows robustness to alternative specifications of the trade projection. Panel a uses AR(2) innovations as shock measure. Panel b caps the horizon at ten years. Panel c reduces the number of shock-lags to three. Panel d uses the global GPR measure as shock variable and estimates on the full sample of countries.

capture the effect of an increase in geopolitical risk in the exporting country on international trade relative to intranational trade. Put differently, a rise in geopolitical risk makes an exporter a less attractive or less reliable foreign sourcing location, reducing its cross-border sales relative to domestic absorption. Importantly, there is no evidence that the effect dissipates over time. Even 15 years after the onset, international trade remains substantially depressed. We regard this as the central finding of our empirical analysis: a *temporary* increase in exporter-specific geopolitical risk leads to a *permanent* decline in cross-border trade flows relative to domestic trade. The implication is that the underlying forces of geopolitical risk and trade allow for multiple equilibria.

Robustness. Figure 2 shows that the results are robust to using AR(2) innovations in $\text{GPR}_{i,t}$ as shock, capping the horizon at $h = 10$, and reducing the number of shock lags. They are also robust to using the global GPR measure and the full trade sample.

3 A model of trade and geopolitical tensions

We develop a simple model that formalizes government as well as firm decisions in an environment of geopolitical tensions. We focus on the decisions in the domestic economy assuming they do not impact decisions in the foreign country, that is, we take a small-open economy perspective. We first deal with firms' decisions on offshoring, conditional on the likelihood that the government will disrupt trade, to be followed by the government's decision, conditional on firms' offshoring decision. Assuming rational expectations on the part of firms, the interaction between firms and the government delivers adjustment dynamics in line with the evidence presented in the previous section.

3.1 Firm behavior

We rely on the canonical model of global sourcing, due to Antràs (2003) and Antràs and Helpman (2004), to examine how the specter of a trade disruption affects firms' global sourcing strategies. There are two traded sectors, a numéraire sector and a differentiated goods sector with a given mass of firms acting under monopolistic competition. Domestic producers of varieties are heterogeneous in terms of total factor productivity. We assume costless product differentiation, so each firm supplies a distinct variety, and we use φ to denote the productivity of the firm producing variety φ. Firm productivity follows a distribution function $H_\varphi(\varphi)$ over the domain $[\underline{\varphi}, \infty)$. Production of each variety is governed by a Cobb-Douglas technology with two inputs, a headquarter service h and a manufacturing input m:

$$q(\varphi) = \varphi \left(\frac{h}{\eta}\right)^{\eta} \left(\frac{m}{1-\eta}\right)^{1-\eta}. \tag{4}$$

We stick to the labels established in the literature, but the term "headquarter" is a mere label for inputs that needs to be performed using domestic (D) labor, as opposed to the manufacturing input which *may* be obtained from the foreign (F) country which enjoys a wage advantage: $w_F < w_D$. Wages are determined by the labor productivity in the numéraire sector. For simplicity, we normalize the domestic wage to unity: $w_D = 1$. Moreover, we assume that either type of input is generated with a unitary labor productivity, regardless of where it is produced. In addition to the variable inputs h and m, variety producers need to incur a *periodic* fixed cost, defined in terms

of labor, which is equal to f_D if production is wholly domestic, and equal to $f_O > f_D$ if m is obtained from offshore, i.e, from the foreign economy.

Each firm faces iso-elastic demand for its variety, such that

$$q(\varphi) = Ap(\varphi)^{-\sigma} \quad \text{with} \quad \sigma > 1 \tag{5}$$

where $p(\varphi)$ is the price set by the firm. The parameter A is increasing in (world) income and the share of this income spent on differentiated goods as well as in the price index for these goods. For the entire analysis, we keep this shift parameter constant and invariant to trade disruption.

Each period, firms decide about incurring the fixed cost f_O or f_D by comparing maximum expected profits under domestic and foreign sourcing. The minimum unit cost for a variety produced with domestic m is equal to $w_D = 1$; if m is obtained from offshore it is equal to $w_D^{\eta} w_F^{1-\eta} = w_F^{1-\eta}$. For simplicity, we assume away any tariff or real trade cost on imports of m. Given a finite price elasticity σ, firms engage in markup pricing. Writing $p_D(\varphi)$ for the price of a firm with productivity φ sourcing domestically, and analogously for $p_O(\varphi)$ if it sources offshore, maximum *operating* profits for domestic and foreign sourcing, denoted by π_D and π_O, respectively, are as follows:

$$\pi_D(\varphi) := \max_{p_D(\varphi)} \left(p_D(\varphi) - \frac{1}{\varphi} \right) A p_D(\varphi)^{-\sigma}, \quad \text{and} \tag{6}$$

$$\pi_O(\varphi) := \max_{p_O(\varphi)} \left(p_O(\varphi) - \frac{w_F^{1-\eta}}{\varphi} \right) A p_O(\varphi)^{-\sigma}. \tag{7}$$

For simplicity, we assume that all magnitudes on the right-hand side of the above expressions are time-invariant, as are the fixed cost f_D and f_O. However, at the time the fixed cost f_O must be incurred, there is uncertainty about the trade disruption arising from political tensions. Thus, offshoring implies an investment with an uncertain return. We use ω_t to denote the likelihood that a trade disruption will occur in period t. This is our ultimate object of interest in our analysis. Importantly, we assume that in case of a trade disruption, all firms having incurred the fixed cost f_O will be unable to obtain the essential input m from abroad and will not, in the short run, be able to resort to domestic procurement. Expected period-t operating profits from offshoring are thus equal to $(1 - \omega_t)\pi_O(\varphi)$, since a trade disruption implies that firms

who have positioned themselves for offshoring cannot immediately resort to domestic procurement of the (necessary) manufacturing input.

Domestic sourcing involves no uncertainty. The equality $\pi_D(\varphi) = f_D$ determines a threshold productivity $\tilde{\varphi}_D$, below which firms will make losses with domestic sourcing. We assume that firms with productivity $\varphi < \tilde{\varphi}_D$ have already exited the market. Without loss of generality, we may simplify further by assuming $\tilde{\varphi}_D = 1$.[6] Note that $\tilde{\varphi}_D$, too, is time-invariant. However, there is a second threshold value, varying across time, which is implicitly determined by the condition

$$(1 - \omega_t)\pi_O(\tilde{\varphi}_{O,t}) - f_O = \pi_D(\tilde{\varphi}_{O.t}) - f_D. \tag{8}$$

In this equation, we have introduced the subscript index t for period t where relevant. Moreover, the equation assumes risk-neutral firms. Assuming further that $\frac{f_O}{f_D} > (1 - \omega_t)\, w_F^{(1-\eta)(1-\sigma)}$, we obtain the result that firms with a productivity $\varphi \in [\tilde{\varphi}_D, \tilde{\varphi}_{O,t}]$ will prepare for domestic sourcing in period t by incurring f_D while firms with a productivity above $\tilde{\varphi}_{O,t}$ will prepare for offshoring in period t by incurring f_O. It is obvious that $\tilde{\varphi}_{O,t}$ is rising in ω_t. We indicate this by writing $\tilde{\varphi}_{O,t} = \tilde{\varphi}_O(\omega_t)$, with $\tilde{\varphi}'_{O,t} > 0$.

To allow for an explicit solution we now assume a Pareto distribution for φ, denoted by H_φ with a shape parameter $\kappa > 2$: $H_\varphi(\varphi) = 1 - \varphi^{-\kappa}$. The share of firms willing to invest into offshoring is then equal to $1 - H_\varphi\left[\tilde{\varphi}_O(\omega_t)\right]$. It proves convenient to measure import dependence by

$$\Upsilon_t := \left(1 - H_\varphi\left[\tilde{\varphi}_O(\omega_t)\right]\right)^{1-\theta} / (1 - \theta). \tag{9}$$

On the right-hand side, the parameter θ is defined as $\theta := (\sigma - 1)/\kappa > 0$. Hence Υ_t is a positive monotonic transformation of the offshoring share of firms. In the following, we simplify by writing this equation as $\Upsilon_t = \Upsilon_P(\omega_t)$, with $\Upsilon'_P < 0$. The subscript P on the functional symbol indicates that this focuses on private sector behavior, as opposed to government behavior which will be indicated by a subscript G below.

In Appendix C, we show that firm behavior under geopolitical risk satisfies the

[6] This effectively ties down the shift parameter A which we assume to be constant (see above).

following relationship:

$$\Upsilon_P(\omega) \;=\; \begin{cases} \frac{1}{1-\theta}\left(\frac{B}{f_O-f_D}\left[(1-\omega)\,k-1\right]\right)^{(1-\theta)/\theta} & \text{if} \quad (1-\omega)k>1 \\ 0 & \text{if} \quad (1-\omega)k\leq 1 \end{cases} . \qquad (10)$$

We assume that $\kappa > \sigma - 1$, hence $\theta \in (0,1)$. The term k is defined as $k := w_F^{(1-\eta)(1-\sigma)} > 1$; it measures the extent to which offshoring offers a variable cost advantage. Remember that we have normalized the domestic wage rate to unity. The term $B \equiv \frac{A}{\sigma}\left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma}$ is positively related to the size of the market A. The above relationship may be summarized by the following lemma.

Lemma 1 (firm behavior)**.**
(a) *For $\omega < 1 - 1/k < 1$, the function $\Upsilon_P(\omega)$ is downward-sloping.*
(b) *For $\theta < 1/2$, the function $\Upsilon_P(\omega)$ is convex.*
(c) *For free-trade, $\omega = 0$, we have $\overline{\Upsilon}_P := \Upsilon_P(0) = \left[B(k-1)/(f_O - f_D)\right]^{(1-\theta)/\theta}/(1-\theta)$.*
(d) *For a given value of ω, $\Upsilon_P(\omega)$ and its slope $\Upsilon'_P(\omega)$ are both increasing in k and B as well as decreasing in $f_O - f_D$ and θ.*

The intuition is obvious. Note that even for a very high value of $\omega \in (0,1)$, the cost advantage of offshoring may be large enough, $k > 1/(1-\omega)$, to ensure offshoring, $\Upsilon(\omega) > 0$. Conversely, even for a very low value of $\omega \in (0,1)$, the cost advantage may be low enough, $k < 1/(1-\omega)$, so that $\Upsilon(\omega) = 0$.

3.2 Government

We assume that geopolitical tensions are such that the government may obtain a political benefit from a trade disruption, denoted by ν. The geopolitical environment is characterized by the distribution function $H_\nu(\nu)$. Each period, the government draws from $H_\nu(\nu)$, and we refer to this draw as *geopolitical shock*. In contrast, a change in the geopolitical environment that alters H_ν is referred to as a *geopolitical risk shock*. Crucially, the periodic geopolitical shock occurs after firms have sunk the fixed costs for their sourcing strategies. The general interpretation of this shock is an event which, as such, is beyond the domestic government's control, and which generates a specific situation in which the government is called upon to react and where it stands to benefit in the amount ν from reacting in such a way that trade collapses. Such a reaction might take the form of a trade embargo imposed by the domestic government,

but it may also be the decision to abstain from a policy of appeasement that might have prevented the situation to escalate into a trade disruption imposed by a foreign country. In either case, the trade disruption is of the domestic government's own volition.

A benefit from imposing a trade disruption (or from failing to prevent it) may seem like a strange or even provocative concept. However, in the context of Russia's war against Ukraine we have witnessed several rounds of sanctions imposed by western governments that did amount to (at least partial) trade disruptions harming western firms. This is implicit evidence for the existence of some form of non-economic benefit associated with the disruption. We deliberately abstain from any deeper analysis, but simply speak of a geopolitical benefit, given the geopolitical shock, of a trade disruption.[7]

We assume $H_\nu(\nu)$ to be the uniform distribution over the interval $[\underline{\nu}, \overline{\nu}]$. Moreover, we assume ν to be expressed in income-equivalent terms, so that it can meaningfully be set against the economic cost of the trade disruption.[8] Importantly, $\underline{\nu}$ may well be negative, implying a positive probability that the trade disruption involves a political loss, not a benefit. This may occur, in particular, in case the foreign country is generally considered relatively friendly. The government decides in favor, or against, a trade disruption, depending on whether or not the benefit ν overcompensates the economic cost from disrupted trade. We use $C(\Upsilon_{t-1})$ to denote the estimated cost of a trade disruption *in period* t as a function of the offshoring share of the *previous* period, Υ_{t-1}. The key assumption here is that the government is unable to observe the share of firms that have incurred f_O in the present period. Hence, it relies on information of the previous period.[9]

A welfare-based definition of $C(\Upsilon_{t-1})$ looks at the total income loss. Assuming perfectly mobility of labor between the two sectors, a trade disruption would not

[7] An alternative interpretation of this benefit is economic in nature: a future economic loss that is *avoided* by decoupling the supply chain of domestic firms from the region where the geopolitical shock arises. More specifically, a preemptive decoupling imposed by the domestic government, though painful in the present, may avoid an even more painful cost to be expected in the future when heavily trade-reliant firms are hit by a sudden cut-off from foreign supply imposed by the foreign government.

[8] Remember that we have assumed quasi-linear preferences, hence welfare is directly measured in terms of income.

[9] If there was no disruption in period $t-1$, then the government may rely on observed offshoring.If there was a trade disruption in $t-1$, then the government relies on the share of firms having incurred f_O in the previous period which, unlike that share of the present period, we assume is known to the government.

cause any labor income loss, since wage income is determined by productivity in the numéraire sector. Consequently, the income loss from the trade disruption is measured by the loss in profit income. But the welfare-based definition of $C(\Upsilon_{t-1})$ must look at the *real* income loss, taking into account the price index increase due to foregone production of firms affected by the trade disruption. The price index increases due to lost variety and because offshoring firms are the more productive ones that set lower prices for their variants. Details of the function C are found in the appendix.

Under the assumptions stated above, the probability that the government disrupts trade is given by the following function:

$$\omega_G(\Upsilon_{t-1}) \quad = \quad \begin{cases} 1 - \frac{C(\Upsilon_{t-1}) - \underline{\nu}}{\overline{\nu} - \underline{\nu}} & \text{if} \quad C\left(\Upsilon_{t-1}\right) \in [\underline{\nu}, \overline{\nu}] \\ 1 & \text{if} \quad C\left(\Upsilon_{t-1}\right) < \underline{\nu} \\ 0 & \text{if} \quad C\left(\Upsilon_{t-1}\right) > \overline{\nu} \end{cases} . \tag{11}$$

We may summarize government behavior by the following lemma.

Lemma 2 (government behavior)**.**
(a) *For $C\left(\Upsilon_{t-1}\right) \in [\underline{\nu}, \overline{\nu}]$, the function is downward-sloping.*
(b) *If $\underline{\nu} < 0$, then $\omega_G(0) = \overline{\nu}/(\overline{\nu} - \underline{\nu}) < 1$.*
(c) *If $\underline{\nu} > 0$, then $\omega_G(\Upsilon_{t-1}) = 1 \ \forall \ \Upsilon_{t-1} < \underline{\Upsilon}_G$, where $\underline{\Upsilon}_G$ is determined by $C(\underline{\Upsilon}_G) = \underline{\nu}$.*
(d) *We have $\omega_G(\Upsilon_{t-1}) = 0 \ \forall \ \Upsilon_{t-1} \geq \overline{\Upsilon}_G$, where $\overline{\Upsilon}_G$ is determined by $C(\overline{\Upsilon}_G) = \overline{\nu}$.*

All parts of this lemma follow more or less directly from Equation (11) above. If the trade disruption potentially carries a political cost, $\underline{\nu} < 0$, then the likelihood of such a disruption is less than one even if there is no trade. If the political benefit of a disruption is guaranteed to be positive, $\underline{\nu} > 0$, then the trade disruption is certain even if it carries an economic cost provided that the foreign dependence of the previous year falls below a certain threshold $\underline{\Upsilon}_G$. Conversely, if foreign dependence surpasses an upper threshold $\overline{\Upsilon}_G$, then the likelihood of a disruption falls to zero.

Establishing a firm connection to the previous section, we now stipulate that an increase in geopolitical risk, as measured in the previous section, leads to an increase in $\overline{\nu}$, the maximum benefit that the government may achieve from disrupting trade. For any given disruption cost above $\underline{\nu}$, higher geopolitical risk thus implies an increase the likelihood that the government is willing to accept this cost for the sake of a geopolitical benefit. Moreover, it implies an increase in the choke point of foreign dependence, $\overline{\Upsilon}_G$, that reduces the the likelihood of a trade disruption down to zero.

3.3 Equilibrium dynamics

When firms decide about paying the fixed cost f_O in period t, firms form rational expectations about government behavior. We may thus use $\omega_t = \omega_G(\Upsilon_{t-1})$ to substitute in (9), $\Upsilon_t = \Upsilon_P[\omega_G(\Upsilon_{t-1})]$, arriving at

$$\Upsilon_t = \left(1 - H_\varphi\left[\tilde{\varphi}_O(\omega_G(\Upsilon_{t-1}))\right]\right)^{1-\theta}/(1-\theta). \tag{12}$$

In the sequel, we simply write this as $\Upsilon_t = v(\Upsilon_{t-1})$, where $v' > 0$. Note that our equilibrium concept relates to the share of firms planning for an offshoring strategy by investing f_O upfront. Plans are carried out only in case there is no disruption in the ongoing period. For simplicity, we assume that the disruption, if occurring, lasts for one period. Equation (12) describes the resulting equilibrium dynamics: firms' offshoring investment is driven by expectations about the likelihood of a trade disruption, anticipating the government's disruption rule, whereby the disruption cost is calculated relying on the amount of offshoring observed in previous period.

The *steady state* value of Υ, denoted by Υ^*, is determined by the condition

$$\Upsilon^* = v\left(\Upsilon^*\right). \tag{13}$$

The corresponding steady state value of the disruption likelihood, ω^*, is implicitly determined by

$$\omega^* = \omega_G[\Upsilon_P(\omega^*)]. \tag{14}$$

A key message of this paper is that the Montesquieu-logic cuts both ways and may suffer from a fundamental indeterminacy, allowing for both, a *high-trade steady state* associated with a low likelihood of disruption, and a *low-trade steady state* associated with a high likelihood of disruption. This message is now substantiated in the following proposition.

Proposition 1 (multiple steady states)**.**
(a) *If $\underline{\nu} > 0$, then there exists a* ***low-trade*** *steady state with $\omega^* = 1$ and $\Upsilon^* = 0$.*
(b) *If $\underline{\nu} < 0$ and $\overline{\nu}/(\overline{\nu} - \underline{\nu}) > 1 - 1/k$, then there exists a* ***low-trade*** *steady state with $\omega^* = \overline{\nu}/(\overline{\nu} - \underline{\nu}) < 1$ and $\Upsilon^* = 0$.*
(c) *If $\overline{\Upsilon}_P > \overline{\Upsilon}_G$, then there exists a* ***high-trade*** *steady state with $\omega^* = 0$ and $\Upsilon^* = \overline{\Upsilon}_P$.*
(d) *The two types of steady state may* ***coexist****, in which case there also exists an* ***in-between*** *steady state with $\omega^* \in (0,1)$ and $\Upsilon^* \in (0, \overline{\Upsilon}_P)$. Moreover, the low-trade*

steady state may also feature positive trade, $\Upsilon^* > 0$.
(e) *If the conditions stated in (a) through (c) are violated, then there exists a* ***unique interior*** *steady state with* $\omega^* \in (0,1)$ *and* $\Upsilon^* \in (0, \overline{\Upsilon}_P)$.

Proof. The proof makes use of the function $\upsilon(\Upsilon)$ defined above, which is depicted in Figure 3 below, which plots the line $\upsilon(\Upsilon_{t-1})$ for a calibrated version of our model.
(a) If $\underline{\nu} > 0$, then for $\Upsilon = 0$ the disruption likelihood is unity, which leads to zero trade, $\upsilon(0) = 0$. This implies the existence of a steady state with $\omega^* = 1$ and $\Upsilon^* = 0$, as stated in part (a).
(b) If $\underline{\nu} \leq 0$, then $\omega_G(0) = \overline{\nu}/(\overline{\nu} - \underline{\nu}) < 1$; see Lemma 2. I.e., even for zero trade the likelihood of a trade disruption is less than one. If $\overline{\nu}/(\overline{\nu} - \underline{\nu}) > 1 - 1/k$, the value above which the private sector responds with zero trade, then there exists a steady state with $\omega^* = \overline{\nu}/(\overline{\nu} - \underline{\nu})$ and $\Upsilon^* = 0$, as stated in part (b).
(c) Remember that $\overline{\Upsilon}_G$ is the level of Υ that delivers $\omega = 0$. Hence, if $\overline{\Upsilon}_P > \overline{\Upsilon}_G$, then there is a steady state with $\omega^* = 0$ and $\Upsilon^* = \overline{\Upsilon}_P$, as stated in part (c).
(d) In part (c), the level of $\overline{\Upsilon}_G$ is implicitly determined by $C(\overline{\Upsilon}_G) = \overline{\nu}$, while $\overline{\nu}$ plays no role for the conditions listed in (a) or (b). Hence, our model allows for both, steady states with $\Upsilon^* = 0$ and $\Upsilon^* = \overline{\Upsilon}_P$, as stated in part (d). Existence of a third steady state is demonstrated as follows: i) The value of $\omega_G(\Upsilon)$ remains at unity for all $\Upsilon \in [0, \underline{\Upsilon}_G]$; see Lemma 2. At the same time, $\Upsilon_P(\omega)$ remains at zero for all $\omega \in [1 - 1/k, 1]$; see Lemma 1. Hence, for $\Upsilon \in (0, \hat{\Upsilon}]$ we have $\upsilon(\Upsilon) = 0 < \Upsilon$, where $\hat{\Upsilon}$ is implicitly defined by $\omega_G(\hat{\Upsilon}) = 1 - 1/k$. ii) If $\overline{\Upsilon}_P > \overline{\Upsilon}_G$, then for all $\Upsilon \in [\overline{\Upsilon}_G, \overline{\Upsilon}_P]$ we have $\omega_G(\Upsilon = 0)$, hence $\upsilon(\Upsilon) > \Upsilon$. iii) The function $\upsilon(\Upsilon)$ is rising and continuous. If, moreover, it has no inflection point, then i) and ii), coupled with continuity, imply the existence of a single in-between steady state. In Appendix C, we demonstrate that multiple steady states may also arise with the low-trade steady state featuring positive trade, i.e., if $\overline{\nu}/(\overline{\nu} - \underline{\nu}) < 1 - 1/k$. Such a case is depicted in Figure 3 below.
(e) If $\underline{\nu} < 0$ and $\overline{\nu}/(\overline{\nu} - \underline{\nu}) < 1 - 1/k$, then $\omega_G(0)$ delivers positive trade, so that for values in the neighborhood above $\Upsilon = 0$ we have $\upsilon(\Upsilon) > \Upsilon$. If $\overline{\Upsilon}_P < \overline{\Upsilon}_G$, then $\omega_G(\overline{\Upsilon}_P) > 0$. Therefore, Υ-values at $\overline{\Upsilon}_P$ and in the neighborhood below deliver $\upsilon(\Upsilon) < \Upsilon$. The logic of i) through iii) for part (d) by analogy now implies the existence of a unique interior steady state, as stated in part (e). To avoid clutter, this case is not depicted in Figure 3. □

According to this proposition, the number of steady states is either one or three.

The latter case reflects the fundamental "Montesquieu indeterminacy." It should be noted that three steady states may also arise if either conditions (a) and (b) or condition (c) are violated. The blue line in Figure 3 depicts a case where conditions (a) and (b) are violated while condition (c) is satisfied. Depending on the exact shape of the $v(\Upsilon)$–line it may, or may not, intersect the 45-degree line in the interval $[0, \overline{\Upsilon}_P)$. If it does, then there are two interior steady states (as depicted), if it doesn't, then $\Upsilon^* = \overline{\Upsilon}_P$ is the only steady state.

In order to characterize the convergence dynamics around the steady state(s), we rely on linear approximations. Thus, suppose that at some point t the economy is in a situation with planned offshoring $\Upsilon_t > \Upsilon^*$. Writing our dynamic relationship in Equation (12) as $\Upsilon_t = \Upsilon_P [\omega_G(\Upsilon_{t-1})]$ and linearizing around the steady state, we obtain

$$\Upsilon_t - \Upsilon^* = \Upsilon'_P \omega'_G (\Upsilon_{t-1} - \Upsilon^*), \tag{15}$$

where the derivatives Υ'_P and ω'_G are evaluated at the steady state values of Υ and ω. We generally have $\Upsilon'_P \omega'_G > 0$, but stability now requires that $\Upsilon'_P \omega'_G = v' < 1$.

Proposition 2 (stability)**.**
(a) *If there are three steady states, then the high-trade and the low-trade steady state are stable while the steady state in-between is unstable.*
(b) *Any unique steady state is stable.*

Proof. **(a)** Consider first a **low-trade** steady state with $\Upsilon^* = 0$ and $v(0) = 0$. Lemma 1 implies that $\Upsilon_P(\omega^*) = 0$, which in turn implies that v is horizontal at point zero, hence $v'(0) = 0 < 1$ so that the this steady state is stable. A low-trade steady state may also arise with $\Upsilon^* > 0$, as in in Figure 3 below. In this case, $v(0) > 0$, which in turn implies that $v'(\Upsilon^*) < 1$. This is best seen by recognizing that in Figure 3 the line $v(\cdot)$ intersects the 45-degree-line from the left and above the 45-degree-line.[10]
Next, consider a **high-trade** steady state with $\omega^* = 0$. In this case Lemma 2 implies that $\omega'_G(\Upsilon^*) = 0$, which again implies stability: $v'(\Upsilon^*) = 0 < 1$.
Instability of the **in-between** steady state follows from the fact that in Figure 3 the $v(\cdot)$-line intersects the 45-degree-line from the left and below, which implies $v(\Upsilon^*) > 1$.

[10]The case $v(0) > 0$ arises if $\underline{\nu} < 0$. Even with a zero disruption cost, the likelihood of a trade disruption is less than unity (see Lemma 2), which in turn implies positive trade. The line $v(\cdot)$ need not intersect the 45-degree line at all, of course. But this case is irrelevant here since it amounts to the case without multiple steady states.

(b) A **unique steady state** may involve $\Upsilon^* = 0$, or $\omega^* = 0$. In either case, stability follows from the proof of (a). If the unique steady state involves an interior position, then the logic of the proof for (a) implies that in this steady state $v'(\Upsilon^*) < 1$. □

3.4 Geopolitical risk shocks

Within the confines of our model, it is straightforward to formalize geopolitical risk through the distribution from which ν_t is drawn, which we assume to be uniform with lower and upper bounds $\underline{\nu}$ and $\overline{\nu}$. We interpret an increase in the upper bound—and thus in the support of the distribution—as an increase in geopolitical risk. We then define a geopolitical risk shock as an exogenous and unforeseeable increase of $\overline{\nu}$ ("MIT shock"). We assume the increase is temporary.

Based on the results stated above, it is relatively straightforward to demonstrate that such a temporary shock has lasting trade effects. If $\Delta\overline{\nu} > 0$ is large enough, the impact effect will be a shift to a single-steady-state regime. More specifically, this happens if the inequality in statement (c) of Proposition 1 is reversed, so that we now have $\overline{\Upsilon}_P < \overline{\Upsilon}_G$. Remember that $\overline{\Upsilon}_G$ is determined by $C(\overline{\Upsilon}_G) = \overline{\nu}$, with $C' > 0$ (see Lemma 2), while $\overline{\Upsilon}_P$ remains unaffected by the shock (see Lemma 1).

The implication is that country pairs featuring an offshoring share that was a *high-trade* steady state before the geopolitical risk shock, in line with statement (c) of Proposition 1, now embark on an adjustment path towards the new, lower steady state, in line with Equation (15) above.

Next, look at country pairs that were in a *low-trade* steady state prior to the increase of geopolitical risk. If this was a zero-trade steady state, in line with statements (a) or (b) of Proposition 1, then zero trade will continue to be a steady state. Potentially, however, this will be associated with a higher risk of a trade disruption. This will occur in case (b) of Proposition 1. Low-trade country pairs with a positive offshoring share will similarly be confronted with a higher likelihood of trade disruption, due to a higher upper bound of the disruption benefit. Hence they, like high-trade country pairs, will also embark on a downward adjustment towards a new steady state with less trade and a higher disruption risk.

What happens after the geopolitical risk shock peters out and $\overline{\nu}$ has returned to its initial, lower value. All other things equal, the multiple-steady-states regime will be restored. However, *high-trade* country pairs will not re-adjust towards their former

high-trade steady state, provided that they have meanwhile reached an offshoring share that lies below the unstable in-between steady state. If so, they will continue their downward adjustment towards the low-trade steady state. *Low-trade* country pairs, on the other hand, will be attracted towards their old low-trade steady state once the risk shock disappears.

For a temporary *reduction* of geopolitical risk, the scenario evolves somewhat differently, but again with a lasting effect. It follows from the above that this type of shock cannot reverse the inequality $\overline{\Upsilon}_P > \overline{\Upsilon}_G$ if it holds prior to the shock. Thus, high trade country pairs (with $\omega^* = 0$) will not be affected. Instead, the lasting trade effect now arises with low-trade country pairs, which start an adjustment process of increasing trade and decreasing disruption risk. By the time the geopolitical risk shock is undone, these country pairs may have arrived at a trade level above the (unstable) in-between steady state, in which case they ultimately end up in the high-trade equilibrium. This is in perfect analogy to the case of a positive geopolitical risk shock described above.

Thus, our model predicts that any sizable *temporary* temporary geopolitical risk shock, whether risk increases or falls, may have a *lasting*, effect on trade, which is in line with the evidence presented in Section 2. In the subsequent section, we demonstrate that a stylized but meaningful calibration of our model does indeed generate a quantitative response function of the type discovered in Section 2.

4 Quantitative model analysis

The model is stylized and not intended to provide a full quantitative account of the data. In what follows, we assign parameter values and use the calibrated model to simply illustrate its implications for trade under geopolitical risk. Specifically, for the calibrated model we first compute the phase diagram in the offshoring share to characterize the multiple steady states. We then study the dynamic adjustment of trade over time following a geopolitical risk shock and establish that it is consistent with the empirical impulse responses documented in Section 2.

4.1 Calibration

We calibrate the model to the US, with imports from many source countries and focusing on the disruption possibility for imports from China when all other imports remain undisrupted. In the two-country model above, $w_F < 1$ stands for the minimum unit-cost of m under offshoring relative to that cost under disruption, whereby disruption implies that m, in its entirety, must be purchased domestically where the minimum unit-cost is equal to unity. In our calibration, the analogue to w_F in a multi-country world is equal to the minimum cost when all source countries are available, relative to a situation where inputs from China are unavailable due to the trade disruption but inputs from other sources are still available. To calibrate this analogue to w_F, we now define m as CES-aggregate over a continuum of differentiated inputs, with an elasticity of substitution equal to η_m. Moreover, following Eaton and Kortum (2002), we assume that there is ex-ante uncertainty about the productivity of input suppliers, with the productivity drawn–independently for each source country–from a Frechét distribution with a location parameter T_j (j indicating source country j) and a shape parameter equal to $\psi > 0$, common to all countries. If suppliers in each country offer their varieties of the input m at average-cost prices, (perfect competition) and if each domestic firm always chooses the lowest-cost source country, then the *expected* price for input m is equal to

$$p_{m,s} = \left[\gamma \sum_{j \in \mathbb{M}_s} T_j (w_j)^{-\psi}\right]^{-1/\psi}, \tag{16}$$

where $\mathbb{M}_s$ stands for the index set for source countries available under sourcing regime s,where regime O includes China, and regime D excludes China (but includes all other countries).[11] In the above equation $\gamma := \left[\Gamma(\psi + 1 - \eta_m)/\psi\right]^{\psi/(1-\eta_m)}$, where Γ stands for the Gamma-function; see Eaton and Kortum (2002) and Antràs et al. (2017). Let us rewrite the summation in the above equation as $\Theta_s = \sum_{j \in \mathbb{M}_s} \chi_j$. Then, the value share of country $j \in \mathbb{M}_s$ in total 'imports' (including domestic inputs) under regime s is equal to

$$\mu_{j,s} = \frac{\chi_j}{\Theta_s}. \tag{17}$$

[11]The index O still stands for undisrupted offshoring while D indicates the disrupted sourcing regime.

The analogue to w_F now emerges as

$$\frac{p_{m,O}}{p_{m,D}} = \left(\frac{\Theta_O}{\Theta_D}\right)^{-1/\psi} = \left(\frac{\Theta_O}{\Theta_O - \chi_C}\right)^{-1/\psi} = (1 - \mu_{C,O})^{1/\psi}, \tag{18}$$

where the subscript C indicates China as a potential source country.

To see whether the model delivers impulse responses similar to the ones found in the data, we parametrize equation (12). We assign parameter values guided by existing estimates in the literature and by the requirement that the model produces empirically plausible outcomes. Table 1 summarizes the parameter values. We rely on Eaton et al. (2011) (in the following EKK) to obtain estimates for the elasticity of substitution $\sigma = 2.98$ and the shape parameter of the Pareto distribution $\kappa = 4.87$. With these two estimates at hand, we can also calibrate the parameter $\theta = 0.41$, which determines the curvature of the offshoring measure. With the parameter values from EKK, the convexity condition given in Lemma 1 is fulfilled.

To calibrate the headquarter intensity η, we rely on Antràs (2003), who reports an average of human capital relative to labor used in production of around 0.5. Interpreting the headquarter intensity as the share of human capital relative to overall employment yields a value of $\eta = 0.33$. To obtain measures of the relative costliness of offshoring we interpret the domestic economy as being the United States and choose Italy as foreign country. We calculate the w_F-analogue following the above procedure, focusing on China and choosing the year 2007. This latter choice is motivated by our desire to have a benchmark equilibrium that can plausibly be interpreted as a high-trade steady state. We obtain $\mu_{C,O} = 5.3\%$ from the trade data. It is measured as U.S. imports from China relative to US absorption in 2007. An estimate of the shape parameter of the Frechét distribution is reported in Simonovska and Waugh (2014) (in the following SV).

With these parameters at hand, we can calculate the relative foreign cost advantage k; see Equation (10). Entry cost measures are obtained from the World Development Indicators. In a now discontinued series they report the costs of starting a business in a country as a share of that country's GNI. Interpreting the business start up costs as a proxy for the fixed costs of entering a market, we obtain values for f_O and f_D by multiplying the cost shares with observed 2007-GNI reported in international USD.

To back out an estimate of the market size B, we combine information reported in Bernard et al. (2007) and Antras et al. (2017). The former report that around 14%

Table 1: Calibrated parameters

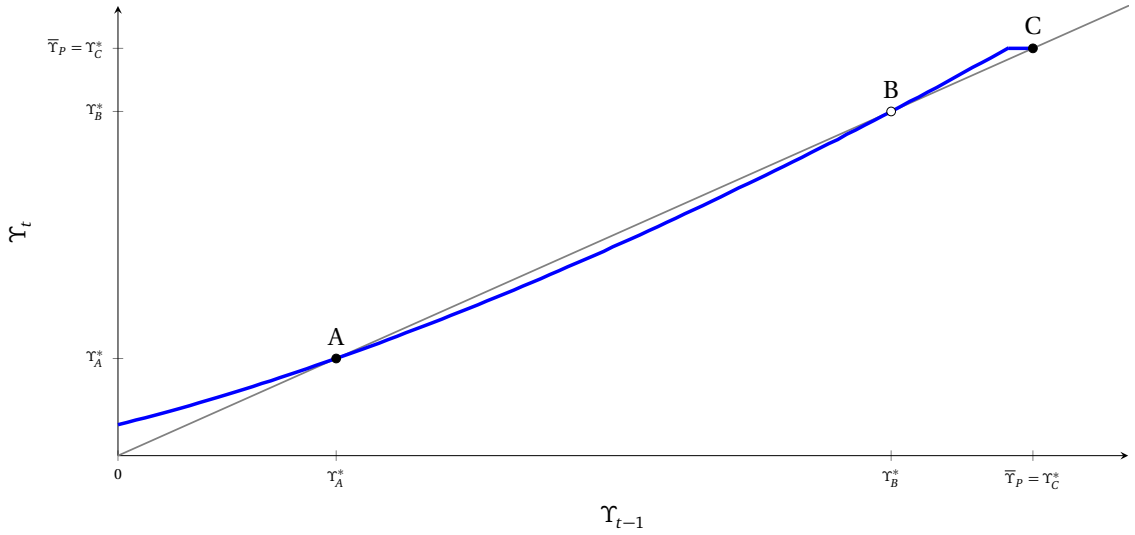
Parameter	Value	Source	Interpretation
σ	2.98	EKK (2011)	Ela. of substitution
κ	4.87	EKK (2011)	Shape of Pareto
ψ	4	SV (2014)	Shape of Frechét
θ	0.41	own calculation	$(\sigma-1)/\kappa$
η	0.33	Antràs (2003)	Headquarter intensity
f_O	6392	WDI	Offshoring fixed costs
f_D	339	WDI	Domestic fixed costs
w_F	0.99	own calculation	Relative foreign wage
k	1.01	own calculation	Foreign var. cost adv.
B	9213.67	own calculation	Market size
$\overline{\nu}$	6000	own calculation	Maximum benefit
$\underline{\nu}$	-400000	own calculation	Minimum benefit

of firms in the United States are engaged in offshoring, while the latter report that 33% of offshoring US firms are obtaining inputs from China in 2007. These numbers give us a proxy offshoring share around $\overline{\Upsilon}_P = 2\%$. Since U.S.-Chinese trade tensions were mostly absent in 2007, we interpret this offshoring share as being the high-trade equilibrium C. Given this interpretation, we can back out a measure of the market size B, by solving $\overline{\Upsilon}_P = (B(k-1)/(f_O - f_D))^{(1/\theta)}$.

The costs of disruption are given by the associated welfare loss. Welfare is defined as real income: $W(\Upsilon) = (Y + I(\Upsilon))/P(\Upsilon)$, which depends on the offshoring share (see also Appendix) via the profit income $I(\Upsilon)$ and the price index $P(\Upsilon)$. Under the assumption that the observed 2007 offshoring share is the high-trade steady state and using the already calibrated parameters, we can back out profit income and the price index. To obtain a measure of labor income Y, we use US real GDP per capita in 2007 as the level of welfare $W(\overline{\Upsilon}_P)$ and use the calibrated $P(\overline{\Upsilon}_P)$ and $I(\overline{\Upsilon}_P)$ to back out labor income. This allows us to obtain counterfactual welfare under trade and under disruption as a function of the offshoring share.

Interpreting the observed offshoring share as the high trade steady state implicitly imposes a limit on the value of the maximum disruption benefit that might accrue to

Figure 3: Phase diagram



Notes: Figure shows the calibrated transition function. Values for $\overline{\nu}$ and $\underline{\nu}$ were chosen consistent with existence of multiple steady states.

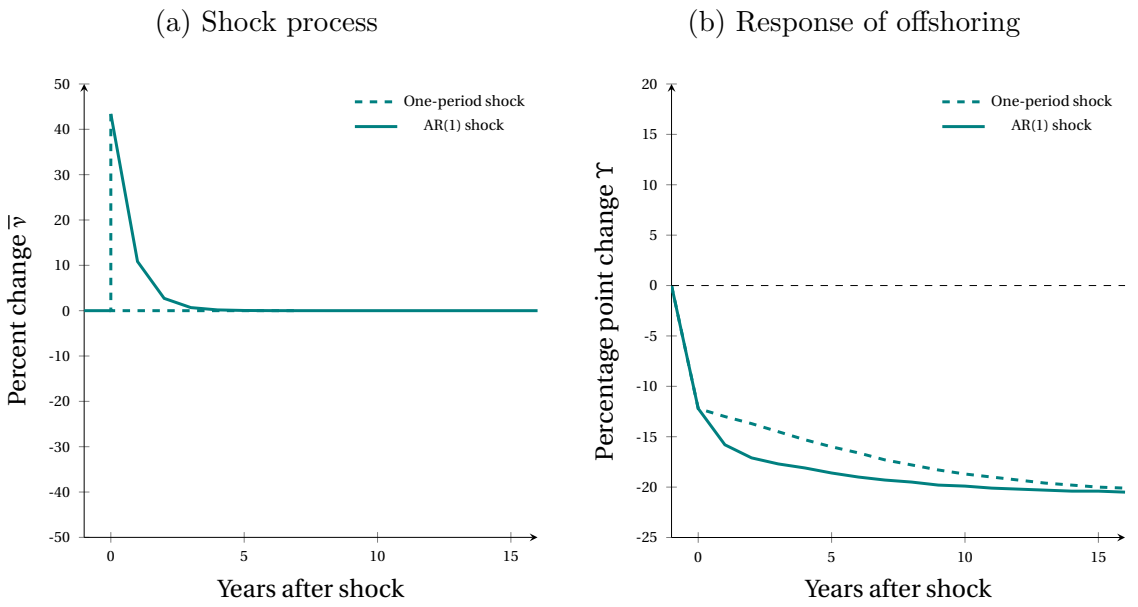
the government. Formally, the condition is $C(\overline{\Upsilon}_P) \geq \overline{\nu}$. With the calibrated disruption costs at the high-trade steady state, we thus need $\overline{\nu} \leq 6166$. Placing this value against US real GDP per capita in 2007 implies that the maximum disruption benefit is not greater than 12.8% of real income per capita ($6166/48050 \approx 0.128$). As bounds of the disruption benefit distribution, we choose $\underline{\nu} = -400000$ and $\overline{\nu} = 6000$, so as to obtain multiple steady states. Figure 3 shows the implicated phase diagram.

4.2 Adjustment dynamics

In the following, we display the response of the US-China offshoring share to an increase in geopolitical risk. We investigate two transitory shocks: First, we assume the shock follows an AR(1) process $\overline{\nu}_t = \rho\overline{\nu}_{t-1} + \varepsilon^{\overline{\nu}}_t$, with $\rho \in (0, 1)$. Second, we investigate the response to a one-period increase in $\overline{\nu}$. Note that in both cases the any change $\overline{\nu}$ is unanticipated ("MIT shock"). So we rely on equation (12) to trace out the impulse responses, which we restate here under the assumed functional forms:

$$\Upsilon_t = \frac{1}{1-\theta}\left(\frac{B}{f_O - f_D}\left[\left(\frac{-\underline{\nu}}{\overline{\nu}_t - \underline{\nu}} + \frac{C(\Upsilon_{t-1})}{\overline{\nu}_t - \underline{\nu}}\right)k - 1\right]\right)^{(1-\theta)/\theta}, \tag{19}$$

Figure 4: Model responses



Notes: Figure shows two potential shock processes (panel a) and the corresponding offshoring responses (panel b) based on calibrated parameters. The dashed line shows response to a one-period increase in $\overline{\nu}$. The solid line shows the response if $\overline{\nu}$ follows an AR(1) process.

for $t = -1, 0, 1, \ldots$. Assume we are in steady state C at $t = -1$. Thus, when the shock happens (in $t = 0$), the level of offshoring is $\overline{\Upsilon}_P$. We set the size of the shock to to match the percent increase of the geopolitical risk index at $t = 0$ of around 25%, reported in Figure 1. The left panel of the figure shocks both shock processes, with the solid line showing the AR(1) process and the dashed line the one-period increase.

To trace out the model responses, we first parameterize the function $\omega_G(\Upsilon_{t-1})$ in Equation 12 using the sequence of $\{\overline{\nu}_t\}$ resulting from the AR(1) process with $\rho = 0.25$. The right panel of Figure 4 shows the response of the trade share. Trade declines permanently in response to a transitory increase in geopolitical risk. Notably, a temporary shock generates a permanent reduction in trade, consistent with the evidence established above. Moreover, even a purely transitory increase in $\overline{\nu}$ produces the same decline in trade (dashed lines) as a more persistent shock (solid lines). This result reflects the fact that in both cases the shock triggers a transition to the low-trade steady state C.

5 Conclusion

Current world affairs are characterized by increasing geopolitical and economic fragmentation. The promises of the "end of history"—global prosperity and lasting peace underpinned by economic integration—have not fully materialized. These promises rest on the liberal paradigm, first articulated by Montesquieu, according to which trade fosters geopolitical cooperation and vice versa.

How, then, did we arrive at the current situation? In this paper, we offer an explanation grounded in a model that formalizes the Montesquieuian interdependence between trade and geopolitical conflict. Two core insights emerge. First, the relationship is bidirectional: while trade mitigates the risk of conflict—understood as a government-imposed trade disruption—conflict risk, in turn, constrains trade. Second, even transitory shocks can induce a transition from a high-trade steady state to a low-trade steady state in which the risk of trade disruption is endogenously higher. As a result, temporary increases in geopolitical risk can lead to permanent reductions in trade, consistent with the empirical evidence established in this paper.

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A Descriptive statistics

Table 2: GPR descriptive statistics

GPR-Unit	Mean	Median	Min	Max	SD
Global	84.69	84.87	39.67	135.32	18.86
ARG	0.05	0.04	0.01	0.66	0.09
AUS	0.06	0.06	0.02	0.16	0.03
BEL	0.10	0.10	0.04	0.32	0.05
BRA	0.05	0.04	0.02	0.10	0.02
CAN	0.12	0.11	0.05	0.20	0.03
CHE	0.05	0.04	0.02	0.14	0.03
CHL	0.03	0.02	0.00	0.09	0.02
CHN	0.40	0.36	0.12	0.95	0.19
COL	0.04	0.04	0.01	0.11	0.03
DEU	0.36	0.34	0.10	0.73	0.14
DNK	0.03	0.02	0.01	0.08	0.01
EGY	0.26	0.21	0.08	0.79	0.17
ESP	0.10	0.09	0.03	0.25	0.05
FIN	0.04	0.03	0.01	0.13	0.03
FRA	0.54	0.52	0.28	1.07	0.16
GBR	0.57	0.55	0.19	1.25	0.18
HKG	0.04	0.03	0.01	0.20	0.04
HUN	0.03	0.03	0.00	0.11	0.02
IDN	0.04	0.03	0.01	0.11	0.02
IND	0.22	0.21	0.08	0.46	0.07
ISR	0.50	0.47	0.13	1.04	0.21
ITA	0.16	0.15	0.05	0.46	0.08
JPN	0.22	0.22	0.11	0.42	0.07
KOR	0.23	0.18	0.08	0.86	0.16
MEX	0.10	0.09	0.03	0.20	0.04
MYS	0.03	0.02	0.01	0.14	0.02
NLD	0.07	0.07	0.03	0.14	0.03
NOR	0.04	0.04	0.01	0.09	0.01
PER	0.03	0.03	0.01	0.09	0.02
PHL	0.06	0.05	0.01	0.20	0.03
POL	0.11	0.08	0.02	0.69	0.12
PRT	0.04	0.03	0.00	0.37	0.05
RUS	0.95	0.95	0.36	2.16	0.40
SAU	0.20	0.17	0.02	0.87	0.16
SWE	0.05	0.04	0.02	0.10	0.02
THA	0.08	0.05	0.01	0.32	0.07
TUN	0.03	0.02	0.00	0.25	0.04
TUR	0.18	0.14	0.04	0.57	0.12
TWN	0.04	0.04	0.01	0.10	0.02
UKR	0.07	0.02	0.00	0.80	0.12
USA	2.90	2.86	1.37	4.68	0.65
VEN	0.05	0.04	0.00	0.22	0.03
VNM	0.34	0.11	0.03	1.93	0.52
ZAF	0.09	0.06	0.02	0.35	0.08

Notes: This table reports descriptive statistics for the yearly global GPR index and the yearly country-specific GPR measures. Reported statistics are the mean, median, minimum, maximum, and standard deviation.

Table 3: Country coverage and trade descriptives

	Years in sample		Imports (million current USD)			Import share		
Country	Min year	Max year	Mean	Median	SD	Mean	Median	SD
AFG	1966	2020	8.80	0.00	64.91	1.09×10^{-3}	0	5.53×10^{-3}
AGO	1966	2020	38.56	0.01	267.13	1.32×10^{-3}	1.24×10^{-6}	5.63×10^{-3}
ALB	1966	2020	9.55	0.00	69.51	1.35×10^{-3}	0	0.014
ARE	1966	2020	496.88	0.28	3,432.66	3.41×10^{-3}	6.04×10^{-6}	0.028
ARG	1966	2020	641.26	0.26	8,884.85	2.12×10^{-3}	1.29×10^{-6}	0.026
ARM	1992	2020	14.08	0.01	85.65	1.99×10^{-3}	1.86×10^{-6}	0.011
AUS	1966	2020	1,229.72	2.18	12,592.80	2.94×10^{-3}	5.89×10^{-6}	0.028
AUT	1966	2020	691.14	2.32	5,160.03	3.72×10^{-3}	1.77×10^{-5}	0.028
AZE	1992	2020	49.12	0.02	380.09	2.20×10^{-3}	8.33×10^{-7}	0.018
BDI	1966	2020	4.22	0.00	56.07	3.61×10^{-3}	0	0.054
BEL	1966	2020	1,176.86	13.28	6,467.17	5.13×10^{-3}	7.29×10^{-5}	0.032
BEN	1966	2020	4.79	0.01	22.97	1.56×10^{-3}	2.50×10^{-6}	7.59×10^{-3}
BFA	1966	2020	5.16	0.00	25.01	1.18×10^{-3}	9.05×10^{-7}	8.19×10^{-3}
BGD	1972	2020	185.24	0.02	3,030.57	1.89×10^{-3}	3.08×10^{-7}	0.018
BGR	1966	2020	137.04	0.00	1,756.71	5.02×10^{-3}	0	0.080
BHR	1966	2020	52.17	0.05	654.08	4.34×10^{-3}	1.04×10^{-5}	0.030
BHS	1966	2020	10.70	0.00	104.90	2.46×10^{-3}	0	0.020
BIH	1992	2020	35.43	0.00	234.08	2.27×10^{-3}	3.75×10^{-7}	0.014
BLR	1992	2020	181.94	0.04	1,955.61	3.69×10^{-3}	9.62×10^{-7}	0.035
BLZ	1966	2020	1.80	0.00	12.83	2.48×10^{-3}	0	0.017
BMU	1966	2020	5.32	0.00	45.43	2.04×10^{-3}	0	0.014
BOL	1966	2020	26.30	0.01	212.79	2.30×10^{-3}	1.38×10^{-6}	0.016
BRA	1966	2020	2,174.94	1.77	34,675.13	1.88×10^{-3}	3.64×10^{-6}	0.025
BRB	1966	2020	5.20	0.01	32.08	2.91×10^{-3}	6.63×10^{-6}	0.016
BRN	1966	2020	10.26	0.00	107.17	1.76×10^{-3}	2.95×10^{-8}	0.011
BTN	1966	2020	0.64	0.00	11.97	9.91×10^{-4}	0	0.012
BWA	2000	2020	28.34	0.01	227.61	2.35×10^{-3}	6.73×10^{-7}	0.019
CAF	1966	2020	1.02	0.00	6.07	1.01×10^{-3}	0	6.74×10^{-3}
CAN	1966	2020	2,185.55	7.23	18,518.28	3.41×10^{-3}	1.36×10^{-5}	0.030
CHE	1966	2020	831.40	4.91	6,959.29	2.33×10^{-3}	2.71×10^{-5}	0.014
CHL	1966	2020	284.02	0.18	2,879.03	3.57×10^{-3}	2.72×10^{-6}	0.034
CHN	1966	2020	21,781.86	1.77	462,816.39	5.42×10^{-3}	1.06×10^{-6}	0.069
CIV	1966	2020	22.53	0.10	134.82	2.01×10^{-3}	8.90×10^{-6}	0.015
CMR	1966	2020	17.39	0.04	122.45	1.62×10^{-3}	3.92×10^{-6}	0.012
COG	1966	2020	11.96	0.01	69.41	2.37×10^{-3}	3.20×10^{-6}	0.012
COL	1966	2020	296.35	0.20	3,409.36	3.02×10^{-3}	2.60×10^{-6}	0.029
CPV	1966	2020	1.96	0.00	16.34	2.64×10^{-3}	0	0.015
CRI	1966	2020	63.27	0.03	614.18	4.01×10^{-3}	2.30×10^{-6}	0.030
CSK	1966	1992	217.93	0.00	2,720.78	6.74×10^{-3}	0	0.083
CUB	1966	2020	46.12	0.00	491.96	1.61×10^{-3}	0	0.020
CYP	1966	2020	28.29	0.11	164.09	3.74×10^{-3}	1.47×10^{-5}	0.022
CZE	1993	2020	749.20	2.86	4,682.68	4.84×10^{-3}	2.27×10^{-5}	0.029
DEU	1966	2020	7,019.80	51.31	64,928.58	4.00×10^{-3}	3.96×10^{-5}	0.036
DNK	1966	2020	412.67	1.88	2,804.40	2.71×10^{-3}	1.83×10^{-5}	0.017

Continued on next page

	Years in sample		Imports (million current USD)			Import share		
Country	Min	Max	Mean	Median	SD	Mean	Median	SD
DOM	1966	2020	35.37	0.02	273.49	1.92×10^{-3}	8.22×10^{-7}	0.017
DZA	1966	2020	338.20	0.21	3,988.02	4.81×10^{-3}	3.86×10^{-6}	0.052
ECU	1966	2020	93.16	0.06	971.14	2.33×10^{-3}	2.21×10^{-6}	0.019
EGY	1966	2020	294.66	0.97	4,232.55	3.42×10^{-3}	1.73×10^{-5}	0.034
ERI	1993	2020	1.15	0.00	12.24	1.26×10^{-3}	0	0.012
ESP	1966	2020	2,110.20	16.95	20,826.88	3.58×10^{-3}	3.76×10^{-5}	0.034
EST	1992	2020	61.80	0.17	316.40	4.19×10^{-3}	2.56×10^{-5}	0.018
ETH	1966	2020	26.68	0.04	217.75	1.44×10^{-3}	9.96×10^{-6}	7.50×10^{-3}
FIN	1966	2020	444.32	1.31	4,194.33	3.80×10^{-3}	1.45×10^{-5}	0.033
FJI	1966	2020	6.96	0.00	45.41	3.51×10^{-3}	1.86×10^{-7}	0.019
FRA	1966	2020	4,306.39	34.04	38,732.07	3.56×10^{-3}	3.11×10^{-5}	0.034
GAB	1966	2020	10.51	0.01	60.57	1.98×10^{-3}	1.72×10^{-6}	0.016
GBR	1966	2020	3,782.50	42.28	31,058.73	3.74×10^{-3}	5.25×10^{-5}	0.037
GEO	1992	2020	22.89	0.03	124.51	1.95×10^{-3}	2.80×10^{-6}	8.79×10^{-3}
GHA	1966	2020	42.15	0.08	516.98	2.91×10^{-3}	7.81×10^{-6}	0.022
GMB	1966	2020	1.11	0.00	4.27	2.44×10^{-3}	0	0.010
GRC	1966	2020	301.64	2.10	2,551.59	2.41×10^{-3}	2.34×10^{-5}	0.018
GTM	1966	2020	34.63	0.03	217.30	1.85×10^{-3}	1.73×10^{-6}	0.012
HKG	1966	2020	971.78	2.75	8,159.11	6.58×10^{-3}	2.97×10^{-5}	0.039
HND	1966	2020	17.82	0.02	116.61	3.11×10^{-3}	3.37×10^{-6}	0.023
HRV	1992	2020	150.58	0.54	1,020.73	3.67×10^{-3}	1.55×10^{-5}	0.026
HTI	1966	2020	1.51	0.00	17.69	7.77×10^{-4}	0	8.10×10^{-3}
HUN	1966	2020	339.12	0.25	2,322.49	7.53×10^{-3}	5.23×10^{-6}	0.087
IDN	1966	2020	717.33	0.78	10,460.39	2.15×10^{-3}	7.04×10^{-6}	0.019
IND	1966	2020	2,377.25	4.79	37,100.67	2.84×10^{-3}	9.19×10^{-6}	0.031
IRL	1966	2020	329.76	0.92	2,361.76	4.19×10^{-3}	1.68×10^{-5}	0.030
IRN	1966	2020	658.04	0.18	12,119.92	3.28×10^{-3}	1.73×10^{-6}	0.048
IRQ	1966	2020	627.61	0.00	16,186.46	2.71×10^{-3}	0	0.063
ISL	1966	2020	24.85	0.03	170.89	3.22×10^{-3}	5.12×10^{-6}	0.021
ISR	1966	2020	309.78	0.32	2,837.43	3.64×10^{-3}	4.54×10^{-6}	0.031
ITA	1966	2020	3,759.80	34.54	40,225.64	3.29×10^{-3}	4.31×10^{-5}	0.030
JAM	1966	2020	15.63	0.03	102.22	3.03×10^{-3}	5.15×10^{-6}	0.023
JOR	1966	2020	59.75	0.22	581.17	4.46×10^{-3}	3.08×10^{-5}	0.028
JPN	1966	2020	11,834.56	19.60	146,938.26	4.44×10^{-3}	9.64×10^{-6}	0.051
KAZ	1992	2020	182.30	0.16	1,531.42	1.73×10^{-3}	2.31×10^{-6}	0.011
KEN	1966	2020	68.59	0.05	731.37	3.84×10^{-3}	2.40×10^{-6}	0.040
KGZ	1992	2020	17.98	0.00	140.07	3.96×10^{-3}	4.93×10^{-7}	0.027
KHM	1966	2020	15.06	0.00	164.30	1.85×10^{-3}	0	0.013
KOR	1966	2020	2,990.72	2.95	39,963.08	5.27×10^{-3}	8.71×10^{-6}	0.050
KWT	1966	2020	156.39	0.16	1,883.12	2.42×10^{-3}	3.16×10^{-6}	0.018
LAO	1966	2020	7.68	0.00	88.32	1.88×10^{-3}	0	0.014
LBN	1966	2020	43.22	0.22	314.41	3.23×10^{-3}	1.95×10^{-5}	0.015
LBR	1966	2020	0.99	0.00	10.84	2.20×10^{-3}	0	0.035
LBY	1966	2020	35.15	0.02	150.33	1.11×10^{-3}	7.08×10^{-7}	4.33×10^{-3}
LCA	1970	2020	1.67	0.00	11.34	3.06×10^{-3}	1.27×10^{-6}	0.018
LKA	1966	2020	67.49	0.09	712.25	3.04×10^{-3}	4.30×10^{-6}	0.023
LTU	1992	2020	108.30	0.17	633.89	3.60×10^{-3}	7.18×10^{-6}	0.019

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	Years in sample		Imports (million current USD)			Import share		
Country	Min	Max	Mean	Median	SD	Mean	Median	SD
LUX	1999	2020	88.96	0.21	436.37	2.02×10^{-3}	4.33×10^{-6}	0.010
LVA	1992	2020	53.01	0.05	243.59	2.73×10^{-3}	2.64×10^{-6}	0.013
MAC	1966	2020	16.24	0.00	129.21	2.05×10^{-3}	3.51×10^{-7}	0.014
MAR	1966	2020	164.12	0.49	1,727.64	2.93×10^{-3}	1.72×10^{-5}	0.023
MDA	1992	2020	17.59	0.03	89.60	3.68×10^{-3}	7.50×10^{-6}	0.019
MDG	1966	2020	6.93	0.01	35.27	1.46×10^{-3}	2.00×10^{-6}	8.17×10^{-3}
MDV	1966	2020	4.01	0.00	82.37	2.51×10^{-3}	0	0.034
MEX	1966	2020	1,339.91	1.16	12,800.14	1.80×10^{-3}	3.24×10^{-6}	0.015
MHL	1992	2020	37.08	0.00	379.56	0.208	0	2.127
MKD	1993	2020	30.99	0.08	159.99	4.05×10^{-3}	1.10×10^{-5}	0.022
MLT	1966	2020	17.62	0.05	89.87	5.14×10^{-3}	1.71×10^{-5}	0.025
MMR	1966	2020	302.08	0.00	7,447.86	8.29×10^{-3}	0	0.157
MNE	2006	2020	12.71	0.05	50.62	2.93×10^{-3}	1.11×10^{-5}	0.012
MNG	1966	2020	9.83	0.00	108.52	1.64×10^{-3}	0	0.015
MOZ	1966	2020	9.48	0.00	73.72	1.27×10^{-3}	0	8.70×10^{-3}
MUS	1966	2020	15.04	0.02	90.42	3.53×10^{-3}	7.01×10^{-6}	0.019
MWI	1966	2020	8.36	0.00	71.47	3.20×10^{-3}	6.05×10^{-7}	0.020
MYS	1966	2020	647.67	1.12	6,084.99	4.93×10^{-3}	1.66×10^{-5}	0.030
NAM	2000	2020	29.13	0.04	238.50	2.88×10^{-3}	5.69×10^{-6}	0.023
NER	1966	2020	5.33	0.00	51.00	1.18×10^{-3}	6.79×10^{-7}	7.31×10^{-3}
NGA	1966	2020	112.40	0.53	755.60	2.04×10^{-3}	8.24×10^{-6}	0.020
NIC	1966	2020	15.69	0.01	99.37	3.99×10^{-3}	1.12×10^{-6}	0.039
NLD	1966	2020	1,263.57	16.57	6,754.20	3.40×10^{-3}	6.71×10^{-5}	0.022
NOR	1966	2020	430.67	1.72	3,289.34	3.11×10^{-3}	1.62×10^{-5}	0.023
NPL	1966	2020	20.60	0.00	280.94	1.55×10^{-3}	0	0.014
NZL	1966	2020	218.39	0.35	2,069.60	3.53×10^{-3}	5.23×10^{-6}	0.030
OMN	1966	2020	65.71	0.01	591.82	1.77×10^{-3}	6.66×10^{-7}	0.010
PAK	1966	2020	207.25	0.66	2,732.01	2.18×10^{-3}	8.59×10^{-6}	0.018
PAN	1966	2020	43.84	0.11	273.24	3.13×10^{-3}	1.18×10^{-5}	0.021
PER	1966	2020	214.57	0.09	2,767.51	2.75×10^{-3}	1.83×10^{-6}	0.031
PHL	1966	2020	305.57	0.24	2,662.78	3.30×10^{-3}	3.28×10^{-6}	0.025
PNG	1966	2020	10.64	0.00	70.01	2.13×10^{-3}	0	0.013
POL	1966	2020	847.09	0.30	8,480.99	3.24×10^{-3}	1.28×10^{-6}	0.036
PRT	1966	2020	376.76	2.61	3,151.92	3.52×10^{-3}	3.18×10^{-5}	0.027
PRY	1966	2020	27.58	0.00	235.15	2.83×10^{-3}	2.05×10^{-7}	0.022
PSE	2000	2020	27.69	0.03	204.70	2.88×10^{-3}	7.93×10^{-6}	0.019
QAT	1966	2020	63.80	0.03	422.65	1.44×10^{-3}	2.29×10^{-6}	6.56×10^{-3}
ROU	1966	2020	288.84	0.00	2,737.35	3.34×10^{-3}	3.78×10^{-9}	0.046
RUS	1992	2020	2,902.21	6.77	34,560.17	2.53×10^{-3}	7.41×10^{-6}	0.025
RWA	1966	2020	5.32	0.00	57.75	9.86×10^{-4}	0	0.010
SAU	1966	2020	536.26	1.36	5,322.26	1.68×10^{-3}	7.04×10^{-6}	0.011
SCG	1992	2005	56.71	0.05	632.91	4.19×10^{-3}	4.33×10^{-6}	0.059
SDN	1966	2010	22.01	0.04	150.48			
SEN	1966	2020	21.42	0.07	174.44	2.85×10^{-3}	1.24×10^{-5}	0.019
SGP	1966	2020	711.80	2.37	4,661.26	8.13×10^{-3}	3.98×10^{-5}	0.035
SLE	1966	2020	93.99	0.00	3,587.83	0.092	0	3.398
SLV	1966	2020	21.22	0.01	124.80	2.27×10^{-3}	1.36×10^{-6}	0.014

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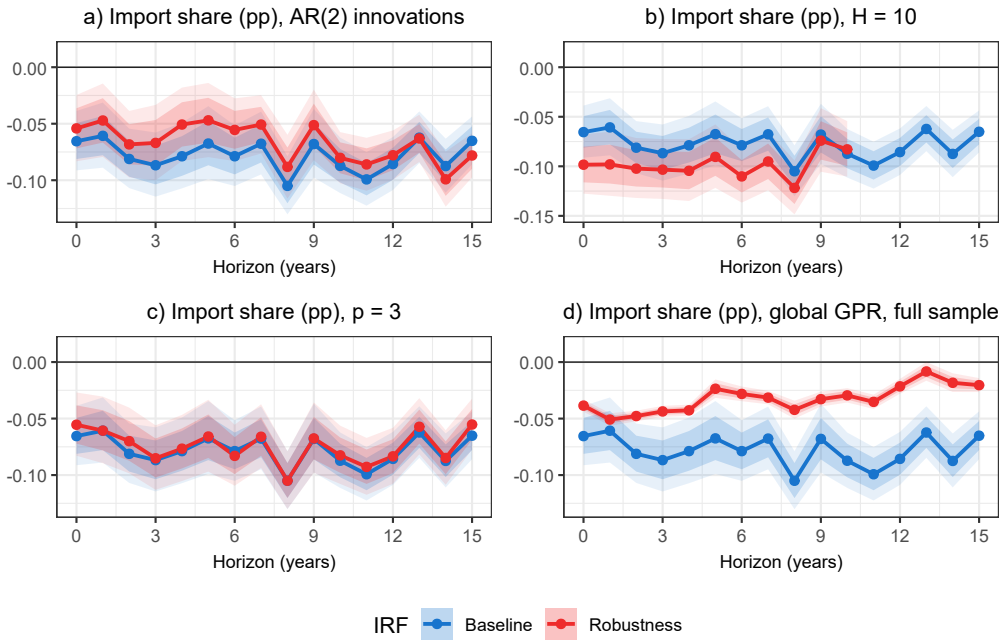
	Years in sample		Imports (million current USD)			Import share		
Country	Min	Max	Mean	Median	SD	Mean	Median	SD
SOM	1966	2020	0.43	0.00	4.61	1.24×10^{-3}	0	9.32×10^{-3}
SRB	2006	2020	174.69	1.26	1,208.33	4.02×10^{-3}	3.04×10^{-5}	0.028
SUN	1966	1991	152.76	0.35	544.75	4.33×10^{-4}	5.75×10^{-7}	2.90×10^{-3}
SUR	1966	2020	4.11	0.00	28.62	4.02×10^{-3}	0	0.047
SVK	1993	2020	275.14	0.67	1,402.74	3.84×10^{-3}	1.05×10^{-5}	0.019
SVN	1992	2020	150.72	0.81	778.83	4.30×10^{-3}	2.95×10^{-5}	0.026
SWE	1966	2020	772.69	3.36	6,015.79	3.14×10^{-3}	1.90×10^{-5}	0.024
SWZ	2000	2020	7.49	0.00	81.87	2.48×10^{-3}	1.11×10^{-6}	0.027
SYR	1966	2020	63.83	0.00	841.90	5.04×10^{-3}	0	0.054
THA	1966	2020	774.89	1.83	7,878.39	4.87×10^{-3}	1.64×10^{-5}	0.042
TJK	1992	2020	13.63	0.00	102.77	3.41×10^{-3}	0	0.028
TKM	1992	2020	33.94	0.00	1,008.52	1.06×10^{-3}	0	0.023
TON	1970	2020	0.32	0.00	2.19	2.46×10^{-3}	0	0.015
TTO	1966	2020	21.92	0.03	191.70	2.58×10^{-3}	4.07×10^{-6}	0.019
TUN	1966	2020	97.22	0.22	782.55	4.72×10^{-3}	1.45×10^{-5}	0.036
TUR	1966	2020	1,052.08	3.09	12,847.21	3.32×10^{-3}	1.70×10^{-5}	0.031
TZA	1966	2020	25.59	0.01	225.61	1.82×10^{-3}	7.28×10^{-7}	0.012
UGA	1966	2020	9.36	0.00	49.15	1.21×10^{-3}	8.43×10^{-8}	9.56×10^{-3}
UKR	1992	2020	392.20	0.69	3,475.96	3.97×10^{-3}	7.60×10^{-6}	0.034
URY	1966	2020	49.70	0.02	494.15	3.07×10^{-3}	9.81×10^{-7}	0.032
USA	1966	2020	23,031.98	102.43	251,532.65	3.29×10^{-3}	1.71×10^{-5}	0.036
UZB	1992	2020	53.33	0.00	1,030.85	8.81×10^{-4}	0	0.017
VEN	1966	2020	139.55	0.03	1,291.22	2.57×10^{-3}	2.28×10^{-6}	0.025
VNM	1975	2020	469.07	0.00	6,053.77	3.53×10^{-3}	2.30×10^{-7}	0.034
YEM	1991	2020	44.92	0.04	460.08	2.69×10^{-3}	2.36×10^{-6}	0.023
YUG	1966	1991	290.41	0.64	3,581.07	6.37×10^{-3}	1.69×10^{-5}	0.065
ZAF	1966	2020	613.10	0.47	6,632.79	4.11×10^{-3}	2.89×10^{-6}	0.041
ZMB	1966	2020	17.99	0.01	131.96	2.99×10^{-3}	1.81×10^{-6}	0.025
ZWE	1966	2020	12.08	0.00	124.50	1.22×10^{-3}	0	0.011

Notes: For each country, the table reports the first and last year in which it appears in the sample, either as an importer or exporter. Imports and import shares are summarized at the importer level. Imports are reported in million current USD. Import shares are shown in scientific notation where appropriate.

B Local projection appendix

B.1 Gravity Local Projections

Figure 5: Robustness to alternative specifications



Notes: The figure shows robustness to alternative specifications of the trade projection, using the import share as dependent variable. Panel a uses AR(2) innovations as shock measure. Panel b caps the horizon at ten years. Panel c reduces the number of shock-lags to three. Panel d uses the global GPR measure as shock variable and estimates on the full sample of countries.

C Model appendix

C.1 Firm behavior

Maximizing Equation 6 and Equation 7 with respect to $p_D(\varphi)$ and $p_O(\varphi)$ yields the optimal prices

$$p_D(\varphi) = \frac{\sigma}{\sigma-1}\frac{1}{\varphi}, \qquad \text{and}$$
$$p_O(\varphi) = \frac{\sigma}{\sigma-1}\frac{w_F^{1-\eta}}{\varphi}.$$

Plugging these prices back into Equation 6 and Equation 7 gives maximum profits as a function of φ, which can be used in Equation 8 to determine the cut-off productivity as

$$\tilde{\varphi}_O^{\sigma-1}(\omega) = \frac{f_O - f_D}{B\left[(1-\omega)k-1\right]},$$

where B and k are as defined in the main text.

The offshoring share Υ is defined as the share of firms for which offshoring is the strategy that maximizes expected profits. Using the distribution function $H_\varphi(\varphi)$, we can write

$$\Upsilon(\omega) = 1 - H_\varphi(\tilde{\varphi}_{O,t}(\omega)) = \tilde{\varphi}_{O,t}^{-\kappa}(\omega)$$
$$\Upsilon(\omega) = \left(\frac{f_O - f_D}{B\left[(1-\omega)k-1\right]}\right)^{-\kappa/(\sigma-1)} = \left(\frac{B}{f_O - f_D}\left[(1-\omega)k-1\right]\right)^{1/\theta}.$$

Note that for $\omega > 1 - 1/k$, the right-hand side would be negative. Hence we set $\Upsilon = 0$ in this case.

C.2 Welfare costs of trade disruption

To prove the existence of two interior steady states, we rely on the average productivity of offshoring firms, which is a monotonic transformation transformation of the offshoring share $\bar{\Upsilon} = \Upsilon^{1-\theta}/(1-\theta)$. Note that by assumption $\theta \in (0,1)$. Formally, this average is determined as

$$\bar{\Upsilon} = \int_{\tilde{\varphi}_O}^{\infty} \varphi^{\sigma-1} h_\varphi(\varphi) \mathrm{d}\varphi.$$

From this definition, the average productivity of all firms and of domestically-sourcing firms directly follows as

$$\bar{\varphi} = \int_1^{\infty} \varphi^{\sigma-1} h_\varphi(\varphi)\mathrm{d}\varphi \qquad \text{and} \qquad \bar{\varphi} - \bar{\Upsilon} = \int_1^{\tilde{\varphi}_O} \varphi^{\sigma-1} h_\varphi(\varphi)\mathrm{d}\varphi.$$

The welfare costs of a trade disruption depend on the aggregate income and the price index under trade ($\mathcal{T}$) and disruption ($\mathcal{D}$), respectively. Aggregate income under trade and under disruption is

$$I_{\mathcal{T}} = Y + \Upsilon \int_{\widetilde{\varphi}_O}^{\infty} \pi_O(\varphi)\frac{h_\varphi(\varphi)}{1 - H_\varphi(\widetilde{\varphi}_O)}\mathrm{d}\varphi + (1-\Upsilon)\int_1^{\widetilde{\varphi}_O} \pi_D(\varphi)\frac{h_\varphi(\varphi)}{H_\varphi(\widetilde{\varphi}_O)}\mathrm{d}\varphi,$$

$$I_{\mathcal{D}} = Y + (1-\Upsilon)\int_1^{\widetilde{\varphi}_O} \pi_D(\varphi)\frac{h_\varphi(\varphi)}{H_\varphi(\widetilde{\varphi}_O)}\mathrm{d}\varphi,$$

Y is labor income, and $\pi_O(\varphi)$ and $\pi_D(\varphi)$ are the operating profits under offshoring and domestic sourcing, respectively. The mass of firms is normalized to unity. Using these definitions of the average productivities, we can express aggregate income under trade and disruption as

$$I_{\mathcal{T}}(\bar{\Upsilon}) = Y + (k-1)B\bar{\Upsilon} + B\bar{\varphi},$$

$$I_{\mathcal{D}}(\bar{\Upsilon}) = Y + B(\bar{\varphi} - \bar{\Upsilon}),$$

where the variables k and B are as defined in the main text. Income under trade is linearly increasing in the offshoring share, whereas income under disruption is linearly decreasing in the offshoring share.

This approach also allows us to write the price index under trade and disruption as a function of the average productivity of all active and offshoring firms:

$$P_{\mathcal{T}}(\bar{\Upsilon}) = \left\{\tilde{\sigma}\left[\bar{\varphi} + (k-1)\bar{\Upsilon}\right]\right\}^{\frac{1}{1-\sigma}},$$

$$P_{\mathcal{D}}(\bar{\Upsilon}) = \left[\tilde{\sigma}(\bar{\varphi} - \bar{\Upsilon})\right]^{\frac{1}{1-\sigma}},$$

where $\tilde{\sigma} = [\sigma/(\sigma-1)]^{1-\sigma}$. Inspection of the price indices reveals that the price index under trade is decreasing and convex in the average productivity of offshoring firms, whereas the price index under disruption is increasing and convex.

The welfare costs of trade disruption are defined as the difference in welfare under trade and under disruption

$$C(\bar{\Upsilon}) = W_{\mathcal{T}}(\bar{\Upsilon}) - W_{\mathcal{D}}(\bar{\Upsilon}),$$

where $W_{\mathcal{S}}(\bar{\Upsilon})$ gives welfare under scenario $\mathcal{S} \in \{\mathcal{T}, \mathcal{D}\}$ as a function of the average productivity of offshoring firms, where welfare is defined as real income

$$W_{\mathcal{S}}(\bar{\Upsilon}) = \frac{I_{\mathcal{S}}(\bar{\Upsilon})}{P_{\mathcal{S}}(\bar{\Upsilon})}.$$

Given the sign of the first-order derivatives of income and the price index, it is easily verified that welfare under trade is increasing in the average productivity of offshoring firms, whereas the welfare under disruption is decreasing in this average productivity. Hence, welfare costs are strictly increasing in the average productivity of offshoring firms, and thus also in the offshoring share.

The sign of the second derivative of the welfare costs depends on sign and size of the second derivatives of welfare under trade and under disruption. If $W_{\mathcal{T}}(\bar{\Upsilon})$ is convex whereas $W_{\mathcal{D}}(\bar{\Upsilon})$ is concave, then the welfare costs of trade disruption are increasing and convex in the average productivity of offshoring firms. This is the case if $\bar{\Upsilon}$ is above a threshold defined by

$$\bar{\Upsilon} > \max\left\{\frac{(\sigma-2)Y - \sigma B\bar{\varphi}}{\sigma(k-1)B}, \frac{\sigma B\bar{\varphi} - (\sigma-2)Y}{\sigma B}\right\}.$$

If $\bar{\varphi} \lesssim (\sigma-2)Y/(\sigma B)$ then this condition will be fulfilled for all $\bar{\Upsilon} > 0$.

C.3 The existence of two interior steady states

We can use the firm problem to define $\bar{\Upsilon}_P$ as a function of ω. Invoking a Pareto distribution of the firm-level productivity, we can write the average productivity of offshoring firms as

$$\bar{\Upsilon}_P(\omega) = \frac{1}{1-\theta}\left\{\frac{B}{f_O - f_D}\left[(1-\omega)k - 1\right]\right\}^{\frac{1-\theta}{\theta}}.$$

This function is decreasing and convex in the disruption probability, if $\theta < 1/2$.

From the government section, we know that the probability of disruption is decreasing and convex in the average productivity of offshoring firms. Using $\upsilon(\bar{\Upsilon}) := \bar{\Upsilon}_P[\omega_G(\bar{\Upsilon})]$, it can easily be verified that $\upsilon(\bar{\Upsilon})$ is increasing and convex in $\bar{\Upsilon} > 0$, given the curvature of $\bar{\Upsilon}_P(\omega)$ and of $\omega_G(\bar{\Upsilon})$.

What is the condition under which there are multiple steady states, with two interior steady states plus a high-trade steady state?[12]First, the high-trade steady state needs to exist, which requires $\bar{\Upsilon}_P(0) > \bar{\Upsilon}_G(0) = C^{-1}(\overline{\nu})$. Second, a steady state with $\bar{\Upsilon} = 0$ does not exist. This will be the case $1 - 1/k > \overline{\nu}/(\overline{\nu} - \underline{\nu})$. Third, at $\bar{\Upsilon}_1$, we need $\upsilon(\bar{\Upsilon}_1) < \bar{\Upsilon}_1$, where $\bar{\Upsilon}_1$ is defined as the aggregate productivity where $\upsilon'(\bar{\Upsilon}_1) = 1$ holds. This point will be unique since $\upsilon''(\bar{\Upsilon}) > 0$. Given that the condition on the high-trade steady state is fulfilled, $\upsilon(\bar{\Upsilon}_1) < \bar{\Upsilon}_1$ will hold for $k \gtrsim -(\overline{\nu} - \underline{\nu})/\underline{\nu} > 0$, which ensures that $\upsilon(\bar{\Upsilon})$ is flat for $\bar{\Upsilon}$ close to zero, while $\upsilon(0)$ is positive but small.

[12]This situation is depicted in Figure 3 in the main text.