CULTURE, GLOBAL SOURCING AND FRIENDSHORING

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ABSTRACT. We develop a model of firm boundaries and global sourcing in which cultural frictions play a central role. Shared cultural values by managers, reflected in national agendas, facilitate coordination in non-contractible aspects of production. Outsourcing and vertical integration choices by managers trade efficiency gains from intra-firm trade against the aggrievement costs from cultural clashes. We consider the impact of friendshoring policies in this setting and identify conditions under which these policies improve on laissez-faire outcomes, namely when firms are highly profitable and source from culturally distant partners. Our results qualify arguments against friendshoring policies and offer a detailed view into the role that culture plays in setting firm agenda and structure among firms engaging in international sourcing.

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1. Introduction

The post cold-war era of rapid globalisation resulted in a profound change in international trade. The liberalisation of cross-border transactions, reduction in transport costs and improved logistics provided firms with incentives to locate production processes across many countries. These global supply chains, in turn, were supported by orchestrated flows of blueprints, technology, and people across multiple countries and organisations. Prior to the COVID-19 pandemic, more than two-thirds of world trade occurred through supply chains wherein production crossed multiple borders before final assembly (World Trade Organization, 2019).[1]

More recently, however, the increased severity and frequency of supply chain disruptions, particularly following geo-political tensions, have sparked debate over the need for government policies that encourage supply sourcing from safer locations. In the US, the Biden administration has sought to downplay the efficiency gains from aligning economic activities with countries' individual comparative advantages and, instead, highlighted the instability posed by excessive reliance on complex global supply chains. In a seminal speech, US Treasury Secretary Yellen, explicitly made the case for "friend shoring" – a preference for sourcing inputs from countries that shared cultural norms and values with the United States (Yellen, 2022). Since then, the US has passed the CHIPS and Science Act as well as the Inflation Reduction Act, which increase incentives for manufacturers to source inputs from US allies in the semi-conductor, critical minerals and battery sectors.

The academic literature on the desirability of government policy to encourage sourcing from safe locations is nascent. In this paper, we contribute to this debate by developing a simple model with cultural frictions at its core, in which firms face a choice of whether to maintain arms-length, offshore arrangements with key suppliers or to vertically integrate them. Placing values at the core of trade has profound implications for the desirability of friendshoring policies, and the resilience of supply chains under various global trading "rules of the game".

[1] Exports and imports as a share of GDP rose from 38% in 1990 to 63% in 2022 (World Bank, 2022). Recent firm-level network data shows a lengthening and deepening of global value chains, and increased trade in intermediate goods (Qiu et al., 2023).

In our model, headquarter firms source manufacturing from suppliers abroad. Managers must coordinate decisions during production, and these collective decisions are shaped by individual managers' ethical or cultural values, aggregating into a socio-cultural landscape that distances some countries from others. Production occurs and gains from global sourcing arrangements are realised when managers successfully align their decisions. Value sets prescribe the appropriate decision vectors that contribute to a manager's *agenda*. In aggregate, these preferences for *how* production occurs, in terms of safety and labour standards, environmental protection and engagement with broader stakeholders, form a country-wide preferred agenda.[2] But agendas are non-contractible ex ante (Antras and Helpman, 2004), and there is strategic uncertainty over the preferences of each counterparty. In this way, shared cultural norms and values provide a focal point or blueprint for production that resolves the need for costly search or insurance against mis-alignment.

We draw on the concept of *introspective equilibrium* (Kets and Sandroni, 2019), in which firm managers project the agenda dictated by their own values on to others with the knowledge that worldviews are more often shared by managers in countries with lower cultural distance from the reference country. To resolve strategic uncertainty over non-contractible aspects of global production, both managers turn inwards to their own values, which prompts trading partners to compromise on their preferred agenda in an effort to coordinate production. This higher-order process of compromise converges with managers optimally balancing their own agenda preferences with the desire to coordinate effectively with suppliers. A unique, introspective equilibrium pins down each manager's adoption of a firm-level agenda that guides production. In this setting, cultural distance drives a wedge in managers' ability to resolve strategic uncertainty without perfect communication or oversight across borders.

Before engaging in production, headquarter firms in the reference country determine whether to engage with a foreign supplier by vertically integrating, subordinating the manufacturing manager. This benefits the headquarter manager in expectation by coordinating agendas more effectively. However, should the manufacturer have a strong preference for another agenda, she becomes aggrieved, imposing a shading cost on the headquarter manager. Cultural clashes have been commonly cited after acquisitions, with Cisco's

[2]Our concept of agenda is similar to the literature on responsible sourcing policies (Alfaro-Ureña et al., 2022; Herkenhoff and Krautheim, 2022; Masconale, 2024). These studies are largely empirical in nature and existing models abstract from the strategic uncertainty that is central to our setup.

acquisition of Linksys, and more recently between mining companies and downstream original equipment manufacturers, such as Tesla, offering exemplars of aggrievement under integration.[3] Alternatively, the headquarter manager chooses an outsourcing arrangement, in which expected production payoffs are lower but shading costs are minimised. We characterise the full landscape of firm organisational structure as dictated by the interplay between the productivity of firm interactions and cultural distance.

In this setting, a policymaker located in the reference country chooses a combination of industrial policy that provides subsidies to, or taxes on, production by integrated firms, and trading partner restrictions to pursue one of two objectives: (i) an *integration* objective that seeks to maximise the proportion of headquarter firms that vertically integrate and pursue agendas congruent to the policymaker's values, offering the policymaker a high degree of control; and (ii) an *agenda* objective that seeks to maximise the proportion of firms that adopt the policymaker's preferred agenda, irrespective of organisational structure, offering the policymaker strong influence. We compare and contrast the optimal friendshoring policy pair adopted by an integration-focussed policymaker and an agenda-focussed policymaker in terms of its effect on the level of production secured by the policy pair.

We identify when each friendshoring policy pair improves upon a laissez-faire benchmark. The benchmark level of production can be derived using classic trade models in which culture does not play a prominent role in trading relationships (Grossman and Helpman, 2002; Melitz, 2003). If the policymaker pursues an integration objective, the policy produces higher expected output than the benchmark with those trading partners that are sufficiently culturally distant from the reference country. If the policymaker pursues an agenda objective, the policy pair results in higher production than under a laissez-faire benchmark whenever coordination payoffs are high, and lower production levels than the laissez-faire benchmark when coordination payoffs are low. Our results thus qualify arguments against friendshoring policies, and offer a detailed view into the role that culture plays in setting firm agenda and structure among firms engaging in international sourcing.

[3] A battery metals executive recently said of Elon Musk's intention to integrate with several upstream mining operations: "we don't need a carmaker to hold our hand". See Financial Times (2022). *Carmakers switch to direct deals with miners to power electric vehicles*.

1.1. **Related literature.** Our model contributes to the emerging literature on reshoring and supply chain resilience. Grossman et al. (2023a) is the first to study the efficacy of government policy to shape supply chains in the face of exogenous shocks. They micro-found the sources of inefficiency in supply chain formation and establish conditions under which subsidies for diversification can achieve the constrained social optimum. Elliott et al. (2022) and Grossman et al. (2023b) study supply chain resilience in network settings where firms can invest resources in building resilience, conferring positive externalities on downstream clients. Javorcik et al. (2023) apply the Baqaee and Farhi (2024) framework to an international trade setting and estimate the economic costs of friendshoring. In their model, friendshoring is equated with the pattern of votes at the UN General assembly and, as such, is exogenously assumed. They suggest that the economic (tariff-equivalent) costs of these policies are significant, notwithstanding the insurance benefits that such policies provide. By modelling production as a coordination process, our paper unpacks the role that cultural distance plays in global sourcing, and how cultural distance interacts with coordination payoffs to shape the agendas adopted by different firms.

We build on the insights of Hart and Holmstrom (2010) and highlight the costs of decentralising power due to conflicting interests, against the benefits due to greater coordination and higher productivity. Our focus on how cross-country cultural differences rub off on firms active in those countries builds on the work of Hofstede (1984). Theoretical work on corporate culture and organisational design includes Kreps (1990), who models corporate culture as belief-based norms, Van den Steen (2010) who considers the interplay between delegation and organisational culture, and Gorton and Zentefis (2020) who show how corporate culture determines the boundary of the firm. Besley and Persson (2022) model the relationship between cultural dynamics and organisational design in a framework where firm managers have identities associated with particular values in the manner of Akerlof and Kranton (2000). Unlike these papers, we use introspection to highlight the role of higher-order reasoning as a way of capturing the role that culture and compromise play in non-contractible elements of production.

Our paper contributes to the the large literature on global sourcing and multinational firm boundaries. Seminal contributions in this area include Antras and Helpman (2004), Antras and Rossi-Hansberg (2009), Antràs and Chor (2013), Acemoglu et al. (2015) and Antràs (2015). Our work also relates to the literature on hold-up problems and incomplete contracts (Antràs and Staiger, 2012; Grossman et al., 2024; Ornelas

et al., 2021), and interactions between culture and trade policy (Grossman and Helpman, 2021).[4] Our model is most closely related to Gorodnichenko et al. (2024) who also study how cultural distance shapes multinational firms' decisions to integrate or transact at arm's length and embed the Hart and Holmstrom (2010) coordination game structure into their set-up. But our paper differs in several important respects. Whereas Hart and Holmstrom (2010) consider the source of non-contractible elements of production, hold up problems, and the incentive of managers to delegate tasks, our analysis focuses instead on the higher-order, strategic implications of shading for firm boundaries under different levels of cultural distance, and the degree to which policy shapes these boundaries. We add an additional dimension to consider over and above the effects of cultural distance analysed by Gorodnichenko et al. (2024). In particular, by studying the propensity of managers to adopt different agendas in production, cultural distance has a more nuanced effect on integration incentives. While Gorodnichenko et al. (2024) predict that increased cultural distance always lowers a manager's incentive to integrate with another firm, we find a non-monotonic relationship between cultural distance and integration incentives under the adoption of a given agenda. Our study of the interaction between culture and trade in this context sheds new light on the impact of friendshoring policy on production.

2. Model

The world economy comprises two trading regions, East and West. The West comprises a single representative country, W, and hosts a continuum of headquarter firms, $i \in H = [0, 1]$. The East, E, is made up of N countries, E_ℓ, indexed $\ell \in \{1, \ldots, N\}$, that each host a continuum of manufacturing firms, $j \in M = [0, 1]$. Production requires headquarter firms in the West to form bilateral relationships with manufacturing firms in the countries comprising the East.

Each firm is operated by a single manager with a vision ("agenda") about the best course of action to be pursued by her firm. We consider a manager's agenda to represent a vector of decisions across the organisation. Examples range from high-level firm standards on human rights and environmental concerns,

[4] While the focus in Grossman et al. (2024) is on search frictions, in Antràs and Staiger (2012) and Ornelas et al. (2021) is on international hold up problems and preferential trade agreements, we use a refinement of the Nash equilibrium to focus on relationship-specific adoption of norms or agendas (such as ESG standards). By studying firm and country agenda orientation, our work also relates to Kleinman et al. (2024).

privacy and norms around corporate identity, to job-specific factors such as workplace safety and quality control.

Managers receive intrinsic payoffs from following their agendas. The intrinsic payoff for manager i is $\iota_i^{R,a}$, where $R \in \{W, E\}$ represents the regional group (and firm type) and $a \in \{w, e\}$ refers to the manager's agenda. Suppose that

$$\iota^{W,w} \sim U(0,1); \;\; \iota^{W,e} \sim U(0, 1-2\varepsilon_\ell)\,, \tag{1}$$

for headquarter managers in country W and

$$\iota^{E,e} \sim U(0,1); \;\; \iota^{E,w} \sim U(0, 1-2\varepsilon_\ell)\,, \tag{2}$$

for manufacturing managers in country E_ℓ, with $\varepsilon_\ell \in \left(0, \frac{1}{2}\right)$. The parameter ε_ℓ can be viewed as the *cultural distance* between East and West. When ε_ℓ is very small, the two have relatively diffused preferences — cross-group variation and within-group variation are similar. But when ε_ℓ is large, the managers of headquarter firms are much more likely to prefer agenda w, while manufacturing managers in the East are more likely to prefer agenda e. We assume that each country in region E has a distinct level of cultural distance from country W. This allows us to order countries in region E so that $\varepsilon_1 < \varepsilon_2, \ldots, \varepsilon_N$. Since each level of cultural distance from country W corresponds with a unique country, E_ℓ, we drop the ℓ subscript on ε in what follows. Although the preference for an agenda varies individually for each firm type, a salient agenda emerges at the *group level*.[5] In what follows, we broadly refer to agenda w as "country W's agenda" and agenda e as "country E's agenda".

Before opting into a particular agenda, the headquarter manager must decide whether to vertically integrate the manufacturing firm and sub-ordinate its manager (V), or maintain an arms-length outsourcing arrangement (O), where both managers share the payoffs equally if there is alignment on agendas. Let $\pi_S^R \in \left(0, \frac{1}{2}\right]$ denote the *production payoff* accruing to each manager from region $R \in \{W, E\}$ associated with organisational structure $S \in \{V, O\}$. In a separate appendix (Appendix B) we draw on Antras and Helpman (2004) to provide a micro-foundation for π_S as joint profits under a standard trade model that features CES preferences and monopolistic competition. This allows us to extend our analysis to consider

[5] That is, a majority $\frac{1}{2} + \varepsilon$ of headquarter managers prefer w, while only $\frac{1}{2} - \varepsilon$ of manufacturing managers prefer w.

how shocks to any market feature that determines π_S — such as shocks to productivity, consumer preferences or market structure — are carried through in our results, providing a new link between market fundamentals and firm structure and agenda. In this way, we can decompose preferences over certain agendas, such as fair-trade practices, into those that operate through a market mechanism, and are thus reflected in π_S^R, from those non-pecuniary, intrinsic benefits that accrue via $\iota_j^{R,a}$

For expositional purposes, we assume that headquarter and manufacturing firms have equal bargaining power so that $\pi_S^W = \pi_S^E = \pi_S$.[6] We also assume that $\pi_V > \pi_O$ so that coordination payoffs under vertical integration are higher than under outsourcing. Intuitively, vertical integration gives the headquarter manager the right to control decisions across units, resulting in a higher quality product and greater production payoffs.

A core feature of our model is that alignment of agenda results in a higher joint surplus, π_S, than production under misaligned agenda (normalised to zero). Alignment reflects a *coordination of decisions* between a headquarter firm and a manufacturing firm (Gorodnichenko et al., 2024). Headquarter and manufacturing firms are randomly matched to coordinate on production.[7] Managerial utility from successful coordination is given by the sum of production and intrinsic payoffs:

$$u_i^R = \pi_S + \iota_i^{R,a} \,. \tag{3}$$

Managers are thus faced with a tradeoff: by adopting the same agenda, the coordination payoff from production, π_S, is greater than the payoff from miscoordination, 0. But, to the extent that agendas are not aligned with individual preferences, a manager foregoes intrinsic benefits. Table 1 summarises the payoffs under the two organisational structures. The payoff structure establishes strategic complementarity — monetary production payoffs are increasing in managers' ability to coordinate, subject to cultural differences reflected in the distribution of firm agendas. We normalise the payoff from misalignment of agenda to zero, but our results would continue to hold if such arrangements generated strictly positive profits, as long as there is an "alignment premium" from shared firm agenda.

[6] Our results continue to hold when coordination payoffs are not symmetric. In Appendix C, we consider the implications when the bargaining power between firms in the East and West differs and show that our friendshoring policy results remain unchanged.

[7] This does not necessarily suggest that managers cannot strategically select which foreign firms to engage with, but rather that their precise preferences over each agenda are not known before entering into production.

(i) Vertical integration

W \ E	w	e
w	$\pi_V + \iota_i^{W,w}$, $\pi_V + \iota_j^{E,w}$	$\iota_i^{W,w}$, $\iota_j^{E,e}$
e	$\iota_i^{W,e}$, $\iota_j^{E,w}$	$\pi_V + \iota_i^{W,e}$, $\pi_V + \iota_j^{E,e}$

(ii) Outsourcing

W \ E	w	e
w	$\pi_O + \iota_i^{W,w}$, $\pi_O + \iota_j^{E,w}$	$\iota_i^{W,w}$, $\iota_j^{E,e}$
e	$\iota_i^{W,e}$, $\iota_j^{E,w}$	$\pi_O + \iota_i^{W,e}$, $\pi_O + \iota_j^{E,e}$

TABLE 1. Payoff structure for the coordination game among a headquarter firm in W and manufacturing firm in E under (i) vertically-integrated, and (ii) outsourced structures.

The timing of the game is as follows. First, intrinsic preferences are realised and headquarter managers make a decision about whether to outsource or vertically integrate. Manufacturing managers are assumed to be passive in this decision.[8] Second, firms are randomly matched and engage in the coordination game in Table 1 to produce, and payoffs accrue to each firm. We proceed by backward induction, solving first for the unique, introspective equilibrium of the coordination game before establishing the headquarter manager's preferred organisational structure.

3. ANALYSIS

Production and agenda selection. We follow Kets and Sandroni (2019) and resolve the strategic uncertainty inherent in the coordination game under a given organisation structure by a process of *introspection*. If manager i intrinsically prefers agenda w, i.e., if $\iota_i^{W,w} > \iota_i^{W,e}$ $\left(\iota_j^{E,w} > \iota_j^{E,e}\right)$, then she instinctively adopts agenda w, opting for agenda e otherwise. This defines her level $k = 0$ strategy, $\sigma_i^0(\Delta_i^W) = a$, where k represents the level of strategic reasoning in terms of higher-order beliefs, and $\Delta_i^W \equiv \iota_i^{W,w} - \iota_i^{W,e}$ is the agenda differential[9] The differences $\iota_i^{W,w} - \iota_i^{W,e}$ and $\iota_j^{E,e} - \iota_j^{E,w}$ are both drawn from a trapezoidal distribution $F_\varepsilon(y) = \mathbb{P}[\Delta > y]$, which we define in Appendix A.1. Through introspection, the manager strategically places herself in the shoes of other managers reasoning in a similar way, forms a belief about

[8]Following Hart and Holmstrom (2010), we could allow for manufacturing managers to have veto power over the organisational structure decision. But our results go through even with manufacturer preferences factored into the organisational structure stage, provided the outside option is normalised to zero, as in Gorodnichenko et al. (2024).

[9]The corresponding agenda differential for manufacturing managers is $\Delta_j^E \equiv \iota_j^{E,e} - \iota_j^{E,w}$.

her partner's agenda, and formulates a best response to this belief. This defines her level $k = 1$ strategy, $\sigma_i^1(\Delta_i^W)$. In general, at level $k > 1$, the manager formulates a best response to her partner's $(k-1)$ level strategy. The introspective process has infinite levels of reasoning in this manner. Formally:

Definition 1. *In the coordination game, for a organisational structure, $S \in \{V, O\}$, a strategy profile $\sigma = (\sigma_j)_j$ is an introspective equilibrium if a limit $\sigma_j := \lim_{k\to\infty} \sigma_j^k$ exists and the corresponding payoff u_i^R is at least as large as under any other strategy σ_j'.*

The introspective process in the coordination game setting pins down a decision rule that dictates when it is optimal for a manager to adopt her preferred agenda. Lemma 1 follows.

Lemma 1. *There is a unique introspective equilibrium under each organisational structure. In this equilibrium, a headquarter manager selects agenda w if and only if $\Delta_i^W > \Delta_S^*$, for $S \in \{V, O\}$ where $\Delta_O^* \leq \Delta_V^*$. The proportion of managers who select the preferred agenda of their home country is*

$$\begin{aligned} p_S &= F_\varepsilon\left(\Delta_S^*\right) \\ &= \frac{\frac{1}{2} + \varepsilon + \pi_S - 2\varepsilon\pi_S - 4\varepsilon\pi_S^2}{1 + 2\pi_S}, \end{aligned} \tag{4}$$

for $S \in \{V, O\}$.

Proof. See Appendix A.1. □

Lemma 1 pins down a unique course of action for managers, in which each manager trades off the benefits of coordinating production and behaving in ways that enhance her intrinsic utility. Strategic uncertainty is resolved as managers use introspection to gauge the expected innate preferences of their counterparts. The intuition behind the unique equilibrium is that, in the process of higher-order reasoning, each manager's obduracy in selecting her preferred agenda is lowered as she considers the preferences of her trading partner who is reasoning similarly, resulting in a recursive process of compromise in an effort to coordinate production.

A limit to the process defines the unique threshold, $\Delta_S^* \equiv 4\pi_S\varepsilon\left(\frac{1+\pi_S}{1+2\pi_S}\right)$, on the net preference for the country-preferred agenda of each firm, such that whenever the headquarter (manufacturer) manager's

preference for w (e) exceeds the threshold, her best response is to select w (e). The equilibrium is characterised by p_S, the proportion of managers that select w in country W and, analogously, the proportion of managers that select e in country E_ℓ. With $p_S \in [0, 1]$, the equilibrium in Lemma 1 permits the particularly undesirable outcome in which both parties are aggrieved and still fail to coordinate.

Note that, since $\pi_V > \pi_O$ by assumption, we have $p_V < p_O$ — a larger proportion of firms select the salient agenda of their country under an outsourcing arrangement. Integration thus encourages higher coordination.[10] Moreover, managers may find themselves *aggrieved* in equilibrium, which occurs when a manager has an intrinsic preference for one agenda (e.g., $\Delta_i^W > 0$ for headquarter firms, and $\Delta_j^E > 0$ for manufacturing firms), but nevertheless selects the other agenda under the introspective equilibrium. Aggrievement can be viewed as the private cost incurred by conceding to the other party's expected interests.

Figure 1 illustrates how the propensity of a manager to select her country's agenda is shaped by the magnitude of coordination benefits and the strategic behaviour of her counterparty in the other country. Large coordination benefits result in slower convergence and strong reversals in the manager's $k-$level best response, while small coordination benefits lead to faster convergence and less dramatic updating. Intuitively, higher coordination benefits create a stronger adjustment effect on the threshold dictating whether agenda w or e delivers higher expected utility at each level of higher-order reasoning. Since there is no uncertainty about the group identity of each firm's counterparty, and since the manager develops a best response to the $k-1$ strategy of her counterparty, both players update in opposite directions. The greater the salience of coordination versus intrinsic benefits in this higher-order reasoning, the stronger are the reversals at each level k. But since coordination benefits are never so large that a manager has a strictly dominant strategy to select a particular agenda ex ante, there is a well-defined unique equilibrium in the limit.

The unique threshold that determines each firm's agenda is dependent on organisational structure $S \in \{V, O\}$, decided by the headquarter firm at the start of the game. Let

$$\Delta_O^* \equiv \frac{4\pi_O \varepsilon(1+\pi_O)}{1+2\pi_O}, \tag{5}$$

[10] The probability of successful coordination between two matched firms is $p_S(1-p_S)$, which is maximised at $\frac{1}{4}$. By lowering p_S, a firm increases its expected coordination payoffs. We consider how introspective equilibrium shapes production in Section 5.

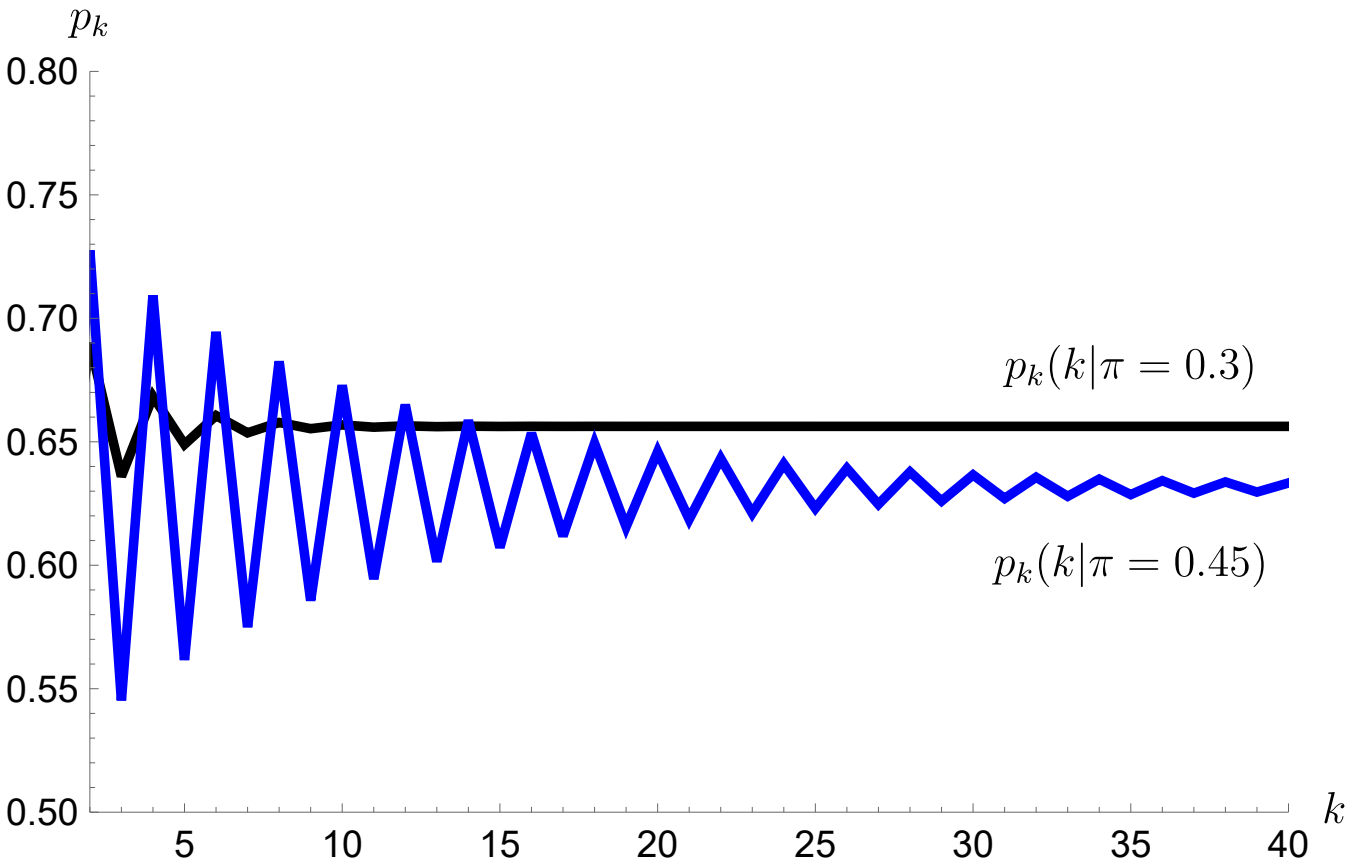


FIGURE 1. The probability of a given firm to select its group-preferred agenda at introspective level k depends on the $k-1$ strategy of its counter-party and the magnitude of coordination benefits, π_S. Larger coordination benefits result in slower convergence and stronger updating (blue line), while weaker coordination benefits lead to faster convergence and less dramatic reversals in the firm's $k-$level best response (black line).

be the cutoff determining a firm's agenda under an outsourcing arrangement, while

$$\Delta_V^* \equiv \frac{4\pi_V \varepsilon(1+\pi_V)}{1+2\pi_V}, \tag{6}$$

is the cutoff under vertical integration. Thus, whenever $\Delta_i^W \geq \Delta_S^*$, firm i chooses w, and it selects agenda e otherwise.[11] Since $\pi_V > \pi_O$ by assumption, it can also be checked that $\Delta_V^* > \Delta_O^*$.

Organisational structure. At the initial stage of the game, manager i of a headquarter firm must decide between an arms-length outsourcing arrangement or to vertically integrate with a manufacturing firm j. Following Hart and Holmstrom (2010), the outside option for both firms is zero, so that they are willing

[11] Similarly, when $\Delta_j^E \geq \Delta_S^*$, manufacturing firm j chooses agenda e and selects w otherwise.

to participate in either arrangement whenever the manager's expected payoffs (monetary and intrinsic) are non-negative. But differences in firm-level agendas may lead to intrinsic opportunity costs associated with the unique introspective equilibrium. While a contracting party may not feel entitled to an outcome outside the organisational form, parties may feel entitled to different outcomes *within* the contract. Thus, if a manager prefers agenda w, but has a best response to select e in equilibrium, she incurs an opportunity cost proportional to her realised agenda differential Δ_i^R for $R \in \{W, E\}$.

Crucially, headquarter managers *internalise* the payoffs accruing to manufacturers whenever they vertically integrate with these firms. Under integration, the manufacturing manager becomes subordinate to headquarter manager i. Although firm i receives higher benefits from integration (π_V, π_O), the manufacturing manager incurs intrinsic losses in expectation whenever she is compelled to comply with an alternative agenda. Denoting $\tilde{f}_\varepsilon(y) \equiv -f_\varepsilon(y)$, we define *shading costs*

$$\kappa^E = \int_0^{\Delta_V^*(\pi_V)} t\tilde{f}_\varepsilon(t)dt\,, \tag{7}$$

to be the expected aggrievement cost imposed on headquarter manager i when the vertically integrated firm pursues agenda w in accordance with i's preferences. Expected shading costs are determined over the region where j is aggrieved, i.e., $\Delta_j^E \in (0, \Delta_v)$.

In selecting organisational structure, the headquarter manager must also consider fixed costs. Following Antras and Helpman (2004), we suppose that the fixed costs of vertical integration exceed outsourcing fixed costs. Let the fixed cost differential, $\phi \equiv \pi_{V,i} - \phi_{O,i}$ be drawn from distribution G with support $[0, 1]$. For analytical tractability, we assume that the fixed cost differential is uniformly distributed over the unit interval. If organisational fixed costs and managers' agenda preferences are independently and identically distributed (conditional on the firm's region), then the expected payoff to a headquarter manager under vertical integration is

$$\mathbb{E}[u_i^W|S = V] = \begin{cases} p_V\pi_V + \iota_i^{W,e} - \phi_{V,i} - \Delta_{i+}^W & \text{if } \Delta_i^W < \Delta_V^* \\ (1-p_V)\pi_V + \iota_i^{W,w} - \phi_{V,i} - \kappa^E & \text{if } \Delta_i^W \geq \Delta_V^*\,. \end{cases} \tag{8}$$

Note that the headquarter manager faces two types of aggrievement cost under integration. First, if i selects agenda e, its payoffs are discounted by its own aggrievement (Δ_{i+}^W whenever this value is positive).

And second, if i selects her preferred agenda w, she incurs expected shading costs $\kappa^E > 0$ from dealing with the aggrieved subordinate manager of the manufacturing firm.

Under outsourcing, by contrast, the headquarter manager does not confront any aggrievement, so her expected payoff is

$$\mathbb{E}[u_i^W|S=O] = \begin{cases} p_O\pi_O + \iota_i^{W,e} - \phi_{O,i} & \text{if } \Delta_i^W < \Delta_O^* \\ (1-p_O)\pi_O + \iota_i^{W,w} - \phi_{O,i} & \text{if } \Delta_i^W \geq \Delta_O^* \,. \end{cases} \tag{9}$$

Comparing equations (8) and (9), we can identify three regions in (Δ_i^W, ϕ_i) space under which each combination of organisational structure and agenda is preferred.

Region 1: $\Delta_i^W < \Delta_O^*$. The headquarter manager selects agenda e, either because she is indifferent between agendas w and e or has an express intrinsic preference for agenda e. Vertical integration is optimal if and only if

$$\begin{aligned} p_O\pi_O + \iota_i^{W,e} - \phi_{O,i} &< p_V\pi_V + \iota_i^{W,e} - \phi_{V,i} - \Delta_{i+}^W \\ \Leftrightarrow \phi_i &< \phi_b(\Delta) \equiv p_V\pi_V - p_O\pi_O - \Delta_{i+}^W. \end{aligned} \tag{10}$$

The schedule $\phi_b(\Delta_i^W)$ is constant whenever $\Delta_i^W < 0$ but it is decreasing in Δ_i^W for all $\Delta_i^W \geq 0$. It captures the relative costs of integrating as manager i's preferences for agenda w become stronger.

Region 2: $\Delta_i^W \geq \Delta_V^*$. When agenda w is a best response under both organisational arrangements, manager i prefers integration whenever

$$\begin{aligned} (1-p_O)\pi_O + \iota_i^{W,w} - \phi_{O,i} &< (1-p_V)\pi_V + \iota_i^{W,w} - \phi_{V,i} - \kappa^E \\ \Leftrightarrow \phi_i &< \phi_a \equiv (1-p_V)\pi_V - (1-p_O)\pi_O - \kappa^E. \end{aligned} \tag{11}$$

Schedule ϕ_a does not depend on the degree of i's preferences for w, conditional on w being a best response. Shading costs, κ^E, are influenced by the level of cultural distance, ε and coordination benefits π_V, but are independent of i's realised preferences for agenda w.

Region 3: $\Delta_O^* \leq \Delta_i^W < \Delta_V^*$. Finally, we consider a manager choosing between outsourcing and selecting agenda w (since $\Delta_i^W \geq \Delta_O^*$), and integrating and selecting agenda e (since $\Delta_i^W < \Delta_V^*$). The manager

integrates and selects agenda e if and only if

$$\begin{aligned}(1-p_O)\pi_O + \iota_i^{W,w} - \phi_{O,i} < p_V\pi_V + \iota_i^{W,e} - \phi_{V,i} - \Delta_i^W \\ \Leftrightarrow \phi_i < \phi_c(\Delta) \equiv p_V\pi_V - (1-p_O)\pi_O - 2\Delta_i^W.\end{aligned} \tag{12}$$

Regions 1, 2 and 3 fully characterise the set of possible values that dictate headquarter manager i's decision. Figure 2 illustrates how these schedules interact. Manager i finds it optimal to integrate whenever the fixed cost premium is below the envelope of ϕ_a, ϕ_b and ϕ_c (the thick, red line in the figure). For our first result, we define

$$\widehat{\Delta} \equiv \min\left\{\frac{1}{2}\left[p_V\pi_V - (1-p_O)\pi_O\right], \Delta_V^*\right\}, \tag{13}$$

as the critical preference differential at which a manager finds it optimal to switch from integrating and selecting agenda e to outsourcing and selecting agenda w.

Proposition 1. *The proportion of headquarter firms in country W adopting each organisational structure and agenda combination is given by:*

(1) Integrate and adopt country W's agenda (w):

$$P_{Vw} = G(\phi_a)F_\varepsilon(\Delta_V^*); \tag{14}$$

(2) Integrate and adopt country E_ℓ's agenda (e):

$$P_{Ve} = \int_{-(1-2\varepsilon)}^{\Delta_O^*} g(\phi_b(\Delta))\tilde{f}_\varepsilon(\Delta)d\Delta + \int_{\Delta_o^*}^{\widehat{\Delta}} g(\phi_c(\Delta))\tilde{f}_\varepsilon(\Delta)d\Delta; \tag{15}$$

(3) Outsource and adopt country W's agenda (w):

$$P_{Ow} = F_\varepsilon(\Delta_O^*) - G(\phi_a)F_\varepsilon(\Delta_V^*) - \int_{\Delta_O^*}^{\widehat{\Delta}} g(\phi_c(\Delta))\tilde{f}_\varepsilon(\Delta)d\Delta; \tag{16}$$

(4) Outsource and adopt country E_ℓ's agenda (e):

$$P_{Oe} = \int_{-(1-2\varepsilon)}^{\Delta_O^*} \tilde{f}_\varepsilon(\Delta)d[1 - G(\phi_b(\Delta))]. \tag{17}$$

Proposition 1 relates the off-shoring decisions and agenda adoptions of headquarter firms to the level of cultural distance, ε, between the two countries, and to the production payoff differential $\pi_V - \pi_O$

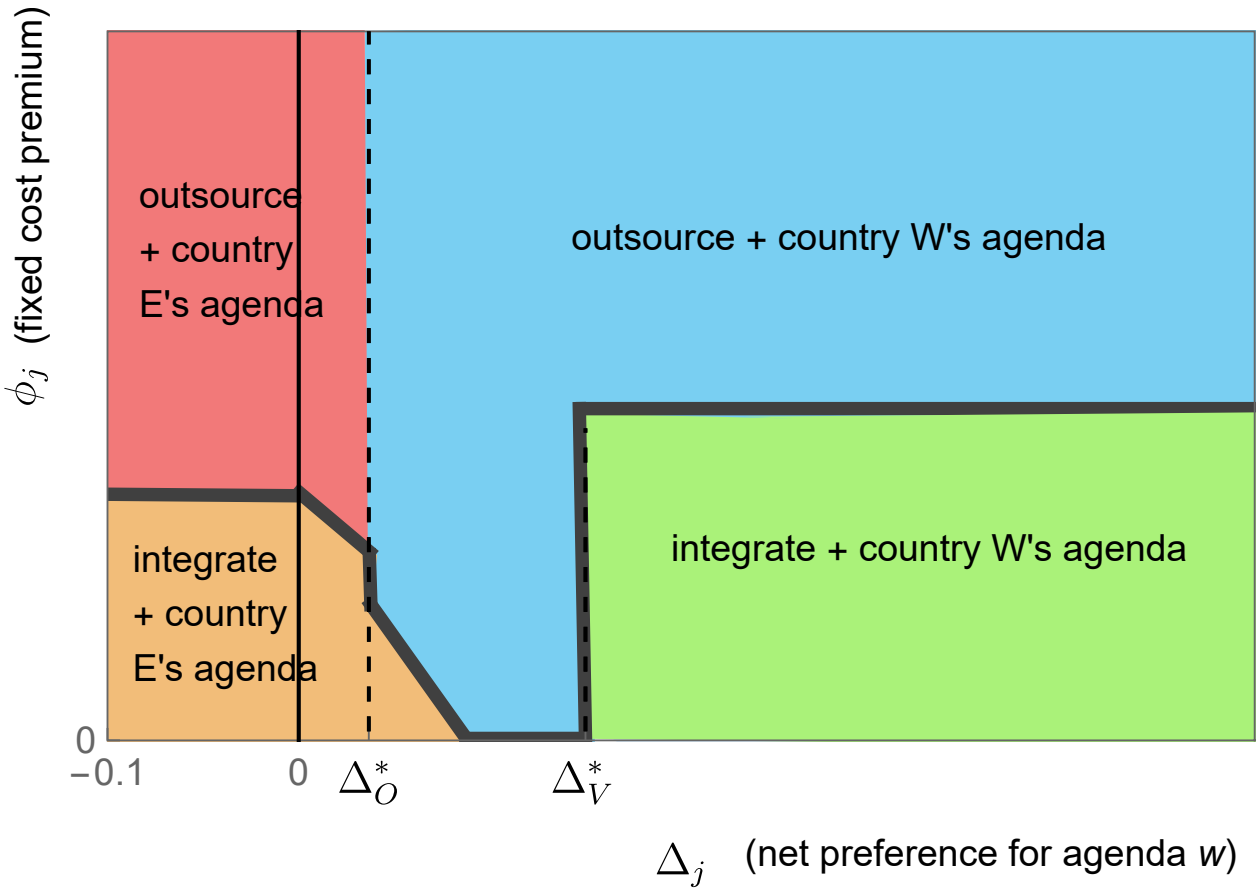


FIGURE 2. Fixed cost and cultural fit cutoffs for headquarter firms at stage 1. The firm integrates whenever $\phi_{V,i} - \phi_{O,i}$ is below the thick, grey line.

between the two organisational forms. In particular, the level of cultural distance dictates both the shape and position of the 'kink' in Figure 2.

4. COMPARATIVE STATICS

We next consider how the organisational landscape depicted in Figure 2 adjusts to changes in cultural distance, ε, and marginal production payoffs, π_S. Two combinations are of particular interest: (i) headquarter firms choosing to integrate and adopt country W's agenda, i.e., $P_v w$; and (ii) headquarter firms choosing to adopt agenda w, i.e., $P_w = P_{Vw} + P_{Ow}$.

Proposition 2. *(i) The proportion of headquarter firms that integrate and adopt country W's agenda is non-monotonic in cultural distance, ε. In particular:*

$$\frac{dP_{Vw}}{d\varepsilon}\begin{cases} > 0 & \textit{if } \ \varepsilon < \hat{\varepsilon}(\pi_O, \pi_V) \\ \leq 0 & \textit{otherwise}\,, \end{cases} \tag{18}$$

where $\hat{\varepsilon}(\pi_O, \pi_V) \in \left[0, \frac{1}{2}\right]$.

(ii) An increase in ε has an ambiguous effect on the proportion of headquarter firms that adopt country W's agenda. In particular,

$$\frac{dP_{w}}{d\varepsilon}\begin{cases} > 0 & \textit{if } \ \pi_O < \widehat{\widehat{\pi}}_O(\pi_V) \textit{ and } \varepsilon < \tilde{\varepsilon}(\pi_V) \\ > 0 & \textit{if } \ \pi_O > \widehat{\widehat{\pi}}_O(\pi_V) \textit{ and } \varepsilon > \tilde{\varepsilon}(\pi_V) \\ < 0, & \textit{if } \ \pi_O > \widehat{\widehat{\pi}}_O(\pi_V) \textit{ and } \varepsilon < \tilde{\varepsilon}(\pi_V) \\ < 0 & \textit{if } \ \pi_O < \widehat{\widehat{\pi}}_O(\pi_V) \textit{ and } \varepsilon > \tilde{\varepsilon}(\pi_V) \end{cases} \tag{19}$$

where $\widehat{\widehat{\pi}}_O(\pi_V), \widehat{\widehat{\widehat{\pi}}}_O(\pi_V) \in [0, \pi_V]$ *and* $\tilde{\varepsilon} \in \left[0, \frac{1}{2}\right]$.

Proof. See Appendix A.2. □

Part (i) of Proposition 2 establishes that the effect of cultural distance on the proportion of headquarter firms that integrate and adopt country W's agenda is sensitive to its pre-existing level of cultural distance. There is a critical threshold in cultural distance, $\hat{\varepsilon}(\pi_O, \pi_V)$, above which the proportion is shrinking in ε, and below which it is growing in ε.

To understand why this happens, it is helpful to examine the direct and indirect effects. An increase in ε causes a shift in the distribution $F_\varepsilon(y)$, in the sense of first order stochastic dominance. Ex ante, this makes it more likely that the headquarter firm will have an express preference for agenda w, and that the manufacturing firm will prefer agenda e. For a given organisational structure $S \in \{V, O\}$, the introspective process that converges to the unique equilibrium (p_S, p_S) in Lemma 1 is sensitive to cultural distance to the extent that it shapes common knowledge over the proclivity of firms to certain agendas. The equilibrium

probability that a manager selects the country's preferred agenda can be written as follows:

$$p_S = F_\varepsilon(\Delta_S^*) = \underbrace{\frac{1}{2} + \varepsilon}_{\uparrow \varepsilon \text{ direct effect}} - \underbrace{\Delta_S^*(\varepsilon)}_{\uparrow \varepsilon \text{ indirect effect}} . \tag{20}$$

The direct effect is a mechanical increase in the probability as a result of the shift in distribution $F_\varepsilon(y)$ to $F_{\varepsilon'}(y)$. The indirect effect is the strategic adjustment that comes from higher-order reasoning about the other party's willingness to forego their own agenda. While the first effect increases the probability, the second effect decreases it. The overall effect, therefore, is determined by the magnitude of the production benefits, π_S, that drive the desire to coordinate in the first place. As coordination benefits grow sufficiently large, each firm is more willing to abandon its agenda and so p_S declines in cultural distance.

A rise in cultural distance also affects the headquarter firm's initial-stage decision over whether to integrate with the manufacturing firm. The vertical cutoff ϕ_a, that we are concerned with, is dependent on the expected payoff differential between integrated and outsourcing arrangements, and on the level of shading or aggrievement that occurs under an integrated arrangement:

$$\phi_a = \underbrace{(1 - p_V)\pi_V - (1 - p_O)\pi_O}_{\text{effect of} \uparrow \varepsilon \text{ depends on } \pi_V - \pi_O} - \underbrace{\kappa^E}_{\uparrow \varepsilon \text{ increases shading costs}} . \tag{21}$$

The first effect depends on the relative magnitudes of π_V and π_O, indicating the additional benefit gained by bringing a foreign firm into the headquarters' boundaries. The second effect represents the expected shading cost to an integrating firm. The latter is strictly increasing in cultural distance, since aggrieved manufacturing managers are less likely to integrate easily into a culturally distant headquarter firm. Together, $\partial\phi_a/\partial\varepsilon$ is concave in differential π_V-π_O. When production benefits under integration are moderate, cultural distance works to increase the proportion of integrating firms that adopt country W's agenda, since headquarter firms expect a higher level of utility from adopting agenda w. But as production payoffs under integration grow large and cultural distance increases, headquarter firms become more beholden to their agendas, shifting the introspective equilibrium cutoff Δ_S^*. This causes integrated firms to incur higher shading costs, κ^E. As a result, headquarter firms become relatively more attracted to an outsourcing arrangement, and proportion P_{Vw} shrinks. Figure 3 summarises the result.

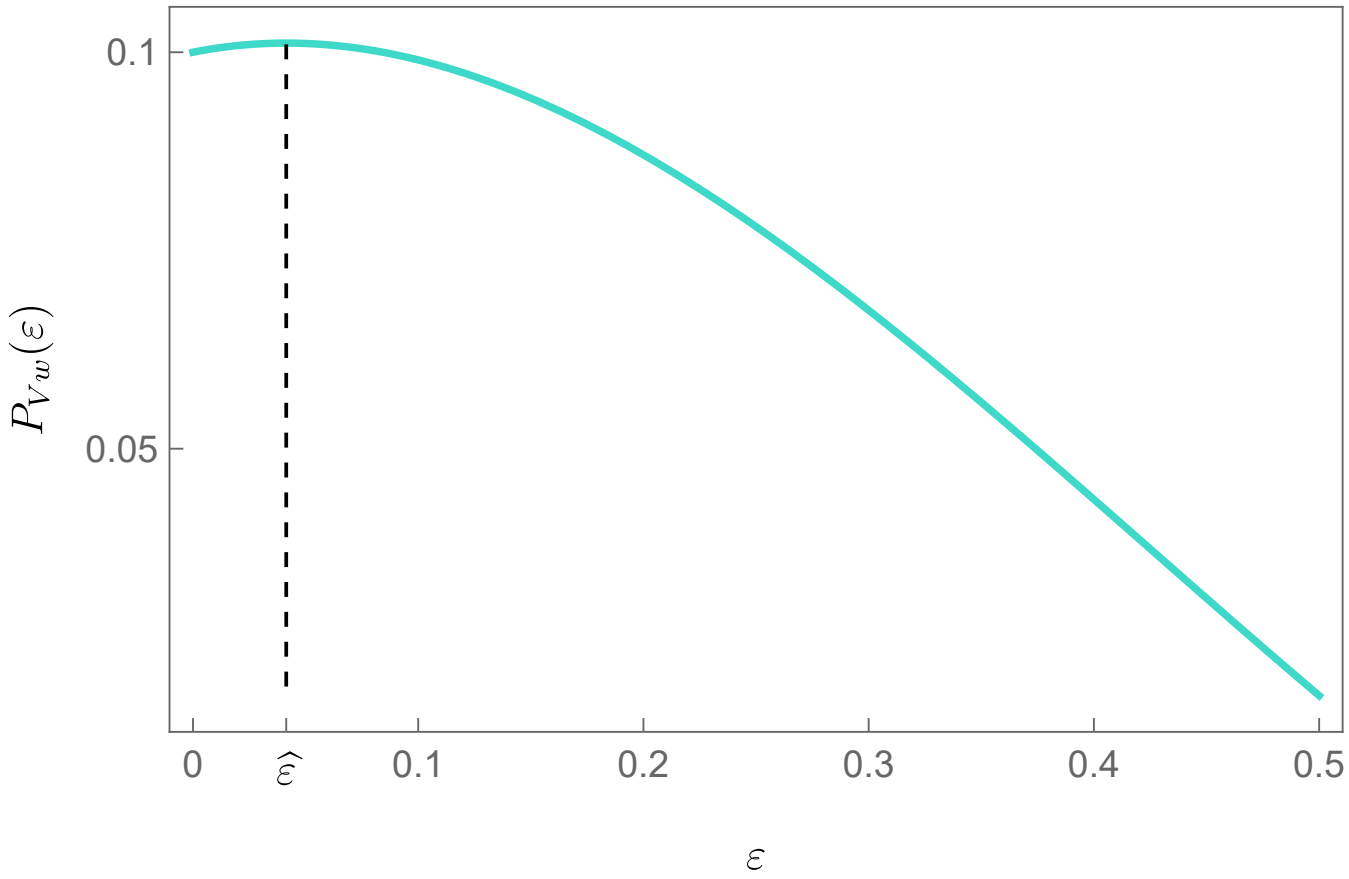


FIGURE 3. The level of cultural distance that maximises the space in which headquarter firms adopt country W's agenda and vertically integrate is non-monotonic in cultural distance, ε. Increasing cultural distance increases P_{Vw} whenever $\varepsilon < \widehat{\varepsilon}(\pi_O, \pi_V)$ and shrinks it when $\varepsilon > \widehat{\varepsilon}(\pi_O, \pi_V)$. In this example, $\pi_O = 0.1$ and $\pi_V = \frac{1}{2}$.

The effect of an increase in ε on the broader proportion of firms that adopt agenda w in part (ii) of Proposition 2 depends on the magnitude of production payoffs. If production payoffs under both outsourcing and integration are sufficiently large, the indirect, 'compromising' effect in (20) dominates and increases in cultural distance cause those headquarter firms that are not beholden to agenda w to switch from outsourcing and adopting behaviour w to integrating and adopting behaviour e.

Proposition 3. *(i) The proportion of headquarter firms that integrate and adopt country W's agenda is weakly increasing in production payoffs, $dP_{Vw}/d\pi_V \geq 0$.*

(ii) The proportion of headquarter firms that adopt country W's agenda is decreasing in production payoffs, $dP_w/d\pi_V < 0$.

Proof. See Appendix A.4. □

It is useful once again to unpack the direct and indirect effects that an increase in π_V has on the firm population of interest. The equilibrium threshold Δ_V^* is strictly increasing in π_V:

$$\frac{\partial \Delta_V^*}{\partial \pi_V} = \frac{4\varepsilon(1 + 2\pi_V(1 + \pi_V))}{(1 + 2\pi_V)^2} > 0. \tag{22}$$

Since $p_V = F_\varepsilon(\Delta_V^*)$ is decreasing in argument Δ_V^*, it immediately follows that, holding all else equal, the proportion of headquarter firms that find it optimal to adopt country W's preferred agenda is decreasing in π_V. However, this effect is offset by the rise in schedule ϕ_a, owing to the mechanical increase in production benefits under integration relative to outsourcing: $(1 - p_V)\pi_V - (1 - p_O)\pi_O$.

Overall, although the opportunity cost of sticking to the headquarter firm's country-preferred agenda rises in π_V, the benefits to integration more than make up for increased reluctance to adopt agenda w and the expected shading costs that accompany aggrieved manufacturing managers. This makes firms that adopt country W's agenda and that would otherwise opt for an outsourcing arrangement choose, instead, to bring production within their boundaries.

5. FRIENDSHORING POLICY

A global sourcing arrangement that does not account for the cultural frictions that give rise to miscoordination can be socially costly. Examples include US supermarket chain Walmart's exit from Germany in 2006 (costing the company $1 billion); Swedish clothing company H&M's $200 million revenue losses following Chinese boycotts over human-rights violation accusations in its supply chain, and the ongoing regulatory hurdles faced by Chinese battery manufacturer CATL and US vehicle manufacturer Ford over national security concerns.[12] In our model, social costs manifest as unrealised or foregone value in a sourcing partnership that lowers the *expected economic benefits* accruing to each manager. We formalise

[12]See, for example, "Wal-Mart pulls out of Germany". *The Guardian*, , July 28 2006; "H&M: Fashion giant sees China sales slump after Xinjiang boycott". *BBC*, July 2 2021; "Ford pauses work on $3.5bn EV battery plant in Michigan". *Financial Times*, September 26, 2023.

a measure of these benefits in absence of intervention by a policymaker, providing a laissez-faire benchmark, before exploring how friendshoring policy affects the gains realised by sourcing arrangements in introspective equilibrium.

Laissez-faire benchmark. In this section, we measure the economic value that a representative headquarter manager assigns to the partnership — the utility generated by expected production.[13] The unique introspective equilibrium in Lemma 1 ensures that each manager optimally balances productivity from coordination against intrinsic factors, i.e., her anticipated grievance and her partner's shading from becoming locked into a certain agenda. This balancing act refines each manager's propensity to adopt an agenda which, in turn, influences the likelihood of alignment of agenda in the sourcing partnership. In expectation, a headquarter manager's economic benefits are the sum of the probability that she and the manufacturing manager coordinate on agenda w and the probability that they coordinate on agenda e under a given organisational structure, $S \in \{V, O\}$. Formally,

$$\Pi_S(\pi_S, \varepsilon) = 2\pi_S p_S(\pi_S, \varepsilon)(1 - p_S(\pi_S, \varepsilon)) \,. \tag{23}$$

Before her intrinsic preferences are realised, a strategic headquarter manager expects to have a best response to select agenda w with with probability $p_S(\pi_S, \varepsilon) = F_\varepsilon(\Delta_S^*)$, and agenda e with probability $1 - p_S(\pi_S, \varepsilon)$. The manufacturing manager has a complementary equilibrium strategy to adopt agenda w with probability $1 - p_S(\pi_S, \varepsilon)$ and e with probability $p_S(\pi_S, \varepsilon)$. Since preferences are independently distributed, the event where both managers align their agendas happens with probability $p_S(\pi_S, \varepsilon)(1 - p_S(\pi_S, \varepsilon))$ for w and e respectively, each time generating profit π_S.

Proposition 4. *The economic benefits for a representative manager of engaging with a country of distance ε under the laissez-faire outcome are (i) weakly decreasing in cultural distance, $\frac{d\Pi}{d\varepsilon} \leq 0$; (ii) increasing in marginal production payoff π_S when $\varepsilon \leq \sqrt{\frac{1}{6}}$; and (iii) non-monotone in π_S when $\varepsilon > \sqrt{\frac{1}{6}}$ with $\arg\max_{\pi_S} \Pi(\pi_S, \varepsilon) \in \left(0, \frac{1}{2}\right]$ for all ε.*

Proof. See Appendix A.5. □

[13] These expected economic benefits are additively separable from intrinsic benefits derived from agenda, but factors that improve expected economic benefits also increase the expected intrinsic benefits from adoption of a manager's preferred agenda.

Proposition 4 highlights that, when viewed through the lens of introspective equilibrium, cultural distance increases strategic uncertainty and reduces the expected economic benefits of a global sourcing arrangement, irrespective of the firm boundary. When country E_ℓ is more culturally distant, manufacturing manager j is more likely to have a preference for agenda e over agenda w. Additionally, the indirect, strategic effect of a rise in cultural distance causes each manager to compensate in an effort to accommodate diverging preferences. This translates into a rise in the cutoff for each manager's agenda differential, Δ_j^R, leading to a reduction in the event space where managers coordinate successfully. The profitability of the sourcing arrangement has a more nuanced effect on expected economic benefits that are conditional on the level of cultural distance of country E_ℓ from country W. When cultural distance is low $\left(\varepsilon \leq \sqrt{\frac{1}{6}}\right)$, the direct effect of greater profit increases the expected economic benefits of the arrangement relative to the manager's outside option (normalised to zero). But there is also an indirect, strategic effect that shapes the trade-off between economic and intrinsic benefits accruing to each manager. When cultural distance surpasses a threshold level $\left(\varepsilon > \sqrt{\frac{1}{6}}\right)$, the strategic effect dominates. The larger is the profitability of the partnership, the more willing each manager is to forego her intrinsic preferences in an effort to align agenda with her partner which, perversely, leads to a reduction in each manager's propensity to select her intrinsically preferred agenda and the event space where alignment occurs is reduced.

The case for friendshoring. There is evidence of the failure of specialised firms engaging in multinational supply chains to account for systemic fragility (Baldwin and Freeman, 2022; Elliott and Golub, 2022; Gomez et al., 2020; Traiberman and Rotemberg, 2023). Firms fail to maintain connections with alternative suppliers that fill shortfalls in the event of disruption, and key industries have become concentrated in a few countries that create geopolitical risks for trading partners. In our model, managers do not internalise how a change in their adoption of a production agenda affects the decisions of other managers in country W to do likewise. At the country level, however, the prevalence of particular environmental standards or levels of national security for example, that constitute different agendas, may have material effects on the wellbeing of the country's populace. Although managers are not motivated by these aggregate concerns, a policymaker takes them into account when setting trade and industrial policy.

Consider a policymaker in country W who balances the economic benefits provided by the global sourcing of key production processes with potential costs or risks associated with the pervasiveness of

agenda e. In addition to maximising expected economic benefits accruing to country W, the policymaker can pursue one of two objectives: (i) a narrow *integration* objective to maximise P_{Vw} — the proportion of headquarter firms that find it optimal to both enter into an integrated arrangement with the manufacturer, and to select country W's preferred agenda, w; and (ii) a broad *agenda* objective to maximise the event space where agenda w is selected irrespective of firm boundary, i.e. $P_w = P_{Ow} + P_{Vw}$. Proportions P_{Vw} and P_w are derived in Proposition 1 and illustrated in Figure 2.

To pursue these objectives, the policymaker has two tools that broadly capture the notion of friend-shoring. The first is an industrial policy subsidy to firms that raises production benefits under an integrated arrangement, giving the policymaker control to choose $\pi_V \in \left[\pi_O, \frac{1}{2}\right]$.[14] An example is the IRA tax credit available to U.S. producers regardless of where they source their technology.[15] We then consider an interaction with a second policy that, through tariffs and non-tariff barriers, restricts trading relationships to those with *allies* — the adjustment of trading relationships towards trading partners who share values with country W, (i.e. with whom ε is low), that grants the policymaker control over the *cultural distance* of the trading partner, $\varepsilon \in \left[0, \frac{1}{2}\right]$.[16] By lowering cultural distance, i.e., ε_2 to ε_1, the policymaker induces firms to shift sourcing in country E_2 to country E_1. The tax credits allocated to firms that source from so-called "FTA partners" in the IRA is an example of efforts to move manufacturing towards partners that are considered to "share values" with the US.[17]

[14] Of course, the policymaker could also subsidise production under outsourcing, but since we assume $\pi_V > \pi_O$, we suppose that π_O is exogenous to make policy prescriptions comparable across objectives.

[15] That is, we consider policies that encourage (directly or indirectly) vertical integration, but that permit cross-border production, as opposed the strictly domestic content requirements contained in the Act as part of the Biden administration's "Build Back Better" plan (Bown, 2023), or the location requirements underpinning much of the U.S. Chips Act. See Foreign Affairs (2023). *The Perils of the New Industrial Policy: How to Stop a Global Race to the Bottom*. Available: https://www.foreignaffairs.com/united-states/industrial-policy-china-perils.

[16] It is important to note that an increase in ε works on the introspective equilibrium along two dimensions. First, it can be thought of as increasing the *salience* of country W's agenda, which increases the proportion of headquarter firms with a $k = 0$ preference for agenda w. Formally, an increase in ε causes a shift in $F_\varepsilon(y)$ in the sense of first-order stochastic dominance, as laid out in Proposition 2. Second, an increase in ε raises the cultural distance between trading partners (i.e., moving from country E_1 with ε_1 to country E_2 with ε_2 where $\varepsilon_2 > \varepsilon_1$) that affects the higher-order convergence process pinning down a unique threshold for the headquarter and manufacturing firm.

[17] See Foreign Policy (2022, September 29). *What America's Plan to Bring Home Technology Manufacturing Gets Wrong*. Available: https://foreignpolicy.com/2022/09/29/us-china-technology-it-supply-chains-manufacturing-decoupling-reshoring-friend-shoring-chips-act/. Also Financial Times (2024, March 24). *Europe is making trade conditional on production methods*. Available: https://on.ft.com/3x9gI9q.

We consider how these two tools, a subsidy and a trading-partner restriction, affect the organisational structure of firms and their propensity to coordinate successfully in production activities. We contrast the policies pursued by the policymaker with outcomes under the laissez-faire benchmark.

Formally, the policymaker's integration objective is given by

$$\begin{aligned} \max_{(\pi_V^P, \varepsilon^P)} \lambda \Pi_V(\pi_V^P, \varepsilon^P) + (1-\lambda) P_{Vw}(\pi_V^P, \varepsilon^P; \pi_O) \\ \text{s.t. } \pi_O \leq \pi_V^P \leq \frac{1}{2}; \\ 0 \leq \varepsilon^P \leq \frac{1}{2}, \end{aligned} \tag{24}$$

where $\lambda \in [0,1]$ is the weight the policymaker assigns to expected economic benefits relative to the protection of agenda w. If the policymaker instead pursues an agenda objective, she faces the following problem

$$\begin{aligned} \max_{(\pi_V^P, \varepsilon^P)} \lambda \Pi_V(\pi_V^P, \varepsilon^P) + (1-\lambda)[P_{Vw}(\pi_V^P, \varepsilon^P; \pi_O) + P_{Ow}(\pi_V^P, \varepsilon^P; \pi_O)] \\ \text{s.t. } \pi_O \leq \pi_V^P \leq \frac{1}{2}; \\ 0 \leq \varepsilon^P \leq \frac{1}{2}. \end{aligned} \tag{25}$$

To focus on the trade-off between expected economic benefits and agenda protection, we abstract from distortions associated with subsidies and the tariffs and non-tariff barriers that restrict trading partners. If we were to introduce revenue neutrality to finance such interventions, our results would still hold, provided the marginal rate of transformation of the subsidy and restrictions into economic benefits and agenda adoption is sufficiently high relative to their financing costs.

Let π_V^* and ε^* denote the values of π_V^P and ε^P that maximise the integration objective in (24), and let π_V^{**} and ε^{**} denote the values that maximise the agenda objective in (25). Since $\pi_V^P \in \left(0, \frac{1}{2}\right]$, the policymaker can set production payoffs at a level between the status-quo level, π_V, and $\frac{1}{2}$. Alternatively, the policymaker can choose to tax the representative firm up to the point that the benefits from integration relative to outsourcing are totally eroded, so that $\pi_V^P = \pi_O$. And with countries' cultural distance characterised by the space $\varepsilon \in \left[0, \frac{1}{2}\right]$, the policymaker can select trading partners at some optimal cultural distance from

W. Our next result summarises the optimal policy tuple (π_V^*, ε^*) implemented by a policymaker with an integration objective.

Proposition 5. *Under an integration objective, the policymaker finds it optimal to implement the maximum possible subsidy, $\pi_V^* = \frac{1}{2}$, and selects a trading partner with a positive level of cultural distance, $\varepsilon^* = (1-\lambda)\hat{\varepsilon}(\pi_V^*; \pi_O)$, weighted by concern for agenda w. The optimal policy tuple is thus:*

$$(\pi_V^*, \varepsilon^*) = \left(\frac{1}{2}, (1-\lambda)\hat{\varepsilon}(\pi_V^*; \pi_O)\right), \tag{26}$$

where $\hat{\varepsilon}(\pi_V^*; \pi_O) \in \left(0, \frac{1}{2}\right)$ for all $\pi_O \in \left(0, \frac{1}{2}\right]$, $\lambda \in [0,1]$.

Proof. See Appendix A.6. □

The benefits to subsidising integration are straightforward.[18] Firms benefit from higher economic surplus when extending their boundaries to better coordinate production processes, and this makes them more willing to stick to the agenda w, which the median firm prefers (see Propositions 3 and 4). These benefits exceed the costs imposed by shading by the manufacturing firm, inducing a larger proportion of headquarter firms to extend their boundaries into country E_ℓ whose cultural distance is given by $\varepsilon = \hat{\varepsilon}(\pi_V^*; \pi_O)$. In this dimension of friendshoring policy, the two terms in the policymaker's objective function are aligned and she finds it optimal to fully subsidise the integration of foreign manufacturers into the headquarter firm's boundaries.

The effect of cultural distance on expected economic benefits, Π_V, is qualitatively different from its effect on the proportion of firms that integrate and select agenda w at the country level, P_{Vw}. This introduces a tension into the policymaker's objective function. While she finds it optimal to restrict global sourcing to partners with no cultural distance (so that $\varepsilon = 0$) to maximise economic benefits, the prescription that maximises P_{Vw} is $\hat{\varepsilon} > 0$. Balancing these competing forces, she selects a trade partner with a moderate cultural distance, $(1-\lambda)\hat{\varepsilon}$ from country W. The stronger is her concern for the emergence of agenda w and greater control via expanded firm boundaries, the larger is the cultural distance she permits. This may seem counter-intuitive, but it is a result of the salience of intrinsic preference in introspective equilibrium.

[18] Of course, as mentioned above, this result will be qualified if firms face material tax costs associated with the implementation of these subsidies.

By compensating firms for the anticipated shading costs that arise from sticking to their preferred agenda with higher subsidies, π_V^P, a headquarter manager adopts agenda w with greater willingness which, in turn, forces the manufacturing manager to adjust her best response and the equilibrium is shifted to permit a higher prevalence of agenda w adoption at the country level.

Proposition 6. *Fix $\lambda \geq \widehat{\lambda} \equiv 1 - \sqrt{\frac{2}{3}}$. Under the agenda objective, the policymaker finds it optimal to subsidise firms under integrated arrangements at the point where profits from agenda alignment are given by $\pi_V^{**} = \lambda\frac{1}{2} + (1-\lambda)\pi_O$. Her choice of trading partner is dependent on the level of profits obtained by headquarter managers under an outsourcing arrangement.*

Define $\widehat{\pi} = \frac{\sqrt{5}-1}{4} \in \left(0, \frac{1}{2}\right)$. The optimal policy tuple is

(i) $(\pi_V^{**}, \varepsilon^{**}) = \left(\lambda\frac{1}{2} + (1-\lambda)\pi_O, (1-\lambda)\frac{1}{2}\right)$ *if* $\lambda\frac{1}{2} + (1-\lambda)\pi_O < \widehat{\pi}$;

(ii) $(\pi_V^{**}, \varepsilon^{**}) = \left(\lambda\frac{1}{2} + (1-\lambda)\pi_O, 0\right)$ *if* $\lambda\frac{1}{2} + (1-\lambda)\pi_O \geq \widehat{\pi}$.

Proof. See Appendix A.7. □

Proposition 6 shows that although a production subsidy has the desired effect of increasing the proportion of firms that integrate and select agenda w, the policy also generates a global *decrease* in the proportion of firms that select agenda w in introspective equilibrium. The assumption on the weighting assigned to expected economic benefits ensures that the policymaker is sufficiently concerned about expected economic benefits relative to maximising agenda space P_w, and makes the analysis more tractable.[19]

The result stems from the process of higher-order reasoning that pins down a unique threshold, Δ_V^*, that characterises the introspective equilibrium. As production benefits become more salient relative to intrinsic benefits, both headquarter and manufacturing firms adjust their cutoffs to become more accommodating of the other party's preferences in an effort to coordinate. This compromising behaviour is rational and converges in a new limiting introspective equilibrium with higher cutoffs. The schedule ϕ_c as defined in (12) is increasing in π_V. As a result, for each preference differential, Δ_i^W, a headquarter firm is more likely to prefer integrating and selecting country E_ℓ's preferred agenda (in order to exploit higher expected production benefits) than outsourcing and pursuing country W's preferred agenda. This reduces the global

[19] Numerical simulations suggest that policy tuples (i) and (ii) remain the only optimal solutions to the policymaker's problem when this assumption is relaxed, suggesting our results generalise to the case where $\lambda \in [0, 1]$.

event space in which country W's agenda is selected in introspective equilibrium. Figure 4 illustrates the effects of each policy tool on the event space where agenda w is selected.

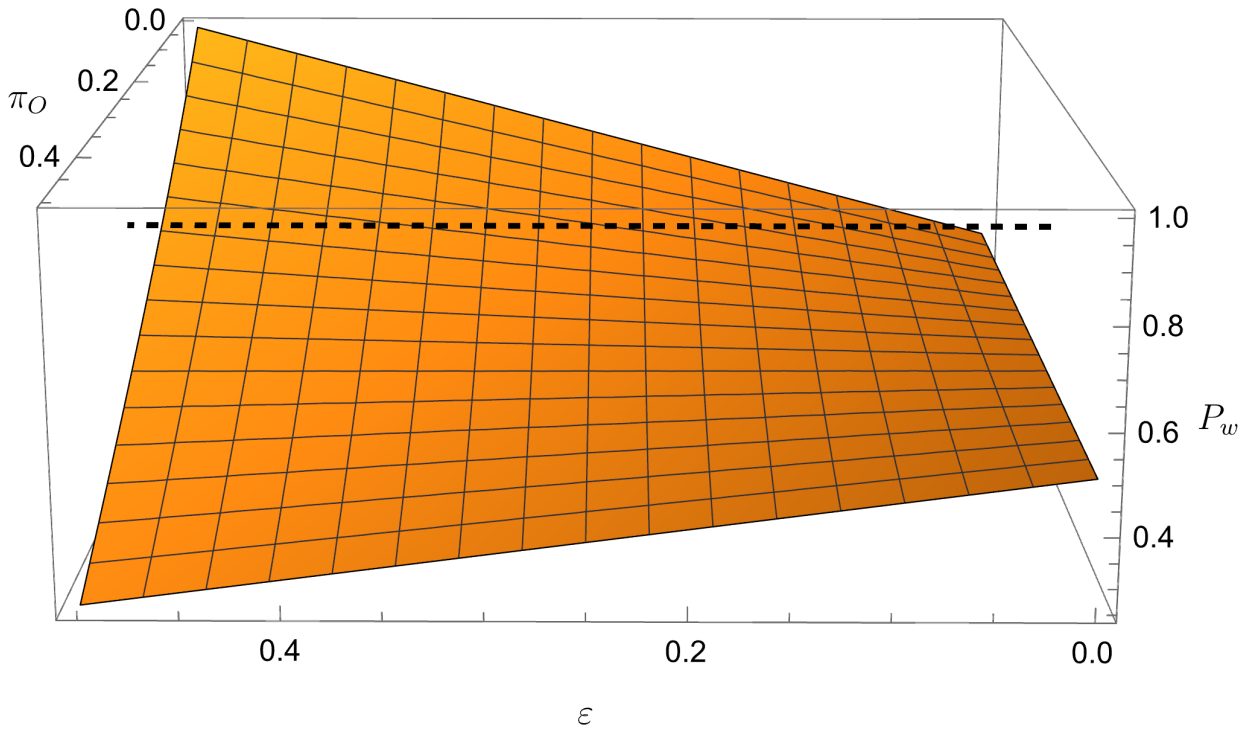


FIGURE 4. Proportion of firms selecting agenda w as defined by cultural distance ε and outsourcing production payoffs, π_O. Under the agenda objective, the policymaker maximises P_w when cultural distance is maximised and production payoffs under outsourcing are minimised. There is a critical level of production payoffs, $\widehat{\pi}$, at which the proportion of firms with a best response to select agenda w is invariant to cultural distance, ε (dashed line). In this example, $\lambda = 1$ so that $\pi_V^P = \pi_V^{**} = \pi_O$.

Taking Propositions 5 and 6 together, it becomes clear that the policymaker has markedly different policy prescriptions when pursuing a narrow integration objective and a broader agenda objective. In each case, she optimally balances the aggregate proportion of firms that have a best response to select agenda w against an individual manager's expected economic benefits from the global sourcing arrangement with a partner country. By influencing where and to what extent headquarter firms set their boundaries with foreign suppliers, the politician may secure control over key resources, such as critical minerals, all the while ensuring that production methods align with country W's preferences. To achieve this, she subsidises integrated production and realigns supply chains to partners at a modest level of cultural distance from country W. If control over manufacturing is less of a concern, but the policymaker wants to protect the prevalence

of agenda w, she tapers subsidies on production and her optimal selection of a trading partner's cultural distance is critically dependent on the profitability of the partnership in arms-length arrangements. Relatively low profitability permits sourcing across large cultural distance while high profitability prescribes extreme friendshoring to realise the higher payoffs that are contingent on agenda alignment.

Comparing friendshoring policies with the laissez-faire benchmark. In this section, we examine the conditions under which managers in country W are at least as well off in terms of expected economic benefits from the policy prescribed under the integration and agenda objectives as they are under the laissez-faire benchmark.[20]

Proposition 7. *Fix $\lambda \geq \widehat{\lambda}$. (i) Headquarter managers are worse off under the integration policy prescription, (π_V^*, ε^*), whenever the trading partner's cultural distance under the status quo is sufficiently low, i.e.,*

$$\Pi(\pi_V^*, \varepsilon^*) < \Pi(\pi_V, \varepsilon) \quad \textit{for } \varepsilon < \varepsilon^*\,, \tag{28}$$

and are made weakly better off than under the benchmark for all $\varepsilon > \varepsilon^*$.

(ii) If Headquarter managers are worse off under the agenda policy prescription, $(\pi_V^{**}, \varepsilon^{**})$, if and only if $\Pi_S(\pi_V, \varepsilon) > \Pi_S(\pi_V^{**}, \varepsilon^{**})$.

Proof. See Appendix A.8. □

When the policymaker seeks to maximise integration by extending the boundaries of domestic firms that share country W's agenda, the level of cultural distance chosen by the policymaker, $\varepsilon^* = (1-\lambda)\hat{\varepsilon}$, is strictly positive. Expected economic benefits accruing to the headquarter manager decline after the policy is implemented whenever the level of cultural distance prior to intervention is below ε^*, but increases whenever prior cultural distance is high $\varepsilon > \varepsilon^*$. Figure 5 illustrates.

[20] We could extend the analysis to consider how headquarter managers' expected utility is affected by these policies. Given structure S at $t = 1$ a headquarter manager's expected utility is given by

$$\mathbb{E}[u^W|\pi_S, \varepsilon] = \Pi_S(\pi_S, \varepsilon) + \int_{-(1-2\varepsilon)}^{\Delta_S^*} \int_0^{1-2\varepsilon} ds dF_\varepsilon(\Delta) + \int_{\Delta_S^*}^{1} \int_0^{1-2\varepsilon} ds dF_\varepsilon(\Delta) = \Pi_S(\pi_S, \varepsilon) + \frac{1}{2} - \varepsilon[1 - p_S(\pi_S, \varepsilon)]\,. \tag{27}$$

We focus on expected economic benefits for two reasons. Firstly, the policymaker is likely to balance only economic benefits against agenda prevalence concerns, and secondly, the inclusion of intrinsic preferences does not change whether a manager is made better off under the policy prescriptions. The policy tuple that maximises expected coordination benefits also maximises expected utility.

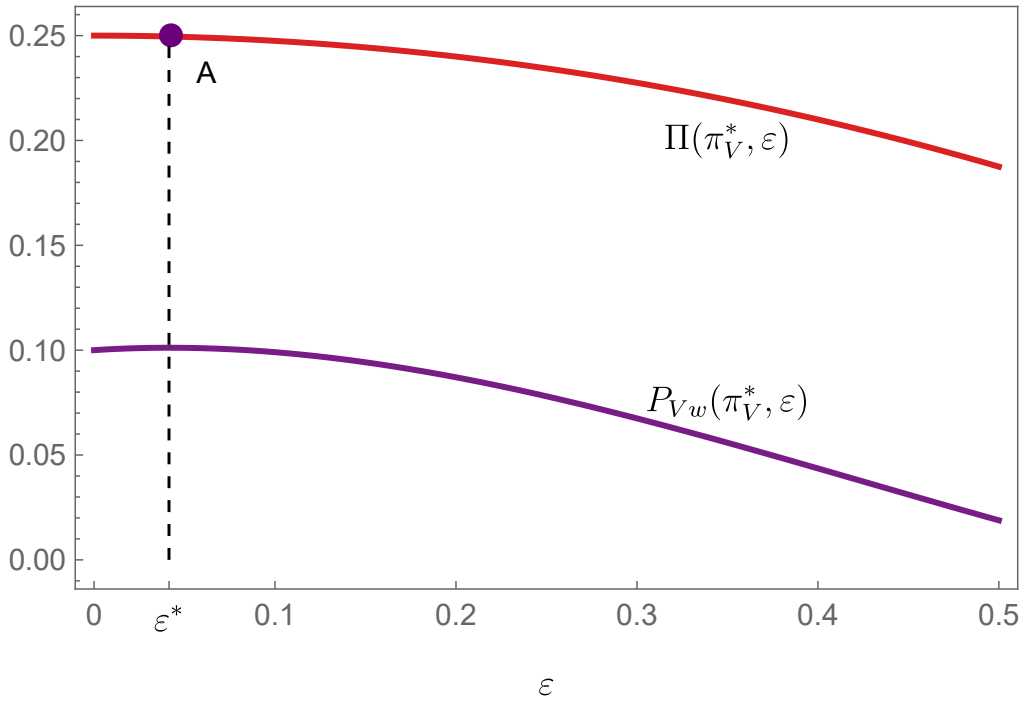
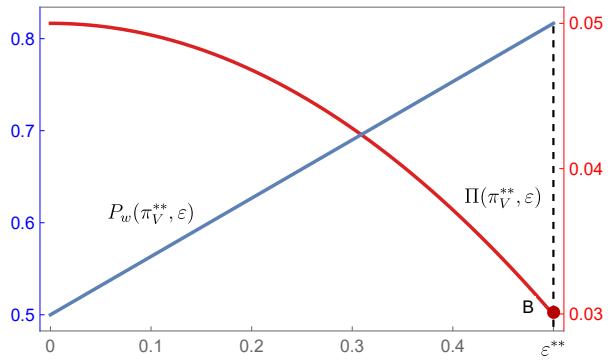
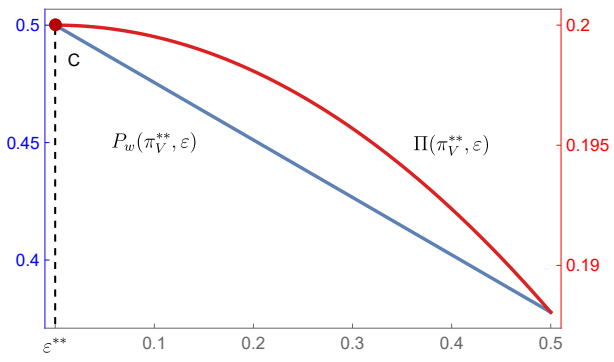


FIGURE 5. Under the integration objective, the policymaker's optimal policy tuple (π_V^*, ε^*) that maximises P_{Vw} produces economic benefits $\Pi(\pi_V^*, \varepsilon^*)$ (point A) which are weakly lower than the laissez-faire benchmark whenever cultural distance is $\varepsilon \leq \varepsilon^*$, and strictly higher than the laissez faire outcome whenever $\varepsilon > \varepsilon^*$. In this example $\lambda = 0$ so that the policymaker assigns all weighting to P_{Vw}.

By contrast, if the policymaker pursues an agenda-based approach by simply maximising the space in which agenda w is adopted, the chosen level of cultural distance is $(1-\lambda)\frac{1}{2}$ for all $\pi_V^{**} < \widehat{\pi}$ and 0 for all $\pi_V^{**} > \widehat{\pi}$. The expected economic benefit schedule $\Pi(\pi_S, \varepsilon)$ is weakly decreasing in ε. This means that the laissez-faire outcome corresponds with a (weakly) higher level of expected benefits than the policymaker's intervention in case (i) (where outsourcing is relatively unprofitable) only when $\pi_V^{**} < \pi_V$ and $\varepsilon < \varepsilon^{**}$, but the intervention improves the manager's payoffs relative to the laissez-faire outcome otherwise. In case (ii) (where outsourcing profits are relatively high), only highly profitable integrated sourcing partnerships, $\pi_V > \pi_V^{**}$, provide better expected payoffs than under the policy prescription. Figures 6a and 6b summarise these results.



(a) Under the agenda objective, whenever $\pi_V^{**} \leq \widehat{\pi}$, the policymaker's optimal policy tuple $(\pi_V^{**}, \varepsilon^{**})$ that maximises P_w (left axis) produces weakly lower expected economic benefits (point B) (right axis) than laissez-faire benchmark for all ε. In this example, $\pi_V^{**} = 0.1$ and $\lambda = 0$.



(b) Under the agenda objective, whenever $\pi_V^{**} > \widehat{\pi}$, the policymaker's optimal policy tuple $(\pi_V^{**}, \varepsilon^{**})$ that maximises P_w (left axis) produces equal expected economic benefits (point C) (right axis) as the laissez-faire outcome at $\varepsilon = 0$ and strictly greater benefits than the laissez-faire outcome for all $\varepsilon > 0$. In this example, $\pi_V^{**} = 0.4$ and $\lambda = 0$.

FIGURE 6. Production outcomes under laissez-faire benchmark and intervention under the agenda objective.

6. DISCUSSION

Testable hypotheses. A common theme in the literature on global sourcing is that increased cultural distance acts like a standard trade barrier that lowers trade volumes between two partners (Gokmen, 2017; Gorodnichenko et al., 2024; Javorcik et al., 2023). In traditional models of trade and global sourcing, cultural factors — if accounted for at all — are incorporated into pricing mechanisms that, in our setting, determine the level of joint profit split between the headquarter and manufacturing managers.[21] Our analysis imports a second dimension into the relationship between cultural distance and the attractiveness of global sourcing arrangements by considering a firm's *agenda* — the methods of production and their associated non-tradeable, non-contractible benefits. Once we interact divergence in preference of this kind into an otherwise standard model of firm boundaries and global sourcing, a novel set of testable predictions arise.

Prediction 1. *The relationship between the attractiveness of integration relative to outsourcing and cultural distance depends crucially on relative profitability. At low levels of profitability, greater cultural distance makes integration more prevalent relative to outsourcing, while at high levels of profitability,*

[21] See Bisin and Verdier (2014), Janeba (2007), Rauch and Casella (2003), and references therein.

integration becomes less prevalent relative to outsourcing the higher is cultural distance between the headquarter and manufacturer.

Prediction 1 follows from Proposition 4, which shows that expected economic benefits are weakly decreasing the greater is the cultural distance between headquarter and manufacturing firms. When managers engage strategically in their interactions, the rate at which economic benefits are eroded by cultural distance differs between vertically integrated firms and those that maintain outsourcing arrangements. When profitability is low, i.e., $\pi_V < \widehat{\pi} \equiv \frac{\sqrt{5}-1}{4}$, the net expected benefits from integration over outsourcing are increasing the higher is cultural distance, since expected coordination is reduced with higher cultural distance and integration partially offsets this inefficiency. As profitability surpasses $\widehat{\pi}_V$, coordination becomes more difficult with increased cultural distance, and since integration offers higher profits contingent on alignment of agenda than in an outsourcing arrangement, greater value is lost when managers fail to coordinate in the former than in the latter.

Prediction 1 qualifies the predictions of Gorodnichenko et al. (2024) about the relationship between cultural distance and the selection of firm boundaries. Gorodnichenko et al. (2024) find evidence that the share of US firms that engage in intra-firm imports is decreasing in a commonly used measure of cultural distance constructed by Hofstede (2001). While this work focuses on an average relationship across all industries, an implication of our results is that the share of firms that find it optimal to integrate rather than outsource should also be conditioned on the importance of alignment between headquarter and managerial activities that may be specific to particular industries, as represented by $\pi_V - \pi_O$ in our model. We thus offer a novel prediction that suggests that industries in which alignment is crucial (e.g. clothing manufacturers that have a strong brand to protect, or information technologies that have national security implications) prefer to integrate with culturally similar partners to reduce shading and insure against misalignment.

Prediction 2. *When focussing only on the proportion of headquarter managers that pursue country W's agenda, incentives to integrate are non-monotonic in cultural distance. At low levels of cultural distance between manufacturer and headquarter countries, greater cultural distance increases the prevalence of*

integration relative to outsourcing. But at high pre-existing levels of cultural distance, increased cultural distance lowers the attractiveness of integration.

As derived formally in Proposition 2, conditional on a headquarter manager's adoption of the agenda that is preferred, in distribution, by the headquarter country, her willingness to integrate with a foreign manufacturer is increasing in cultural distance at low initial levels. This is because shading costs are likely to be low and increases in cultural distance make integration and the control it offers relatively more attractive. But at high levels of cultural distance, shading costs are high and it is difficult to coordinate to obtain the profits that accompany alignment on agenda w. For this reason, headquarter managers prefer to maintain an outsourcing arrangement. Our framework thus offers a new dimension through which to analyse the relationship between firm boundaries and cultural distance by focussing on firm agenda. We provide a theoretical underpinning for future studies that employ a cross-sectional analysis of intra-firm trade that harnesses heterogeneity in firm-level agenda (via ESG initiatives, human rights policy, or other codes of conduct, for example).

Friendshoring episodes. There has been renewed attention in the United States and other developed countries over the role of industrial and trade policies in the face of geopolitical risks (Attinasi et al., 2023; IMF, 2023; Javorcik et al., 2023). The Biden administration has focused policy efforts on moving production onshore ("reshoring"), expanding commerce with like-minded countries ("friend shoring"), and reducing reliance on states with value-systems at odds with US agendas ("de-risking"). The CHIPS and Science Act, and the Inflation Reduction Act offer a menu of subsidies and tax credits to promote the onshoring of manufacturing. The US has additionally sought to promote regional network creation, establishing the Indo-Pacific Economic Framework (IPEF), the US-Mexico-Canada Agreement (USMCA), and the Americas Partnership for Economic Prosperity in Central and South America.[22] These clubs of trusted partners who align in their values towards labour, environmental, and social standards, have also made formal commitments to developing shared standards for the digital economy and fighting corruption.[23] Yeo (2023) argues that the establishment of common values and standards will promote coordination and trade

[22]For a detailed discussion of the Biden administration's policies, see Lovely (2023).

[23]Another example is the Sustainable Critical Minerals Alliance, formed off the back of COP15 in Montreal, and comprising Canada, Australia, France, Germany, Japan, the UK, and the US.

among partners, while the Carnegie Endowment for International Peace argues that successful trade policy relies on the "advancement of American *economic* interests as well as American *geopolitical* interests" (emphasis added) (Harrell, 2024, p. 2).

Although many commentators have been quick to criticise the US push to reorder the sourcing decisions of firms (Javorcik et al., 2023; Rajan, 2022), our analysis suggests that the effects of intervention via industrial and trade policy are nuanced. When cultural frictions are material in absence of intervention, friendshoring policy can lead to improved outcomes by providing insurance against costly misalignment in non-contractible elements of trade. This is because cultural frictions drive a wedge that heightens strategic uncertainty between managers engaging in production along a supply chain. Moreover, when interacted with a high degree of cultural distance, higher profitability does not always substitute effectively for output lost due to ineffective coordination. Central to our argument is the role of introspective reasoning in framing the tension between intrinsic values on one hand, and the desire of international firms to coordinate business activity on the other.

The implications of miscoordination on the value of a cross-border partnership are exemplified in the relationship between Ford and the world's largest Chinese battery maker, China's Contemporary Amperex Technology Co. Limited (CATL). Ford's production of a new line of electric vehicles use battery inputs which require critical minerals and rare earth metals. In 2021, China refined a majority of the world's lithium, along with 73% of cobalt, 40% of copper, 59% of 68% of nickel (IEA, 2021; Su et al., 2023; Vivoda and Matthews, 2023). The two companies have doubled down on cooperative arrangements to secure the production of electric vehicles, including agreements to build a $\$3.5$ billion factory in Michigan that uses CATL technology and have explored an unconventional joint venture that would see Ford controlling 100% ownership stake in exchange for complete dependence on CATL technology.[24] However, concerns among U.S. officials over national security and access to critical information infrastructure have stalled efforts toward greater partnership.[25] Following the release of Ford's blueprints, an investigation by Congress accused the company of ties to mining operations contracted by CATL in the Xinjiang region of

[24] See "Ford-CATL Partnership Illustrates the Challenge of Decoupling EV Supply Chains" (Council on Foreign Relations, March 7, 2023).

[25] See "CATL, the little-known Chinese battery maker that has the US worried" (*The Guardian*, March 18, 2024).

China. In December 2021, the US enacted a new law that prohibits the import of materials from Xinjiang unless it can be proven that they were not made with forced labour.[26]

It is important to note that our results suggest that friendshoring initiatives *may* improve on laissez-faire outcomes, not that they *will*. The laissez-faire outcome results in greater expected economic benefits for headquarter (and manufacturer) managers than friendshoring policies whenever trading partners are culturally close in absence of intervention, i.e, when the insurance value offered by cultural closeness at the country level align with private incentives to contract in sourcing partnerships at the firm level. Our model also compares and contrasts how friendshoring objectives that weight concerns about integration and agenda differently offer starkly different policy prescriptions, suggesting that trade and industrial policy should be tailored depending on the importance of direct control offered by integration with foreign suppliers, and the importance of alignment in agenda across borders.

A major motivation for friendshoring policy is the desire to enhance the resilience of supply chains and promote sourcing from safer locations. Although stylised, our model offers a view on the role that cross-border coordination problems have on firm incentives to integrate with foreign partners and pursue different codes and norms in production. To the extent that policymakers are concerned with both the level of efficiency achieved by productive trade, and the insurance against miscoordination provided by sourcing from trading partners with shared worldview, there is an optimal level of cultural distance that strikes a delicate balance between efficiency and insurance. Such an arrangement corresponds with those trading partners who are positioned at a "Goldilocks" level of cultural distance from the headquarter country — ε^* in the case where policymakers want to promote integration, and ε^{**} if they are concerned only with agenda and economic gains (see Figure 7).

7. Conclusion

We provide a model of firm boundaries in global sourcing in which culture plays a prominent role. In non-contractible elements of supply chains, cultural frictions serve to heighten strategic uncertainty and

[26]See "Ford halts work on $3.5 billion plant amid strike, forced labor probe" (*The Washington Post*, September 26, 2023). Similar policy intervention has been implemented in Europe to promote environmental standards relating to the use of palm oil in various food, pharmaceutical and cosmetics supply chains. See "Indonesia warns of 'chaos' from EU deforestation law" (*Financial Times*, September 8, 2024).

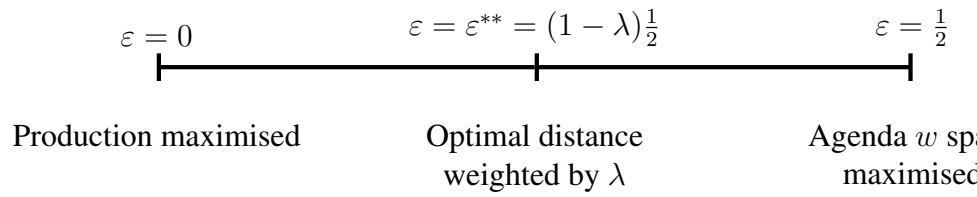


FIGURE 7. Where there is a divergence in prescriptions for trade policy that maximises production and pursuit of an agenda, i.e., when $\pi_V^{**} < \widehat{\pi}$, a policymaker finds it optimal to institute a degree of friendshoring that selects trading partners to optimally balance these competing objectives.

lower the expected value of production. Firms optimally trade off efficiency gains from vertical integration and minimising aggrievement in arms-length arrangements. We consider the impact of subsidies and trading partner restrictions to study how friendshoring policies affect global production. We find that friendshoring is not always and everywhere detrimental to trade. In particular, when countries engage in profitable arrangements with highly culturally distant partners, friendshoring policies can increase the expected economic benefits associated with global sourcing arrangements.

Our analysis is subject to several limitations. While we are able to evaluate the trade-off between efficiency and the insurance provided by cultural similarity in a bilateral arrangement, more work needs to be done to extend our analysis to a multilateral setting. Moreover, our treatment of culture extends only to how it shapes preferences for agenda in production. We do not consider how cultural diversity may positively influence production, or how consumer preferences may be impacted by cultural differences (Bisin and Verdier, 2014). Notwithstanding these shortcomings, our results highlight the importance of treating blanket arguments in favour of laissez-faire offshoring approaches and unbridled globalisation with some care.

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APPENDIX A. DERIVATIONS

A.1. **Proof of Lemma 1.** At level 0, firms adopt the agenda they intrinsically prefer. Therefore, the share of manufacturing firms that select agenda w is

$$p_0^{E,w} = \frac{\frac{1}{2} - \varepsilon}{\frac{1}{2} - \varepsilon + \left(1 - \left[\frac{1}{2} - \varepsilon\right]\right)} = \frac{1}{2} - \varepsilon\,. \tag{29}$$

Analogously, the share of headquarter firms that choose agenda w is $\frac{1}{2} + \varepsilon$. At higher levels, firms are strategic about their decisions. At level $k = 1$, headquarter manager i anticipates that with probability $p_0^{E,w} = \frac{1}{2} - \varepsilon < \frac{1}{2}$ that its partner will select agenda w. Therefore, it is a best response to select w if and only if

$$\begin{aligned} \pi_S\left(\frac{1}{2} - \varepsilon\right) + \iota_i^{W,w} &\geq \pi_S\left(\frac{1}{2} + \varepsilon\right) + \iota_i^{W,e} \\ \Leftrightarrow \Delta_i^W \equiv \iota_i^{W,w} - \iota_i^{W,e} &\geq 2\pi_S\varepsilon. \end{aligned} \tag{30}$$

Given that agendas are uniformly and identically distributed, the distribution of the difference $\iota_i^{W,w} - \iota_i^{W,e}$ in intrinsic values for a $W-$firm is given by the trapezoidal distribution. That is, Δ_i^W is drawn from tail distribution $F_\varepsilon(y) \equiv \mathbb{P}[\Delta_i^W \geq y]$, where

$$F_\varepsilon(y) = \begin{cases} 1 & \text{if } y < -(1-2\varepsilon); \\ 1 - \frac{1}{2-4\varepsilon}(1 - 2\varepsilon + y)^2 & \text{if } y \in [-(1-2\varepsilon), 0); \\ 1 - \frac{1}{2}(1-2\varepsilon) - y & \text{if } y \in [0, 2\varepsilon); \\ \frac{1}{4\left(\frac{1}{2}-\varepsilon\right)}(1-y)^2 & \text{if } y \in [2\varepsilon, 1]; \\ 0 & \text{otherwise.} \end{cases} \tag{31}$$

The corresponding differential for manufacturer preferences, $\Delta_j^E \equiv \iota_j^{E,e} - \iota_j^{E,w}$, is also drawn from $F_\varepsilon(y)$.

These distributions come into play at $k = 2$. Headquarter manager i's best response to the $k = 1$ strategy of manufacturing manager j is to select w if and only if

$$\begin{aligned} & \pi_S(1 - p_1^{E,e}) + \iota_i^{W,w} \geq \pi_S p_1^{E,e} + \iota_i^{W,e} \\ \Leftrightarrow\ & \pi_S(1 - \mathbb{P}[\Delta_j^E \geq 2\pi_S\varepsilon]) + \iota_i^{W,w} \geq \pi_S \mathbb{P}[\Delta_j^E \geq 2\pi_S\varepsilon] + \iota_i^{W,e} \\ \Leftrightarrow\ & \Delta_i^W \geq \pi_S \left[2F_\varepsilon(2\pi_S\varepsilon) - 1\right] . \end{aligned} \tag{32}$$

For a manufacturing manager, the decision to select the group-preferred agenda e also depends on whether $\Delta_j^E \gtrless \pi_S[2F_\varepsilon(2\pi_S\varepsilon) - 1]$.

Proceeding to level $k = 3$, a headquarter manager conditions her response on the probability that her partner selected each agenda at level $k = 2$. It is a best response to select w if and only if

$$\begin{aligned} & \pi_S(1 - p_2^{E,e}) + \iota_i^{W,w} \geq \pi_S p_2^{E,e} + \iota_i^{W,e} \\ \Leftrightarrow\ & \pi_S \left(1 - F_\varepsilon(\pi_S[2p_1^{E,e} - 1])\right) + \iota_i^{W,w} \geq \pi_S F_\varepsilon(\pi_S[2p_1^{E,e} - 1]) + \iota_i^{W,e} \\ \Leftrightarrow\ & \Delta_i^W \geq \pi_S[2F_\varepsilon(\pi_S[2p_1^{E,e} - 1]) - 1] . \end{aligned} \tag{33}$$

Generalising this to any level $k > 2$, manager i has a $k > 2$ best response to adopt agenda w if and only if

$$\Delta_i^W \geq \pi_S \left[2p_{k-1}^{E,e} - 1\right] . \tag{34}$$

Similarly, manufacturing manager j has a $k > 2$ best response to adopt agenda e if and only if

$$\Delta_j^E \geq \pi_S \left[2p_{k-1}^{W,w} - 1\right] . \tag{35}$$

To find the limit, we show that the sequence $\{p_k^{W,w}\}_k$ (or $\{p_k^{E,e}\}_k$) is a geometric progression which, by definition, converges in the limit. These limits $p^{W,w}$ and $p^{E,e}$ exist and define the introspective equilibrium. To see this, consider level $k = 2$, which depends on the proportion $p_1^{W,w} = p_1^{E,e} = p_1 = F_\varepsilon(2\pi_S\varepsilon) = \frac{1}{2} + \varepsilon - 2\pi_S\varepsilon$, since $2\pi_S\varepsilon \in [0, 2\varepsilon]$ and by the definition of $F_\varepsilon(y)$. Substituting this into the $k = 2$ proportion and simplifying, we get:

$$p_2(p_1) = F_\varepsilon \left(\pi_S \left[2\left(\frac{1}{2} + \varepsilon - 2\pi_S\varepsilon\right) - 1\right]\right) = F_\varepsilon \left(2\pi_S\varepsilon[1 - 2\pi_S]\right) . \tag{36}$$

Note that the argument of F_ε at level $k = 2$, $2\pi_S\varepsilon[1 - 2\pi_S]$, is concave in π_S and is maximised at $\pi_S = \frac{1}{4}$, in which case the argument simplifies to $\frac{1}{4}\varepsilon \in [0, 2\varepsilon)$. This implies that p_2 also has the form $p_2(y) = F_\varepsilon(y) = \frac{1}{2} + \varepsilon - y$.

By induction, for all levels $k > 2$, the sequence generalises to

$$p_k(p_{k-1}) = F_\varepsilon\left(\pi_S[2p_{k-1} - 1]\right) = \frac{1}{2} + \varepsilon - 2\pi_S\varepsilon\left[1 + \sum_{l=1}^{k-1}(-2\pi_S)^l\right]. \tag{37}$$

Since $\pi_S < \frac{1}{2}$, the sequence $\{\sum_{l=1}^{k-1}(-2\pi_S)^l\}_k$ is a geometric sum, with limit $\xi = \{\sum_{l=1}^{k-1}(-2\pi_S)^l\}_{k\to\infty} = \frac{1}{1+2\pi_S}$. And since the argument

$$2\pi_S\varepsilon\left[1 + \sum_{l=1}^{k-1}(-2\pi_S)^l\right] \tag{38}$$

is in the range $[0, 2\varepsilon)$, the limit p_S as $k \to \infty$ is given by the stable point

$$\begin{aligned} p_S &= \frac{1}{2} + \varepsilon - \frac{4\pi_S\varepsilon(1+\pi_S)}{1+2\pi_S} \\ &= \frac{\frac{1}{2} + \varepsilon + \pi_S - 2\varepsilon\pi_S - 4\varepsilon\pi_S^2}{1+2\pi_S}. \end{aligned} \tag{39}$$

Since p_S does not depend on group $R \in \{W, E\}$, we have $p_S^{W,w} = p_S^{E,e} = p_S$ and it can be checked that $p_S \in (0, 1)$.

A.2. **Proof of Proposition 1.** To derive the proportion of headquarter firms that select into each agenda-organisational structure arrangement, consider regions 1, 2 and 3 presented in equations (10), (11) and (12) in the main text. Under introspective equilibrium defined in Lemma 1, Proportions P_{Vw}, P_{Ve}, P_{Ow} and P_{Oe} are derived by computing the probability of each agenda-organisational structure type, given by equations (14)-(17) respectively.

A.3. **Proof of Proposition 2.** For part (i), the effect of an increase in ε on the proportion P_{Vw} is given by

$$\frac{dP_{Vw}}{d\varepsilon} = \frac{\partial p_V}{\partial\varepsilon}\phi_a + \frac{\partial\phi_a}{\partial\varepsilon}p_V, \tag{40}$$

where

$$\frac{\partial p_V}{\partial\varepsilon} = \frac{1}{1+2\pi_V}\left[1 - 2\pi_V - 4\pi_V^2\right], \tag{41}$$

and

$$\frac{\partial \phi_a}{\partial \varepsilon} = -\pi_V \frac{\partial p_V}{\partial \varepsilon} + \pi_O \frac{\partial p_O}{\partial \varepsilon} - \Delta_V^* \frac{\partial \Delta_V^*}{\partial \varepsilon}, \tag{42}$$

since κ^E simplifies to $\frac{1}{2}(\Delta_V^*)^2$. The expression in (41) is strictly positive as $\pi_V \to 0$ and is decreasing in π_V. There is a critical level $\widehat{\pi}_V = \frac{1}{4}\left(\sqrt{5}-2\right) \in \left[0, \frac{1}{2}\right]$ at which $\frac{\partial p_V}{\partial \varepsilon} = 0$. To show that there exists a $\hat{\varepsilon}(\pi_O, \pi_V) \in \left[0, \frac{1}{2}\right]$, let $\pi_V = \widehat{\pi}_V$. The derivative in (40) simplifies to

$$\frac{dP_{Vw}}{d\varepsilon} = p_V \left[\pi_O \frac{\partial \pi_O}{\partial \varepsilon} - \Delta_V^* \frac{\partial \Delta_V^*}{\partial \varepsilon}\right]. \tag{43}$$

We have that $\frac{dP_{wa}}{d\varepsilon} \leq 0$ whenever

$$\varepsilon \geq \hat{\varepsilon}(\pi_O, \pi_V) = \frac{\frac{\pi_O}{1+2\pi_O}(1 - 2\pi_O - 4\pi_O^2)}{\left[\frac{4\widehat{\pi}_V(1+\widehat{\pi}_V)}{1+2\widehat{\pi}_V}\right]^2}, \tag{44}$$

and $\frac{dP_{Vw}}{d\varepsilon} > 0$ whenever $\varepsilon < \hat{\varepsilon}(\pi_O, \pi_V)$.

More generally, as $\pi_V \to 0$, (40) simplifies to

$$\phi_a + \left(\frac{1}{2} + \varepsilon\right)\left(\pi_O \frac{\partial p_O}{\partial \varepsilon}\bigg|_{\pi_V \to 0}\right) > 0\,, \tag{45}$$

since $\frac{\partial p_V}{\partial \varepsilon}|_{\pi_V \to 0} > 0 \Rightarrow \frac{\partial p_O}{\partial \varepsilon} > 0$ by the fact that $\pi_V > \pi_O$, which implies that $\hat{\varepsilon}(\pi_O, \pi_V) \geq \frac{1}{2}$. And as $\pi_V \to \frac{1}{2}$, the expression in (40) becomes

$$\frac{dP_{Vw}}{d\varepsilon}\bigg|_{\pi_V \to \frac{1}{2}} = \frac{\partial p_V}{\partial \varepsilon}\bigg|_{\pi_V \to \frac{1}{2}} \phi_a + 4p_V \left[1 + \frac{4\pi_O}{1+2\pi_O}(1 - 2\pi_O - 4\pi_O^2) - 9\varepsilon\right]. \tag{46}$$

The first term is negative, and a sufficient condition for the second term to be negative is

$$\varepsilon \geq \hat{\hat{\varepsilon}}(\pi_O, \pi_V) = \frac{1}{9}\left[1 + \frac{4\pi_O}{1+2\pi_O}(1 - 2\pi_O - 4\pi_O^2)\right]. \tag{47}$$

This implies the existence of a threshold $\hat{\varepsilon}(\pi_O, \pi_V) < \hat{\hat{\varepsilon}}(\pi_O, \pi_V)$, such that $\frac{dP_{Vw}}{d\varepsilon} > 0$ whenever $\varepsilon < \hat{\varepsilon}(\pi_O, \pi_V)$ and $\frac{dP_V w}{d\varepsilon} \leq 0$ otherwise.

For part (ii), we have to consider separate cases given the kink in the integration schedule. First, let $\widehat{\Delta} = \Delta_V^*$. Using the Liebniz integral rule, we then have

$$\left.\frac{dP_w}{d\varepsilon}\right|_{\widehat{\Delta}=\Delta_V^*} = \frac{\partial p_O}{\partial \varepsilon} - \left[\frac{\partial \Delta_V^*}{\partial \varepsilon} - \frac{\partial \Delta_O^*}{\partial \varepsilon}\right] . \tag{48}$$

Since $\frac{\partial \Delta_S^*}{\partial \varepsilon} > 0$ for all $S \in \{V, O\}$ and $\pi_V \geq \pi_O$, the term inside the brackets is weakly positive. The first term is ambiguous and depends on π_O:

$$\frac{\partial p_O}{\partial \varepsilon} = \frac{1}{1+2\pi_O}\left[1 - 2\pi_O - 4\pi_O^2\right] . \tag{49}$$

This implies the existence of a critical level $\widehat{\pi} = \frac{\sqrt{5}}{4} - \frac{1}{4} \in \left(0, \frac{1}{2}\right)$ such that $\frac{\partial p_O}{\partial \varepsilon} > 0$ whenever $\pi_O < \widehat{\pi}$ and $\frac{\partial p_O}{\partial \varepsilon} \leq 0$ whenever $\pi_O \geq \widehat{\pi}$. Fixing $\pi_O \geq \widehat{\pi}$, a necessary condition for $\frac{dP_w}{d\varepsilon} < 0$ is

$$\frac{1 - 6\pi_O - 8\pi_O^2}{1+2\pi_O} - \frac{4\pi_V(1+\pi_V)}{1+2\pi_V} < 0 . \tag{50}$$

It is straightforward to show that the first term is decreasing in π_O and the condition holds true at the upper bound $\pi_O = \pi_V$. Therefore, there exists a $\widehat{\widehat{\pi}}_O(\pi_V) \in [0, \pi_V]$ such that $\frac{dP_w}{d\varepsilon}|_{\widehat{\Delta}=\Delta_V^*} \geq 0$ whenever $\pi_O \leq \widehat{\widehat{\pi}}_O(\pi_V)$ and $\frac{dP_w}{d\varepsilon}|_{\widehat{\Delta}=\Delta_V^*} < 0$ otherwise.

Second, suppose that $\widehat{\Delta} = \frac{1}{2}[p_V\pi_V - (1-p_O)\pi_O]$. The effect of an increase in ε is given by

$$\begin{aligned}\left.\frac{dP_w}{d\varepsilon}\right|_{\widehat{\Delta}=\frac{1}{2}(p_V\pi_V-(1-p_O)\pi_O)} &= \frac{\partial p_O}{\partial \varepsilon}\left(1 - \frac{1}{2}\pi_O\right) - \frac{1}{2}\frac{\partial p_V}{\partial \varepsilon}\pi_V + \frac{4\pi_O(1+\pi_O)}{1+2\pi_O} \\ &= \frac{1 + \frac{3}{2}\pi_O + \pi_O^2 + 2\pi_O^3}{1+2\pi_O} - \frac{1}{2}\pi_V\frac{\partial p_V}{\partial \varepsilon} .\end{aligned} \tag{51}$$

Given $\pi_V < \widehat{\pi}_V$, there exists a $\widehat{\widehat{\widehat{\pi}}}_O(\pi_V) \in [0, \pi_V]$ such that $\frac{dP_w}{d\varepsilon}|_{\widehat{\Delta}=\frac{1}{2}(p_V\pi_V-(1-p_O)\pi_O)} \geq 0$ whenever $\pi_O \geq \widehat{\widehat{\widehat{\pi}}}_O(\pi_V)$ and $\frac{dP_w}{d\varepsilon}|_{\widehat{\Delta}=\frac{1}{2}(p_V\pi_V-(1-p_O)\pi_O)} < 0$ otherwise.

Threshold $\widehat{\Delta}$ is shaped by cultural distance, ε. Define $\overline{\varepsilon}(\pi_V, \pi_O)$ as the level of cultural distance at which $\frac{1}{2}[p_V\pi_V - (1-p_O)\pi_O] = \Delta_V^*$. This condition can be rearranged to solve for $\overline{\varepsilon}(\pi_V, \pi_O)$:

$$\overline{\varepsilon}(\pi_V, \pi_O) \equiv \frac{\frac{1}{4}\pi_V - \frac{1}{2}\pi_O}{\frac{\frac{7}{2}\pi_V + 5\pi_V^2 + 2\pi_V^3}{1+2\pi_V} + \frac{3\pi_O + 2\pi_O^2}{1+2\pi_O}} , \tag{52}$$

so that for all $\varepsilon > \overline{\varepsilon}(\pi_V, \pi_O)$, $\widehat{\Delta} = \frac{1}{2}[p_V\pi_V - (1-p_O)\pi_O]$ and for all $\varepsilon \leq \overline{\varepsilon}(\pi_V, \pi_O)$, $\widehat{\Delta} = \Delta_V^*$.

A.4. **Proof of Proposition 3.** (i) The effect of an increase in π_V on the proportion of headquarter firms that integrate and adopt country W's agenda is given by

$$\frac{dP_{Vw}}{d\pi_V} = \frac{\partial p_V}{\partial \pi_V}\phi_a + \frac{d\phi_a}{d\pi_V}p_V, \tag{53}$$

where

$$\frac{d\phi_a}{d\pi_V} = -\frac{\partial p_V}{\partial \pi_V}\pi_V + (1-p_V) - \frac{\partial \kappa^E}{\partial \Delta_V^*}\frac{\partial \Delta_V^*}{\partial \pi_V}, \tag{54}$$

and

$$\frac{\partial p_V}{\partial \pi_V} = -\frac{\partial \Delta_V^*}{\partial \pi_V} = -\frac{4\varepsilon(1+2\pi_V+2\pi_V^2)}{(1+2\pi_V)^2} < 0. \tag{55}$$

Using the definition of ϕ_a from (11), we have that P_{Vw} is increasing in π_V whenever:

$$p_V(1-p_V) + \frac{\partial \Delta_V^*}{\partial \pi_V}[p_V\pi_V - p_V\Delta_V^* - \phi_a] > 0. \tag{56}$$

The first term is always positive, and $\frac{\Delta_V^*}{\partial \pi_V} = \frac{4\varepsilon(1+2\pi_V(1+\pi_V))}{(1+2\pi_V)^2} > 0$. Since ϕ_a is decreasing in $(1-p_O)\pi_O$, the most restrictive condition for the partial derivative is at the point $\pi_O = 0$. For simplicity, and without loss of generality, assume $\pi_O = 0$ in the remainder of the proof. In the limit as $\varepsilon \to 0$, we have

$$\left.\frac{dP_{Vw}}{d\pi_V}\right|_{\varepsilon\to 0} = p_V(1-p_V) = \frac{1}{4} > 0\,. \tag{57}$$

And as $\varepsilon \to \frac{1}{2}$,

$$\left.\frac{dP_{Vw}}{d\pi_V}\right|_{\varepsilon\to \frac{1}{2}} = \frac{2\pi_V}{(1+2\pi_V)^4}\left[(1+\pi_V)(1-2\pi_V^2)(1+2\pi_V)^2 - 1 - 2\pi_V(1+\pi_V)\right] > 0\,, \tag{58}$$

for all $\pi_V \in \left(0, \frac{1}{2}\right]$. It can be further checked that $\frac{dP_{Vw}}{d\pi_V} \geq 0$ holds for all $\varepsilon \in \left[0, \frac{1}{2}\right]$.

(ii) To see why the agenda w proportion, $P_w = P_{Ow} + P_{Vw}$, is shrinking in π_V, observe that this proportion simplifies to

$$P_w = p_O - \int_{\Delta_O^*}^{\widehat{\Delta}} g(\phi_c(\Delta))\tilde{f}_\varepsilon(\Delta)d\Delta\,. \tag{59}$$

The first term is independent of π_V and, using the Liebniz integral rule, we have

$$\frac{dP_w}{d\pi_V} = -\frac{d\widehat{\Delta}}{d\pi_V}\left[g(\phi_c(\widehat{\Delta}))\tilde{f}_\varepsilon(\widehat{\Delta})\right] < 0\,, \tag{60}$$

where

$$\frac{d\widehat{\Delta}}{d\pi_V} = \begin{cases} \frac{1}{2}\left[p_V + \frac{\partial p_V}{\partial \pi_V}\pi_V\right] & \text{if } \frac{1}{2}\left[p_V\pi_V - (1-p_O)\pi_O\right] < \Delta_V^* \\ \frac{\partial \Delta_V^*}{\partial \pi_V} & \text{if } \frac{1}{2}\left[p_V\pi_V - (1-p_O)\pi_O\right] \geq \Delta_V^* \end{cases} > 0\,. \tag{61}$$

A.5. **Proof of Proposition 4.** For the first result, we have

$$\frac{d\Pi}{d\varepsilon} = 2\pi_S(1-2p_S)\frac{\partial p_S}{\partial \varepsilon}\,. \tag{62}$$

We have already established that $\frac{\partial p_S}{\partial \varepsilon} = 0$ at $\pi_S = \widehat{\pi}_S$. For all $\pi_S < \widehat{\pi}_S$, we have $\frac{\partial p_S}{\partial \varepsilon} > 0$ and it can be checked that $(1-2p_S) < 0$, which means that $\frac{d\Pi}{d\varepsilon}|_{\pi_S < \widehat{\pi}_S} < 0$. Conversely, for all $\pi_S > \widehat{\pi}_S$, we have $\frac{\partial p_S}{\partial \varepsilon} < 0$ and $(1-2p_S) > 0$, which means that $\frac{d\Pi}{d\varepsilon}|_{\pi_S > \widehat{\pi}_S} < 0$.

The effect of an increase in marginal production payoffs is given by

$$\frac{d\Pi}{d\pi_S} = 2\left[\pi_S(1-2p_S)\frac{\partial p_S}{\partial \pi_S} + p_S(1-p_S)\right]\,. \tag{63}$$

We have already shown that $\frac{\partial p_S}{\partial \pi_S} < 0$. To see how the effect varies with ε, first note that, for all $\varepsilon \in \left[0, \frac{1}{2}\right]$, as $\pi_S \to 0$, we have

$$\left.\frac{d\Pi}{d\pi_S}\right|_{\pi_S \to 0} = \frac{1}{4} - \varepsilon^2 \geq 0\,. \tag{64}$$

And as $\pi_S \to \frac{1}{2}$, the sign of the first derivative depends on ε:

$$\left.\frac{d\Pi}{d\pi_S}\right|_{\pi_S \to \frac{1}{2}} = \frac{1}{2}(1-6\varepsilon^2)\,. \tag{65}$$

Therefore, for all $\varepsilon < \sqrt{\frac{1}{6}}$, we have $\left.\frac{d\Pi}{d\pi_S}\right|_{\pi_S \to \frac{1}{2}} > 0$, while $\left.\frac{d\Pi}{d\pi_S}\right|_{\pi_S \to \frac{1}{2}} \leq 0$ whenever $\varepsilon \geq \sqrt{\frac{1}{6}}$.

To show that there is a single maximum, consider the second order derivative

$$\frac{d^2\Pi}{d\pi_S^2} = 2\left\{(1-2p_S)\left(\frac{\partial p_S}{\partial \pi_S} - \frac{4\pi_S\varepsilon(1+2\pi_S+2\pi_S^2)}{(1+2\pi_S)^2}\right)\right\}\,. \tag{66}$$

As $\pi_S \to 0$, we have

$$\left.\frac{d^2\Pi}{d\pi_S^2}\right|_{\pi_S \to 0} > 0\,, \tag{67}$$

since $(1-2p_S) < 0$. And as $\pi_S \to \frac{1}{2}$, we have:

$$\left.\frac{d^2\Pi}{d\pi_S^2}\right|_{\pi_S \to \frac{1}{2}} < 0\,, \tag{68}$$

since $(1-2p_S) > 0$. This is sufficient to show that there exists a unique $\pi_S \in \left(0, \frac{1}{2}\right]$ that maximises $\Pi(\pi_S, \varepsilon)$.

A.6. **Proof of Proposition 5.** From Propositions 3 and 4, we have that Π_V and P_{Vw} are increasing in π_V^P as long as $\varepsilon \leq \sqrt{\frac{1}{6}}$. And while Proposition 4 shows that Π_V is decreasing in ε^P for all π_V^P, by Proposition 2, we have that P_{Vw} is increasing in ε if and only if $\varepsilon < \hat{\varepsilon}(\pi_V^P, \pi_O)$. It thus follows that

$$(\pi_V^*, \varepsilon^*) = \underset{(\pi_V^P, \varepsilon^P)}{\arg\max}\, \lambda\Pi_V(\pi_V^P, \varepsilon^P) + (1-\lambda)P_{Vw}(\pi_V^P, \varepsilon^P; \pi_O) = \left(\frac{1}{2}, (1-\lambda)\hat{\varepsilon}\right)\,. \tag{69}$$

A.7. **Proof of Proposition 6.** By Proposition 4, we have that Π_V is strictly increasing in π_V^P whenever $\varepsilon^P \leq \sqrt{\frac{1}{6}}$. For analytical tractability, we fix λ to be above a threshold, $\widehat{\lambda}$, at the policymaker's optimum to ensure that this condition is satisfied and hence $\frac{\partial \Pi_V}{\partial \pi_V^P} > 0$. We derive the threshold on λ formally below.

We established in Proposition 3 that $\frac{\partial P_w}{\partial \pi_V^P} < 0$ for all cultural distance, ε. This is sufficient to ensure that the policymaker finds it optimal to set subsidies at a level that produces a convex combination of profits that maximise Π_V and P_w respectively, i.e.,

$$\pi_V^{**} = \lambda\frac{1}{2} + (1-\lambda)\pi_O\,. \tag{70}$$

To determine the optimal trading partner's level of cultural distance, recall that Π_V is strictly decreasing in cultural distance for all π_V^P and π_O. On the other hand, by Proposition 2, we have that P_w is strictly increasing in cultural distance for all $\pi_V^P < \widehat{\pi} \equiv \frac{\sqrt{5}-1}{4}$ and is decreasing in ε^P otherwise.

Therefore, in case (i) where $\pi_V^{**} = \lambda\frac{1}{2} + (1-\lambda)\pi_O < \widehat{\pi}$, the policymaker sets

$$\varepsilon^{**} = (1-\lambda)\frac{1}{2}\,, \tag{71}$$

and in case (ii) where $\pi_V^{**} > \widehat{\pi}$ she sets

$$\varepsilon^{**} = 0\,. \tag{72}$$

At the knife-edge case where $\pi_V^{**} = \widehat{\pi}$, note that $\frac{\partial P_w}{\partial \varepsilon} = 0$ (by Proposition 2), and since $\frac{\partial \Pi_V}{\partial \varepsilon} \leq 0$ (Proposition 4), the policymaker also chooses $\varepsilon^{**} = 0$.

It remains to derive $\widehat{\lambda}$. When there is a tension between the level of cultural distance that maximises Π_V and P_w so that $\varepsilon^{**} = (1-\lambda)\frac{1}{2}$, we have that $\frac{\partial \Pi_V}{\partial \pi_V^P} \geq 0$ if and only if $\varepsilon \leq \sqrt{\frac{1}{6}}$, which holds for all $\lambda \geq 1 - \sqrt{\frac{2}{3}}$.

The optimal policy tuple is, therefore:

$$(\pi_V^{**}, \varepsilon^{**}) = \underset{(\pi_V^P, \varepsilon^P)}{\arg\max}\, \lambda \Pi_V(\pi_V^P, \varepsilon^P) + (1-\lambda) P_w(\pi_V^P, \varepsilon^P; \pi_O) = \begin{cases} \left(\lambda\frac{1}{2} + (1-\lambda)\pi_O, (1-\lambda)\frac{1}{2}\right) & \text{if } \pi_V^{**} < \widehat{\pi} \\ \left(\lambda\frac{1}{2} + (1-\lambda)\pi_O, 0\right) & \text{if } \pi_V^{**} \geq \widehat{\pi}\,, \end{cases} \tag{73}$$

A.8. **Proof of Proposition 7.** The proof follows from Proposition 4, where we show that $\Pi(\pi_S, \varepsilon)$ is determined by the combination of the marginal payoff from production, π_S and cultural distance, ε, and from the endogenously determined levels (π_V^*, ε^*) and $(\pi_V^{**}, \varepsilon^{**})$ under the integration and agenda objectives derived in Propositions 5 and 6 respectively.

Appendix B. Trade theoretic underpinnings

To provide a micro-foundation for the joint operating profit parameter, π_S, we consider a standard trade model with monopolistic competition (Antras and Helpman, 2004; Venables, 1987), to explore how pricing of differentiated goods produced under introspective equilibrium and monopolistic competition is shaped by the strategic uncertainty we are concerned with.

Introduce a unit measure of consumers, $j = [0, 1]$. Each j has one unit of elastically supplied labour. Individual consumer preferences are given by

$$u_i^R = z_i + \psi \ln X_i + \mathbb{1}_{i=M,H} \cdot \iota_i^{R,a}\,, \tag{74}$$

where z_i is consumption of a numeraire good, ψ is a weighting on preferences for differentiated goods relative to the numeraire good, the indicator function takes a value of 1 if an individual i is a manager of a headquarter or manufacturing firm, and $\iota_i^{R,a}$ is the intrinsic payoff from selecting agenda $a \in \{w, e\}$.[27] The index

$$X_i = \left[\int_{v \in V} x_i(v)^{\frac{\omega-1}{\omega}} dv \right]^{\frac{\omega}{\omega-1}}, \tag{75}$$

is a constant elasticity of substitution (CES) aggregator of the quantity $x_i(v)$ of consuming variety v, with elasticity $\omega > 1$. The consumer's budget constraint is given by

$$P x_i + z_i = Y_i, \tag{76}$$

where $P = \left(\int_{v \in V} \rho(v)^{1-\omega} dv \right)^{1/(1-\omega)}$ is a price index and $\rho(v)$ is the price of variety v. The consumer's maximisation problem, subject to her budget constraint, yields

$$\begin{aligned} X_i^* &= \psi P^{-1} \\ z_i^* &= Y_i - \psi \\ \rho(v) &= x(v)^{\frac{-1}{\omega}} \psi^{\frac{1}{\omega}} P^{\frac{\omega-1}{\omega}}. \end{aligned} \tag{77}$$

From this, we obtain the following indirect utility function, which is linear in income:

$$W_i = Y_i - \psi \ln P - \psi(\ln \psi - 1). \tag{78}$$

Production of the numeraire good occurs under constant returns to scale and perfect competition, with an identical unit price in both regions. Production of differentiated goods occurs under monopolistic competition. The headquarter firms provide service units h, and manufacturers provide units m, each produced from one unit of labour, and combined into final good production according to a Cobb Douglas production function under organisational arrangement $S \in \{V, O\}$:

$$x(v)_S = \zeta_S \left(\frac{h}{\eta} \right)^{\eta} \left(\frac{m}{1-\eta} \right)^{1-\eta}, \tag{79}$$

[27] We abstract from other ways in which cultural differences may affect consumer demand. For a survey of trade models that feature these mechanisms, see Bisin and Verdier (2014).

where η is an industry-specific important of headquarter services relative to manufacturing services, and $\zeta_S > 0$ is the productivity draw of the managers that depends on organisational structure $S \in \{V, O\}$. In particular, drawing on Antràs and Staiger (2012); Gorodnichenko et al. (2024), we assume that $\zeta_V > \zeta_O$ to capture the idea that integration offers a manager a greater degree of control over inputs and a resolution to hold-up problems described in Antràs and Staiger (2012). While the quantities of components h and m are enforceable by contract, the methods of production, or firm agendas, are not. Using the demand function stemming from consumer preferences, revenue from the sale of final goods of variety v is given by

$$\Gamma_S(v) = D^{1/\omega} \left\{ \zeta_S \left(\frac{h}{\eta} \right)^{\eta} \left(\frac{m}{1-\eta} \right)^{1-\eta} \right\}^{\frac{\omega-1}{\omega}}, \tag{80}$$

where $D = \psi P^{\omega-1}$ is an exogenous demand shifter that is constant across firms. Firms choose h and m independently from their agenda adoption decisions to maximise joint operating profit under organisational structure $S \in \{V, O\}$:

$$\pi_S(v) = \Gamma_S(v) - h - m\,. \tag{81}$$

This problem yields equilibrium inputs $h^* = \eta^{\frac{\omega-1}{\omega}}\Gamma_S$ and $m^* = (1-\eta)^{\frac{\omega-1}{\omega}}\Gamma_S$. Substituting these inputs into the profit function, we obtain:

$$\pi_S(v) = \frac{D}{\omega} \left(\frac{\omega - 1}{\omega} \right)^{\omega-1}. \tag{82}$$

Normalising operating profit $\pi_S(v) \in \mathbb{R}$ to the $\left(0, \frac{1}{2}\right)$ space, firms adopt agenda $a \in \{w, e\}$ under introspective equilibrium in Lemma 1, and our results follow.

Equation (82) embeds a price mechanism that allows us to study how shocks to consumer preferences, or other firm characteristics, affect the introspective process that dictates a firm's boundary choice and agenda adoption. For example, all else equal, a positive demand shock that increases $\pi_V(v)$ for variety v shifts the organisational landscape as per Proposition 3 with implications for friendshoring policies presented in Propositions 5 and 6.

APPENDIX C. INTROSPECTIVE EQUILIBRIUM UNDER ASYMMETRIC BARGAINING POWER

In this appendix, we re-characterise the introspective equilibrium in Lemma 1 with asymmetric bargaining power, in which the headquarter firm obtains surplus $\pi_S(1+\beta)$ from coordination on agenda under organisational arrangement $S \in \{V, O\}$. The parameter $\beta \in \left[0, \overline{\beta}\right)$ measures the degree of bargaining power held by the headquarter manager, and $\overline{\beta} = \frac{1-2\pi_S}{2\pi_S}$.[28] The manufacturing manager obtains residual payoff $\pi_S(1-\beta)$, conditional on successful coordination on agenda with the headquarter firm.

At level 0, as in the benchmark case with symmetric bargaining power ($\beta = 0$), managers adopt the agenda they intrinsically prefer. Therefore, the share of manufacturing firms that select agenda w is

$$p_0^{E,w} = \frac{\frac{1}{2} - \varepsilon}{\frac{1}{2} - \varepsilon + \left(1 - \left[\frac{1}{2} - \varepsilon\right]\right)} = \frac{1}{2} - \varepsilon\,. \tag{83}$$

Analogously, the share of headquarter firms that choose agenda w is $\frac{1}{2} + \varepsilon$. At level $k = 1$, headquarter manager i anticipates that with probability $p_0^{E,w} = \frac{1}{2} - \varepsilon < \frac{1}{2}$ that her partner will select agenda w. Therefore, it is a best response to select w if and only if

$$\begin{aligned} \pi_S(1+\beta)\left(\frac{1}{2} - \varepsilon\right) + \iota_i^{W,w} &\geq \pi_S(1+\beta)\left(\frac{1}{2} + \varepsilon\right) + \iota_i^{W,e} \\ \Leftrightarrow \Delta_i^W \equiv \iota_i^{W,w} - \iota_i^{W,e} &\geq \Delta_1^W \equiv 2\pi_S\varepsilon(1+\beta). \end{aligned} \tag{84}$$

Agenda preferences are distributed as in the benchmark case, with preference differential Δ_i^R drawn from $F_\varepsilon(y)$, defined in equation (31) for $R \in \{W, E\}$. However, at level $k = 1$, owing to heterogeneity in bargaining power between the two parties, the cutoff on the differential for manufacturing firms is lower. Manufacturing manager j prefers to select e if and only if

$$\Delta_j^E \equiv \iota_j^{E,e} - \iota_j^{E,w} \geq \Delta_1^E \equiv 2\pi_S\varepsilon(1-\beta)\,, \tag{85}$$

where $\Delta_1^W \geq \Delta_1^E$ for all $\beta \in [0, \overline{\beta})$. Asymmetry in bargaining power thus has a material, strategic effect at levels $k > 1$. At level $k = 2$, Headquarter manager i's best response to the $k = 1$ strategy of manufacturing

[28] The upper bound on β allows us to use the same geometric sequence that ensures convergence in the introspective process as in the benchmark case. A more complete generalisation where $\overline{\beta} = 1$ still produces a unique, introspective equilibrium, but requires us to establish a monotone increasing (decreasing) sequence for headquarter (manufacturer) beliefs. This complicates the subsequent analysis as it requires considering separate cases for each piece of the function $F_\varepsilon(y)$.

manager j is to select w if and only if

$$\begin{aligned} &\pi_S(1-p_1^{E,e})(1+\beta)+\iota_i^{W,w} \geq \pi_S p_1^{E,e}(1+\beta)+\iota_i^{W,e} \\ \Leftrightarrow\ &\pi_S(1+\beta)(1-\mathbb{P}[\Delta_j^E \geq 2\pi_S\varepsilon(1-\beta)])+\iota_i^{W,w} \geq \pi_S(1+\beta)\mathbb{P}[\Delta_j^E \geq 2\pi_S\varepsilon(1-\beta)]+\iota_i^{W,e} \\ &\Leftrightarrow \Delta_i^W \geq \pi_S\left[2F_\varepsilon(2\pi_S\varepsilon(1-\beta))-1\right]. \end{aligned} \tag{86}$$

For a manufacturing firm, the decision to select the group-preferred agenda e also depends on whether $\Delta_j^E \gtrless F_\varepsilon(2\pi_S\varepsilon(1+\beta))$.

Proceeding to level $k=3$, a headquarter manager has a best response to select w if and only if

$$\begin{aligned} &\pi_S(1+\beta)(1-p_2^{E,e})+\iota_i^{W,w} \geq \pi_S(1+\beta)p_2^{E,e}+\iota_i^{W,e} \\ \Leftrightarrow\ &\pi_S(1+\beta)\left(1-F_\varepsilon(\pi_S(1-\beta)[2p_1^{E,e}-1])\right)+\iota_i^{W,w} \geq \pi_S(1+\beta)F_\varepsilon(\pi_S(1-\beta)[2p_1^{E,e}-1])+\iota_i^{W,e} \\ &\Leftrightarrow \Delta_i^W \geq \pi_S(1+\beta)[2F_\varepsilon(\pi_S(1-\beta)[2p_1^{E,e}-1])-1]. \end{aligned} \tag{87}$$

Generalising this to any level $k>2$, headquarter manager i has a $k>2$ best response to adopt agenda w if and only if

$$\Delta_i^W \geq \pi_S(1+\beta)\left[2p_{k-1}^{E,e}-1\right]. \tag{88}$$

Similarly, manufacturing manager j has a $k>2$ best response to adopt agenda e if and only if

$$\Delta_j^E \geq \pi_S(1-\beta)\left[2p_{k-1}^{W,w}-1\right]. \tag{89}$$

To find the limit and establish existence of an introspective equilibrium, we show that the sequence $\{p_k^{W,w}\}_k$ (or $\{p_k^{E,e}\}$) converges and is bounded from above. This ensures the existence of limits $p^{W,w}$ and $p^{E,e}$ that characterise the equilibrium. Consider level $k=2$, which depends on the proportion $p_1^{W,w} = F_\varepsilon(2\pi_S\varepsilon(1-\beta)) = \frac{1}{2}+\varepsilon-2\pi_S\varepsilon(1-\beta)$, since $2\pi_S\varepsilon(1-\beta)\in[0,2\varepsilon]$ and by the definition of $F_\varepsilon(y)$. Substituting this into the $k=2$ proportion and simplifying, we get:

$$\begin{aligned} p_2^{W,w}(p_1^{E,e}) &= F_\varepsilon\left(\pi_S(1+\beta)\left[2\left(\frac{1}{2}+\varepsilon-2\pi_S\varepsilon(1-\beta)\right)-1\right]\right) \\ &= F_\varepsilon\left(2\pi_S\varepsilon(1+\beta)[1-2\pi_S(1-\beta)]\right). \end{aligned} \tag{90}$$

The argument of F_ε at level $k = 2$, $2\pi_S\varepsilon(1+\beta)[1-2\pi_S(1-\beta)]$, is strictly smaller than 2ε and greater than zero, which implies that $p_2^{W,w}$ also has the form $p_2^{W,w}(y) = F_\varepsilon(y) = \frac{1}{2} + \varepsilon - y$.[29]

For all levels $k > 1$, the sequence generalises to

$$p_k^{W,w}(p_{k-1}^{E,e}) = F_\varepsilon(\pi_S(1+\beta)[2p_{k-1}^{E,e} - 1]) \,. \tag{91}$$

The threshold on the headquarter manager's net preference for w, Δ_k^W, takes the general recursive form

$$\Delta_k^W = \pi_S(1+\beta)\left[2\varepsilon - \Delta_{k-1}^E\right] \,, \tag{92}$$

where the threshold on the manufacturing manager's net preference for e, Δ_{k-1}^E, is given by

$$\Delta_{k-1}^E = \pi_S(1-\beta)\left[2\varepsilon - \Delta_{k-2}^W\right] \,. \tag{93}$$

Since $\varepsilon \in \left(0, \frac{1}{2}\right)$, $\pi_S \in \left(0, \frac{1}{2}\right]$ and $\beta \in \left[0, \frac{1-2\pi_S}{2\pi_S}\right)$, it follows by induction that as k goes to infinity, threshold Δ_k^W can be expressed as a sum of $k-1$ terms raised to non-decreasing exponents that converges to a number in $[0, 2\varepsilon)$. The limiting threshold is then obtained at fixed point

$$\Delta^W = 2\pi_S\varepsilon(1+\beta)\left[1 - \pi_S(1-\beta) + \frac{\pi_S(1-\beta)}{2\varepsilon}\Delta^W\right] \,, \tag{94}$$

for all headquarter managers.[30] We can express this threshold in closed form:

$$\Delta^W = \frac{2\pi_S\varepsilon(1+\beta)[1-\pi_S(1-\beta)]}{1-\pi_S^2(1+\beta)(1-\beta)} \,. \tag{95}$$

[29] Similarly, the $k = 2$ proportion of manufacturers that select the group-preferred agenda, e, is given by

$$p_2^{E,e}(p_1^{W,w}) = F_\varepsilon\left(\pi_S(1-\beta)\left[2\left(\frac{1}{2} + \varepsilon - 2\pi_S(1+\beta)\right) - 1\right]\right) .$$

The argument in F_ε is in $[0, 2\varepsilon]$ for all $\beta \in [0, \overline{\beta})$.

[30] The corresponding threshold on the manufacturing manager's preferences is

$$\Delta^E = 2\pi_S\varepsilon(1-\beta)\left[1 - \pi_S(1+\beta) + \frac{\pi_S(1+\beta)}{2\varepsilon}\Delta^E\right] \,.$$

The unique, introspective equilibrium follows and is characterised by proportions (p_S^W, p_S^E), denoting the propensity of each manager to select her country-preferred agenda. These proportions are given by

$$\begin{aligned} p_S^W &= \frac{1}{2} + \varepsilon - \frac{2\pi_S\varepsilon(1+\beta)[1-\pi_S(1-\beta)]}{1-\pi_S^2(1+\beta)(1-\beta)} \\ p_S^E &= \frac{1}{2} + \varepsilon - \frac{2\pi_S\varepsilon(1-\beta)[1-\pi_S(1+\beta)]}{1-\pi_S^2(1+\beta)(1-\beta)} \,. \end{aligned} \tag{96}$$

Our next result summarises the effect of an increase in bargaining power on the proportion of managers opting into each agenda.

Proposition 8. *The proportion of headquarter firms that select w in introspective equilibrium, p_S^W, is strictly decreasing in country W's bargaining power, β, while the proportion of manufacturing firms that select e, p_S^E, is strictly increasing in β.*

Proof. Taking the partial derivative of the threshold defined in equation (95) with respect to β, we obtain

$$\frac{\partial \Delta^W}{\partial \beta} = \frac{2\pi_S\varepsilon}{[1-\pi_S^2(1\beta)(1-\beta)]}\left[1 + 2\pi_S\beta(1-\pi_S) - \pi_S^2(1+\beta^2)\right] > 0\,. \tag{97}$$

With $p_S^W = F_\varepsilon(y)$ strictly decreasing in argument y, we have that the proportion of headquarter managers with a best response to select w in introspective equilibrium decreasing in β. Since

$$\Delta^E = \frac{2\pi_S\varepsilon(1-\beta)[1-\pi_S(1+\beta)]}{1-\pi_S^2(1+\beta)(1-\beta)},$$

by the same reasoning, it follows that $\frac{\partial \Delta^E}{\partial \beta} < 0 \Rightarrow \frac{\partial p_S^E}{\partial \beta} > 0$. □

Proposition 8 suggests that bargaining power acts as a weight in a manager's trade-off that magnifies the payoffs from coordination relative to her intrinsically preferred agenda. As a headquarter manager is able to extract an increasing proportion of joint surplus, she becomes less beholden to her preferred agenda and more willing to compromise in an effort to extract her share of the coordination payoff. A manufacturing manager, by contrast, cares less about coordination relative to the non-pecuniary utility she derives from her preferred agenda, and this increases the probability that she selects the agenda preferred in distribution, e.

Our next result summarises the effect that bargaining power has on the probability of coordination across global sourcing arrangements in introspective equilibrium,

$$\Pi(\pi_S, \varepsilon, \beta) \equiv 2\pi_S(p_S^W(\beta) + p_S^E(\beta) - 2p_S^W(\beta)p_S^E(\beta))\,. \tag{98}$$

Proposition 9. *Global production is non-decreasing in country W's bargaining power, $\frac{\partial \Pi}{\partial \beta} \geq 0$.*

Proof. The partial derivative of Π with respect to β is given by

$$\frac{\partial \Pi}{\partial \beta} = 2\pi_S \left[-\frac{\partial \Delta^W}{\partial \beta} - \frac{\partial \Delta^E}{\partial \beta} - 2\left(-p_S^E \frac{\partial \Delta^W}{\partial \beta} - p_S^W \frac{\partial \Delta^E}{\partial \beta} \right) \right] \geq 0\,, \tag{99}$$

for all $\beta \in [0, \overline{\beta})$, since $p_S^E(\beta) \geq p_S^W(\beta)$. □

Proposition 9 shows that bargaining asymmetry resolves the coordination problem at the heart of the sourcing arrangement between headquarter and manufacturer. As headquarter managers become less beholden to their preferred agenda, manufacturing managers are justified in sticking to their preferred agendas with a higher probability, leading to both a higher prevalence of agenda e in introspective equilibrium and lower miscoordination, all the while compensating headquarter managers for forgoing their intrinsic preferences. And provided that a policymaker takes bargaining asymmetry as given when setting the friendshoring policies we consider in Section 5, our policy results in Propositions 5-7 remain unchanged.