

# European Exposure to Chinese Power

The China Exposure Index (2013-2025),  
Europe Edition

**Report** by George Yin

**Reflect. Advise. Engage.**

Global Public Policy Institute (GPPi) is an independent non-profit think tank based in Berlin. Our mission is to improve global governance through research, policy advice and debate.

George Yin is a senior research fellow at the Center for China Studies, National Taiwan University, a non-resident fellow at the Global Public Policy Institute, and a senior associate fellow at the Mercator Institute for China Studies.

Reinhardtstr. 7, 10117 Berlin, Germany  
Phone +49 30 275 959 75-0  
gppi@gppi.net

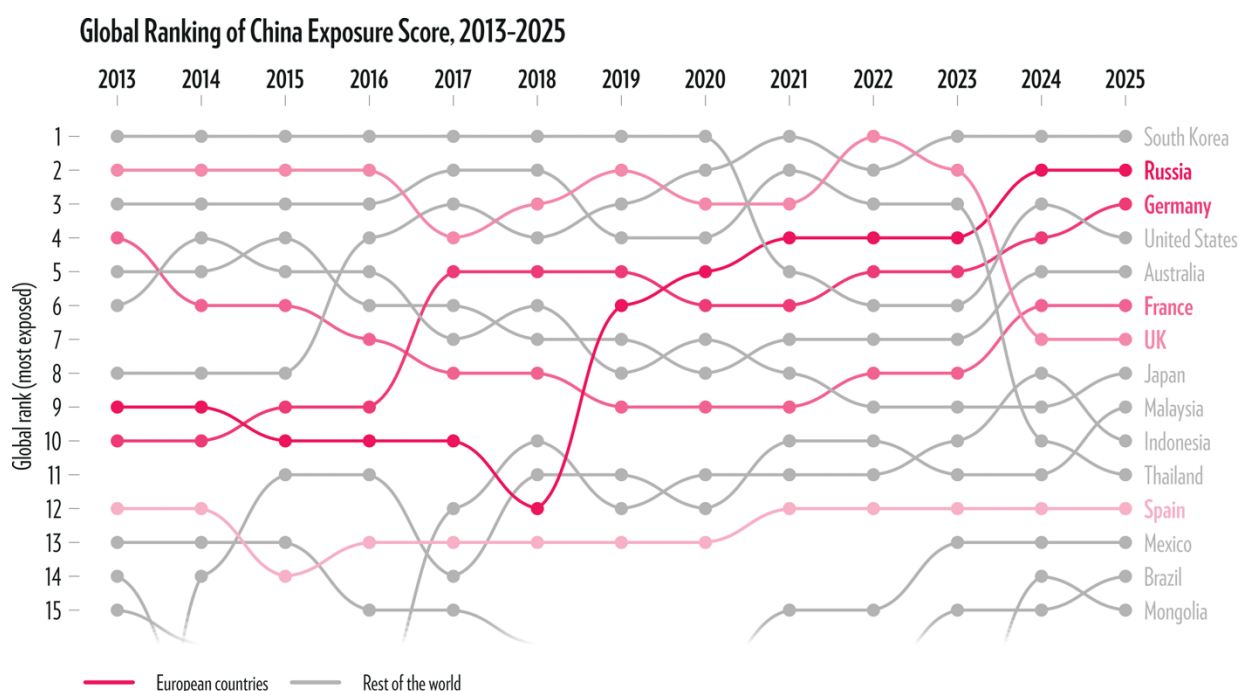
[gppi.net](http://gppi.net)

# Executive Summary

The China Exposure Index (CEI) — which ranks 184 countries from 2013 to 2025 on how exposed they are to Chinese power — finds a surprising concentration of Chinese power in Europe.

China's rapid political and economic ascent is one of the defining trends of our time, with media headlines regularly trumpeting Beijing's increased global presence. But we have surprisingly little systematic information on how Chinese power — understood as China's latent capacity to influence — is actually distributed across the globe.

CEI fills that gap, ranking the exposure of 184 countries to Chinese power between 2013 and 2025. The CEI uses transparent, open-source data on indicators of Chinese capacity to conduct coercive statecraft, economic co-optation and diplomacy — ranging from Chinese Foreign Direct Investment (FDI) and exports to China to the presence of Chinese military power and number of Confucius Institutes. The CEI's time frame covers the tenure of China's leader and General Secretary of the Chinese Communist Party Xi Jinping, tracking the expansion and partial contraction of global Chinese power in a period defined by the United States's (US) recalibration of its relationship with the world, as well as China's shift towards a more assertive foreign policy.



This report is a limited release where we focus on presenting the CEI's Europe results with reference to the global top 15 (2025). Further reports will present results from other regions. Amidst a wide range of findings, this release generates seven key insights about exposure to Chinese power.

**First, four of the seven most exposed countries in the world are in Europe: Russia (#1 in Europe, #2 globally), Germany (#2, #3 globally), France (#3, #6 globally) and the United Kingdom (UK, #4, #7 globally).** Perhaps surprisingly, these states are substantially more exposed than countries commonly associated with Chinese dominance, such as Thailand (#11) and Mongolia (#15). South Korea ranks first globally, with the United States (US, #4) and Australia (#5) completing the Top Seven. Moreover, Europe's average China exposure score in 2025 exceeded the world average and trailed only the Indo-Pacific. These results are noteworthy; they fly in the face of the common assumption that exposure to Chinese power is most acute in the 'developing world.' And they contradict the expectation that exposure to Chinese power would be significantly less in Europe than in the Indo-Pacific, given Europe's geographical insulation from Chinese military reach. The CEI thus highlights how the global diffusion of Chinese power not only rests on its military strength, but also flows from China's economic ties and public diplomacy efforts.

**Second, the countries most exposed to Chinese power are overwhelmingly democracies – contrary to the expectation that China's power would be greatest over states with more authoritarian and corrupt systems.** Fourteen of the Top 15 countries are democracies, with Russia as the sole exception. The US, the traditional liberal democratic superpower, ranked #4 globally in terms of exposure to Chinese power, despite recent declines that started under Trump's first term and continued under Biden; US ranking was #1 globally in both 2013 (start of Xi's first term as PRC president) and 2018 (start of Xi's second term as PRC president). There are two potentially complementary readings of this concentration of Chinese power in democracies. First, many democracies are states with advanced economies, and they have often sought trade and financial ties with China for economic benefits, which gives Beijing critical leverage. The second explanation for this surprising correlation is that China might be systematically targeting democracies, precisely because their values and policies diverge from Beijing's. If a country's political preferences already align with China's, it does not need to be forced into alignment and therefore there is less pressing need for China to build up power.

**Third, the five European countries ranked highest by the CEI highlight different routes of exposure to Chinese power.** These countries score fairly high on all indicators, but there are important differences in their profiles. Russia represents a classical trade story: Russian exports to China rose from 1.6 percent of Russia's Gross Domestic Product (GDP) in 2013 to a peak of 5.4 percent in 2023. By 2025, exports had slipped to 4.2 percent, but still the highest share in Europe. Both France's and the UK's exposure scores, on the other hand, reflect the centrality of Chinese public diplomacy within China's global reach: the two countries host more Confucius Institutes than almost any other country in the world. Officially designed to promote Chinese language and culture, Confucius Institutes have been accused of facilitating espionage and engaging in activities from monitoring Chinese students abroad to pressuring universities to censor discussions on sensitive topics such as Taiwan. Wary of their possible roles in expanding Chinese state influence, several European states have recently moved to close (some) Confucius Institutes. Spain (coming in at #5 in Europe and #12 globally) combines the trade and the Confucius Institutes stories with a third Chinese FDI story: (1) Spain's imports from China have nearly doubled since 2013, to a share higher than either Germany's or the UK's imports (as a percentage of GDP); (2) Chinese FDI has risen roughly ninefold, from \$0.8 billion to \$7.3 billion; and (3) Spain's Confucius Institute network has grown from six to 10.

**Fourth, Europe's regional exposure to China increased from 2013 to 2020, but it has shrunk since, amid the EU recasting China as a systemic rival in 2019, the COVID-19 pandemic, Russia's invasion of Ukraine, which sharpened EU awareness of strategic dependence, and Brussels officially adopting a "de-risking" approach to China. Italy's withdrawal from the Belt and Road Initiative (BRI) in December 2023 symbolically capped this period. But Europe's retreat is modest: it remains significantly more exposed today than it was in 2013.**

**Fifth, there are clear regional differences within Europe. Exposure is highest across the European heartland (within both the eastern and western cores), and lowest along the northern flank, among the Baltic and Scandinavian states.**

**Sixth, the three countries that register the sharpest increases in exposure to Chinese power (in the period between 2013 and 2025) are Bosnia and Herzegovina, which climbed from #41 in Europe to #26 (and from #138 in the world to #101), Czechia (Europe: from #39 to #22; World: from #119 to #70) and Ireland (Europe: from #38 to #21; World: from #107 to #58). Ireland, currently holding the presidency of the Council of the EU, is a particularly significant case: it is Europe's technology hub, home to a dense concentration of American firms. Chinese FDI in Ireland was statistically non-existent in 2013, but reached 4.6 percent of Ireland's GDP by 2020, standing at 2.7 percent in 2025, roughly accounting for \$19.4 billion. Chinese tech and pharmaceutical firms have used the country as a beachhead into the EU market: WuXi Biologics built a 325-million-euro plant in Dundalk, its first outside China, and TikTok opened its first European data center in Dublin.**

**Seventh, the CEI also documents how certain European countries have managed to reverse their exposure to China. Sweden records the largest decline of any European country, falling from #16 in Europe to #39 (Global: from #38 to #159). An illustrative anecdote of Sweden's change of heart: amidst the collapse in the country's diplomatic relations with China over the detention of Chinese-Swedish publisher Gui Minhai, Sweden closed all its Confucius Institutes by 2020, the first European country to do so. We also observe notable reversals in Moldova (Europe: from #26 to #41; Global: from #80 to #166), Norway (Europe: from #29 to #38; Global: from #84 to #156), Switzerland (Europe: from #27 to #40; Global: from #81 to #162), and the UK (Europe: from #1 to #4; Global: from #2 to #7).**

Overall, the CEI produces some surprising findings. But what statistically grounds the numbers and makes them convincing? Compared to traditional indices of national power, the CEI relies heavily on computer simulations to calculate the weights of the indicators rather than having the research team simply set those weights in advance. The CEI's rankings therefore do not rely on arbitrary, analyst-selected weights — that's one of this index's major strengths. Additionally, the computational statistical method behind the CEI ensures that the index remains valid even if data for some indicators are missing (because certain data points are not available, for example) while allowing a country's whole trajectory to inform each year of its score. The latter point is important, as power shifts slowly and historical trends matter.

It is important to keep in mind that power is distinct from both influence and alignment. Power is the latent capacity for one actor to influence another. Influence flows from a successful assertion of power to generate actual real-life preferences or policies. Alignment

is where two countries share the same preferences. Crucially, the CEI measures Chinese power, not Beijing's influence or countries' alignment with Beijing. A country can be less exposed to Chinese power, yet align strongly with Beijing — this is the case with, for example, Serbia. Widely regarded as one of China's closest partners in Europe, Belgrade was the first European capital to endorse Xi's vision of a 'community of shared future.' But Serbia ranks only #15 in Europe and #42 in the world. Because Serbia is already so aligned with Beijing, its exposure score is lower than perhaps expected; Beijing has less need to build up power when preferences already converge.

And of course, a country can be highly exposed to Chinese power, yet resist Beijing's preferences. A case in point: Europe's most exposed states are large democracies that are not traditionally aligned with Beijing. When a European country's exposure to Chinese power is high but alignment of preferences is low, it has three options: (1) adjust its policies in line with Beijing's preferences to avoid Beijing's future displeasure, (2) work to reduce Beijing's capacity to influence, but at the cost of confronting China today, and (3) do nothing and hope the situation will improve by itself. The larger this power-alignment gap, however, the less feasible the 'do-nothing' strategy becomes, and the more likely that the European state will either contest or accommodate Chinese power. CEI Europe 2025 concretizes these abstract points by objectively quantifying the differential challenge posed to European policymakers by exposure to Chinese power.

# Table of Contents

Key Findings .....6

Introduction ..... 8

1. Selecting Indicators of Exposure to Chinese Power ..... 11

2. Constructing the Index .....16

3. Europe in Comparative Perspective ..... 20

4. CEI Europe Ranking ..... 24

5. Changes in CEI Ranking Across Europe .....31

6. Indicators of Exposure to Chinese Power ..... 38

7. Conclusion..... 48

Appendix.....51

Part I: An Overview of Bayesian Latent Factor Analysis.....51

Part II: Technical Concerns Behind Indicator Selection..... 54

Part III: Research on the Indicators ..... 55

Part IV: Indicator Construction and Data Sources ..... 57

Part V: Estimation Strategy and Diagnostics..... 63

Part VI: Interpreting the Loadings on the Indicator Scale ..... 64

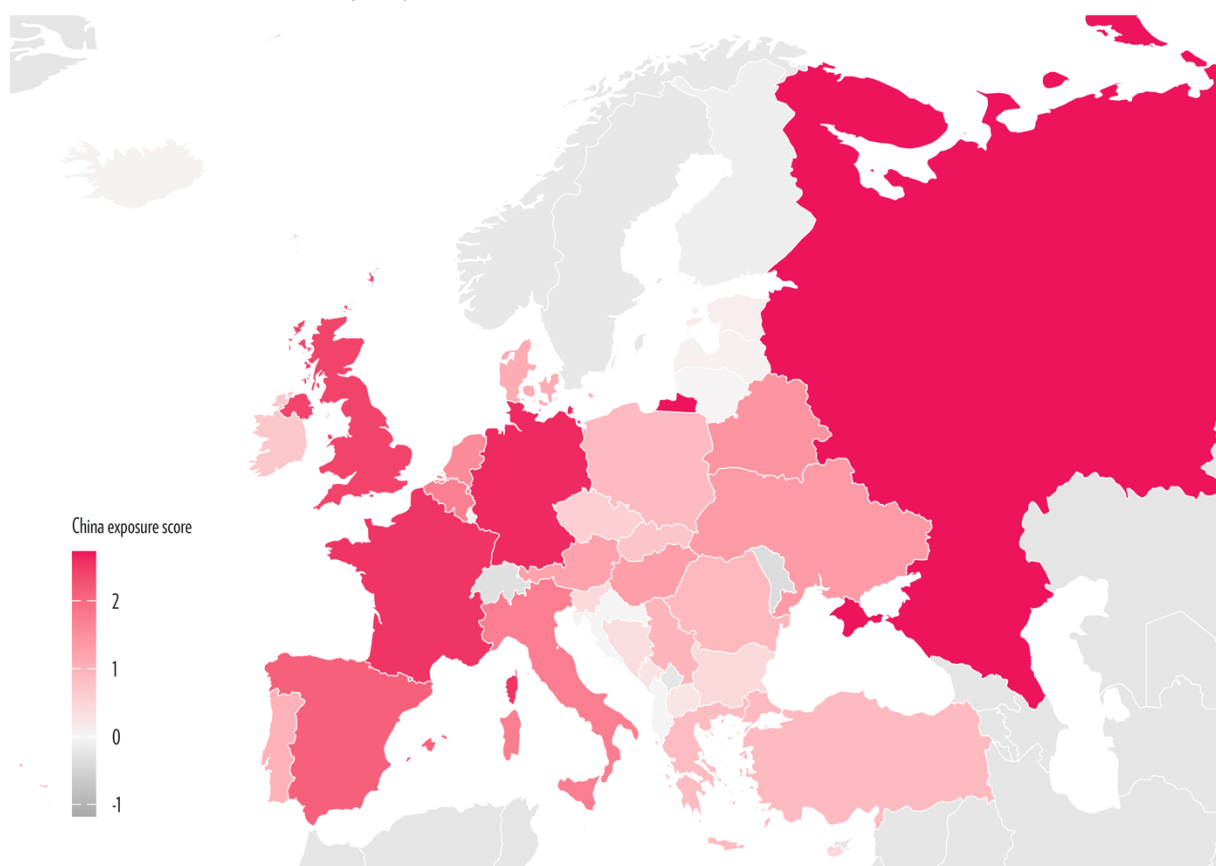
Part VII: Time-Series Smoothing Strategy..... 67

# Key Findings

1. The China Exposure Index (CEI) ranks 184 countries on their exposure to Chinese power from 2013 to 2025. The index — based on 36,000 simulations derived from empirical data — comprises indicators of Chinese capacity to conduct coercive statecraft, economic co-optation and diplomacy.
2. Of the seven most exposed countries in the world, four are in Europe: Russia (#1 Europe; #2 globally), Germany (#2; #3), France (#3; #6), the United Kingdom (UK, #4; #7). These are significantly more exposed to Chinese power than countries commonly associated with Chinese dominance, such as Mongolia (#15) and Cambodia (#21).
3. Overall, Europe in 2025 registers the second-highest average exposure to Chinese power of any region, above the world average in every year and behind only the Indo-Pacific — despite being geographically insulated from Chinese military reach.
4. The CEI measures Beijing's capacity to influence a country's behavior, not whether that country already follows China's preferences. Serbia — widely regarded as China's closest partner in Europe — places only #15 in Europe and is #42 globally, while the top of the ranking is occupied by Western European democracies not traditionally aligned with Beijing.
5. Three tiers of exposure, defined as quartiles of the global distribution in 2025, emerge across the 44 European countries ranked in this release:
  - Highly exposed (17 countries; the top quarter worldwide, approximately the 90th percentile globally): Russia, Germany, France, the UK, Spain, Italy, Belgium, the Netherlands, Belarus, Ukraine, Hungary, Austria, Denmark, Portugal, Serbia, Romania, and Poland.
  - Moderately exposed (17 countries; the middle half of the global distribution, around the 47th percentile globally): Turkey, Greece, Slovakia, Ireland, Czechia, Cyprus, Bulgaria, Slovenia, Bosnia and Herzegovina, North Macedonia, Montenegro, Estonia, Latvia, Iceland, Luxembourg, Malta, and Lithuania.
  - Less exposed (10 countries; the bottom quarter worldwide, approximately the 9th percentile globally): Albania, Croatia, Finland, Norway, Sweden, Switzerland, Moldova, Liechtenstein, Monaco, and Andorra.
6. Exposure to Chinese power in Europe unfolded in two phases: (1) steady accumulation from 2013 to 2020, followed by (2) a modest retreat by 2025, which coincided with the European Union (EU) hardening its posture towards Beijing.

7. Between 2013 and 2025, the five European countries with the largest increases in China exposure scores were Bosnia and Herzegovina (Europe: from #41 to #26; World: from #138 to #101), Czechia (Europe: from #39 to #22; World: from #119 to #70), Ireland (Europe: from #38 to #21; World: from #107 to #58), the Netherlands (Europe: from #13 to #8; World: from #34 to #20) and Greece (Europe: from #24 to #19; World: from #73 to #50). Chinese Foreign Direct Investment (FDI) has often been central to these dynamics.
8. Russian exposure has increased from a high starting point, reflecting its continued move into the orbit of Chinese power since its invasion of Ukraine (Europe: from #3 to #1; World: from #9 to #2).
9. Three European countries' declines stand out: Sweden (Europe: from #16 to #39; World: from #38 to #159), Moldova (Europe: from #26 to #41; World: from #80 to #166) and the UK (Europe: from #1 to #4; World: from #2 to #7).
10. The most important indicators of a country's exposure to Chinese power are Chinese FDI and the number of Confucius Institutes, with trade exposure relevant but less so.

Europe – China exposure by country (2025)



# Introduction

China's rise fundamentally challenges the international order. Discussions of Chinese power, however, remain largely impressionistic, with media headlines routinely declaring that Beijing is amassing clout in Africa or filling a power vacuum in Asia. What is missing is a systematic effort to chart exactly how exposed states are to Chinese power. How are states ranked in terms of their exposure to Chinese power? What factors indicate exposure to Chinese power? What role does Beijing's economic might play in the global expansion of Chinese power?

This is where the China Exposure Index (CEI) comes in: based on 36,000 simulations derived from empirical data on China's economic, political and military relations with the world, this index ranks 184 countries by their exposure to Chinese power (2013-2025). Power, in turn, is defined as Beijing's capacity to influence other states by changing either their calculations or preferences in ways congruent with Chinese interests.<sup>1</sup>

The CEI spans a diverse set of countries: major liberal democracies such as Germany and Japan, emerging powers such as India and Brazil, authoritarian states such as Russia, and smaller nations, ranging from Malawi to the Solomon Islands. The time frame of the index covers the tenure of General Secretary of the Chinese Communist Party Xi Jinping, tracking the expansion and contraction of global Chinese power in a period defined by the United States's (US) recalibration of its relationship with the world and China's shift towards a more assertive foreign policy.<sup>2</sup>

This report finds that Europe is one of the two major geographical regions most exposed to Chinese power. From 2013 to 2020, Beijing accumulated power in Europe on par with, if not exceeding, its power in the Indo-Pacific. European exposure to Chinese power started to decline in 2020 but remains significantly greater than it was in 2013. And some of Europe's largest and wealthiest economies rank highest in exposure to Chinese power in 2025. Of the seven most exposed countries in the world, four are in Europe: Russia (#1 in Europe; #2 globally), Germany (#2; #3), France (#3; #6), the UK (#4; #7).<sup>3</sup> These findings fly in the face of the common assumption that exposure to Chinese power is most acute in the so-called developing world.

Our findings highlight how economic (inter)dependence is at the heart of exposure to Chinese power. International Relations (IR) theorists have long noted how economic (inter)dependence can be transformed into an instrument of power, using market access,

---

<sup>1</sup> [Section 1](#) elaborates on this idea in the context of indicator selection.

<sup>2</sup> On the evolution of Chinese grand strategy from "hide and bide" to active contestation of the US-led order under Xi, see Doshi, Rush, 2021, *The Long Game: China's Grand Strategy to Displace American Order*, New York: Oxford University Press. On the debate over China's assertiveness, see Johnston, Alastair Iain, 2013, "How New and Assertive Is China's New Assertiveness?," *International Security* 37, no. 4: pp. 7-48, which challenges the claim that China's foreign policy underwent a fundamental shift.

<sup>3</sup> This study's definitions of global macro-regions follow the World Bank classification, with two departures: Europe corresponds to the World Bank region "Europe & Central Asia"; the Indo-Pacific comprises "East Asia & Pacific" and "South Asia," together with the United States and Canada.

investment and supply chains to generate political leverage.<sup>4</sup> David Lampton's 2007 *Foreign Affairs* article argued that China's global power increasingly derives from economic strength rather than military might — the CEI results on Europe bear this out.<sup>5</sup> Despite being largely insulated from Chinese military reach by geography, Europe nonetheless matches or exceeds other regions in overall exposure to Chinese power.

A web of investment relationships, trade ties and Chinese soft-power infrastructure undergirds exposure to Chinese power in Europe. Inward (i.e., flowing into, not out of, the host country from China) Chinese Foreign Direct Investment (FDI) positions, for instance, provide one of the strongest statistical signals: their presence is associated with substantially higher China exposure scores.

The CEI speaks to a number of existing studies on Chinese influence in Europe conducted by the Global Public Policy Institute (GPPi) and the Mercator Institute for China Studies (MERICS). The 2018 joint GPPi-MERICS report *Authoritarian Advance* was among the earliest European studies of how Beijing shapes European policy outcomes through a combination of economic leverage, party-state influence channels and engagement with political and economic elites, media and civil society.<sup>6</sup> The CEI results further substantiate the concerns raised by that report: European exposure to Chinese power remains substantial. The CEI also speaks to the MERICS report on European strategic import dependencies on China as well as to its *Europe-China Resilience Audit*.<sup>7</sup> The statistical links, identified by the CEI, between EU-China economic relations and Chinese power underscore the importance of these studies' recommendations for strengthening European resilience.

European countries have already adopted a broad range of resilience measures in the face of China's rise, ranging from foreign direct investment screening to the Foreign Subsidies Regulation (an EU rule letting the European Commission investigate and restrict foreign-subsidized firms' mergers and public-procurement bids in the EU market).<sup>8</sup> These

---

<sup>4</sup> The classic statement is Hirschman, Albert O., 1945, *National Power and the Structure of Foreign Trade*, Berkeley: University of California Press, on how asymmetric trade ties generate an "influence effect" for the dominant partner; Keohane, Robert O. and Nye, Joseph S., 2012, *Power and Interdependence*, 4th ed., Boston: Longman, on asymmetrical interdependence as a source of bargaining power. For the contemporary formulation, see Farrell, Henry and Newman, Abraham L., 2019, "Weaponized Interdependence: How Global Economic Networks Shape State Coercion," *International Security* 44, no. 1: pp. 42–79, which shows how states with jurisdiction over central nodes in asymmetric global networks convert that position into coercive leverage.

<sup>5</sup> Lampton, David M., 2007, "The Faces of Chinese Power," *Foreign Affairs*, last accessed on April 17, 2026, <https://www.foreignaffairs.com/asia/faces-chinese-power>. See also Lampton, David M., 2008, *The Three Faces of Chinese Power: Might, Money, and Minds*, Berkeley: University of California Press.

<sup>6</sup> Benner, Thorsten, Gaspers, Jan, Ohlberg, Mareike, Poggetti, Lucrezia and Shi-Kupfer, Kristin, 2018, *Authoritarian Advance: Responding to China's Growing Political Influence in Europe*, Berlin: Global Public Policy Institute and Mercator Institute for China Studies.

<sup>7</sup> See, e.g., Zenglein, Max J., 2020, *Mapping and Recalibrating Europe's Economic Interdependence with China*, MERICS China Monitor, Berlin: MERICS; Stec, Grzegorz and Legarda, Helena, 2024, *The Europe-China Resilience Audit: Insights for Advancing European Resilience*, Berlin: MERICS; and Stec, Grzegorz, 2025, *Member States' Resilience Efforts Fall Short of Looming Challenges: Europe-China Resilience Audit Update 2025*, Berlin: MERICS. On resilience-building in EU candidate countries vis-à-vis external influence, see also Flachenecker, Paul, Heidrich, Zsófia Ágota and Bressan, Sarah, 2026, "Strategic Policy Recommendations to Bolster EU Candidate Country Resilience until 2035," Global Public Policy Institute (GPPi), 7 April 2026, last accessed on September 2, 2026, <https://gppi.net/2026/04/07/strategic-policy-recommendations-to-bolster-eu-candidate-country-resilience-until-2035>.

<sup>8</sup> Regulation (EU) 2019/452 of the European Parliament and of the Council of 19 March 2019 establishing a framework for the screening of foreign direct investments into the Union, OJ L 79I, 21.3.2019, pp. 1–14, applicable from 11 October 2020, <https://eur-lex.europa.eu/eli/reg/2019/452/oj/eng>; and Regulation (EU) 2022/2560 of the European Parliament and of the Council of 14 December 2022 on foreign subsidies distorting the internal market, OJ L 330, 23.12.2022, pp. 1–45, <https://eur-lex.europa.eu/EN/legal-content/summary/foreign-subsidies->

measures may have some dampening effect on Europe's exposure to Chinese power. As noted above, the CEI records a modest decline in exposure across Europe in 2020, after the publication of the 2019 EU-China Strategic Outlook, which described China as an economic competitor and a systemic rival.

The CEI provides a building block for studying the relationship between exposure to Chinese power and policies favored by Beijing. Exposure does not, of course, mean that countries will bow down to Beijing. Whether Chinese power is associated with observable influence also depends on how Beijing uses it, the target country's capacity to resist and countervailing power from states such as the US.<sup>9</sup> Beijing may choose not to assert available power if doing so risks retaliation. Conversely, exposure could still produce deterrence if governments avoid issues that might provoke Beijing. Untangling these possibilities requires further temporal analysis of exposure and policy outcomes.

Before proceeding, note that the CEI differs from traditional IR indices in at least four respects:

1. The weight associated with each indicator is estimated from the data rather than assigned in advance by the researcher. The resulting rankings therefore rely less on arbitrary, analyst-selected weights.
2. Traditional indices imply absolute confidence in their rankings of countries; the CEI lets us calculate the probability that one country is more exposed to Beijing's power than other countries.
3. The CEI can estimate accurate scores even if some indicators are missing (e.g., due to data availability issues); incomplete coverage widens a country's uncertainty range instead of automatically invalidating its score.
4. Each country's score is estimated from patterns observed across all 184 countries and all 13 years rather than from that country's data in isolation; scores therefore grow more precise as new data arrive.

This report is divided into seven sections. [Section 1](#) discusses the CEI's strategy of indicator selection in the context of social science and IR theories and studies on Chinese foreign policy. [Section 2](#) explains how the rankings are constructed — readers who are less interested in the CEI's methodological details may skip this section. [Section 3](#) situates Chinese power in Europe in a global context by comparing it with other regions. [Section 4](#) presents the European rankings and examines variation in exposure to Chinese power within Europe. [Section 5](#) traces how the rankings have evolved since 2013. [Section 6](#) analyzes the indicators of Chinese power and uses the UK case to illustrate how to read the two most important indicators. The concluding section discusses how to interpret the CEI and previews future studies.

---

[regulation.html](#). The screening regulation sets minimum standards for national mechanisms and a cooperation procedure rather than an EU-level screening body; member states retain sole responsibility for national security.

<sup>9</sup> Capability does not convert automatically into outcomes — the “paradox of unrealized power.” See Baldwin, David A., 1979, “Power Analysis and *World Politics*: New Trends versus Old Tendencies,” *World Politics* 31, no. 2, pp. 161–194, which attributes failed power predictions to the mistaken assumption that resources useful in one setting are equally useful in another. On the skill required to combine instruments, see Nye Jr., Joseph S., 2009, “Get Smart: Combining Hard and Soft Power,” *Foreign Affairs* 88, no. 4, pp. 160–163. On when economic leverage does and does not produce concessions, see Drezner, Daniel W., 1999, *The Sanctions Paradox: Economic Statecraft and International Relations*, Cambridge: Cambridge University Press.

# 1. Selecting Indicators of Exposure to Chinese Power

The CEI assigns so-called China exposure scores to measure the degree to which countries are exposed to Chinese power. These scores are similar to sovereign credit ratings, but for countries' bilateral relations with China. When an agency rates a country's debt, it assesses something that cannot be observed directly — the risk that the state will fail to meet its financial obligations, and hence the risk to which its creditors are exposed — and infers that risk from observable signals, e.g., debt-to-Gross Domestic Product (GDP) ratios, fiscal balances and growth prospects. China exposure scores likewise assess something that cannot be observed directly — the possibility that states could be influenced to adopt policies contrary to their own interests — and we infer this possibility from observable signals in countries' bilateral relations with China.

Power is the capacity to influence. That capacity derives from relationships in which the behavior of one actor — in this case, China — may shape that of another, not only with respect to policy decisions, but also regarding beliefs, attitudes, preferences, expectations, and predispositions to act.<sup>10</sup> Beijing might, for instance, influence US behavior by raising tariffs on American goods entering the Chinese market. This aspect of Chinese power exists only because there is a trade relationship; without it, Beijing would have no trade leverage to exercise. Exposure to Chinese power must therefore be measured where it exists: in the relationship between China and other states.

Now that the locus of exposure is clear, we must take a look at the dimensions of Chinese power. China can pull two main levers to influence other states' behavior: (1) the calculation-changing lever and (2) the preference-changing lever. These two levers work across two bilateral issue-domains: the economic and military-political spheres. In total, this highlights four different ways where China might exercise power (as laid out in Table 1 below). The first lever (calculation-changing) comes in two forms: (1) coercion and (2) inducement. Coercion is the application of pressure, whether through inflicting costs or withdrawing benefits, to prevent a country from adopting a certain course of action (deterrence) or to change a country's course of action (compellence).<sup>11</sup> Inducement, in contrast, is the conferral or promise of benefits to influence another actor's behavior.<sup>12</sup>

---

<sup>10</sup> The relational conception of power adopted here follows Baldwin, David A., 2013, "Power and International Relations," in *Handbook of International Relations*, 2nd ed., ed. Walter Carlsnaes, Thomas Risse, and Beth A. Simmons, London: SAGE, pp. 274. The formulation originates with Lasswell, Harold D. and Kaplan, Abraham, 1950, *Power and Society: A Framework for Political Inquiry*, New Haven: Yale University Press, especially pages 74–76, which treats influence as a relation among actors rather than a possession. See also Morgenthau, Hans J., *Politics Among Nations: The Struggle for Power and Peace*, ch. 3 ("Political Power"), which defines political power as a psychological relation between those who exercise it and those over whom it is exercised; and Barnett, Michael and Duvall, Raymond, 2005, "Power in International Politics," *International Organization* 59, no. 1, pp. 39–75.

<sup>11</sup> The distinction between deterrence — dissuading a state from initiating a course of action — and compellence — inducing it to alter a course of action — follows Schelling, Thomas C., 1966, *Arms and Influence*, New Haven: Yale University Press, esp. ch. 2, which treats both as species of coercion. The extension from military threats to economic instruments, including the withdrawal of benefits, follows Baldwin, David A., 1985, *Economic Statecraft*, Princeton: Princeton University Press. On the conditions under which economic coercion succeeds or fails, see Drezner, Daniel W., 1999, *The Sanctions Paradox: Economic Statecraft and International Relations*, Cambridge: Cambridge University Press.

<sup>12</sup> On positive inducements as instruments of statecraft, see Baldwin, David A., 1971, "The Power of Positive Sanctions," *World Politics* 24, no. 1, pp. 19–38 and his later volume, Baldwin, 1985, *Economic Statecraft*, ch. 3.

Both coercion and inducement are means to change the cost-benefit analysis a country faces when interacting with China, thereby changing its calculation of how to act.

The second lever, preference-changing, also comes in two forms. First, Beijing can try to positively change beliefs on China (e.g., soft power), thereby increasing attraction through engagement.<sup>13</sup> The second course of action is co-optation: entanglement with China can create new constituencies and interest groups that would make a country more sensitive to Chinese concerns.<sup>14</sup> Both are forms of power that could grant Beijing influence without requiring it to pay the costs of applying either sticks or carrots.

Bringing together both the issue-domain axis and the influence-mechanism axis of Chinese power yields the four quadrants that correspond to different means by which Beijing might exercise power (see Table 1). The first quadrant (calculation-changing in the economic realm) corresponds to *economic statecraft*. This covers all the ways Beijing can apply economic sticks and carrots, for example by withholding access to the Chinese market or increasing Chinese investment or aid as a reward. The second quadrant (preference-changing in the economic realm) corresponds to *economic co-optation*, where Beijing may gain power by creating new constituencies who have a stake in sustaining or increasing financial and trade relations with China. The third quadrant (calculation-changing in the military-political domain) corresponds to *traditional statecraft*, which is the ‘hard power’ use of sticks (e.g., the threat of force against a proximate state) and carrots (e.g., arms sales). The fourth quadrant (preference-changing in the military-political realm) corresponds to *diplomacy*, which involves any attempt at shaping public and elite opinions in ways favorable to Chinese interests, from traditional diplomacy and public diplomacy to military diplomacy and people-to-people diplomacy.<sup>15</sup>

Assessing Chinese power vis-à-vis any given country requires measuring those relations – the channels through which Beijing may seek to exert influence – across all four quadrants. Our general expectation, which is to be tested by the CEI, is that stronger relationships are associated with greater Chinese power, since power ‘lives’ in those relationships. Power is not an attribute of China or an attribute of China’s counterpart, but derives from these bilateral ties.

---

<sup>13</sup> Nye Jr., Joseph S., 2004, *Soft Power: The Means to Success in World Politics*, New York: Public Affairs.

<sup>14</sup> On the mechanism by which commercial ties generate domestic constituencies with a stake in the relationship, see Hirschman on the “influence effect” of foreign trade, whereby the dominant partner’s commerce creates groups within the dependent economy whose interests come to favour continuation of the relationship: Hirschman, 1945, *National Power and the Structure of Foreign Trade*. On how the structure of economic relations can realign domestic interests, see Davis, Christina L., 2003, *Food Fights over Free Trade: How International Institutions Promote Agricultural Trade Liberalization*, Princeton: Princeton University Press, which shows that issue linkage in multilateral negotiations builds domestic coalitions favouring liberalisation against entrenched agricultural protection.

<sup>15</sup> *Nota bene*: we use “diplomacy” here as a convenient label; diplomacy encompasses coercion as well. See, e.g., Trager, Robert F., 2017, *Diplomacy: Communication and the Origins of International Order*, Cambridge: Cambridge University Press; and George, Alexander L., 1991, *Forceful Persuasion: Coercive Diplomacy as an Alternative to War*, Washington, D.C.: United States Institute of Peace Press. The forms of diplomatic activity referenced here are discussed in the following literature. On public diplomacy, see D’Hooghe, Ingrid, 2015, *China’s Public Diplomacy*, Diplomatic Studies 10, Leiden: Brill Nijhoff, <https://brill.com/display/title/24897>. On military diplomacy, see Allen, Kenneth, Saunders, Phillip C. and Chen, John, 2017, *Chinese Military Diplomacy, 2003–2016: Trends and Implications*, China Strategic Perspectives 11, Washington, DC: National Defense University Press, <https://digitalcommons.ndu.edu/china-strategic-perspectives/8/>, which catalogues senior-level visits, security dialogues, joint exercises, functional exchanges, and port calls. On people-to-people diplomacy, see 中共中央办公厅、国务院办公厅 [General Office of the CCP Central Committee and General Office of the State Council], 《关于加强和改进中外人文交流工作的若干意见》 [Opinions on Strengthening and Improving People-to-People and Cultural Exchange with Foreign Countries], 21 December 2017, [https://www.gov.cn/zhengce/2017-12/21/content\\_5249241.htm](https://www.gov.cn/zhengce/2017-12/21/content_5249241.htm).

To measure power, we need indicators that record the relationships through which Chinese power may be manifested. Crucially, the CEI does not conceptualize its indicators as causes of Chinese power. The method discussed in Section 2 does not allow us to distinguish correlation from causation, nor is that its point. Because power lives in relationships, the indicators record relationships through which Beijing *may* exercise its power. Stress provides a useful analogy. Stress, like power, is not observable directly and potentially consists of many aspects. Psychologists infer stress from reported uncontrollability, unpredictability and overload, which can be understood as indicators of different aspects of stress. Similarly, the CEI measures exposure to Chinese power by identifying indicators of different aspects of Chinese power embedded in Chinese foreign relations. In contrast, causes of Chinese power might include factors such as Chinese economic growth, which expands Beijing's capacity to invest, build up its military and trade abroad.

The CEI takes care not to build the causes or consequences of Chinese power into the measure of exposure to Chinese power itself. Doing so would make later analysis circular – whether a statistical model investigating the causes driving the accumulation of Chinese power, or a statistical model using the China exposure score to explain a policy outcome. The following hypothetical may serve as a useful example to illustrate this circularity concern: while one may say that Belt and Road Initiative (BRI) signing is about Chinese power flowing through a country's economic relations with China, it is actually a policy outcome that we would want to analyze later to see if it might be a consequence of Chinese power. Incorporating BRI signing into the measurement of Chinese power would render any analysis of whether exposure to Chinese power leads to BRI signing problematic.

Table 1 lists the indicators used to measure these four relationships, drawn from existing scholarship on diplomacy, Chinese foreign policy and international relations. These indicators range anywhere from Chinese aid and arms sales from China to the number of Confucius Institutes. Appendix, Part III discusses the academic research underlying these indicators. Appendix, Part IV details how the indicators are constructed (including the hurdle components for inward FDI positions and official development finance).

We have placed all trade, investment and aid indicators in both the economic statecraft and economic co-optation quadrants, since economic ties with China may serve not only as leverage and inducement, but could also generate new interest groups dependent on those ties. These groups, in turn, could lobby their governments to be more accommodating of Beijing's interests. The discussion of the UK below shows how both operate in the context of financial ties with China.

Another indicator that sits in two quadrants is visa-free entry for Chinese citizens. It straddles both economic statecraft and diplomacy: it raises the baseline volume of Chinese tourism on which a country comes to depend (a dependence Beijing has repeatedly exploited), but simultaneously facilitates “people-to-people diplomacy” through tourism, business travel and educational flows, which Beijing identifies as a principal channel of soft-power projection.<sup>16</sup>

---

<sup>16</sup> On supplier leverage and patron–client dynamics in arms transfers, see Krause, Keith, 1992, *Arms and the State: Patterns of Military Production and Trade*, Cambridge: Cambridge University Press. On the instrumental use of tourism restrictions, including the 2016–2017 ban on group travel to South Korea during the THAAD dispute, see

Table 1. The CEI Indicators and the Four Dimensions of Chinese Power

|                    | CALCULATION-CHANGING                                                                                                                                                                                                                                   | PREFERENCE-CHANGING                                                                                                                                                                                                        |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ECONOMIC           | <b>Economic Statecraft</b><br>Exports/GDP<br>Imports/GDP<br>Inward FDI position from China + Hong Kong (binary)<br>Inward FDI position from China + Hong Kong/ GDP<br>Outward FDI to China/GDP<br>Aid (binary)<br>Aid/GDP<br>Visa-Free Entry (ordinal) | <b>Economic Co-optation</b><br>Exports/GDP<br>Imports/GDP<br>Inward FDI position from China + Hong Kong (binary)<br>Inward FDI position from China + Hong Kong/ GDP<br>Outward FDI to China/GDP<br>Aid (binary)<br>Aid/GDP |
| MILITARY-POLITICAL | <b>Traditional Statecraft</b><br>Military Coercion Exposure<br>Arms Sales (binary)<br>Panda Presence (binary)                                                                                                                                          | <b>Diplomacy</b><br>Arms Sales (binary)<br>Confucius Institutes<br>Visa-Free Entry (ordinal)<br>Recog. of the Rep. of China (ROC, aka Taiwan) (binary)<br>Panda Presence (binary)                                          |

“Panda diplomacy” similarly cuts both ways (in this case, traditional statecraft and diplomacy). Most pandas outside mainland China are placed on fixed-term, fee-bearing loans, usually announced during a state or ministerial visit — a potentially preference-changing instrument of soft power. However, pandas are not just about soft power. Because the animals are lent rather than given, declining to renew panda leases is a way for Beijing to signal its displeasure. For instance, Japan lost its last pandas in January 2026, when Beijing supplied neither replacements nor an explanation during a dispute over Taiwan. Since pandas can be used as coercive instruments, panda presence enters Table 1 under both traditional statecraft and diplomacy.<sup>17</sup>

As in the case of panda diplomacy, arms sales similarly span both traditional statecraft and diplomacy. In terms of calculation-changing, arms sales can create dependence on Chinese spare parts, maintenance and upgrades — leverage a supplier can withhold — but in terms of preference-changing, they also open channels of military-to-military exchange and training.

Only three indicators fall cleanly in one quadrant, and they all fall under the military-political domain of Chinese power. Exposure to Chinese military coercion concerns the threat of force and straightforwardly only involves calculation-changing. Confucius Institutes (Chinese-government-funded Chinese-language and culture centers, often hosted

Lim, Darren J. and Ferguson, Victor A, 2022, “Informal Economic Sanctions: The Political Economy of Chinese Coercion during the THAAD Dispute,” *Review of International Political Economy* 29, no. 5, pp. 1525–1548.

<sup>17</sup> The Ueno Zoo twins Xiao Xiao and Lei Lei returned to Sichuan on 27 January 2026 at the end of a loan due to expire on 20 February, leaving Japan without a giant panda for the first time in over fifty years; the dispute followed Prime Minister Takaichi’s November 2025 remarks on Taiwan. “Last two pandas in Japan leave for China,” *The Japan Times*, 27 January 2026, <https://www.japantimes.co.jp/news/2026/01/27/japan/japan-pandas-leave-for-china/>. This falls outside the 2013–2025 panel and is not a coded observation. On panda loans as statecraft, see Hartig, Falk, 2013, “Panda Diplomacy: The Cutest Part of China’s Public Diplomacy,” *The Hague Journal of Diplomacy* 8, no. 1, pp. 49–78; and, sceptical of reading non-renewal as punishment, Smith, David T., Chen, Minglu and Yuan, Jingdong, 2025, “Panda diplomacy revisited: state interests and public emotions,” *The Pacific Review* 39, no. 2, pp. 293–321.

at foreign universities) are frequently considered an instrument of Chinese soft power and fall under preference-changing. Diplomatic recognition of Taiwan, a proxy for reduced diplomatic interaction with China, likewise falls under preference-changing.

Three points are worth noting: First, all indicators associated with calculation-changing are constructed to account for variation in countries' *vulnerability* to Chinese power, wherever the underlying data allow.<sup>18</sup> Export data, for instance, are weighted by GDP to capture how costly it would be for a country to lose access to the Chinese market. The coercive capacity indicator compares China's defense stock with that of each country, weighted by geographical distance — reflecting that Chinese power projection is a greater concern for proximate states such as Vietnam than distant ones such as Portugal.

Second, we unfortunately have to exclude some potentially useful indicators because their values are dominated by zeros (or vary too little) for the statistical model (discussed below) to produce stable estimates. A case in point is product-level trade dependencies: the strategic chokepoints of interest — rare earths, permanent magnets, batteries, and key chemicals — are measured at a level of detail where the resulting series are too sparse to be informative, and where including them would undermine the estimates for every country in the model. These indicators are therefore excluded rather than forced into the global model. For technical detail on the indicator selection strategy and how it relates to the statistical model used here (e.g., the “less is more” principle governing the number of indicators), see [Appendix, Part II](#). Appendix Table 1 in [Appendix, Part IV](#) lists the indicators, data sources, likelihoods, and link functions.

Third, three indicators rest on thinner coverage than the rest. Bilateral trade is complete for imports in every panel year but missing 2025 exports for eight small reporters, whose 2024 figures are carried forward. Chinese FDI data stops at 2024: the International Monetary Fund (IMF) survey it comes from is voluntary — 106 economies filed an official position with China as counterpart in 2024.<sup>19</sup> The CEI's 2025 Chinese FDI values are therefore 2023 and 2024 figures, carried forward for every country. Aid data on implementation lasts until 2025, but registration of the projects ends in 2023.

---

<sup>18</sup> Vulnerability is used here in the sense of Keohane and Nye — the costliness of adjusting to alternatives — rather than sensitivity, the costliness of effects felt within an existing policy framework. Expressing economic flows as a share of recipient GDP is consistent with the vulnerability sense, on the assumption that proportionally larger ties generate higher adjustment costs; weighting military capability by geographic distance likewise reflects how little scope a proximate state has to adjust. See Keohane and Nye, 2012, *Power and Interdependence*.

<sup>19</sup> A country that files nothing is indistinguishable in the data from one that reports no Chinese investment, so the indicator understates exposure for non-reporters rather than measuring it.

## 2. Constructing the Index

Now that we have the indicators, we still face the central problem in constructing any rating or index: how to add apples and oranges. Take Cambodia as an example: it imports a significant quantity of arms from China, and records a substantial inward direct-investment position from China. How should Chinese arms procurement and the recorded investment position — items on entirely different scales — be combined into a single assessment of Cambodia’s exposure to Chinese power? Traditional indices settle the question by fiat, assigning weights *a priori* (for instance, by treating the purchase of Chinese military equipment as twice as strong a signal of Chinese power as Chinese investment).<sup>20</sup>

The CEI, in contrast, uses the data to determine how much weight each indicator carries. This is achieved through Bayesian latent factor analysis (see [Appendix, Part I](#) and [Part II](#) for details). A latent variable is an unobservable characteristic that eludes direct empirical measurement: creditworthiness is one, as are democracy, state capacity and corruption — the latter three all measured with Bayesian latent factor analysis in academic research.<sup>21</sup> Bayesian latent factor analysis is a statistical method that analyzes how indicators of a latent variable move together (assuming that the latent construct is indeed present). An indicator that moves more closely with the latent variable receives a heavier weight; one that moves less closely receives a lighter one. Weight also reflects measurement error: a noisy indicator is discounted even when it moves closely with the latent factor. Put the other way round, Bayesian latent factor analysis treats each indicator as an imperfect signal of the latent variable and attributes the co-variation among indicators to that latent variable. Countries more exposed to Chinese power should therefore register elevated values across several indicators at once.

We can use the same Cambodia example to illustrate how Bayesian latent factor analysis computes China exposure scores. Suppose we know two things about Sino-Cambodian relations: Cambodia buys Chinese arms, and China is a major recorded counterpart in Cambodia’s inward direct-investment position. Both facts indicate possible Cambodian exposure to Chinese power. If arms acquisition and the recorded investment position rise together, they should correspond to a higher estimated China exposure score; a joint decline should correspond to the opposite.

---

<sup>20</sup> Stockholm International Peace Research Institute, *SIPRI Arms Transfers Database*, Trend-Indicator Values (TIV), last accessed on September 2, 2026, <https://www.sipri.org/databases/armstransfers>. Cambodia’s inward direct-investment position from China is drawn from the International Monetary Fund’s Direct Investment Positions by Counterpart Economy dataset (DIP; formerly the Coordinated Direct Investment Survey, CDIS), IMF Data, <https://data.imf.org/en/datasets/IMF.STA:DIP>. The series is annual, begins in 2009, and is revised once a year in mid-December; the end-2024 reference year was released on 16 December 2025. The quantity is a position, not an annual flow, and DIP reports “China, P.R.: Mainland” and “China, P.R.: Hong Kong” as separate counterpart economies.

<sup>21</sup> On democracy as a Bayesian latent variable, see Treier, Shawn and Jackman, Simon, 2008, “Democracy as a Latent Variable,” *American Journal of Political Science* 52, no. 1, pp. 201–217. On state capacity, see Hanson, Jonathan K. and Sigman, Rachel, 2021, “Leviathan’s Latent Dimensions: Measuring State Capacity for Comparative Political Research,” *Journal of Politics* 83, no. 4, pp. 1495–1510. On corruption, see Standaert, Samuel, 2015, “Divining the Level of Corruption: A Bayesian State-Space Approach,” *Journal of Comparative Economics* 43, no. 3, pp. 782–803.

Again, unlike traditional indices, Bayesian latent factor analysis does not stipulate a weight for each indicator in order to generate an overall score. Rather, Bayesian latent factor analysis simultaneously calculates scores and indicator weights. Bayesian latent factor analysis takes this approach because neither element can be computed without the other. A weight says how strongly an indicator is associated with a China exposure score, which requires us to know these scores in the first place. But the scores tell us how exposed a country is, which cannot be known without knowing how to weight the two indicators. The contribution of Bayesian latent factor analysis is to solve this chicken-and-egg problem by running a series of simulations, each proposing a complete set of answers — a score for each of Cambodia’s years and a weight for every indicator at once — and computing how likely the observed Cambodian data would be if the proposed answers were correct.

Answers that fit poorly are given lower probability.<sup>22</sup> For instance, an answer pairing a low Cambodian China exposure score with a heavy weight on the inward Chinese FDI position predicts a small recorded position, which is not what we observe, so it receives a small probability. The final China exposure score for Cambodia is the average across the retained simulations that are better-fitting answers, and the spread among those answers gives the uncertainty range. Where the indicators conflict — say, arms acquisition but no investment — Bayesian latent factor analysis leans toward whichever indicator has proven the more reliable signal across the full sample, and may report a wider uncertainty range to reflect the disagreement.

The full Bayesian latent factor analysis behind the CEI does the above for every country at once and for all 13 components. Each simulation must now specify a score for every country in every year and a weight for every indicator: 2,392 country-years, 13 readings each.<sup>23</sup> Bayesian latent factor analysis computes how likely all of that observed data would be if the proposed answer were correct; answers that fit poorly are given lower probability, just like in the Cambodian case.

Requiring an answer to work for every country at once is what yields the weights. Suppose an indicator reads ‘high’ precisely for the countries that read high on the other 12 components. Predictions built on a heavy weight for that indicator come close to the recorded values, so the model assigns it a higher weight. Now suppose an indicator is high in some countries and low in others with no relation to how those countries score elsewhere. A heavy weight on it would predict high exposure wherever the indicator is high, and those predictions would miss for many countries at once. Such an indicator therefore receives a smaller weight.

In brief, the China exposure scores (in statistical terminology, “factor scores”) and the weights attached to each indicator (“loadings”) are estimated jointly. Hence the method allows us to see how Chinese power exists in different bilateral relationships and how some relationships constitute a more prominent facet of Chinese power. A higher exposure score implies a higher expected value on positively-weighted indicators, e.g., more

---

<sup>22</sup> More precisely, that probability has two parts. The first, discussed below, concerns how well an answer explains the data: use it to predict every reading, compare each with what was recorded, and combine the results — an answer that misses badly is penalised. The second is what we believed before seeing the data (the priors in Bayesian analysis).

<sup>23</sup> Each simulation also specifies the auxiliary parameters of each indicator’s equation — intercepts, residual standard deviations, dispersion for the count indicator, hurdle probabilities, and ordinal cut-points — 21 quantities, alongside the 2,392 country-year scores. See [Appendix, Part V](#).

Chinese FDI as a share of GDP, more trade, more Confucius Institutes. Read the other way, a country recording higher values on positively-weighted indicators more closely resembles the profile of highly exposed states. The Bayesian latent factor analysis behind the CEI is based on 36,000 simulations: four independent chains of 9,000 iterations each, with the first 3,000 simulations of every chain discarded as warm-up. That leaves 24,000 retained simulations.<sup>24</sup> Each China exposure score reported here is the average across those draws, and their spread gives the uncertainty range.

Bayesian latent factor analysis results can be sensitive to prior assumptions. The CEI uses weakly informative, regularizing “priors” (starting assumptions about plausible parameter values, e.g., indicator weights, later updated by the data), selected through model-development checks to stabilize estimation without fixing the indicator weights in advance. Most of these priors are designed to rule out implausible extremes rather than to encode substantive views about which indicators should matter. Two are deliberately more informative: the loading on Taiwan recognition is centered on a negative value, reflecting the definitional point that recognizing Taipei marks distance from Beijing, and the loading on Confucius Institutes is given a tight prior, without which the sampler does not reliably identify the count model’s dispersion. During the development of the model, we compared plausible alternative priors and scales for changes in loading direction, ranking, uncertainty, and convergence. The strategy is described in [Appendix, Part V](#).

Thus far our focus has been on how to calculate the weight associated with each indicator. We now shift focus to how the China exposure score for each country is constructed from the indicators. Traditional indices use indicators to which the analyst assigns a certain weight, with index scores being the sum of all the weighted indicators. The CEI takes a completely different approach. For the CEI, each indicator is a signal, and the weight associated with an indicator (computed through simulations, as detailed above) tells us how strong a signal it carries.<sup>25</sup> We update the probability of a higher or lower China exposure score depending on the indicator values, e.g., a high value on a heavily weighted positive indicator raises the probability that the score is high.

To illustrate the intuition behind the construction of the China exposure score, let us return to the stress analogy. Suppose we want to gauge whether a friend is stressed, and three things come up in conversation: (1) they seemed less cheerful on the phone, (2) they have been waking up at four in the morning and (3) they have had difficulty eating. If only (1) is true, this might indicate a — let’s say — 30 percent chance that they are stressed. If only (2) is true, a 70 percent chance. If only (3) is true, an 80 percent chance. But if both (2) and (3) are true, there would be a 90 percent chance; and if all three were true, a 95 percent chance. Stronger signals, more signals and more stronger signals all suggest higher probabilities of stress. We assess stress levels by thinking through the probability that stress level is high or low given the presence or absence of the three indicators of varying strength. In other words, we assess the probability of stress under given conditions. The CEI works in a similar way. It does not, however, simply ask *whether* a country is

---

<sup>24</sup> The scores, intervals and density curves reported in this study are the time-smoothed values described in Appendix, Part VII rather than the unsmoothed posterior summaries. The smoother is applied to a subsample of 640 of the 24,000 retained draws, which is what the reported smoothed intervals are computed from; smoothing leaves the point estimates almost unchanged (a median absolute change of 0.03) while narrowing the 95 percent intervals by about 30 percent on average.

<sup>25</sup> For the sake of simplicity, we assume that the signals have no noise.

exposed to Chinese power but rather the *extent* to which a country is exposed. And the probabilities are assessed in relation to points on a continuous spectrum of exposure rather than a binary yes/no question. We will illustrate how the CEI computes individual country-year scores with 2025 data from Russia in section 6. Because exposure generally evolves incrementally, a country's yearly scores are closely linked from one year to the next rather than independent. A country-specific smoothing procedure uses this year-to-year continuity to reduce random noise in the scores while allowing for real, abrupt shifts, such as those associated with the COVID-19 pandemic or the war in Ukraine. The technical details of this procedure appear in [Appendix, Part VII](#).

There is one key limitation to the method behind the CEI. A full Bayesian time-series analysis would build each country's year-to-year dynamics (its persistence and trend) directly into the measurement model, so that trajectories and scores are estimated in a single step. The CEI does not attempt this, for reasons of computational feasibility. Each simulation already estimates 2,426 quantities jointly ([Appendix, Part V](#)); giving all 184 countries their own dynamic equations would add hundreds of additional parameters — more still if each country's trend is itself allowed to evolve — that every one of the 36,000 simulations must handle, multiplying computing time and making it substantially harder for the model to converge. 13 annual observations per country also provide limited information for estimating country-specific dynamics reliably. The two-stage design above is the compromise: estimate the scores first, then smooth each country's trajectory separately ([Appendix, Part VII](#)).<sup>26</sup>

## How to Read the CEI

**The score:** We set the 2013 world average as the Index's 'zero.' Percentiles are read from the distribution of scores in the year concerned: in 2025 a score of +1.0 places a country at roughly the 78th percentile of the 184 countries, and +2.0 at roughly the 94th. Negative scores sit below that baseline.

**The range:** Every score comes with an uncertainty range, like a poll's margin of error, because any measurement comes with statistical noise. Rankings should be read with those ranges in mind.

**The weights:** How much each of the 13 components weighs is derived from what the data tells us (based on how the indicators move together across 184 countries and 13 years); it is not predetermined by the authors.

**What the index measures:** Exposure to Chinese power, understood as the capacity of Beijing to influence a country's behavior.

**What the index does not measure:** Influence or political alignment. A country can be highly exposed yet resist Beijing's preferences, or be barely exposed yet align with China.

---

<sup>26</sup> A dynamic specification would estimate each country's trajectory jointly with the measurement model; [Appendix, Part V](#) and [Part VII](#) set out the cost and the design rationale. The two-stage alternative — estimate the scores first, then smooth each country's series with a state-space filter — follows Durbin, James and Koopman, Siem Jan, 2012, *Time Series Analysis by State Space Methods*, 2nd ed., Oxford: Oxford University Press; and Harvey, Andrew C., 1989, *Forecasting, Structural Time Series Models and the Kalman Filter*, Cambridge: Cambridge University Press.

### 3. Europe in Comparative Perspective

Overall, China exposure scores trend upward across all major regions over the period, with the world mean rising from 0.02 in 2013 to 0.49 in 2025, a gain of 0.47 points. In substantive terms, the average country in 2025 is about as exposed to Chinese power as a country at the 74<sup>th</sup> percentile of the world distribution was in 2013, indicating a stark increase in overall exposure. The global diffusion of Chinese power is impressive — 155 of 184 countries score higher in 2025 than in 2013.

Zooming in further, we can see substantial regional differences in exposure to China. Figure 1 presents the regional mean China exposure scores for Europe, the Indo-Pacific, Sub-Saharan Africa, the MENA region, and the Americas, regional groupings — geographical groupings adapted from World Bank country classifications.<sup>27</sup> Europe registers the second highest average exposure to Chinese power throughout the period, above every region except the Indo-Pacific, and above the world average in every year from 2013 to 2025 — reaching 0.68 in 2025 against a world average of 0.49. The Indo-Pacific holds the highest regional average in every year of the panel, at 0.96 in 2025, which is what geography would predict: its proximity to China leaves it inherently more exposed to Chinese military capabilities. What is striking, however, is how small Europe’s ‘shortfall’ is compared to the Indo-Pacific despite its distance from China — a gap of only 0.28 points in 2025. From 2013 to 2018, average exposure to Chinese power is statistically indistinguishable between Europe and the Indo-Pacific; the gap only becomes more pronounced from 2019 on. This comparison of Europe and the Indo-Pacific implies a concentration of Chinese economic and soft power across the European continent — a pattern to be investigated further.

The Americas, Sub-Saharan Africa and the MENA region remain well below Europe throughout, with the Americas recording the lowest average China exposure score of any region — -0.04 in 2025, against 0.32 for Sub-Saharan Africa and 0.36 for MENA. As a historically US-dominated sphere of influence, the Americas would be expected to exhibit limited Chinese penetration, and the data indeed bear this out, lending validity to the CEI.

Now is a useful point at which to clarify what China exposure scores represent substantively. We set the 2013 average across the 184 countries in the panel as the CEI’s ‘zero’ for all years; this ‘zero’ anchors all observations, and details on how to rescale and re-center China exposure scores with the anchor in mind is in [Appendix, Part VII](#). Positive scores denote exposure above that baseline and negative scores denote exposure below it.

---

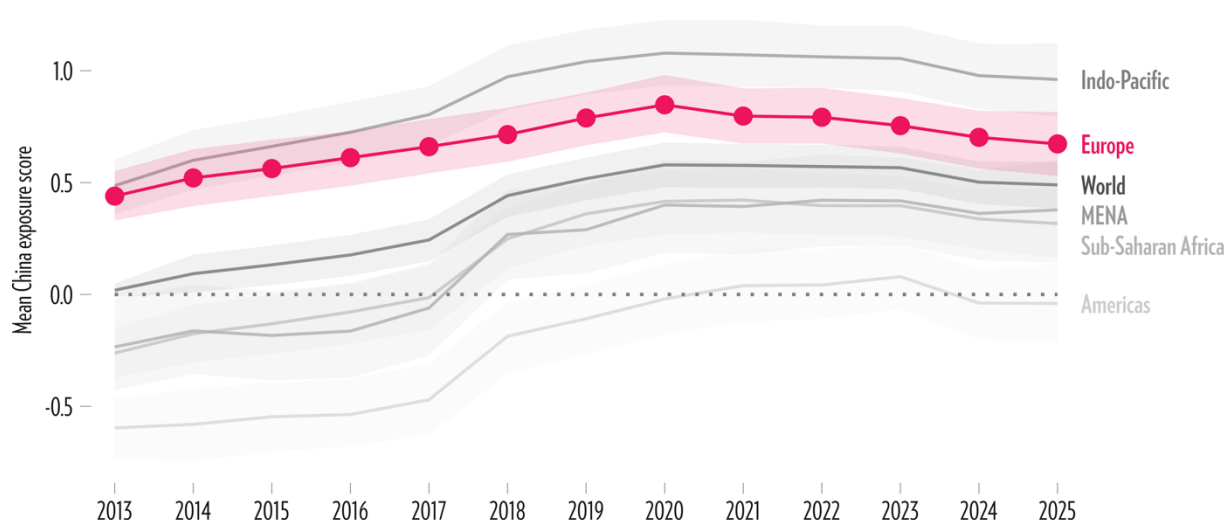
<sup>27</sup> For cross-regional comparisons, the macro-region definitions are those given in note 3. MENA, Sub-Saharan Africa, and the Americas (Latin America and the Caribbean) follow the standard World Bank groupings as constituted before the Bank’s 2025 reorganisation, which renamed the Middle East and North Africa region “Middle East, North Africa, Afghanistan and Pakistan” and moved Afghanistan and Pakistan out of South Asia. Regional aggregates reported here use the pre-2025 country composition throughout the panel. The inclusion of the United States and Canada in the Indo-Pacific reflects their operational orientation towards that theatre rather than their geographic location. The country-level European ranking in [Section 4](#) uses a narrower definition than the cross-regional comparison. It is the World Bank’s “Europe & Central Asia” region excluding Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) and the South Caucasus (Armenia, Azerbaijan and Georgia), and including Malta, which the World Bank files under Middle East and North Africa. Forty-five countries meet this definition; 44 appear in the panel, Kosovo being absent for want of data.

Percentiles are computed from the observed distribution of scores in the relevant year: in 2025, +1.0 corresponds to approximately the 78<sup>th</sup> percentile and +2.0 to approximately the 94<sup>th</sup> percentile.

Exposure to Chinese power in Europe unfolded in two distinct periods. The first, spanning 2013 to 2020, was one of accumulation, with Europe's regional mean of exposure rising from 0.44 to 0.84. In 2013, Xi Jinping launched the BRI, a global infrastructure program linking Asia, Europe and Africa. Signature projects included the Budapest-Belgrade railway and China Ocean Shipping Company's (COSCO) acquisition of a majority stake in the port of Piraeus in Greece.<sup>28</sup> Soft-power expansion accompanied these economic inroads, with Confucius Institutes proliferating across European universities. The period culminated in March 2019, when Italy became the first and only G7 nation to sign a memorandum of understanding with Beijing under the BRI.<sup>29</sup>

**Figure 1. Regional China exposure trajectories (2013-2025)**

Regional average, with the range it is 90% likely to fall in; Europe highlighted



Europe is the World Bank's "Europe & Central Asia" region less Central Asia and the South Caucasus, plus Malta. Central Asia, the South Caucasus and other states not assigned to these macro-regions have no regional line. The United States and Canada are counted in Indo-Pacific.

The second period, from 2020 onward, shows a modest but discernible decline in exposure to Chinese power, with the regional mean of exposure declining from 0.84 to 0.68 by 2025 and the average European state slipping to roughly the 66<sup>th</sup> percentile globally. This

<sup>28</sup> COSCO Shipping acquired a 51 percent stake in the Piraeus Port Authority in 2016 for approximately 280.5 million euros, subsequently increasing its holding to 67 percent in 2021. The 280.5 million euros covered the initial 51 percent stake; the 368.5 million euros cited in the source below is the total headline price for the full 67 percent holding, comprising the 2016 tranche plus a further 88 million euros paid for an additional 16 percent stake in 2021. See "Cosco agrees to pay 368.5 million euros for control of key Greek port," *China Daily*, 21 January 2016, last accessed on April 17, 2026, [https://www.chinadaily.com.cn/business/2016-01/21/content\\_23175889.htm](https://www.chinadaily.com.cn/business/2016-01/21/content_23175889.htm); "COSCO Raises Stake in Greek Port," *China Daily*, 26 October 2021, last accessed on April 17, 2026, <https://global.china-daily.com.cn/a/202110/26/WS61775552a310cdd39bc7140a.html>.

<sup>29</sup> Government of the Italian Republic and Government of the People's Republic of China, "Memorandum of Understanding Between the Government of the Italian Republic and the Government of the People's Republic of China on Cooperation within the Framework of the Silk Road Economic Belt and the 21st Century Maritime Silk Road Initiative," signed in Rome, 23 March 2019, [https://www.governo.it/sites/governo.it/files/Memorandum\\_Italia-Cina\\_EN.pdf](https://www.governo.it/sites/governo.it/files/Memorandum_Italia-Cina_EN.pdf).

change likely follows the presentation of the 2019 EU-China Strategic Outlook, which described China not only as a partner but also as an economic competitor and a systemic rival; this strategy also introduced EU defensive measures vis-à-vis China, including investment screening.<sup>30</sup> The COVID-19 pandemic and Russia's invasion of Ukraine subsequently sharpened European awareness of the risks of strategic dependence. In January 2023, European Commission President Ursula von der Leyen officially proposed a “de-risking” approach to China at the World Economic Forum Annual Meeting in Davos, Switzerland.<sup>31</sup> In December 2023, Italy formally withdrew from the BRI, the first country ever to do so – completing a symbolic reversal of its earlier trajectory.<sup>32</sup>

Nonetheless, European countries still top the chart for China exposure in 2025 (Figure 2): four countries out of the top seven (Russia, Germany, France and the UK). Their global rankings are often ahead of countries we traditionally associate with Chinese dominance

Figure 2. The fifteen most exposed countries, 2025



<sup>30</sup> European Commission and High Representative of the Union for Foreign Affairs and Security Policy, *EU-China – A Strategic Outlook*, JOIN(2019) 5 final, 12 March 2019, <https://commission.europa.eu/system/files/2019-03/communication-eu-china-a-strategic-outlook.pdf>, last accessed on September 2, 2026. The communication simultaneously described China as “a cooperation partner, a negotiating partner, an economic competitor, and a systemic rival.”

<sup>31</sup> Von der Leyen, Ursula, “Special Address by President von der Leyen at the World Economic Forum,” *European Commission*, 17 January 2023, last accessed on September 2, 2026, [https://ec.europa.eu/commission/presscorner/detail/en/speech\\_23\\_232](https://ec.europa.eu/commission/presscorner/detail/en/speech_23_232). The de-risking approach was elaborated in her 30 March 2023 speech at the Mercator Institute for China Studies (MERICS) and the European Policy Centre in Brussels; see [https://ec.europa.eu/commission/presscorner/detail/en/speech\\_23\\_2063](https://ec.europa.eu/commission/presscorner/detail/en/speech_23_2063), last accessed on September 2, 2026.

<sup>32</sup> Mazzocco Ilaria and Palazzi, Andrea Leonard, “Italy Withdraws from China’s Belt and Road Initiative,” *Center for Strategic and International Studies*, 14 December 2023, last accessed on September 2, 2026, <https://www.csis.org/analysis/italy-withdraws-chinas-belt-and-road-initiative>. The Meloni government formally notified Beijing of non-renewal on 6 December 2023.

(e.g., Thailand: #11; Mongolia: #15), and important developing powers such as Indonesia (#10) and Brazil (#14); in 2025, Russia and Germany are only ‘beaten’ by South Korea (#1) in terms of exposure to Chinese power.

The European results may partly be a function of how Chinese power overwhelmingly concentrates in democracies — contrary to the expectation that China’s power would be greatest over states with more authoritarian and corrupt systems. Fourteen of the top 15 countries qualify as democracies, though the political status of a few remains heavily disputed; Russia stands out as the sole clear exception. The U.S., the traditional liberal democratic superpower, ranked #4 globally in terms of exposure to Chinese power despite recent declines that started under Trump’s first term and continued under Biden; U.S. ranking was #1 globally in both 2013 (start of Xi’s first term) and 2018 (start of Xi’s second term).

There are at least two — potentially complementary — readings of this result. One is that democracies are less able to resist potential Chinese advances: constituencies and interest groups make it harder for elected governments to recalibrate economic relations with China despite the geopolitical costs. The other explanation is that China might be systematically targeting democracies, precisely because their values and policies diverge from Beijing’s. If a country’s political preferences already align with China’s, it does not need to be forced into alignment and therefore there is less pressing need for China to build up power. Either way, there is much for European countries to consider when it comes to their China policies.

## 4. CEI Europe Ranking

Table 2 and Figure 3 present the CEI ranking of 44 European countries. As the introduction indicates, CEI Europe is dominated by the major European states. Russia leads at 2.73, second worldwide, followed by Germany (2.62, #3 worldwide), France (2.54, #6), the UK (2.42, #7), and Spain (2.12, #12). These five form a cluster of countries that share extreme exposure to Chinese power statistically (their credible intervals overlap)<sup>33</sup>; their global rankings are ahead of countries we traditionally associate with Chinese dominance (e.g., Mongolia, #15 globally; Cambodia, #21). Italy (1.74, #17), Belgium (1.71, #18), the Netherlands (1.57, #20), Belarus (1.44, #24, and Ukraine (1.34, #28) complete the European Top Ten.

Let's start by looking at Russia, the most exposed country in Europe, a bit more closely. Russia is the only European state that borders China, which makes it the European country most exposed to Chinese military reach — the one indicator from which the rest of Europe is structurally insulated. Its exports to China rose from 1.6 percent of GDP in 2013 to a peak of 5.4 percent in 2023, standing at 4.2 percent in 2025 and the highest share in Europe each year since 2023. Russia is also one of three European countries, together with Belarus and Serbia, to record a Chinese arms transfer in 2025.

Russia's China exposure score in 2025 is not statistically distinguishable from those of Europe's major democracies. Take Germany, for instance. Germany scores 2.62 against Russia's 2.73 — a gap of only 0.11 — and the two countries' credible intervals overlap across their full range. Compared to Russia, Germany is largely insulated from Chinese military reach; its exposure runs instead through Chinese economic and soft power. Germany's exports to China are 1.8 percent of GDP, fifth in Europe. Germany also hosts 19 Confucius Institutes. Nonetheless, Germany's score has plateaued and begun to slip: it was essentially flat from 2019 to 2023, peaked at 2.74 in 2022, and has fallen to 2.62 since (Section 5, Table 3 and Table 4 present time trends for all European countries). The retreat is associated with trade: German exports to China have fallen by more than a full point of GDP since 2021, from 2.84 to 1.82 percent, and imports from China from 3.26 percent in 2022 to 2.30 percent in 2025. What holds the score up is the non-trade side of the ledger: the Confucius Institute network expanded from 15 institutes in 2013 to 19 in 2025.

France's relatively high 2025 China exposure score (2.54) rests on a different footing from Germany's. French exports to China are 0.79 percent of GDP and imports 1.54 percent, both below Germany's, but French FDI to China is comparatively large at 1.04 percent of GDP in 2025 (\$35 billion, a 2024 value) and France hosts 18 Confucius Institutes, the fourth-largest network in Europe after the United Kingdom, Russia and Germany. Spain (2.12) gained 0.30 points between 2013 and 2025. Three indicators account for this change in Spain's score. Imports from China have nearly doubled, from 1.41 percent of GDP in 2013 to 2.64 percent in 2025, a higher share than either Germany's or the UK's. Chinese FDI rose from 0.06 to 0.38 percent of GDP (roughly \$0.8 billion to \$7.3 billion, the latter again a 2024 value). And

---

<sup>33</sup> Overlapping credible intervals are a conservative guide rather than a test: the quantity that settles whether two countries can be ranked is the posterior distribution of the difference between their scores, which the model's draws allow us to compute directly, as Figure 4 does for the exposure groups. Posterior probabilities for any country pair are available from the author on request.

the Confucius Institute network grew from six institutes to 10. We reserve discussion of the UK for section 6, where it illustrates how two key indicators are relevant to capturing exposure to Chinese power.

**Table 2. European rankings (2025)**

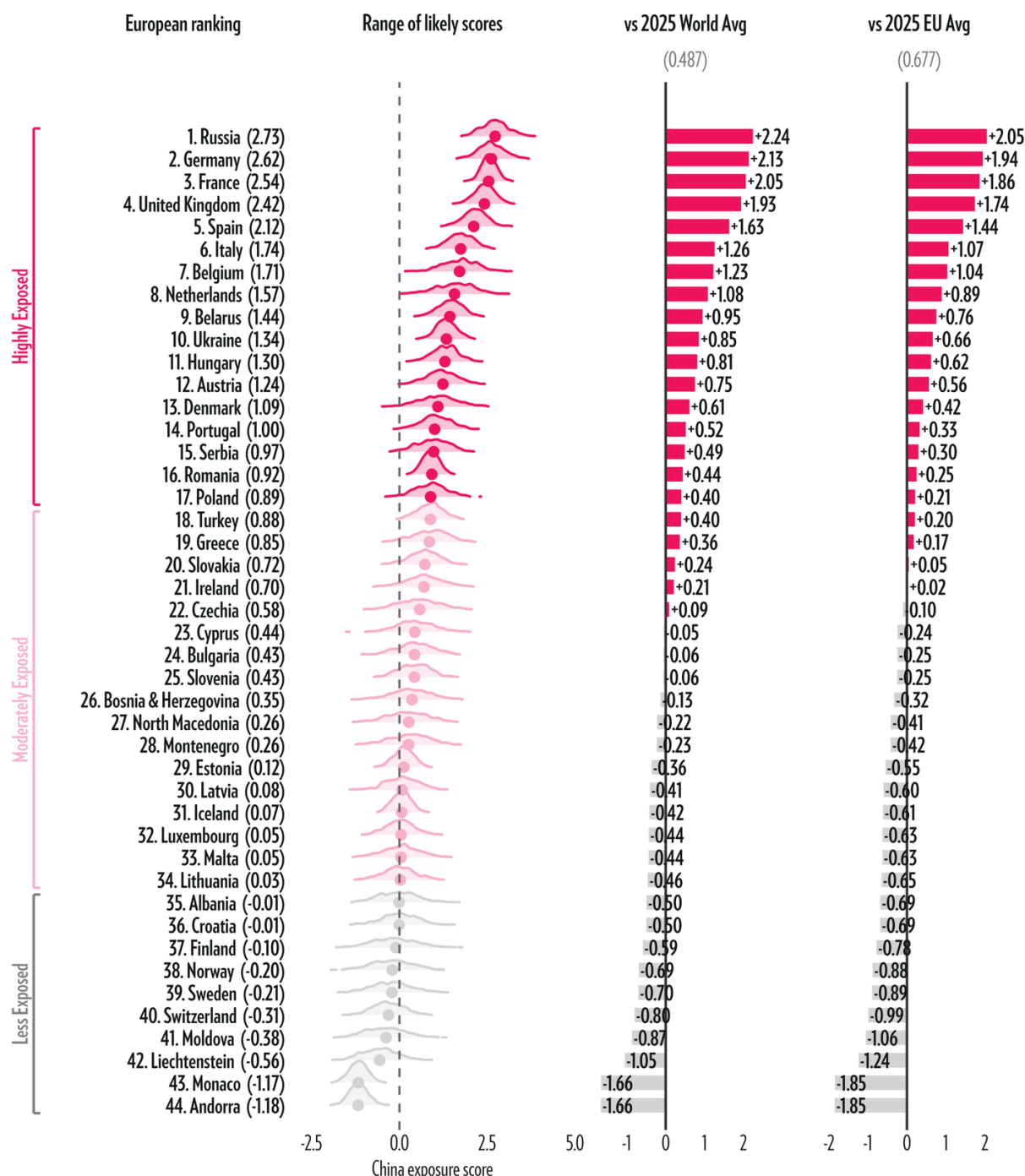
44 countries | World avg = 0.487 | EU avg = 0.677

|                    | EU Rank | Country              | China exposure score | vs World Avg | vs EU Avg | World Rank | Subregion       |
|--------------------|---------|----------------------|----------------------|--------------|-----------|------------|-----------------|
| Highly Exposed     | 1       | Russia               | 2.73                 | 2.24         | 2.05      | 2          | Eastern Europe  |
|                    | 2       | Germany              | 2.62                 | 2.13         | 1.94      | 3          | Western Europe  |
|                    | 3       | France               | 2.54                 | 2.05         | 1.86      | 6          | Western Europe  |
|                    | 4       | United Kingdom       | 2.42                 | 1.93         | 1.74      | 7          | Northern Europe |
|                    | 5       | Spain                | 2.12                 | 1.63         | 1.44      | 12         | Southern Europe |
|                    | 6       | Italy                | 1.74                 | 1.26         | 1.07      | 17         | Southern Europe |
|                    | 7       | Belgium              | 1.71                 | 1.23         | 1.04      | 18         | Western Europe  |
|                    | 8       | Netherlands          | 1.57                 | 1.08         | 0.89      | 20         | Western Europe  |
|                    | 9       | Belarus              | 1.44                 | 0.95         | 0.76      | 24         | Eastern Europe  |
|                    | 10      | Ukraine              | 1.34                 | 0.85         | 0.66      | 28         | Eastern Europe  |
|                    | 11      | Hungary              | 1.30                 | 0.81         | 0.62      | 30         | Eastern Europe  |
|                    | 12      | Austria              | 1.24                 | 0.75         | 0.56      | 31         | Western Europe  |
|                    | 13      | Denmark              | 1.09                 | 0.61         | 0.42      | 37         | Northern Europe |
|                    | 14      | Portugal             | 1.00                 | 0.52         | 0.33      | 41         | Southern Europe |
|                    | 15      | Serbia               | 0.97                 | 0.49         | 0.30      | 42         | Southern Europe |
|                    | 16      | Romania              | 0.92                 | 0.44         | 0.25      | 45         | Eastern Europe  |
|                    | 17      | Poland               | 0.89                 | 0.40         | 0.21      | 46         | Eastern Europe  |
| Moderately Exposed | 18      | Turkey               | 0.88                 | 0.40         | 0.20      | 48         | Southern Europe |
|                    | 19      | Greece               | 0.85                 | 0.36         | 0.17      | 50         | Southern Europe |
|                    | 20      | Slovakia             | 0.72                 | 0.24         | 0.05      | 54         | Eastern Europe  |
|                    | 21      | Ireland              | 0.70                 | 0.21         | 0.02      | 58         | Northern Europe |
|                    | 22      | Czechia              | 0.58                 | 0.09         | -0.10     | 70         | Eastern Europe  |
|                    | 23      | Cyprus               | 0.44                 | -0.05        | -0.24     | 89         | Southern Europe |
|                    | 24      | Bulgaria             | 0.43                 | -0.06        | -0.25     | 93         | Eastern Europe  |
|                    | 25      | Slovenia             | 0.43                 | -0.06        | -0.25     | 94         | Southern Europe |
|                    | 26      | Bosnia & Herzegovina | 0.35                 | -0.13        | -0.32     | 101        | Southern Europe |
|                    | 27      | North Macedonia      | 0.26                 | -0.22        | -0.41     | 111        | Southern Europe |
|                    | 28      | Montenegro           | 0.26                 | -0.23        | -0.42     | 112        | Southern Europe |
|                    | 29      | Estonia              | 0.12                 | -0.36        | -0.55     | 128        | Northern Europe |
|                    | 30      | Latvia               | 0.08                 | -0.41        | -0.60     | 133        | Northern Europe |
|                    | 31      | Iceland              | 0.07                 | -0.42        | -0.61     | 134        | Northern Europe |
| Less Exposed       | 32      | Luxembourg           | 0.05                 | -0.44        | -0.63     | 135        | Western Europe  |
|                    | 33      | Malta                | 0.05                 | -0.44        | -0.63     | 136        | Southern Europe |
|                    | 34      | Lithuania            | 0.03                 | -0.46        | -0.65     | 138        | Northern Europe |
|                    | 35      | Albania              | -0.01                | -0.50        | -0.69     | 140        | Southern Europe |
|                    | 36      | Croatia              | -0.01                | -0.50        | -0.69     | 141        | Southern Europe |
|                    | 37      | Finland              | -0.10                | -0.59        | -0.78     | 153        | Northern Europe |
|                    | 38      | Norway               | -0.20                | -0.69        | -0.88     | 156        | Northern Europe |
|                    | 39      | Sweden               | -0.21                | -0.70        | -0.89     | 159        | Northern Europe |
|                    | 40      | Switzerland          | -0.31                | -0.80        | -0.99     | 162        | Western Europe  |
|                    | 41      | Moldova              | -0.38                | -0.87        | -1.06     | 166        | Eastern Europe  |
|                    | 42      | Liechtenstein        | -0.56                | -1.05        | -1.24     | 170        | Western Europe  |
|                    | 43      | Monaco               | -1.17                | -1.66        | -1.85     | 177        | Western Europe  |
|                    | 44      | Andorra              | -1.18                | -1.66        | -1.85     | 179        | Southern Europe |

Exposure tiers are quartiles of the 2025 global distribution (184 countries): Highly Exposed = top quarter worldwide (score  $\geq 0.89$ ), Moderately Exposed = middle half, Less Exposed = bottom quarter worldwide (score  $< 0.02$ ). Europe is the World Bank's "Europe & Central Asia" region less Central Asia and the South Caucasus, plus Malta; Kosovo is absent from the source panel.

Beyond these top five countries for CEI Europe, Table 2 and Figure 3 split countries into three exposure categories (recognizable by color), defined as quartiles of the global distribution in 2025. Highly exposed states (dark pink) fall in the top quarter worldwide (the top 25 percent worldwide in 2025) scoring 0.89 or above.

Figure 3. Europe – rankings and uncertainty (2025)



Exposure tiers are quartiles of the 2025 global distribution (184 countries): Highly Exposed = top quarter worldwide (score  $\geq 0.89$ ), Moderately Exposed = middle half, Less Exposed = bottom quarter worldwide (score  $< 0.02$ ). Dots are China exposure scores. Bar colour: pink where positive, grey where negative. Europe is the World Bank's "Europe & Central Asia" region less Central Asia and the South Caucasus, plus Malta; Kosovo is absent from the source panel. The world average is taken over all 184 countries in the panel, the 44 European ones included.

This group spans 17 countries: the Top Ten plus Hungary, Austria, Denmark, Portugal, Serbia, Romania, and Poland. The mean China exposure score among highly exposed states is 1.63, which places the typical member of this group at approximately the 90<sup>th</sup> percentile globally.

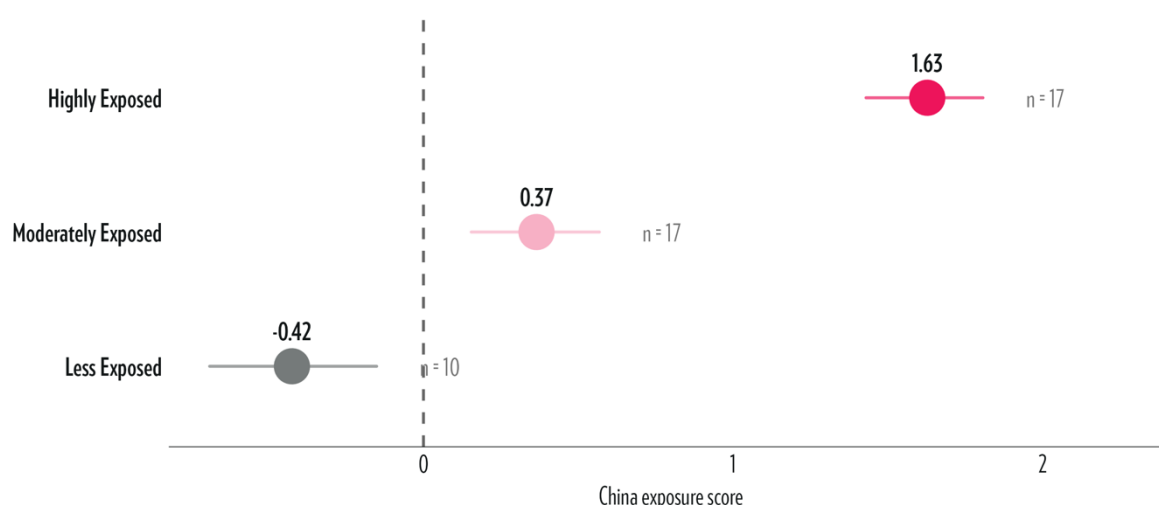
Moderately exposed states (light pink) occupy the middle half of the global distribution (25<sup>th</sup>-75<sup>th</sup> percentile worldwide in 2025), scoring between 0.02 and 0.89, and comprise 17 countries: Turkey, Greece, Slovakia, Ireland, Czechia, Cyprus, Bulgaria, Slovenia, Bosnia and Herzegovina, North Macedonia, Montenegro, Estonia, Latvia, Iceland, Luxembourg, Malta, and Lithuania. The mean China exposure score among moderately exposed states is 0.37, placing the typical state in this group around the 47<sup>th</sup> percentile globally. These are countries with meaningful, but uneven exposure to Chinese power: present across some channels, limited in others and without the level of Chinese penetration that characterizes the highly exposed group.

Less exposed states (grey) fall in the bottom quarter worldwide (the bottom 25 percent worldwide in 2025), scoring below 0.02: Albania, Croatia, Finland, Norway, Sweden, Switzerland, Moldova, Liechtenstein, Monaco, and Andorra. The mean China exposure score among less exposed states is -0.42, which places the typical state in this group at approximately the 9<sup>th</sup> percentile globally, meaning it has less exposure to Chinese power than roughly 90 percent of all countries in the world. Unlike traditional indices, which report rankings as point estimates, the CEI generates a posterior distribution — and therefore an uncertainty estimate — for each country's score, shown as density curves in the left panel of Figure 3. Figure 4 presents the uncertainty around the three exposure categories: its left panel plots each group's average China exposure score with 90 percent credible intervals (again, 1.63 for highly exposed, 0.37 for moderately exposed and -0.42 for less exposed).

Serbia stands out as an interesting case in the CEI 2025 Europe ranking. Widely regarded as one of China's closest partners in Europe, Belgrade has maintained close diplomatic

**Figure 4. Exposure group averages – Europe (2025)**

Average score, with the range it is 90% likely to fall in



Exposure tiers are quartiles of the 2025 global distribution (184 countries): Highly Exposed = top quarter worldwide (score  $\geq 0.89$ ), Moderately Exposed = middle half, Less Exposed = bottom quarter worldwide (score  $< 0.02$ ). Europe is the World Bank's "Europe & Central Asia" region less Central Asia and the South Caucasus, plus Malta; Kosovo is absent from the source panel.

ties with Beijing, underscored by Xi Jinping's state visit in May 2024, during which the two countries' leaders welcomed their "ironclad partnership" and Serbia became the first European country to endorse Xi's vision of a "community of shared future."<sup>34</sup> However, the CEI places Serbia only 15<sup>th</sup> in Europe (#42 globally) — below what its diplomatic profile would suggest. One might expect Belgrade to be significantly exposed to Chinese power. Why does the CEI suggest otherwise?

The Serbia ranking can reflect a measurement mismatch. IMF Direct Investment Positions data record balance-sheet positions by immediate counterpart, whereas widely-cited multi-billion-dollar figures for Serbia often concern project announcements, completed greenfield transactions, construction contracts, or alternative estimates of cumulative investment. These quantities are not directly comparable, and immediate-counterpart data can also miss investment routed through third jurisdictions.<sup>35</sup>

Nonetheless, Chinese FDI is only one of the CEI's indicators. Taking this 'Serbia paradox' seriously requires distinguishing between power, alignment and influence. The CEI does not measure preference alignment — whether countries already share Beijing's geopolitical agenda — but rather the *capacity* for China to exert influence. If a state like Serbia is already strategically aligned with China, Beijing does not need to aggressively accumulate power to influence its behavior. Power, after all, refers to the latent capacity of one actor to change another's trajectory, while influence is that capacity actively converted into effect within a specific policy domain.

One interpretation is that power is most visible where a country's preferences diverge from China's: a government already aligned with Beijing may require less inducement to support positions it independently favors. Conversely, many high-scoring Western European states are not traditionally aligned with Beijing, making the channels measured by the CEI more salient. As Diamond and Schell (2019) note, and as literature on so-called sharp power argues more broadly, Chinese influence efforts frequently target powerful democracies whose values and policies diverge from Beijing's.<sup>36</sup>

Sceptics might point to Hungary as a counterexample — a country more aligned with China that nonetheless scores #11 in Europe (#30 globally). But Hungary's case is consistent with the logic above. Despite its track-record of domestic political leanings, Hungary is an EU member state, and the EU does not always align with China. This makes Hungary strategically valuable to Beijing: both to encourage Budapest to 'swim against

---

<sup>34</sup> "Xi concludes Serbia visit with elevated ties, emotional moments," *Xinhua*, 9 May 2024, last accessed on September 2, 2026, <https://english.news.cn/20240509/4664e244f9264f3d8adda210d27ed915/c.html>; Stojanovic, Dusan, 8 May 2024, "China and EU-Candidate Serbia Sign an Agreement to Build a 'Shared Future,'" Associated Press, last accessed on September 2, 2026, <https://apnews.com/article/serbia-china-xi-jinping-visit-nato-e37b7ad0e89ac73b83e754142ce8e399>.

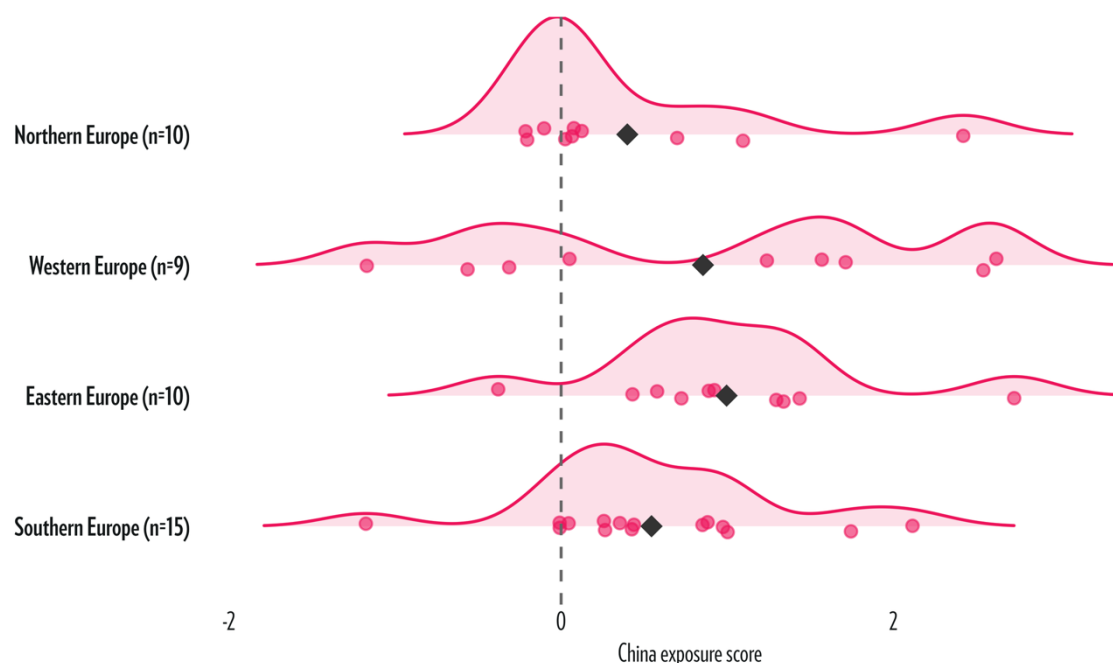
<sup>35</sup> Damgaard, Jannick, Elkjaer, Thomas and Johannesen, Niels, 2019, "What Is Real and What Is Not in the Global FDI Network?," *IMF Working Paper* 19, 274, pp. 7–12, on immediate-counterpart and special-purpose-entity distortions in bilateral FDI data. For a Serbia-specific contrast using an alternative stock measure, see Jovanović, Branimir, 2025, "What's Driving Chinese FDI in the Western Balkans — and What Should Be Done About It," *Vienna Institute for International Economic Studies*, <https://wiiw.ac.at/what-s-driving-chinese-fdi-in-the-western-balkans--and-what-should-be-done-about-it-n-685.html>.

<sup>36</sup> Diamond, Larry and Schell, Orville, eds., 2019, *China's Influence & American Interests: Promoting Constructive Vigilance: Report of the Working Group on Chinese Influence Activities in the United States*, No. 702, Stanford, CA: Hoover Institution Press; International Forum for Democratic Studies, 2017, *Sharp Power: Rising Authoritarian Influence*, Washington, DC: National Endowment for Democracy; Walker, Christopher and Ludwig, Jessica, "The Meaning of Sharp Power: How Authoritarian States Project Influence," *Foreign Affairs*, 16 November 2017, <https://www.foreignaffairs.com/articles/china/2017-11-16/meaning-sharp-power>.

the tide’ by softening or blocking EU positions critical of China, and to use Hungary as a showcase of successful Chinese cooperation with a European nation.

**Figure 5. Europe’s Exposure to Chinese Power (2025)**

Sub-regional distributions



Each dot is one country; the diamond is the subregion mean. Europe is the World Bank’s “Europe & Central Asia” region less Central Asia and the South Caucasus, plus Malta; Kosovo is absent from the source panel.

A second case that seems to escape logic is Russia, which already aligns with China but still registers extreme exposure to Chinese power. On the surface, Russia’s alignment with Beijing is unambiguous — the “no limits” partnership declared by Xi and Putin in February 2022<sup>37</sup> is a public posture both governments have strategic reasons to maintain. But in reality, longstanding tensions persist: the legacy of the 1969 Sino-Soviet border conflict, Russian anxiety about Chinese migration into the sparsely populated Russian Far East and Siberia, as well as ongoing competition for influence across Central Asia and the Arctic continue to shape calculations on both sides.<sup>38</sup> What’s more, Chinese power does not accumulate through Beijing’s efforts alone — target countries’ agency matters too. States may choose to embrace Chinese ties when the alternative is worse; for Russia, Western sanctions and diplomatic isolation following the 2022 invasion of Ukraine have turned

<sup>37</sup> On 4 February 2022, during the Beijing Winter Olympics and three weeks before Russia’s full-scale invasion of Ukraine, Xi Jinping and Vladimir Putin issued a joint statement asserting that the two countries’ friendship had “no limits.” See “Joint Statement of the Russian Federation and the People’s Republic of China on the International Relations Entering a New Era and the Global Sustainable Development,” President of Russia, 4 February 2022, <https://en.kremlin.ru/supplement/5770>.

<sup>38</sup> For a synthetic treatment of convergence and friction in the Sino-Russian relationship — including the legacy of the 1969 Sino-Soviet border conflict, Russian anxieties about Chinese migration into the Russian Far East, and frictions in Central Asia — see Ivanov, Philipp, “Together and Apart: The Conundrum of the China-Russia Partnership,” *Asia Society Policy Institute, Center for China Analysis*, 23 October 2023, <https://asiasociety.org/policy-institute/together-and-apart-conundrum-china-russia-partnership>.

deepening ties with Beijing from a choice into a necessity.<sup>39</sup> Russia's 0.67-point rise in the CEI over the past decade equals roughly three-quarters of a standard deviation in 2025's global distribution — enough to move it from the ninth most exposed country in the world in 2013 to the second most exposed today.

Figure 5 disaggregates European China exposure scores by sub-region and maps their geographic distribution.<sup>40</sup> Sub-regional means range from 0.40 in Northern Europe and 0.54 in Southern Europe to 0.85 in Western Europe and 1.00 in Eastern Europe. The roughly 0.6 standard-deviation gap between Eastern and Northern Europe (e.g., the Scandinavian countries) is the largest between any two sub-regions and the most substantively meaningful, equivalent to a difference of about 29 percentile points in global ranking. Eastern Europe and Southern Europe are closer together, separated by a gap of about 0.45 standard deviations — roughly 17 percentile points. Eastern Europe and Western Europe, by contrast, are very similar: the gap is only about 0.1 standard deviations, or roughly 5 percentile points. In 2025, the European continental heartland is characterized by high exposure to Chinese power, in sharp contrast with the Baltic and Scandinavian states.

In Europe, there are also meaningful intra-regional differences when it comes to exposure to Chinese power. The 2025 distribution of China exposure scores in Southern Europe is quite dispersed — Spain (2.12) and Italy (1.74) at the high end, Andorra (−1.18) near or below zero — spanning the full range from highly to less exposed within a single sub-region. Northern Europe's distribution is characterized by the UK outlier (2.42): most countries cluster modestly above zero, with the UK pulling the right tail sharply upward. Western Europe, on the other hand, has Germany (2.62) and France (2.54) forming the upper tail, and Liechtenstein (−0.56) and Monaco (−1.17) forming the lower tail — no other country sits close to those tails; Belgium (1.71), the third most exposed country in Western Europe, is nearly a full point behind Germany/France, and Switzerland (−0.31), which ranks immediately above Liechtenstein, is well short of Liechtenstein/Monaco. Eastern Europe is the most homogeneous sub-region, with countries tightly clustered around a high average exposure (1.00), with Russia (2.73) leading the pack, followed by Belarus (1.44), Ukraine (1.34), and Hungary (1.30), with Moldova (−0.38), the lone country below zero, as the sole outlier on the other end. These cross-sectional rankings, however, are a snapshot. To understand whether Chinese power is expanding or contracting — and where — we need to examine trajectories over time.

---

<sup>39</sup> On Russia's post-2022 economic pivot to China as a product of Western sanctions rather than strategic preference, see, e.g., Gabuev, Alexander, "With Putin in Charge, Russia's Vassalage to China Will Only Deepen," *Carnegie Politika*, 8 September 2025, <https://carnegieendowment.org/russia-eurasia/politika/2025/09/russia-china-meeting-results>.

<sup>40</sup> Regional coding is based on the United Nations Statistics Division's M49 geoscheme, with Cyprus, Turkey, and Kosovo included for this Europe edition. The 45-case regional roster comprises: Northern Europe — Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, and the United Kingdom; Western Europe — Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, the Netherlands, and Switzerland; Eastern Europe — Belarus, Bulgaria, Czechia, Hungary, Moldova, Poland, Romania, Russia, Slovakia, and Ukraine; Southern Europe — Albania, Andorra, Bosnia and Herzegovina, Croatia, Cyprus, Greece, Italy, Kosovo, Malta, Montenegro, North Macedonia, Portugal, Serbia, Slovenia, Spain, and Turkey. The Holy See and San Marino are excluded.

## 5. Changes in CEI Ranking Across Europe

Tables 3 and 4 present CEI trajectories for all 44 European countries from 2013 to 2025, sorted by magnitude of change. As a region, Europe's China exposure scores over the period rise by 0.24 (from 0.44 to 0.68), below the global rise of 0.47 (from 0.02 to 0.49). Against this backdrop of a moderate regional gain, six countries where exposure to Chinese power has risen fastest stand out: Bosnia and Herzegovina (+1.03), Czechia (+0.92), Ireland (+0.89), the Netherlands (+0.71), Greece (+0.69), and Portugal (+0.66). Among these six cases of large increases in exposure, Chinese FDI is often central.

Bosnia and Herzegovina records the largest increase in Chinese exposure of any European country, with its score surging by 1.03 points between 2013 and 2025 (Europe: from #41 to #26; World: from #138 to #101). This steep ascent is structurally underpinned by a rising import share (growing from 3.4 percent of GDP in 2013 to 5.7 percent in 2025), an expanding soft-power footprint that grew from zero to two Confucius Institutes between 2013 and 2017 and a steady influx of new foreign direct investment. While Chinese FDI represented zero percent of Bosnian GDP in 2013, the position began steadily climbing in 2018 and peaked at 0.26 percent of GDP in 2024 (representing an absolute inward position of approximately \$77.8 million). This expanding exposure is concentrated in BRI infrastructure projects. Chinese state-owned enterprises have systematically targeted local energy and transport sectors, financing sweeping highway networks and a 103-million-euro hospital in Republika Srpska (one of the two political regions within Bosnia and Herzegovina), alongside renewable ventures like the 500-million-euro Livno solar park.<sup>41</sup>

Czechia records the second-largest increase in Chinese exposure of any European country, with its score climbing from -0.34 in 2013 to 0.58 in 2025 (Europe: from #39 to #22; World: from #119 to #70). This ascent is driven by broad-based increases across multiple indicators. Chinese foreign direct investment — which was functionally non-existent in 2013 — grew to represent 0.27 percent of Czech GDP by 2025. Simultaneously, Chinese imports nearly doubled from 3.9 percent of GDP to 7.3 percent over the same period (after peaking at 10.4 percent in 2022). Soft-power channels also expanded, with the country adding a second Confucius Institute in 2018 and maintaining both through 2025. These developments reflect a deeply embedded structural footprint that was largely cultivated during the pro-Beijing administration of former President Miloš Zeman (2013-2023).

---

<sup>41</sup> "China's Multi-Vector Engagement in Bosnia and Herzegovina," *CHOICE (China Observers in Central and Eastern Europe)*, 11 March 2026.

**Table 3. Trajectories: Western and Southern Europe (2013-2025)**

All countries | Sorted by  $\Delta$  (2013→2025), biggest gainers at top

| Country                | EU Rank<br>25 $\Delta$ | World Rank<br>25 $\Delta$ | Change<br>$\Delta$ | China<br>exposure | Exports /<br>GDP | Imports /<br>GDP | FDI to<br>China /<br>GDP | FDI from<br>China+HK /<br>GDP | Aid /<br>GDP | Arms from<br>China (0/1) | Confucius<br>Institutes | Giant<br>Pandas |
|------------------------|------------------------|---------------------------|--------------------|-------------------|------------------|------------------|--------------------------|-------------------------------|--------------|--------------------------|-------------------------|-----------------|
| <b>Western Europe</b>  |                        |                           |                    |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Netherlands            | 8 <b>+5</b>            | 20 <b>+14</b>             | <b>+0.71</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Belgium                | 7 <b>+2</b>            | 18 <b>+7</b>              | <b>+0.64</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Liechtenstein          | 42 <b>+2</b>           | 170 <b>-2</b>             | <b>+0.62</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Germany                | 2 <b>+2</b>            | 3 <b>+7</b>               | <b>+0.59</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Luxembourg             | 32 <b>+0</b>           | 135 <b>-46</b>            | <b>+0.07</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| France                 | 3 <b>-1</b>            | 6 <b>-2</b>               | <b>+0.02</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Monaco                 | 43 <b>+0</b>           | 177 <b>-10</b>            | <b>+0.01</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Austria                | 12 <b>-5</b>           | 31 <b>-11</b>             | <b>-0.02</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Switzerland            | 40 <b>-13</b>          | 162 <b>-81</b>            | <b>-0.40</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| <b>Southern Europe</b> |                        |                           |                    |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Bosnia                 | 26 <b>+15</b>          | 101 <b>+37</b>            | <b>+1.03</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Greece                 | 19 <b>+5</b>           | 50 <b>+23</b>             | <b>+0.69</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Portugal               | 14 <b>+6</b>           | 41 <b>+18</b>             | <b>+0.66</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Serbia                 | 15 <b>+3</b>           | 42 <b>+12</b>             | <b>+0.60</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Albania                | 35 <b>+5</b>           | 140 <b>-11</b>            | <b>+0.47</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Slovenia               | 25 <b>+8</b>           | 94 <b>-2</b>              | <b>+0.46</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Montenegro             | 28 <b>+9</b>           | 112 <b>-6</b>             | <b>+0.42</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Cyprus                 | 23 <b>+7</b>           | 89 <b>-2</b>              | <b>+0.40</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Italy                  | 6 <b>+0</b>            | 17 <b>+1</b>              | <b>+0.38</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Spain                  | 5 <b>+0</b>            | 12 <b>+0</b>              | <b>+0.30</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| N. Macedonia           | 27 <b>-4</b>           | 111 <b>-39</b>            | <b>+0.11</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Croatia                | 36 <b>-2</b>           | 141 <b>-46</b>            | <b>+0.05</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Andorra                | 44 <b>-2</b>           | 179 <b>-13</b>            | <b>-0.00</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Turkey                 | 18 <b>-7</b>           | 48 <b>-17</b>             | <b>-0.01</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Malta                  | 33 <b>-12</b>          | 136 <b>-73</b>            | <b>-0.24</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |

Pink = increase; grey = decrease or no change. Each sparkline is scaled to its own minimum and maximum over 2013-2025, so the traces show direction and timing, not size; heights are not comparable between cells. Note: Military Coercion Exposure and ROC Recognition excluded as they remain constant or are less relevant for these cases. Giant Pandas is the number of pandas hosted. Europe is the World Bank's "Europe & Central Asia" region less Central Asia and the South Caucasus, plus Malta; Kosovo is absent from the source panel. Data: Exports/Imports – IMF IMTS | FDI to China and FDI from China+HK – IMF DIP | Aid – AidData CLG-Global | Arms Sales – SIPRI | Confucius Institutes – AidData CPD + CIEF directory + DigMandarin | Giant Pandas – Ng, Vu & Tan (2018) + Giant Panda Global.

However, Czechia's overall China exposure score actually peaked at 0.73 in 2023 before contracting to 0.58 by 2025 (Europe: from #21 to #22; World: from #64 to #70). This recent structural dip reflects the material impact of the aggressive de-risking agenda championed by former Prime Minister Petr Fiala's government (2021–2025). Driven by controversies over failed Chinese investments and Beijing's tacit support for Russia's invasion of Ukraine, the Fiala administration temporarily transformed Czechia into one of the EU's leading hawks on economic security.<sup>42</sup>

<sup>42</sup> Fehér, Zoltán, "Czechia's policy on China: Swinging between engagement and de-risking," *Atlantic Council*, 10 November 2025, last accessed on September 4, 2026, <https://www.atlanticcouncil.org/in-depth-research-reports/report/czechias-policy-on-china-swinging-between-partnership-and-de-risking/>.

Ireland records the largest exposure gain in Northern Europe and the third-largest across the entire continent, with its score surging by 0.89 points between 2013 and 2025. This rapid structural accumulation vaulted the country 49 places up the world index (Europe: from #38 to #21; World: from #107 to #58). A closer look at the past five years reveals that Ireland's integration peaked in 2020 — when it stood at Europe: #16 and World: #38, with an exposure score of 1.10 — before undergoing a mild cooling phase.

Ireland's trajectory has been driven by a massive influx of Chinese foreign direct investment. While Chinese FDI was statistically non-existent in 2013, the position skyrocketed to represent roughly 4.6 percent of Ireland's GDP by 2020, before stabilizing at 2.7 percent (representing an absolute inward stock of approximately \$19.4 billion) by 2025. Ireland has firmly established itself as a preferred destination for Chinese tech and pharmaceutical firms seeking institutional access to the EU market, drawing heavily on the country's low corporate tax rate and permissive regulatory environment as a strategic beachhead. Notable anchor investments driving this structural shift include WuXi Biologics' 325-million-euro greenfield manufacturing plant in Dundalk — its first site outside of China — and the opening of TikTok's first European data center in Dublin.<sup>43</sup>

The Netherlands records the fourth-largest overall exposure gain in Europe (+0.71), climbing over the period (Europe: from #13 to #8; World: from #34 to #20). However, its trajectory is volatile. The panel data show the country's exposure score hit a high of 2.03 in 2020 but has contracted every year since, settling at 1.57 in 2025. This dramatic boom and bust is heavily concentrated in the country's recorded foreign direct investment, which surged from 2.9 percent of Dutch GDP in 2013 to a staggering 12.2 percent in 2019, before collapsing back to 4.1 percent in 2025.

This volatility is driven by two primary factors. First, some of the volume may be inflated by offshore capital routing, as Chinese funds pass through Dutch holding companies for tax optimization rather than funding physical infrastructure.<sup>44</sup> Second, Chinese FDI is sensitive to geopolitical concerns. In 2018, the Chinese firm Wingtech acquired the Dutch semiconductor manufacturer Nexperia for roughly \$3.6 billion. Today, that flagship investment is no longer under Chinese operational control. In late 2025, the Dutch government intervened on economic security grounds, invoking the *Wet Beschikbaarheid Goederen* ("Goods Availability Act") to take governance control of Nexperia, citing governance shortcomings at the company and the continuity of semiconductor supply. The government's framing does not name China as the destination of feared intellectual property and production transfers, though that is the common reading of the intervention.<sup>45</sup>

---

<sup>43</sup> WuXi Biologics announced a 325 million euros investment in a greenfield biologics manufacturing facility in Dundalk on 30 April 2018 — the company's first manufacturing site outside China. IDA Ireland describes the facility as "the world's largest facility using single-use bioreactors"; it makes no claim about the investment's rank among Chinese greenfield projects in Europe. See "Find out why WuXi Biologics chose Ireland," *IDA Ireland*, <https://www.idaireland.com/success-stories/wuxibiologics>, last accessed on September 2, 2026. On TikTok's European data operations, see Moss, Sebastian, "TikTok opens data center in Dublin, Ireland," *Data Center Dynamics*, 6 September 2023, last accessed on September 2, 2026, <https://www.datacenterdynamics.com/en/news/tiktok-opens-data-center-in-dublin-ireland/>.

<sup>44</sup> Official balance-of-payments statistics frequently inflate the Netherlands' true exposure due to this heavy reliance on Special Purpose Entities (SPEs). See Damgaard, Elkjaer and Johannesen, "What Is Real and What Is Not in the Global FDI Network?," cited in note 33.

<sup>45</sup> García-Herrero, Alicia et al., "The Nexperia crisis: a wake-up call for Europe's approach to Chinese investment," *Bruegel*, 23 December 2025. Following the Dutch government's invocation of the Goods Availability Act in October

Nonetheless, beyond these fluctuations, the Netherlands retains a substantial level of economic exposure. Imports from China rose from 8.0 percent of GDP in 2013 to a peak of 13.9 percent in 2022 before falling back to 9.6 percent in 2025 — the same boom-and-bust shape as the FDI series — and still represent the second-highest import dependency in Europe (behind only Slovenia). Chinese capital is also embedded in the port infrastructure that handles this trade: in 2016, COSCO Pacific bought a 35 percent stake in the Port of Rotterdam’s Euromax container terminal from Hutchison Port Holdings for 41.4 million euros. That stake later passed to Navigator Investco, the investment holding company created by COSCO’s 2021 internal restructuring, through which China’s Silk Road Fund — a state-owned sovereign wealth fund — holds an interest.<sup>46</sup>

In Portugal’s case, China stepped in as a strategic investor during the 2011 sovereign debt crisis, when European and American capital was scarce, acquiring major stakes in Portugal’s energy sector through the state-owned China Three Gorges Corporation.<sup>47</sup> The recorded inward Chinese direct-investment position in Portugal has grown roughly 35-fold since 2013, from \$0.2 billion to \$6.9 billion.

Greece’s rising China exposure score also coincided with substantial Chinese investment: in the signed article Xi Jinping published in the Greek daily paper *Kathimerini* on the eve of his November 2019 state visit, he described the COSCO-operated port of Piraeus as the “head of the dragon” (龙头) of China-Greece cooperation.<sup>48</sup> Greece’s recorded inward direct-investment position from China rose from 0.20 percent of GDP in 2013 to a peak of 1.37 percent in 2024, with brief dips in 2015 and 2021, easing to 1.25 percent in 2025. Import dependence grew over the same period, from 1.1 to 2.6 percent of GDP, Confucius Institutes quadrupled from one to four and Greece’s China exposure score rose from 0.16 to 0.85 (Europe: from #24 to #19; World: from #73 to #50).

---

2025, the Dongguan Intermediate People’s Court ordered the freeze of Nexperia’s mainland assets in August 2026 amid ongoing retaliatory litigation.

<sup>46</sup> “Cosco Pacific Buys Stake in Euromax Terminal in Rotterdam,” *Offshore Energy*, 12 May 2016. On the 2021 internal restructuring involving the Silk Road Fund, see Si, Katherine, “Cosco sells stake in Euromax Terminal to investment arm,” *Seatrade Maritime News*, 21 October 2021.

<sup>47</sup> China Three Gorges Corporation acquired a 21.35 percent stake in Energias de Portugal (EDP) in 2011 for 2.69 billion euros during Portugal’s sovereign debt crisis. See EDP, “8th Privatisation Phase,” <https://edp.com/en/investors/8th-privatisation-phase>, recording the Council of Ministers’ selection of China Three Gorges on 22 December 2011 to acquire 780,633,782 shares (21.35 percent) at 3.45 euro per share, with completion on 11 May 2012; subsequent investment figures drawn from the author’s dataset.

<sup>48</sup> Jinping, Xi, “Let Wisdom of Ancient Civilizations Shine Through the Future,” signed article published in *Kathimerini*, 10 November 2019, State Council Gazette No. 33, [https://www.gov.cn/gongbao/content/2019/content\\_5456800.htm](https://www.gov.cn/gongbao/content/2019/content_5456800.htm); [https://www.xinhuanet.com/english/2019-11/10/c\\_138543746.htm](https://www.xinhuanet.com/english/2019-11/10/c_138543746.htm); “Xi Jinping and Prime Minister Kyriakos Mitsotakis of Greece Visit the Piraeus Port of China Ocean Shipping Company (COSCO),” *Ministry of Foreign Affairs of the People’s Republic of China*, 11 November 2019, [https://www.mfa.gov.cn/eng/zy/jj/2019zt/xjpfwxcxjz/202406/t20240606\\_11379450.html](https://www.mfa.gov.cn/eng/zy/jj/2019zt/xjpfwxcxjz/202406/t20240606_11379450.html). The Chinese text reads “以比雷埃夫斯港口项目为龙头”; the Greek text published in *Kathimerini* rendered 龙头 literally as «το κεφάλι του δράκου», while Beijing’s own English translation gives “flagship project.” See “Let Wisdom of Ancient Civilizations Shine Through the Future,” [https://english.scio.gov.cn/topnews/2019-11/11/content\\_75394771.htm](https://english.scio.gov.cn/topnews/2019-11/11/content_75394771.htm). On the phrase and its earlier use by China’s ambassador in Athens from 2016, see Stroikos, Dimitrios, 2023, “‘Head of the Dragon’ or ‘Trojan Horse’?: Reassessing China–Greece Relations,” *Journal of Contemporary China* 32, no. 142, pp.1–17.

**Table 4. Trajectories: Northern and Eastern Europe (2013-2025)**

All countries | Sorted by  $\Delta$  (2013→2025), biggest gainers at top

| Country                | EU Rank<br>25 $\Delta$ | World Rank<br>25 $\Delta$ | Change<br>$\Delta$ | China<br>exposure | Exports /<br>GDP | Imports /<br>GDP | FDI to<br>China /<br>GDP | FDI from<br>China+HK /<br>GDP | Aid /<br>GDP | Arms from<br>China (0/1) | Confucius<br>Institutes | Giant<br>Pandas |
|------------------------|------------------------|---------------------------|--------------------|-------------------|------------------|------------------|--------------------------|-------------------------------|--------------|--------------------------|-------------------------|-----------------|
| <b>Northern Europe</b> |                        |                           |                    |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Ireland                | 21 <b>+17</b>          | 58 <b>+49</b>             | <b>+0.89</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Denmark                | 13 <b>+4</b>           | 37 <b>+9</b>              | <b>+0.51</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Lithuania              | 34 <b>+1</b>           | 138 <b>-41</b>            | <b>+0.14</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Latvia                 | 30 <b>+1</b>           | 133 <b>-45</b>            | <b>+0.09</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Finland                | 37 <b>-1</b>           | 153 <b>-55</b>            | <b>+0.02</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Estonia                | 29 <b>-4</b>           | 128 <b>-52</b>            | <b>+0.01</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Iceland                | 31 <b>-3</b>           | 134 <b>-52</b>            | <b>-0.01</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Norway                 | 38 <b>-9</b>           | 156 <b>-72</b>            | <b>-0.25</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| UK                     | 4 <b>-3</b>            | 7 <b>-5</b>               | <b>-0.41</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Sweden                 | 39 <b>-23</b>          | 159 <b>-121</b>           | <b>-0.93</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| <b>Eastern Europe</b>  |                        |                           |                    |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Czechia                | 22 <b>+17</b>          | 70 <b>+49</b>             | <b>+0.92</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Russia                 | 1 <b>+2</b>            | 2 <b>+7</b>               | <b>+0.67</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Belarus                | 9 <b>+6</b>            | 24 <b>+13</b>             | <b>+0.67</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Slovakia               | 20 <b>-1</b>           | 54 <b>+3</b>              | <b>+0.37</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Hungary                | 11 <b>-1</b>           | 30 <b>-2</b>              | <b>+0.36</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Bulgaria               | 24 <b>-2</b>           | 93 <b>-23</b>             | <b>+0.25</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Ukraine                | 10 <b>-2</b>           | 28 <b>-5</b>              | <b>+0.12</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Poland                 | 17 <b>-3</b>           | 46 <b>-11</b>             | <b>+0.06</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Romania                | 16 <b>-4</b>           | 45 <b>-13</b>             | <b>+0.04</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |
| Moldova                | 41 <b>-15</b>          | 166 <b>-86</b>            | <b>-0.47</b>       |                   |                  |                  |                          |                               |              |                          |                         |                 |

Pink = increase; grey = decrease or no change. Each sparkline is scaled to its own minimum and maximum over 2013-2025, so the traces show direction and timing, not size; heights are not comparable between cells. Note: Military Coercion Exposure and ROC Recognition excluded as they remain constant or are less relevant for these cases. Giant Pandas is the number of pandas hosted. Europe is the World Bank's "Europe & Central Asia" region less Central Asia and the South Caucasus, plus Malta; Kosovo is absent from the source panel. Data: Exports/Imports – IMF IMTS | FDI to China and FDI from China+HK – IMF DIP | Aid – AidData CLG-Global | Arms Sales – SIPRI | Confucius Institutes – AidData CPD + CIEF directory + DigMandarin | Giant Pandas – Ng, Vu & Tan (2018) + Giant Panda Global.

A few European countries experienced substantive declines in Chinese exposure from 2013 to 2025. Sweden (–0.93) records the largest decline in China exposure score of any European country, falling from 0.71 in 2013 to –0.21 in 2025 (Europe: from #16 to #39; World: from #38 to #159) and moving out of the moderately exposed group into the least exposed quarter of the world distribution. The decline in Sweden's China exposure scores is associated with changing Sino-Swedish economic relations; Chinese FDI has been declining since 2018, and exports since 2019. This coincides with Sweden closing its last Confucius Institute in January 2020 and its last Confucius Classroom (the primary and secondary school-level counterpart to Confucius Institutes) that spring, becoming the first European country to shut all Confucius Institute related organizations.<sup>49</sup>

<sup>49</sup> Sundqvist, Gustav and Jerdén, Björn, 2024, "Paradiplomacy and International Conflict: Disengagement from China by Swedish Local Governments," *Asia Europe Journal* 22, no. 3, pp. 313–332. On Sweden as the first European state to close all of its Confucius Institutes and Confucius Classrooms, see "Sweden shuts last Confucius Institute as war of words intensifies," *Taipei Times*, 6 May 2020, <https://www.taipeitimes.com/News/lang/archives/2020/05/06/2003735875>; "Sweden has closed all Confucius Institutes and Classrooms," *Scandasia*, 20 May 2020, <https://scandasia.com/sweden-has-closed-all-confucius-institutes-and-classrooms/>; and Gil, Jeffrey, 2022,

Moldova records Europe's second-steepest decline in Chinese exposure, driven by failed infrastructure projects and a decisive Western pivot. A \$400 million road agreement signed in 2019 saw no construction by 2024, and net Chinese FDI has remained negative since 2020.<sup>50</sup> Moldovan exports to China also collapsed — falling from 0.20 percent of GDP in 2017 to 0.04 percent in 2025 — largely due to a shrinking Chinese wine market hitting Moldova's primary agricultural export. Simultaneously, Chisinau turned towards Brussels. Moldova opened EU accession negotiations in June 2024, backed by a 1.8-billion-euro Growth Plan dwarfing Beijing's stalled proposals.<sup>51</sup> While Chinese imports rose from 5.0 to 7.3 percent of GDP, import/GDP is a weaker indicator of exposure to Chinese power (see Section 6). Consequently, Moldova's exposure score plummeted from 0.09 to -0.38 (Europe: from #26 to #41; World: from #80 to #166) — the sharpest European contraction besides Sweden.

The UK records the third-largest decline in Chinese exposure, falling 0.41 points from 2.83 in 2013 to 2.42 in 2025 (Europe: from #1 to #4; World: from #2 to #7). Although it remains Europe's fourth most exposed country, UK's 2025 ranking marks a retreat from its 2022 peak, when the UK ranked first in both Europe and the world. This downward trajectory tracks a collapse in British exports to China, which fell from 1.10 percent of UK GDP in 2022 to 0.55 percent in 2025 — a 49.4 percent relative decrease, equivalent to a fall from \$34.87 billion to \$22.18 billion. Chinese foreign direct investment followed a longer, shallower decline, easing from 1.19 percent of UK GDP in 2020 to 0.80 percent in 2025 (a 33.0 percent relative decrease). Furthermore, Chinese soft-power engagement with the UK encountered political headwinds. Although the UK still hosts the highest number of Confucius Institutes in the world as of 2025, these centers have triggered intense domestic political scrutiny over academic interference, as we will discuss further in section 6.<sup>52</sup>

The broader cooling of bilateral relations was symbolically cemented in December 2023, when Beijing declined to renew the lease for Edinburgh Zoo's giant pandas. As Kathleen Buckingham et al. have demonstrated, panda diplomacy is not merely about soft power; Chinese panda loans are statistically correlated with nations supplying critical resources

---

"The Fall of Confucius Institutes and Confucius Classrooms?," *Melbourne Asia Review* 11, doi:10.37839/MAR2652-550X11.1, which records Sweden as the only European country to have closed all of both. The last Institute, at Luleå University of Technology, closed in January 2020 following the university's termination of the agreement in November 2019; the last Classroom, at Falkenberg, closed in spring 2020. Stockholm University, which opened Europe's first Confucius Institute in 2005, announced its closure in January 2015 on academic-governance grounds — before Gui Minhai's abduction that October; see "Swedish university closes Europe's 1st Confucius Institute," *ecns.cn*, 13 January 2015, <https://www.ecns.cn/2015/01-13/150445.shtml>.

<sup>50</sup> "Moldova's Unexpected Opening to China," *CHOICE (China Observers in Central and Eastern Europe)*, last accessed on September 4, 2026, <https://chinaobservers.eu/moldovas-unexpected-opening-to-china/>, recording an April 2019 agreement for approximately 300 kilometres of roads estimated at 400 million USD, with construction expected by 2022; "Brussels and/or Beijing? Moldova's opening holds promises and risks," *New Eastern Europe*, 28 February 2025, last accessed on September 4, 2026, <https://neweasterneurope.eu/2025/02/28/brussels-and-or-beijing-moldovas-opening-holds-promises-and-risks/>, recording the project as stalled as of 2024. Investment position figures drawn from the author's dataset: Moldova's combined inward position from China and Hong Kong stood at 1.49 million USD in 2017 and has been negative in every year since 2020, reaching -4.87 million USD in 2024.

<sup>51</sup> "Moldova and the EU," Council of the European Union, last accessed on September 4, 2026, <https://www.consilium.europa.eu/en/policies/moldova/>, recording Moldova's application for membership on 3 March 2022, the European Council's grant of candidate status on 23 June 2022, and the first intergovernmental conference opening accession negotiations on 25 June 2024. On the EU Growth Plan for Moldova and its scale relative to Chinese proposals, see "Brussels and/or Beijing?" cited above.

<sup>52</sup> "Rishi Sunak drops pledge to ban Confucius Institutes," *BBC News*, 17 May 2023, last accessed on September 4, 2026, <https://www.bbc.com/news/uk-politics-65624471>.

or technology to China, serving as a barometer of geopolitical and economic relations.<sup>53</sup> A case in point is the UK's original 2011 panda lease, which was announced during an official visit by then-Vice Premier Li Keqiang and deliberately timed with the signing of £2.6 billion in bilateral trade agreements.<sup>54</sup>

Lastly, Finland's dramatic trajectory deserves unpacking. Although the overall 2013-2025 change in China exposure scores is only 0.02, there were significant ups and downs in its China exposure score during this period. Xi paid a state visit to Helsinki in April 2017, establishing what both sides described as a "future-oriented new-type cooperative partnership."<sup>55</sup> In 2019, the Chinese company Anta Sports acquired Finnish sporting goods firm Amer Sports for 4.6 billion euros, and Finland's CEI rose to 1.44 by 2020, its highest recorded value.<sup>56</sup> The reversal was abrupt: Advanced Persistent Threat 31 (APT31), a Chinese state-sponsored cyberespionage group linked to the Ministry of State Security, compromised Finnish parliamentary email accounts in 2020 in an espionage operation that Finland's security service (*Suojelupoliisi*, or Supo) publicly attributed to the group in 2021, with Finnish criminal charges and parallel US and UK sanctions following in 2024. APT31 targets governments for political, economic and military intelligence, and the attack coincided with Finland's gradual alignment with NATO, which it joined in 2023.<sup>57</sup> By 2025, Finland's China exposure score had fallen back to -0.10, essentially its 2013 level of -0.12 (Europe: from #36 to #37; World: from #98 to #153).

---

<sup>53</sup> Buckingham, Kathleen, David, Jonathan Neil William and Jepson, Paul, 2013, "Diplomats and Refugees: Panda Diplomacy, Soft 'Cuddly' Power, and the New Trajectory in Panda Conservation," *Environmental Practice* 15, no. 3, pp. 262-270.

<sup>54</sup> Stratton, Allegra and Branigan, Tania, "Giant Pandas from China Help Seal New Business Deals with UK," *The Guardian*, 10 January 2011, last accessed on September 4, 2026, <https://www.theguardian.com/world/2011/jan/10/pandas-china-uk-oil-refinery-deal>.

<sup>55</sup> "China, Finland confirm establishment of future-oriented new-type cooperative partnership," *Xinhua*, 5 April 2017, [https://www.xinhuanet.com/english/2017-04/05/c\\_136185070.htm](https://www.xinhuanet.com/english/2017-04/05/c_136185070.htm). See also Ministry of Foreign Affairs of the People's Republic of China, "Xi Jinping Holds Talks with President Sauli Niinisto of Finland," 5 April 2017, [https://www.mfa.gov.cn/eng/zy/jj/2017zt/xjpdfljxgswfbmgflljdxzmyshw/202406/t20240606\\_11380621.html](https://www.mfa.gov.cn/eng/zy/jj/2017zt/xjpdfljxgswfbmgflljdxzmyshw/202406/t20240606_11380621.html).

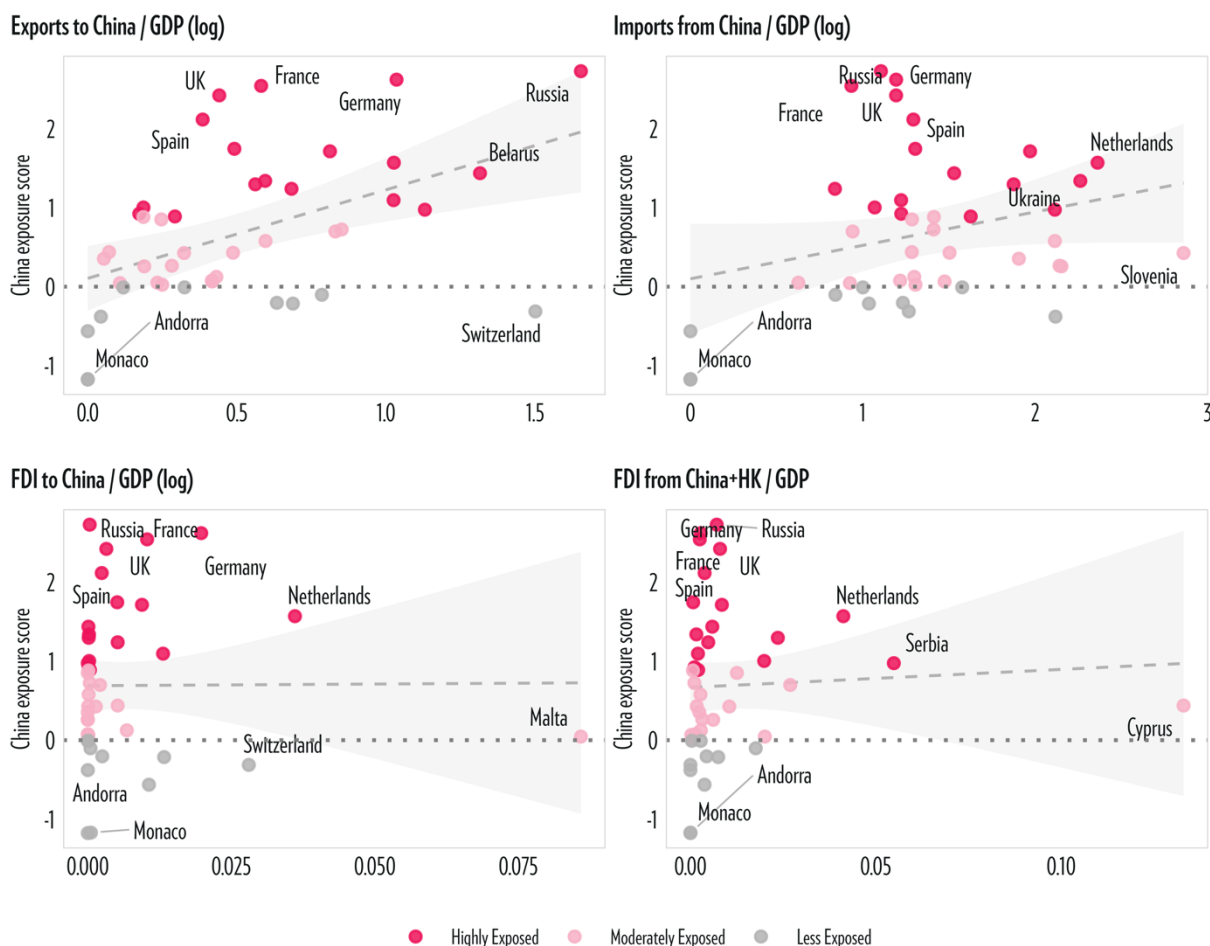
<sup>56</sup> "Chinese Investor Consortium Reaches Agreement To Acquire Amer Sports," *SGB Media*, 7 December 2018, <https://sgbonline.com/chinese-investor-consortium-acquires-amer-sports/>; tender offer completed at 4.6 billion euros (5.23 billion USD) in March 2019. See also Anta Sports investor relations, last accessed on September 2, 2026, [https://ir.anta.com/en/news\\_amer\\_faq.php](https://ir.anta.com/en/news_amer_faq.php).

<sup>57</sup> "Supo identified the cyber espionage operation against the parliament as APT31," *Finnish Security and Intelligence Service (Supo)*, 18 March 2021, last accessed on September 2, 2026, <https://supo.fi/en/-/supo-identified-the-cyber-espionage-operation-against-the-parliament-as-apt31>; Finnish Police (*Poliisi*) formally attributed the 2020-2021 intrusion to APT31 in March 2024. The United States indictment of seven APT31 operatives and related UK sanctions in March 2024 identified the group as operating under cover of Wuhan Xiaoruizhi Science and Technology Company on behalf of China's Ministry of State Security. See "Seven Hackers Associated with Chinese Government Charged with Computer Intrusions Targeting Perceived Critics of China," *US Department of Justice*, 25 March 2024, last accessed on September 2, 2026, <https://www.justice.gov/archives/opa/pr/seven-hackers-associated-chinese-government-charged-computer-intrusions-targeting-perceived>.

## 6. Indicators of Exposure to Chinese Power

**Figure 6. China exposure vs. Selected Economic Indicators – Europe (2025)**

Each panel shows how one indicator relates to the China exposure score across the plotted European countries

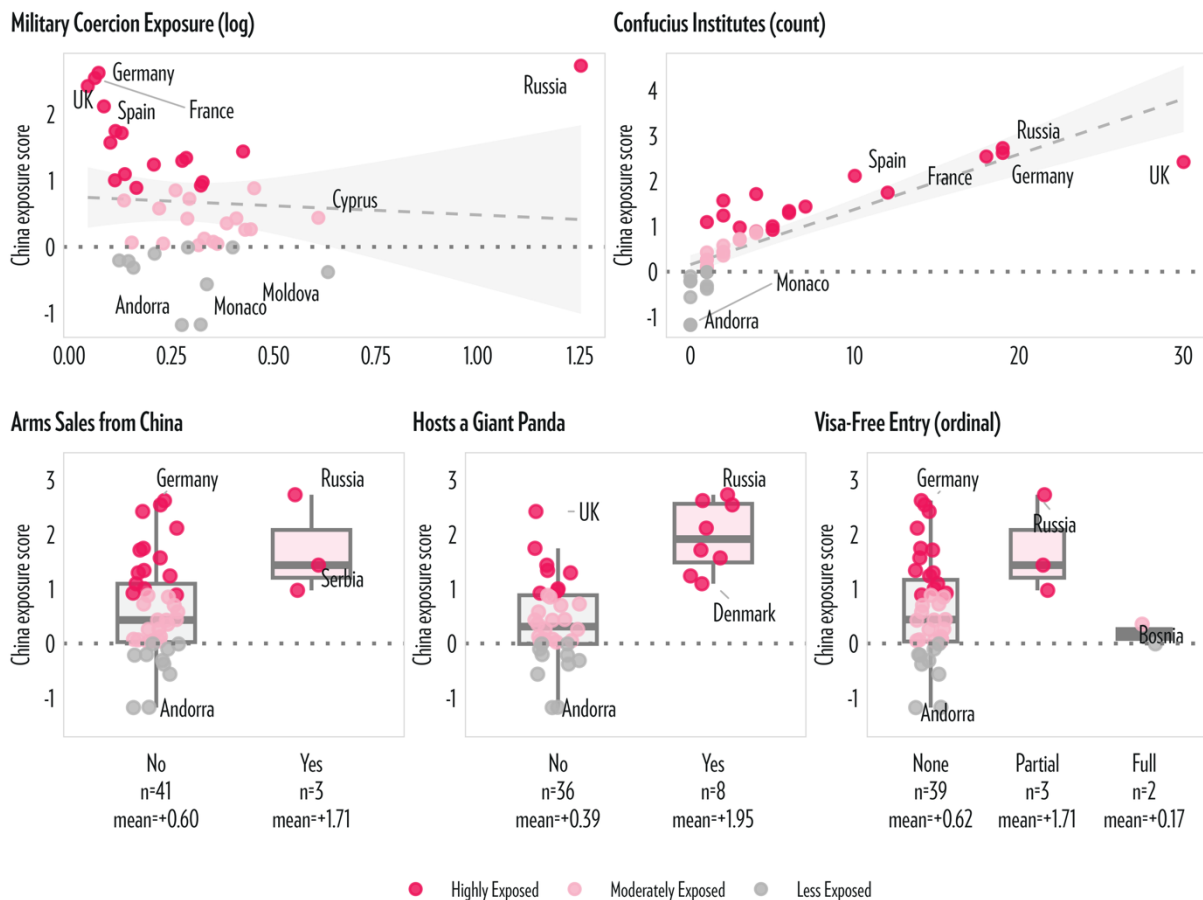


Continuous panels: points with a fitted trend line and its 95% range. Colors indicate exposure tier. Exposure tiers are quartiles of the 2025 global distribution (184 countries): Highly Exposed = top quarter worldwide (score  $\geq 0.89$ ), Moderately Exposed = middle half, Less Exposed = bottom quarter worldwide (score  $< 0.02$ ). Luxembourg is excluded from the two FDI panels as a financial-centre outlier. Europe is the World Bank's "Europe & Central Asia" region less Central Asia and the South Caucasus, plus Malta; Kosovo is absent from the source panel. Data: Exports/Imports – IMF IMTS | FDI to China and FDI from China+HK – IMF DIP.

Overall, from 2013 to 2025, Southern and Eastern Europe saw the most consistent rise in Chinese exposure, whereas Western Europe's trajectory remained mixed. Northern Europe recorded sharp reversals in Sweden and the UK, with Ireland standing out as a notable exception by recording significant gains. Which indicators provide the clearest signals of exposure to Chinese power that can contextualize these developments? Figures 6 and 7 plot nine of the CEI's indicators against China exposure scores for all 44 countries,

**Figure 7. China exposure vs. Military-Political Indicators – Europe (2025)**

Each panel shows how one indicator relates to the China exposure score across the plotted European countries



Continuous panels: points with a fitted trend line and its 95% range. Categorical panels: boxplot + jitter; group n and mean appear below each box. Colors indicate exposure tier. Exposure tiers are quartiles of the 2025 global distribution (184 countries): Highly Exposed = top quarter worldwide (score  $\geq 0.89$ ), Moderately Exposed = middle half, Less Exposed = bottom quarter worldwide (score  $< 0.02$ ). Not shown: ROC Recognition. Europe is the World Bank's "Europe & Central Asia" region less Central Asia and the South Caucasus, plus Malta; Kosovo is absent from the source panel. Data: Military Coercion Exposure – author-constructed (SIPRI + Natural Earth) | Arms Sales – SIPRI | Confucius Institutes – AidData CPD + CIEF directory + DigMandarin | Panda Diplomacy – Ng, Yu & Tan (2018) and Giant Panda Global, extended by the author | ROC Recognition – Rich (2011), extended by the author | Visa-Free Entry – DEMIG VISA, extended by the author.

colored by CEI rank tier (highly exposed, moderately exposed, less exposed).<sup>58</sup> Importantly, these are descriptive bivariate relationships between the indicators and the European sample (not the global sample), and they serve mostly as a graphic overview of the indicators and China exposure scores in the European context.

Some economic indicators show a clear pattern: exports and imports as shares of GDP are positively associated with China exposure scores. Put differently, countries that trade more heavily with China tend to score higher, and are thus more exposed. On the other hand, there is no clear pattern between FDI to China as a percentage of GDP and China exposure scores, while there is only a mildly positive association between Chinese FDI into Europe and China exposure scores. Note the outlier, Cyprus, in the Chinese FDI panel – it functions as a financial hub jurisdiction within the EU, and its recorded FDI

<sup>58</sup> Of the eleven indicators, Figures 6 and 7 omit two. Aid is excluded because AidData's project registration ends in 2023: positive Chinese aid flows fall from 104–144 of 184 country-years per year in 2013–2023 to 28 in 2024 and one (Iraq) in 2025, with no European country recording a positive flow in 2025 (Appendix, Part IV). ROC Recognition is also not shown: only one value is observed among the countries plotted, so no relationship can be drawn.

position partly reflects flows routed through special-purpose entities rather than direct bilateral financial ties with Beijing.

**Table 5. Indicators of the China exposure index: substantive interpretations**

|                            |                                        | Approximate change on the CEI if...                    |                                                             | Among countries 1 SD higher on the model's scale...                 |                  |
|----------------------------|----------------------------------------|--------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------|------------------|
| Indicator                  | Factor loading                         | compared against                                       |                                                             | benchmark                                                           |                  |
| Economic                   |                                        |                                                        |                                                             |                                                                     |                  |
| Exports / GDP              | <div><div></div><div>+0.30</div></div> | +1% of GDP → ≈ +0.08 on the China exposure score       | the same country-year at the median, 0.57% of GDP           | +64.6% more exports to China as share of GDP                        | 1.14% of GDP     |
| Imports / GDP              | <div><div></div><div>+0.16</div></div> | +1% of GDP → ≈ +0.03 on the China exposure score       | the same country-year at the median, 3.51% of GDP           | +22.4% more imports from China as share of GDP                      | 3.54% of GDP     |
| FDI to China / GDP         | -0.00                                  | —                                                      | —                                                           | statistically insignificant                                         | —                |
| FDI from China+HK (binary) | <div><div></div><div>+1.66</div></div> | No → Yes → ≈ +0.55 on the China exposure score         | the same country-year without Chinese FDI                   | +10.7% more likely to receive any Chinese FDI                       | 86%              |
| FDI from China+HK / GDP    | <div><div></div><div>+0.34</div></div> | +1% of GDP → ≈ +0.02 on the China exposure score       | the same country-year at the median recipient, 0.68% of GDP | +40.0% more Chinese FDI received as share of GDP (among recipients) | 0.62% of GDP     |
| Aid (binary)               | <div><div></div><div>+0.55</div></div> | No → Yes → ≈ +0.19 on the China exposure score         | the same country-year without Chinese aid                   | +12.7% more likely to receive any Chinese aid                       | 56%              |
| Aid / GDP                  | -0.83 <div><div></div></div>           | +1% of GDP → ≈ -0.08 on the China exposure score       | the same country-year at the median recipient, 0.10% of GDP | -56.3% less aid received as share of GDP (among recipients)         | 0.08% of GDP     |
| Military-Political         |                                        |                                                        |                                                             |                                                                     |                  |
| Military Coercion Exposure | <div><div></div><div>+0.27</div></div> | +1 unit exposure → ≈ +0.04 on the China exposure score | the same country-year one unit lower                        | +0.27 units more Chinese military coercion exposure                 | 0.81 units       |
| Arms Sales (binary)        | <div><div></div><div>+0.34</div></div> | No → Yes → ≈ +0.12 on the China exposure score         | the same country-year without Chinese arms                  | +4.0% more likely to procure Chinese arms                           | 11%              |
| Confucius Institutes       | <div><div></div><div>+1.12</div></div> | +1 institute → ≈ +0.20 on the China exposure score     | the same country-year at the median, 1 institute            | +2.7 more Confucius Institutes                                      | 1.3 institutes   |
| ROC Recognition (binary)   | -1.78 <div><div></div></div>           | No → Yes → ≈ -0.65 on the China exposure score         | the same country-year not recognising Taiwan                | 2.1% less likely to recognise Taiwan                                | 3%               |
| Panda Diplomacy (binary)   | <div><div></div><div>+2.32</div></div> | No → Yes → ≈ +0.83 on the China exposure score         | the same country-year without a giant panda                 | +14.8% more likely to host a giant panda                            | 2%               |
| Visa-Free Entry (ordinal)  | -0.23 <div><div></div></div>           | category 0 → 1 → ≈ -0.07 on the China exposure score   | the same country-year with no visa-free access              | 0.04 expected category levels lower in visa-free access to China    | category 0 (87%) |

Each row reads one loading in both directions. Among countries 1 SD higher = how country-years one SD higher on the China exposure score differ in that indicator, in its own units. Approximate change on the CEI = the shift in the score implied by the change shown, holding the measurement model fixed; compared against names the reading that change starts from. Benchmark = the level the model fits for that indicator at a score of zero, the 2013 cross-country average. Both are deterministic transformations of the fitted model, not counterfactual predictions. Rows whose 95% credible interval includes zero read statistically insignificant. Appendix, Part VI. Source: IMF IMTS and DIP, AidData (CLG-Global, CPD, institute-level register), SIPRI, CIEF directory, DigMandarin, Giant Panda Global, author-collected.

The military-political indicator panels also reveal a varied picture. The Confucius Institute panel shows the cleanest relationship: a strong positive gradient runs across the distribution, with the UK (30 institutes), Germany and Russia (19 each) and France (18) anchoring the upper tail. This report conceptualizes the number of Confucius Institutes

as a proxy for Chinese penetration of the ‘marketplace of ideas’ in their host countries, not just vehicles of soft power.<sup>59</sup> Unlike independent cultural centers such as Germany’s *Goethe Institut* or the British Council, Confucius Institutes are structurally embedded within their host universities, granting Beijing direct physical and financial leverage over academic institutions. In Germany, the Confucius Institutes at Hannover and Duisburg-Essen canceled a presentation of a critical Xi Jinping biography in 2021 following direct pressure from the Chinese consul general, illustrating how Confucius Institutes can serve as a transmission belt for Chinese state pressure.<sup>60</sup> In 2019, NATO’s Strategic Communications Centre formally assessed that Confucius Institutes enforce China’s guidelines, enabling censorship of sensitive topics — Tibet, Xinjiang (the Chinese region with a large Uyghur population) and Taiwan — on campuses.<sup>61</sup>

In contrast to this positive correlation, exposure to Chinese military coercive capabilities is negatively associated with China exposure scores in the European sample. This finding does not reflect the global relationship — it is an artefact of projecting a globally estimated association onto a geographically restricted sub-sample. The flat or negative slope reflects structural insulation from Chinese military reach by distance; the positive global relationship becomes apparent when the full 184-country panel is considered.

The Arms Sales, Giant Panda and Visa-free Entry panels confirm expected patterns. Countries that have procured Chinese arms score higher on average (1.71 vs. 0.62), although Chinese arms deliveries were only recorded for three European countries in 2025 (Belarus, Russia and Serbia).<sup>62</sup> On the other hand, countries that host giant pandas tend to have higher China exposure scores (1.95 for the hosting group vs. 0.40 for non-hosts).

The Visa-free Entry panel is intriguing. Countries that grant Chinese citizens visa-free entry tend to have higher China exposure scores if the visa-free period is limited to 30 days (1.71), but scores decline when it exceeds 30 days (0.17) — below even the no-visa-free group (0.64). Moderate visa-free access (30 days) might reflect a country’s desire to calibrate its level of people-to-people interactions with China: enough interaction for economic benefits (e.g., from tourism), but not so close as to risk an influx of Chinese nationals into their countries. For more highly exposed countries, limiting visa-free access to 30 days might be a feasible mechanism of resisting Chinese power.<sup>63</sup>

These bivariate plots must be interpreted with caution, for three reasons. First, the association between each indicator and the latent factor is estimated from the full global panel of 184 countries — not from European countries alone. The bivariate slopes therefore do

---

<sup>59</sup> Nye, *Soft Power*. On Chinese soft power specifically, see Repnikova, Maria, 2022, *Chinese Soft Power*, Elements in Global China, Cambridge: Cambridge University Press; and Shambaugh, David, 2015, “China’s Soft-Power Push,” *Foreign Affairs* 94, no. 4.

<sup>60</sup> “Confucius Institute shuts down presentation critical of Xi Jinping at German University,” *Alliance for Securing Democracy, German Marshall Fund*, 22 October 2021, last accessed on September 2, 2026, <https://securingdemocracy.gmfus.org/incident/confucius-institute-shuts-down-presentation-critical-of-xi-jinping-at-german-university>. The cancelled online event concerned Aust, Stefan and Geiges, Adrian, 2021, *Xi Jinping — der mächtigste Mann der Welt*, Munich: Piper.

<sup>61</sup> Pamment, James et al., 2019, *Hybrid Threats: Confucius Institutes*, Riga: NATO Strategic Communications Centre of Excellence, last accessed on September 2, 2026, <https://stratcomcoe.org/publications/hybrid-threats-confucius-institutes/88>. See also MERICS, 2023, *Updating the EU action plan on China: De-risk, engage, coordinate*, Berlin: Mercator Institute for China Studies, last accessed on September 2, 2026, <https://merics.org/en/report/updating-eu-action-plan-china-de-risk-engage-coordinate>.

<sup>62</sup> Historically, Slovakia has also purchased Chinese arms.

<sup>63</sup> For further discussion of how these indicators relate to exposure to Chinese power, see [Appendix, Part III](#).

not directly recover the model's indicator weights; we are projecting a globally estimated relationship onto a geographically restricted subsample. The Military Coercive Exposure panel illustrates this clearly, as discussed above.

Second, a country's China exposure score reflects the joint operation of all 13 components simultaneously — not any single channel in isolation. The top-ranked countries are not simply those with the highest levels of economic integration or the most Confucius Institutes, but those where multiple indicators co-evolve.

Third, the relationships between indicators and China exposure scores are not always linear. Inward FDI positions from China and Hong Kong and official development finance (“aid” in the figures) are modeled as hurdle processes, splitting each relationship into two components: whether a country is in Beijing's investment or aid orbit at all, and the volume conditional on receipt. The bivariate plot conflates these components and obscures the modeled distinction between crossing the zero threshold and changes in positive volume. Confucius Institutes are modeled with a so-called log link under a negative-binomial specification, meaning the model-implied difference associated with each additional institute diminishes as the count grows.

To start identifying which indicators provide the strongest signals, Table 5 presents the weights (factor loadings) from the Bayesian latent factor analysis: the estimated strength and direction of each indicator's association with the underlying China exposure score. A large positive loading means that higher values of the indicator signal higher China exposure scores; a negative loading means that higher values signal lower scores. As discussed earlier, these weights are estimated through simulation rather than *a priori* subjective decisions. They determine how strongly each indicator informs the score and show which signals are most informative in the measurement model.<sup>64</sup> Table 5 also presents the association between each indicator and the China exposure score in concrete units — for example, the score difference associated with exports rising by 1 percent of GDP or with moving from no recorded inward Chinese FDI position to a positive position (technical details are provided in [Appendix, Part VI](#)).<sup>65</sup>

Below, we will focus on discussing indicators that are the most relevant to European policy discussions, relegating discussions of other indicators to future CEI reports. For instance, almost no European countries buy arms from China; therefore, we will not discuss arms transfer below. One of the key indicators associated with 2025 CEI Europe is Chinese FDI. Receiving Chinese FDI carries a loading of +1.66, and each positive-volume component adds a further +0.34. In concrete terms, moving from no recorded Chinese FDI position to a positive one is associated with an approximately +0.55 China exposure score difference — equivalent to moving from the 56th to the 79th percentile globally,

---

<sup>64</sup> Strictly speaking, we cannot compare factor loadings directly since they are associated with different equations and likelihood functions. Furthermore, the factor loadings only tell us about the strength associated with each indicator without its associated noise. A better way of comparing indicators is to look at their expected Fisher information (for the results and how they are computed, see [Appendix, Part VI](#)). We keep our discussion here to factor loadings to simplify the exposition. The top five indicators according to expected Fisher information are: Confucius Institutes, Panda Diplomacy, Chinese FDI, ROC recognition and Exports / GDP.

<sup>65</sup> These quantities are not simply the product of multiplying an indicator's value by its weight — each indicator enters the model through its own equation and functional form. Some are logged, some are binary hurdle processes and some are count models, so the implied score difference depends on where a country sits on the indicator's distribution. For instance, the China exposure score difference associated with moving from zero to one Confucius Institute is larger than that associated with moving from 10 to 11, even though the loading is the same.

measured from the 2025 world average — while each additional 1 percent of GDP in Chinese FDI is associated with a further +0.02.66 The presence of Chinese FDI is associated with substantially higher China exposure scores; it is one of the strongest signals of the presence of Chinese power.

Trade exposure also has positive loadings, though smaller than those for recorded inward Chinese FDI positions. Exports to China as a share of GDP carry a loading of +0.30; an additional 1 percent of GDP in exports is associated with an approximately +0.08 score difference. Imports, in contrast, carry a small loading of ‘only’ +0.16, with an associated difference of roughly +0.03 per additional 1 percent of GDP.

The larger export loading is consistent with historical evidence that reliance on access to the Chinese market can create a concentrated and politically exploitable vulnerability. The clearest European example is Norway. After the Norwegian Nobel Committee awarded the 2010 Nobel Peace Prize to Chinese dissident Liu Xiaobo, Beijing responded by imposing unofficial restrictions on Norwegian salmon imports, collapsing Norway’s market share from 92 percent to 29 percent within three years.<sup>67</sup> China has traditionally wielded market access rather than export restrictions as its preferred instrument of economic coercion. It is only more recently that Beijing has deployed export restrictions, most notably rare earth controls, as a tool of statecraft.<sup>68</sup>

The model assigns Confucius Institutes a large loading of +1.12. On average, one additional Confucius Institute in any given country is associated with a China exposure score difference of about +0.20. Importantly, the association between Confucius Institute and China exposure score is non-linear.<sup>69</sup> Specifically, the marginal contribution of one Confucius Institute to a country’s China exposure score will be higher if that country has no Confucius Institute to begin with. At the same time, the marginal contribution of one Confucius Institute to a country’s China exposure score will be smaller if that country already has ten Confucius Institutes.

Military coercive capacity loads at +0.27; one additional unit of exposure is associated with an approximately +0.04 difference. The positive loading supports the face validity of the index: states more exposed to Chinese military reach are, all else equal, more exposed to Chinese power. In Europe, the indicator has limited discriminating power because it is weighted by geographic distance, leaving most European states structurally insulated,

---

<sup>66</sup> On the recent rebound in Chinese FDI in Europe, see Agatha Kratz, Max J. Zenglein, Andreas Mischer, Gregor Sebastian, and Armand Meyer, *Chinese Investment Rebounds Despite Growing Frictions: Chinese FDI in Europe – 2024 Update* (Berlin and New York: MERICS and Rhodium Group, 2025).

<sup>67</sup> Kolstad, Ivar, 2020 “Too big to fault? Effects of the 2010 Nobel Peace Prize on Norwegian exports to China and foreign policy,” *International Political Science Review*, vol. 41, no. 2, pp. 207–223; “Salmon sales plummet as China punishes Norway,” *The Local (Norway)*, 15 August 2013, <https://www.thelocal.no/20130815/salmon-sales-plummet-as-china-punishes-norway/>. Norway’s market share of salmon exports to China fell from 92 percent in 2010 to 29 percent by the first half of 2013.

<sup>68</sup> On China’s deployment of rare earth export controls as a tool of statecraft, see Ministry of Commerce and General Administration of Customs of the People’s Republic of China, Announcement No. 18 of 2025, “Announcing the Decision to Implement Export Control on Some Medium and Heavy Rare Earth Related Items,” 4 April 2025, last accessed on September 2, 2026, [https://english.mofcom.gov.cn/Policies/AnnouncementsOrders/art/2025/art\\_Odd87cbce7b045bf93fab6ab2faceee.html](https://english.mofcom.gov.cn/Policies/AnnouncementsOrders/art/2025/art_Odd87cbce7b045bf93fab6ab2faceee.html); Baskaran, Gracelin and Schwartz, Meredith, “The Consequences of China’s New Rare Earths Export Restrictions,” *Center for Strategic and International Studies*, 14 April 2025, <https://www.csis.org/analysis/consequences-chinas-new-rare-earths-export-restrictions>; and Combs, Cory J., “Security Holism: Strength through Diversification, Upstream and Downstream,” testimony before the US-China Economic and Security Review Commission, 24 April 2025.

<sup>69</sup> The model uses a log link, so the model-implied difference is larger near the bottom of the count distribution.

with Russia as the notable exception. In the Indo-Pacific, Beijing's military coercive capacity is more consequential.

Below, using the UK as an example, we illustrate how two of the most consequential CEI indicators with clear policy implications are associated with Chinese power: Chinese FDI and Confucius Institutes. In the UK, the recorded inward position from China and Hong Kong amounted to 0.80 percent of GDP in 2025 — \$31.96 billion, or about £23.6 billion — thirteenth in Europe. While the 2025 number is only moderately high, China has invested in a number of high-profile assets: China Investment Corporation (CIC, China's sovereign wealth fund), for instance, owns 10 percent of Heathrow Airport, and its direct-investment arm, CIC Capital, was part of the consortium that bought National Grid's gas distribution business — now called Cadent — in 2017.<sup>70</sup>

Andrew Mountbatten-Windsor's Pitch@Palace China initiative — a program connecting Chinese investors with British entrepreneurs — illustrates how Chinese financial statecraft operates in the UK. The initiative's co-founder, Yang Tengbo, developed what a UK tribunal described as an “unusual degree of trust” with the UK's former prince and was authorized to act on Mountbatten's behalf in meetings with potential Chinese investors. Yang was excluded from the UK on national security grounds in 2023, on the advice of MI5; the Special Immigration Appeals Commission upheld the exclusion in December 2024. The tribunal found that Andrew was “prepared to enter into business activities” with Yang and that his position “could make him vulnerable to the misuse of that sort of influence.”<sup>71</sup> The case illustrates the risks of “red capital” (Chinese financial investment): a Chinese national with alleged links to the Chinese Communist Party's United Front Work Department (UFW) used a royal patronage network to forge access to the British establishment at its highest levels.<sup>72</sup>

In its 2023 China report, the UK's Intelligence and Security Committee (ISC) sounded the alarm with unusual directness.<sup>73</sup> It found that “[Chinese] overt acquisition routes have been welcomed by HMG [His Majesty's Government] for economic reasons, regardless of the risks to national security,” that “the threat to future prosperity and

---

<sup>70</sup> “About Heathrow,” Heathrow Airport Holdings, last accessed on September 4, 2026, <https://www.heathrow.com/company/about-heathrow>; “Group structure,” Cadent Gas, last accessed on September 4, 2026, <https://cadentgas.com/group-structure>. CIC holds 10.00 percent of Heathrow Airport Holdings. CIC Capital Corporation was one of seven consortium members that acquired 61 percent of National Grid's gas distribution business in 2017, rebranded Cadent; National Grid sold its remaining 39 percent in June 2019. Individual shareholdings in Cadent are not publicly disclosed.

<sup>71</sup> *H6 v. Secretary of State for the Home Department*, Special Immigration Appeals Commission (SIAC) judgment, 12 December 2024, <https://www.judiciary.uk/wp-content/uploads/2024/12/H6-v-SSHD-OPEN-Judgment-final-for-hand-down-FINAL.pdf>. The anonymity order protecting Yang Tengbo's identity was lifted on 16 December 2024. See Picheta, Rob, “Yang Tengbo: British court names alleged Chinese spy who forged close ties to Prince Andrew,” *CNN*, 16 December 2024, last accessed on April 17, 2026, <https://www.cnn.com/2024/12/16/uk/yang-tengbo-uk-china-alleged-spy-court-gbr-intl/index.html>.

<sup>72</sup> On the United Front Work Department and its role in the CCP's overseas influence operations, see Brady, Anne-Marie, “Magic Weapons: China's Political Influence Activities Under Xi Jinping,” *Wilson Center*, 18 September 2017, last accessed on September 2, 2026, <https://www.wilsoncenter.org/article/magic-weapons-chinas-political-influence-activities-under-xi-jinping>; Joske, Alex, 2020, *The Party Speaks for You: Foreign Interference and the Chinese Communist Party's United Front System*, Policy Brief Report No. 32, Canberra: Australian Strategic Policy Institute.

<sup>73</sup> Intelligence and Security Committee of Parliament, *China*, HC 1605, 13 July 2023, last accessed on 13 August 2026, <https://isc.independent.gov.uk/wp-content/uploads/2023/07/ISC-China.pdf>. The finding that Chinese money was readily accepted appears at paragraph 9 (pp. 2); the finding on Academia at paragraph 10 (pp. 3). The findings that overt acquisition routes were welcomed regardless of the risks to national security, and that the threat to future prosperity and independence was discounted in favour of current investment, form a single sentence in Conclusion CCC, reproduced in Annex B and in the Committee's press release of 13 July 2023.

independence was discounted in favour of current investment” and that “Chinese money was readily accepted by HMG with few questions asked.” In evidence to the ISC, Lord Patten warned that Beijing regards the UK as “an economic opportunity” and exploits the legacy of the “Golden Age” of Sino-British relations to get London “corralled into doing the sort of things they would like us to do” — what he termed “elite capture.” The ISC’s account describes how Chinese financial muscle may translate into power.

Economic leverage is reinforced by the presence of Confucius Institutes, which serve public diplomacy/soft power purposes, if not information warfare. The UK hosts 30 Confucius Institutes, the largest network in Europe and in the world, ahead of South Korea (23) and the United States (21).<sup>74</sup> During the 2022 Conservative Party leadership election, Rishi Sunak pledged to close all of the UK’s Confucius Institutes, but upon taking office, his government abandoned the pledge, judging an outright ban “disproportionate,” while moving to withdraw direct government funding.<sup>75</sup> The ISC’s 2023 China report concluded that “Confucius Institutes are utilised by the Chinese government in order to dissuade universities from engaging in debates that the CCP [Chinese Communist Party] considers to be unsuitable topics.”<sup>76</sup> The report found this pressure to be “particularly acute” where it touches on what the CCP considers the “Five Poisons,” among them the Taiwanese and Tibetan independence movements, as well as Xinjiang separatists. It further concluded that China, using the Confucius Institutes as vehicles, had been “particularly effective at using its money and influence to penetrate or buy Academia.”<sup>77</sup>

To conclude this section, we wish to change gear and discuss how we rely on the indicators to construct each country’s China exposure score every year. Again, the CEI does not construct China exposure scores as simple weighted sums (recall the stress example in Section 2). Instead, it estimates them from the combined evidence supplied by the indicators’ statistical models. Table 6 uses Russia’s 2025 data to illustrate this procedure.<sup>78</sup> Russia’s 2025 data begin at the common baseline 0 before the model reads any of its indicator values (this is the case with all countries). The baseline score can then rise or fall as

---

<sup>74</sup> “Confucius Institutes in the UK,” *China Research Group*, June 2022, last accessed on September 2, 2026, <https://taiwaninsight.org/wp-content/uploads/2023/03/1239c-confuciusinstitutes-chinaresearchgroup-june2022.pdf> — recording 30 active Confucius Institutes in the United Kingdom against 21 in France, 19 in Germany, and 16 in Italy. The same figure of 30 is given by Dunning, Sam and Kwong, Anson, “Are Confucius Institutes Legal?,” *UK-China Transparency*, April 2023, <https://ukctransparency.org/data/media/2023/04/EXECUTIVE-SUMMARY-Are-Confucius-Institutes-legal-1.pdf> (whose appendix lists 30 host universities plus a separate online institute associated with the Open University) and by Dunning, Sam and Kwong, Anson, 2022, *An Investigation of China’s Confucius Institutes in the UK*, London: Henry Jackson Society. Published counts for the United Kingdom diverge by basis rather than by fact. Figures of about 30 are United Kingdom-wide; figures of about 20 — for example Times Higher Education, 14 January 2026 — count England alone, reflecting the Office for Students’ England-only jurisdiction under the Higher Education (Freedom of Speech) Act 2023, with the roughly ten institutes in Scotland, Wales and Northern Ireland accounting for the gap. Counts diverge further over whether school-based Confucius Classrooms are included (Scotland alone operates 22 classroom “hubs” through Strathclyde, and Northern Ireland eight hub schools), whether the Open University’s online institute is counted, and whether institutes registered with the Chinese International Education Foundation but dormant are retained. The CEI counts university-hosted Confucius Institutes recorded as operational in the reference year, United Kingdom-wide, and excludes Confucius Classrooms and the online institute.

<sup>75</sup> Gallardo, Cristina, “Rishi Sunak Walks Away from Leadership Pledge to Close China-Backed Confucius Institutes,” *Politico*, 17 May 2023, last accessed on April 17, 2026, <https://www.politico.eu/article/rishi-sunak-walks-away-from-leadership-pledge-to-close-confucius-institutes/>; the Government’s position that it does not directly or indirectly fund Confucius Institutes is set out in UK Parliament, Written Question HL8096, 24 May 2023.

<sup>76</sup> ISC, *China*, 2023, paragraph 10 (pp. 3).

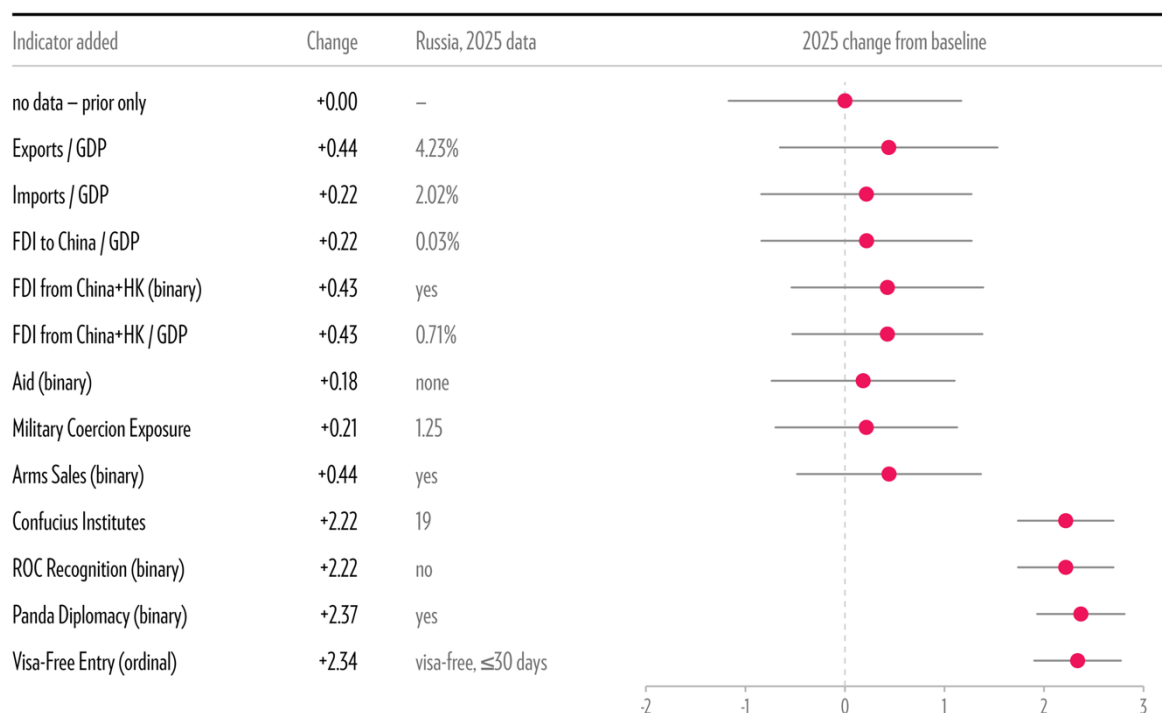
<sup>77</sup> ISC, *China*, 2023, Lord Patten’s evidence at paragraph 35 (pp. 16), citing oral evidence of 9 May 2019; the Confucius Institute findings in the Academia case study, pp. 102–121.

<sup>78</sup> In practice, the scores and measurement parameters are estimated jointly by simulation, rather than one indicator at a time. Table 6 is an illustrative reconstruction of the logic of score construction.

Russia's 2025 indicators are incorporated. Table 6 presents how each incorporation of data from a new indicator updates Russia's 2025 China exposure score. To start, the Exports/GDP indicator raises the score for Russia in 2025 by +0.44 since Russian exports to China are higher than what the model provisionally expects for Russia.<sup>79</sup> How sensitive Russia's score is to export data, in turn, depends on the weight associated with the Exports/GDP indicator (see Table 5).<sup>80</sup> If we then assess the Imports indicator, this brings the change back down to +0.22, because Russian imports from China are lower than the model provisionally expects for Russia at +0.44.

**Table 6. How indicator evidence updates a score: Russia, 2025**

Each row adds one indicator's evidence. Points are means; bars are plus or minus one standard deviation.



The first row, “no data – prior only”, is the model's starting point before any of this country's indicator data is used; it is the same for every country and year. Row order follows Table 5 and is arbitrary; intermediate means depend on order, while the final posterior does not. Uncertainty narrows overall, though not at every row. Source: IMF IMTS and DIP, AidData (CLG-Global, CPD, institute-level register), SIPRI, CIEF directory, DigMandarin, Giant Panda Global, author-collected.

We will not go through all the indicators: the point is to show that China exposure scores are not constructed by simple summation — no arithmetical operation on the weights in Table 5 will produce the score — but by conditional probabilities. The indicators always produce the same score, since each reflects the same set of conditional probabilities, but ordering our consideration of the indicators differently would produce the score in different steps and would show each indicator having a different effect on the score, since each

<sup>79</sup> “What the model provisionally expects for Russia” means the value predicted by the relevant indicator equation at the score reached so far in the illustration. Before Russia's exports are read, at the baseline, the exports equation predicts exports to China of 1.14 per cent of GDP, against Russia's observed 4.23 per cent. That discrepancy raises the provisional score by +0.44. At that new score, the imports equation predicts imports from China of 3.82 per cent of GDP, against Russia's observed 2.02 per cent; this lowers the change to +0.22. “Provisionally” matters because each prediction is made before the next indicator reading is incorporated

<sup>80</sup> It also depends on how much noise the model estimates in that relationship, but we will focus on factor loadings to simplify presentation.

indicator's effect depends partly on what the indicators before it have already revealed.<sup>81</sup> Beyond the point estimate, as we add new data associated with each indicator, the uncertainty surrounding a country's China exposure score also decreases, as illustrated by the shortening of the standard deviation bars in the right-most column of Table 6.

---

<sup>81</sup> Table 6 adds Russia's indicators one at a time and shows how far each one moves the score. The count is set to start at zero, so we need to add 0.38 to the "final figure" (+2.34). 0.38 is roughly the average score across the whole 2013–2025 period (+0.37), and it sits above zero because the index is pegged to the global average in 2013, the lowest year in the series. +0.38 and +2.34 give +2.72, against Russia's published score of +2.73; the remainder is the smoothing applied across years.

## 7. Conclusion

Chinese power over and in Europe does not reside in Beijing's military reach; it resides in relationships of commerce, investment and (public) diplomatic presence. The CEI finds that Beijing broadened and deepened those relationships over the past decade, with major European countries topping the chart in terms of exposure to Chinese power. Exposure to Chinese power does not guarantee European obedience, but it gives Beijing something to work with. A state deeply enmeshed in Chinese capital and commerce, for instance, has more to lose from a confrontation with Beijing. That potential loss is a form of pressure, regardless of whether or not it is ever applied.

Exposure to Chinese power, in turn, is a function of the type and intensity of bilateral interactions with China, captured by the indicators of exposure. The weights associated with those indicators — spanning Chinese capacity to conduct statecraft (both economic and traditional), economic co-optation and diplomacy — document the facets of Chinese power across the globe. Among the indicators most relevant to European policy, inward Chinese investment and the number of Confucius Institutes carry the largest loadings and the largest implied score differences. In this vein, the CEI may help identify the 'riskiest' bilateral relations with China (risky, if we are indeed concerned with exposure to Chinese power). Reducing interactions that indicate exposure to Chinese power, particularly those that are weighted more heavily, lowers a country's score on the CEI.

Changes in the China exposure score can be associated with substantial shifts in bilateral relationships with Beijing. One such association from the CEI concerns an issue occupying European policymakers: Chinese goods flooding the European market and hollowing out European industries.<sup>82</sup> Across the global sample, countries with higher China exposure scores tend to import more from China. Table 5 indicates that a one standard deviation higher China exposure score is associated with 22.4 percent more imports from China. This correlation invites analysts to investigate whether Chinese power constrains the economic policies of countries and prevents them from responding to Chinese overcapacity.

In brief, the CEI maps where exposure to Chinese power lies and raises the question of what such exposure risks. While this study focuses on Europe, future CEI studies will turn to the Indo-Pacific, the most exposed region outside Europe; a final report will publish the full ranking and examine what factors drive exposure to Chinese power around the world. The CEI also supports single-country longitudinal studies and annual updates as the data extend.

The CEI complements traditional indices of national power, e.g., the Asia Power Index, which treat power as an intrinsic property of states and quantify capabilities such as

---

<sup>82</sup> On Chinese industrial overcapacity and its implications for the EU, see Goreichy, Esther, Gunter, Jacob, Stec, Grzegorz and Wessling, Claudia, "China's Overcapacity and the EU + German China Policy under Merz + EU-China Trade," *MERICs Briefs*, 16 May 2025, <https://meric.org/en/meric-briefs/chinas-overcapacity-and-eu-german-china-policy-under-merz-eu-china-trade>. On the labour-market and industrial consequences of Chinese import penetration — the foundational economic literature on the "China Shock" — see Autor, David H, Dorn, David and Hanson, Gordon H., 2016, "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade," *Annual Review of Economics* 8, pp. 205–240.

military assets or GDP.<sup>83</sup> These traditional indices do not capture the relational character of power and therefore do not show how China's capacity to shape outcomes is differentiated across countries, a variation that the CEI is designed to capture. Some researchers are aware of the importance to study national power — including but not limited to China — in the context of bilateral relations: the University of Denver's Formal Bilateral Influence Capacity (FBIC) Index, the China Economic and Strategy Initiative's Global Influence Index (GII) and Doublethink Lab's China Index.<sup>84</sup> The CEI differs from those indices because the weight of each indicator is determined by the data rather than assigned *a priori* by the researcher. The CEI's methodology thereby eliminates a critical problem in index construction: that results are sensitive to subjective decisions made by the analyst, which can introduce bias.<sup>85</sup> Moreover, the CEI clearly distinguishes power from other associated but conceptually distinct phenomena: alignment, influence and the determinants of power itself (as discussed in Sections 2 and 4). The aforementioned indices do not always distinguish these phenomena, making it difficult to examine the causes and consequences of Chinese power. If, for instance, we included Huawei-adoption as an indicator of Chinese power, it would be circular to use that power index to explain the adoption of Huawei.

The CEI provides the essential building blocks for understanding the relationship between exposure to Chinese power and countries' adoption of policies favored by Beijing, but the CEI is only the first step towards understanding the implications of Chinese power. As discussed in the introduction and Section 4, the CEI does not measure Chinese *influence* or *alignment*, and this limitation is a deliberate choice. Again, power is distinct from both influence and alignment. Power is the latent capacity for one actor to influence another. Influence flows from a successful assertion of power to generate actual real-life preferences or policies. Alignment is where two countries share the same preferences. Crucially, the CEI measures Chinese power, not Beijing's influence or countries' alignment with Beijing. A country can be less exposed to Chinese power, yet align strongly with Beijing — this is the case with, for example, Serbia (discussed in Section 4). Widely regarded as one of China's closest partners in Europe, Belgrade was the first European capital to endorse Xi's vision of a 'community of shared future.' But Serbia ranks only #15 in Europe and #42 in the world. Because Serbia is already so aligned with Beijing, its exposure score is lower than perhaps expected; Beijing has less need to build up power when preferences already converge.

And of course, a country can be highly exposed to Chinese power, yet resist Beijing's preferences. A case in point: some of Europe's most exposed states are large democracies that are not traditionally aligned with Beijing. When a European country's exposure to Chinese power is high but alignment of preferences is low, it has three options: (1) adjust its policies in line with Beijing's preferences to avoid Beijing's future displeasure, (2) work to

---

<sup>83</sup> Lowy Institute, *Asia Power Index 2024 Edition*, <https://power.lowyinstitute.org>, last accessed on April 17, 2026.

<sup>84</sup> On the FBIC Index (all pairs of states, 1960–2024; 42 economic, political and security indicators), see Moyer, Jonathan D., Meisel, Collin J., Matthews, Austin S. et al., 2025, *Formal Bilateral Influence Capacity (FBIC) Codebook*, Version 20251031, Denver: Frederick S. Pardee Institute for International Futures, University of Denver. On the Global Influence Index (191 countries, 28 indicators; no time span published), see China Economic and Strategy Initiative, <https://gii.cesonline.org/about>. On the China Index (101 countries, 99 indicators across nine domains, data collected January 2022 to October 2024), see Doublethink Lab and the China In The World network, <https://china-index.io/>, last accessed on April 17, 2026.

<sup>85</sup> Researchers have specifically criticised the China Index on this ground of subjective bias, <https://theloop.ecpr.eu/how-not-to-measure-chinas-autocratic-influence/>.

reduce Beijing's capacity to influence, but at the cost of confronting China today, and (3) do nothing and hope the situation will improve by itself. The larger this power-alignment gap, however, the less feasible the 'do-nothing' strategy becomes, and the more likely that the European state will either contest or accommodate Chinese power. CEI Europe 2025 concretises these abstract points by objectively quantifying the differential challenge posed to European policymakers by exposure to Chinese power.

Another key limitation of the CEI is that it is unidirectional: we have charted only how countries are exposed to Chinese power and have left unanswered the question of how China might be exposed to other countries' power. In the future, we plan to conduct an analysis of how China exposes itself to the outside world — with indicators such as counterpart FDI as a share of Chinese GDP — by constructing a Global Exposure Index (GEI). In tandem with the CEI, the GEI would allow us to study the balance of power between China and another country within a relational framework, comparing that country's exposure to Chinese power (as measured in this report) with China's exposure to that country's power. We can then study how this relative measure might explain policy outcomes such as UN voting alignment with China and accession to the BRI.

In his seminal 1962 essay, Alexander Gerschenkron theorized how industrial latecomers such as Germany rapidly caught up with established powers by bypassing gradual developmental stages.<sup>86</sup> In the realm of statecraft, China is similarly a latecomer to the Westphalian system of sovereign diplomacy. Its learning curve has been remarkably steep: in the 1950s, the CCP had to hastily train its revolutionary cadres (and their spouses) in the basic protocols and formal attire of European diplomacy.<sup>87</sup> Even at the turn of the millennium, Beijing harbored deep internal apprehension regarding the vulnerabilities of globalization as it negotiated its accession to the World Trade Organization (WTO).<sup>88</sup> Since then, Chinese statecraft has evolved remarkably quickly. Having learnt how to leverage the architecture of global integration to its advantage, Beijing is altering the geopolitical landscape in its favor. The CEI tracks this continuing evolution.

---

<sup>86</sup> Gerschenkron, Alexander, 1962, *Economic Backwardness in Historical Perspective: A Book of Essays*, Cambridge, MA: Belknap/Harvard University Press.

<sup>87</sup> Martin, Peter, 2021, *China's Civilian Army: The Making of Wolf Warrior Diplomacy*, New York: Oxford University Press.

<sup>88</sup> Fewsmith, Joseph, 2001, "The Political and Social Implications of China's Accession to the WTO," *The China Quarterly* 167, pp. 573–591.

# Appendix

## Part I: An Overview of Bayesian Latent Factor Analysis

This study employs a multivariate Bayesian latent factor analysis to estimate a single latent factor — the China exposure score — from 11 indicators, Chinese aid and inward Chinese FDI each entering twice, as presence and volume sub-indicators. Each of the 13 components is treated as a partial and noisy reading of the same underlying quantity. Each indicator is modeled with a likelihood suited to its data type, and the model estimates its relationship to the latent factor through a factor loading. Each loading is estimated with its own uncertainty rather than fixed in advance. Indicators with stronger relationships to the latent factor and lower measurement error receive greater effective weight in posterior inference, while weak or noisy indicators contribute less.

Bayesian latent factor analysis differs from conventional factor analysis commonly used in psychology.<sup>89</sup> It directly estimates country scores as part of the model, treating them as parameters with quantified uncertainty. Conventional factor analysis, in contrast, estimates only the relationships between indicators and then applies *ad hoc* methods to calculate scores post-estimation.<sup>90</sup> The Bayesian approach allows simultaneous estimation of latent factor scores — the estimated values of the unobserved factors for each case (e.g., country, person) — with full posterior distributions, enabling uncertainty quantification for each estimate.<sup>91</sup> Because conventional factor analysis treats the factor structure as known once fitted, its standard errors for the factor scores are underestimated and do not propagate uncertainty from the structural parameter estimates.<sup>92</sup>

However, treating latent variables as parameters comes at a computational cost: the number of parameters is massive (i.e., one latent trait per country-year). With 184 countries observed over 13 years, the model must estimate thousands of latent scores alongside structural parameters linked to a wide range of distributions through simulation. This computational intensity requires both advanced simulation methods — Hamiltonian Monte Carlo (HMC), described in [Part V](#) — and careful model specification to ensure convergence. Convergence means the model’s simulations have stabilized.

Bayesian latent factor analysis is a well-established method in the social sciences. The Varieties of Democracy (V-Dem) project uses Bayesian latent factor analysis to construct its global democracy measures.<sup>93</sup> Similar methods have been applied to geopolitical and

---

<sup>89</sup> Fabrigar, Leandre R., Wegener, Duane T., MacCallum, Robert C. and Strahan, Erin J., 1999, “Evaluating the Use of Exploratory Factor Analysis in Psychological Research,” *Psychological Methods* 4, no. 3, pp. 272–299.

<sup>90</sup> Mardia, Kanti V., Kent, John T. and Bibby, John M., 1979, *Multivariate Analysis*, London: Academic Press, sec. 9.7 (“Factor scores”).

<sup>91</sup> Mardia, Kent and Bibby, 1979, *Multivariate Analysis*, pp. 371–372.

<sup>92</sup> Treier and Jackman, 2008, “Democracy as a Latent Variable,” pp. 205–206.

<sup>93</sup> Pemstein, Daniel et al., 2018, *The V-Dem Measurement Model: Latent Variable Analysis for Cross-National and Cross-Temporal Expert-Coded Data*, V-Dem Working Paper Series 2018:21, Gothenburg: Varieties of Democracy Institute, University of Gothenburg.

economic risks,<sup>94</sup> human rights,<sup>95</sup> corruption,<sup>96</sup> state capacity,<sup>97</sup> international business cycles,<sup>98</sup> and major-power signalling of patronage in international relations.<sup>99</sup> However, beyond academic research, Bayesian latent factor analysis has rarely been applied to index construction in public policy and think-tank settings.

In most applications, Bayesian latent factor analysis focuses on a single data type with a uniform statistical distribution. For example, the V-Dem project's measurement model is an ordinal item-response model for expert ratings, and its index-level factor analysis likewise works from a single likelihood family, which simplifies estimation and ensures a consistent likelihood structure across indicators.<sup>100</sup> The CEI's Bayesian latent factor analysis model, which incorporates multiple statistical distributions each suited to its respective indicator, is particularly complex and demands careful calibration to ensure convergence.

Bayesian latent factor analysis, in essence, is a system of equations linking observed indicators to an unobserved latent factor through estimated loadings, error terms and appropriate likelihoods for each indicator. A likelihood is the probability distribution assumed for a given kind of data — one shape for quantities that vary continuously, another for counts, another for yes-or-no outcomes — and each indicator is matched to the distribution that fits it. In our case, these likelihood distributions are:

- Continuous variables: Exports to China (percentage of GDP), Imports from China (percentage of GDP) and Outward FDI to China (percentage of GDP) are fitted with Gaussian (normal) distributions on the log scale, as  $\log(1 + \text{share})$  rather than the share itself. Relative military coercion exposure also follows a Gaussian distribution, on its own constructed scale.
- Semi-continuous financial variables (those recording no flow at all for many countries): Chinese aid (percentage of GDP) and inward FDI positions from China and Hong Kong (percentage of GDP) use hurdle-lognormal models, which first estimate participation (any flow vs. none) and then model positive amounts, separating the probability and intensity stages.
- Count variable: The number of Confucius Institutes follows a negative-binomial distribution to capture over-dispersion.
- Ordinal variable: Visa-free entry for Chinese citizens is modeled with a cumulative logit, which respects the ordering of its three levels.
- Binary variables: The presence of Chinese arms transfers, diplomatic recognition of Taiwan, and panda presence are modeled with a complementary log-log link,

---

<sup>94</sup> Quinn, Kevin M., 2004, "Bayesian Factor Analysis for Mixed Ordinal and Continuous Responses," *Political Analysis* 12, no. 4, pp. 338–353.

<sup>95</sup> Fariss, Christopher J., 2014, "Respect for Human Rights Has Improved Over Time: Modelling the Changing Standard of Accountability," *American Political Science Review* 108, no. 2, pp. 297–318.

<sup>96</sup> Standaert, 2015, "Divining the Level of Corruption: A Bayesian State-Space Approach."

<sup>97</sup> Hanson and Sigman, 2021, "Leviathan's Latent Dimensions: Measuring State Capacity for Comparative Political Research."

<sup>98</sup> Ayhan Kose, M., Otrok, Christopher and Whiteman Charles H., 2003, "International Business Cycles: World, Region, and Country-Specific Factors," *American Economic Review* 93, no. 4, pp. 1216–1239.

<sup>99</sup> McManus, Roseanne W. and Nieman, Mark David, 2019, "Identifying the Level of Major Power Support Signaled for Protégés: A Latent Measure Approach," *Journal of Peace Research* 56, no. 3, pp. 364–378.

<sup>100</sup> Pemstein et al., *V-Dem Measurement Model*.

which better captures asymmetric, low-probability outcomes than the standard logit.

The China exposure score itself is given a Gaussian distribution whose intercept is fixed at zero and whose standard deviation is fixed at one. This identifies the latent scale inside the model; it is not the scale on which scores are reported. Loadings are therefore the change on each indicator's own link scale associated with a one-standard-deviation increase in China exposure; [Part VI](#) converts them into changes in the indicators themselves.

To dive a bit more into the mathematical mechanics of the method, let  $x_{ij}$  denote the observed value of indicator  $j$  in country-year  $i$ ,  $\eta_i$  a country-year's latent China exposure score, and  $\mu_{ij} = E[x_{ij} | \eta_i]$  the value that the model expects for the indicator at any proposed score  $\eta_i$ :

$$g_j(E[x_{ij} | \eta_i]) = \alpha_j + \lambda_j \eta_i \quad (1)$$

$$\eta_i \sim N(0, 1) \quad (2)$$

Equation (1) is the CEI's measurement equation. It specifies how a country-year's latent China exposure score  $\eta_i$  is related to each observed indicator  $x_{ij}$ . Conditional on  $\eta_i$  and the indicator's parameters, the equation gives the model-implied mean, probability or cumulative probability for indicator  $j$  on a scale appropriate to that indicator's statistical model.  $\alpha_j$  is the baseline for indicator  $j$  when  $\eta_i = 0$ ;  $\lambda_j$  is its loading, or estimated sensitivity to the score; and  $g_j$  is the link appropriate to that indicator's likelihood (discussed above).<sup>101</sup>

Equation (2) specifies the prior distribution of the latent score,  $\eta_i \sim N(0, 1)$ . It is an identifying prior, which sets zero as the common reference point and one prior standard deviation as the unit of the latent scale. Before conditioning on indicator data, all country-years are treated symmetrically; the observed indicators then update those prior distributions.

Priors on the intercepts, loadings, residual standard deviations, count dispersion, hurdle terms and ordinal cut-points provide further regularization; they are updated by the data rather than fixing the weights in advance. Equation (3) states that update formally.

$$p(\eta, \theta | x) \propto L(x | \eta, \theta) p(\eta) p(\theta) \quad (3)$$

On the left,  $p(\eta, \theta | x)$  is the posterior distribution: what the model concludes about all country-year scores,  $\eta$ , and all indicator-specific parameters,  $\theta$ , after observing the data  $x$ . On the right,  $L(x | \eta, \theta)$  is the likelihood implied by Equation (1) for all observed indicator readings;  $p(\eta)$  is the score prior in Equation (2); and  $p(\theta)$  denotes the priors on the indicator-specific parameters. The proportionality sign means that the normalising constant, which makes the posterior integrate to one, is omitted. Those parameters include intercepts, loadings, residual standard deviations, count dispersion, hurdle-model parameters

---

<sup>101</sup> Every indicator in the CEI, therefore, is an effect indicator: the equation runs from the latent factor to the observed indicators. On the distinction between effect indicators, causal indicators and composite indicators, and why it governs what a measurement model can be asked to do, see Bollen, Kenneth A. and Bauldry, Shawn, 2011, "Three Cs in Measurement Models: Causal Indicators, Composite Indicators, and Covariates," *Psychological Methods* 16, no. 3, pp. 265–284.

and ordinal cut-points. The 2,392 country-year scores and all measurement parameters are estimated jointly from this single posterior distribution.

## Part II: Technical Concerns Behind Indicator Selection

Indicator selection must satisfy two sets of criteria. The first is conceptual: the indicators must cover the four dimensions of Chinese power set out in the main text. The second is statistical and is the subject of this part. Several indicators that meet the conceptual criteria fail the statistical ones; the exclusions are set out below.

The statistical criteria begin with a trade-off: Bayesian latent factor analysis requires indicators that are informative but not redundant. The choice must satisfy local independence: conditional on the latent factor, the remaining variation in any two observed indicators should be unrelated. This does not require the raw indicators to be uncorrelated. They may move together because each is a reading of the same latent China relationship. But if two indicators retain a systematic residual connection after the factor is held fixed, the likelihood is mis-specified and the model can count that relationship twice.<sup>102103104</sup>

In simple terms, the likelihood is the statistical link between data and model. When that link is wrong (for example, when two indicators remain associated with each other even after allowing for the latent score they both measure), the estimated relationships (such as how much each indicator reflects Chinese power) become biased, and the credible intervals become too narrow. Including redundant or highly overlapping indicators, therefore, distorts the model likelihood by violating the local independence assumption. For Bayesian latent factor analysis, less is more: 10 theoretically distinct indicators are preferable to 20 overlapping ones.

Thus, we adopt an Occam's razor approach to indicator selection for the CEI — focusing on a small set of theoretically strong indicators — to minimize potential violations of local independence. One challenge is that key economic indicators of Chinese power (such as imports, exports and FDI) tend to be correlated. To address this challenge, we express all economic flow variables as a percentage of GDP, reducing correlation and better capturing each country's exposure to economic ties with China.

Some might wonder how omitting key indicators of Chinese power due to missing data might affect the reliability of the CEI. This point highlights the strength of the Bayesian framework: it directly handles concerns about missing indicators. The posterior

---

<sup>102</sup> Treier and Jackman, "Democracy as a Latent Variable," p. 205.

<sup>103</sup> In this context, the likelihood refers to the overall statistical function that links the model to the data, whereas a likelihood (or likelihood distribution) can also denote the specific probability model applied to each indicator — such as Gaussian for continuous data or Bernoulli for binary outcomes — within that broader likelihood framework.

<sup>104</sup> Lee, Jaehoon, Jung, Kwanghee and Park, Jungkyu, 2020, "Detecting Conditional Dependence Using Flexible Bayesian Latent Class Analysis," *Frontiers in Psychology* 11, art. 1987; Robitzsch, Alexander and Steinfeld, Juliane, 2018, "Item Response Models for Human Ratings: Overview, Estimation Methods, and Implementation in R," *Psychological Test and Assessment Modeling* 60, no. 1, pp. 101–139; Muthén, Bengt O. and Asparouhov, Tihomir, 2012, "Bayesian Structural Equation Modelling: A More Flexible Representation of Substantive Theory," *Psychological Methods* 17, no. 3, pp. 313–335.

distributions correctly reflect uncertainty in latent scores, with wider credible intervals indicating greater indeterminacy.<sup>105</sup> More indicators, assuming they are associated with exposure to Chinese power, would reduce this uncertainty, but fewer indicators do not render the index invalid. Bayesian latent factor analysis reports what the data can and cannot establish about each country's position on the latent continuum.

There is, however, an important caveat: the selected indicators must adequately sample the full conceptual domain of the construct. Just as measuring mathematical ability solely through algebra questions would omit geometry and statistics, an index claiming to capture all dimensions of Chinese power but measuring only certain aspects — such as the economic dimension — would be incomplete. The CEI therefore combines 11 indicators (13 measurement components) across economic and military-political dimensions to cover observable channels of exposure to Chinese power.

Some candidate indicators cannot be used, as discussed in the main text, because their cross-national values are dominated by zeros, or otherwise vary too little, for the global model to converge. Chinese arms transfers are one case: transfer amounts are available, but the continuous specification did not converge globally because most countries record no transfers, so a binary presence-or-absence indicator is more stable. Ownership of critical infrastructure was excluded on similar grounds, having been tested in earlier iterations and found to prevent convergence. Product-level trade dependencies raise a related but distinct problem. These chokepoint products are typically measured at the Harmonized System six-digit level, where some products are traded by only a small subset of countries while others are widely traded but highly skewed, or too broadly defined to isolate the strategic dependency of interest. Because the resulting country-product-year measures are variously sparse, skewed or insufficiently specific — and because the underlying trade data are reported rather than gap-filled, so an empty cell is not always a clean zero — these indicators are excluded from the index rather than forced into it.

## Part III: Research on the Indicators

In the context of Chinese foreign policy, David Lampton, a leading American China scholar at Johns Hopkins School of Advanced International Studies (SAIS), emphasizes that China's growing global power increasingly derives from its economic strength rather than military might.<sup>106</sup> To operationalize Chinese economic power, this analysis employs several indicators. First, exports to China as a percentage of GDP and imports from China as a percentage of GDP measure China's market power. The export indicator captures Beijing's capacity to use market access as political leverage,<sup>107</sup> as illustrated by China's 2012 restrictions on Philippine banana imports. The import indicator reflects supply-side

---

<sup>105</sup> Pemstein et al., *V-Dem Measurement Model*.

<sup>106</sup> Lampton, "The Faces of Chinese Power."

<sup>107</sup> Fuchs, Andreas and Klann, Nils-Hendrik M., 2013, "Paying a Visit: The Dalai Lama Effect on International Trade," *Journal of International Economics* 91, no. 1, pp. 164–177; Kim, Sung Eun, Perlman, Rebecca L. and Zeng, Grace, 2025 "The Politics of Rejection: Explaining Chinese Import Refusals," *American Journal of Political Science* 69, no. 2, pp. 438–454.

dependence, capturing Beijing's ability to restrict exports of goods — such as rare earths — to impose economic or political costs on target states.<sup>108</sup>

Inward FDI positions from China and Hong Kong, and Chinese development finance — both expressed as a percentage of the recipient country's GDP — represent additional channels through which Beijing cultivates leverage. FDI captures influence through capital inflows and project finance, while aid reflects strategic development assistance aimed at building long-term patron-client relationships, particularly in developing economies.<sup>109</sup> Both indicators follow a hurdle-lognormal specification, dividing each into binary presence and continuous magnitude components.

Recognition of Taiwan is a negative indicator of Chinese diplomatic leverage, since recognition of the ROC and mainland China are mutually exclusive.<sup>110</sup> Taiwan recognition thus signals resistance to Beijing's persuasion and marks the limits of Chinese capacity to influence. Arms transfers from China, recorded as whether China delivered major conventional arms to a country in a given year, capture potential patron-client dynamics that reinforce alignment and dependence.<sup>111</sup> The number of Confucius Institutes proxies China's soft power — its capacity to shape preferences and narratives through cultural and educational outreach.<sup>112</sup>

Finally, visa-free entry granted to Chinese citizens is relevant for CEI in at least two ways. First, Beijing has repeatedly used Chinese tourist flows themselves as a coercive lever in bilateral disputes. Following South Korea's 2016 decision to deploy the Terminal High Altitude Area Defense (THAAD) missile-defense system, Chinese authorities instructed domestic travel agencies to halt sales of group tours to Korea, producing roughly a 50 percent fall in Chinese arrivals within 12 months. Analogous informal restrictions have been applied against Japan, the Philippines, Norway, and Palau during specific political disputes. The existence of a visa-free arrangement amplifies this coercive capacity: visa-free access raises the baseline volume of Chinese tourism that a target country comes to depend on. Second, visa-free entry facilitates tourism, short-term business travel and educational flows that Beijing identifies as a principal channel of soft-power projection, most explicitly within the 'people-to-people' pillar of the Belt and Road Initiative.<sup>113</sup>

---

<sup>108</sup> Massot, Pascale, 2024, *China's Vulnerability Paradox: How the World's Largest Consumer Transformed Global Commodity Markets*, Oxford: Oxford University Press.

<sup>109</sup> Krasner, Stephen D., 1978, *Defending the National Interest: Raw Materials Investments and U.S. Foreign Policy*, Princeton: Princeton University Press; Dreher et al., *Banking on Beijing*.

<sup>110</sup> Rich, "Status for Sale."

<sup>111</sup> Krause, *Arms and the State*; McManus and Nieman, "Identifying the Level of Major Power Support Signaled for Protégés."

<sup>112</sup> Hartig, Falk, 2016, *Chinese Public Diplomacy: The Rise of the Confucius Institute*, London: Routledge.

<sup>113</sup> On China's instrumental use of tourism restrictions, see Lim and Ferguson, 2022, "Informal Economic Sanctions," which documents the 2016–2017 group-tour ban and its roughly 50 percent impact on Chinese tourist arrivals to South Korea. The August 2019 suspension of the individual-traveler permit scheme for Taiwan, announced by China's Ministry of Culture and Tourism to take effect on 1 August 2019 and widely read as electoral pressure ahead of Taiwan's January 2020 presidential election, is documented in contemporary reporting by Bloomberg, The Diplomat and Al Jazeera (31 July–3 August 2019). On the broader pattern of Chinese informal travel restrictions against Japan, the Philippines, Norway, Palau, and others across bilateral disputes, see Zhang, Ketian, "Chinese Non-military Coercion: Tactics and Rationale," *Brookings Institution*, 22 January 2019, last accessed on September 2, 2026, <https://www.brookings.edu/articles/chinese-non-military-coercion-tactics-and-rationale/>. On the framing of outbound tourism as a soft-power instrument within Chinese public-diplomacy policy, and particularly under the 'people-to-people' pillar of the Belt and Road Initiative, see Xu, Honggang, Wang, Ke and Song, Young Mi, 2020, "Chinese Outbound Tourism and Soft Power," *Journal of Policy Research in Tourism, Leisure and Events* 12, no. 1, pp. 34–49.

The military dimension of Chinese power is captured by relative military coercion exposure, an author-constructed measure. The logic of the variable construction follows the so-called loss-of-strength gradient: a state's usable military power falls with distance from its home base, so susceptibility to Chinese coercion depends jointly on proximity and on the bilateral balance of capability. Aggregate capability indices such as the Composite Index of National Capability (CINC), which is produced by the Correlates of War (COW) Project (a long-standing academic research consortium currently based at Pennsylvania State University), score states in isolation and cannot express this bilateral quality, which is why a distance-weighted measure of asymmetry is used instead. According to international relations research, exposure to Chinese military power can shape behavior through two channels. The first is coercion, which need not be exercised to work: a standing possibility of it is enough to move a state's preferences.<sup>114</sup> The second is prestige — capability confers standing, and standing can be converted into deference without any threat being made.<sup>115</sup> [Part IV](#) sets out its construction in detail.<sup>116</sup>

## Part IV: Indicator Construction and Data Sources

### Trade

Bilateral merchandise trade is drawn from the IMF's International Trade in Goods by Partner Country (IMTS) dataset, with exports valued free on board (FOB) and imports at cost, insurance and freight (CIF), and both series are expressed against current-price GDP using World Bank World Development Indicators (WDI) data.

### Inward and Outward Direct Investment

Bilateral positions come from the IMF's Direct Investment Positions by Counterpart Economy dataset (DIP), which is voluntary; 106 economies filed an official position with China as counterpart in 2024. Where the reporting economy filed a position, it is used as reported; where it did not, the IMF's derived figure from the counterpart economy's mirror report is used instead, and each observation carries a flag recording which of the two it is. A missing component and an unobserved country-year both enter the model as zero, so for a non-reporting economy 'no recorded Chinese investment' cannot be distinguished from 'does not report,' and the indicator understates exposure for those countries rather than measuring it. The survey releases one reference year each December and end-

---

<sup>114</sup> Schelling, Thomas C., 1966, *Arms and Influence*, New Haven: Yale University Press; and Art, Robert J., 1980, "To What Ends Military Power?" *International Security* 4, no. 4, pp. 3–35.

<sup>115</sup> On prestige as the reputation for power, which orders a hierarchy without force being applied, see Gilpin, Robert, 1981, *War and Change in World Politics*, Cambridge: Cambridge University Press. On deference as the condition that sustains an asymmetric role, and defiance as what undercuts it, see Wolf, Reinhard, 2022, "Between Deference and Defiance: Hierarchical Status Roles and International Conflict," *International Studies Quarterly* 66, no. 1.

<sup>116</sup> On the loss-of-strength gradient, see Boulding, Kenneth E., 1962, *Conflict and Defence: A General Theory*, New York: Harper & Brothers, especially chapter 12. On aggregate capability indices and their limits for bilateral comparison, see Singer, J. David, Bremer, Stuart and Stuckey, John, 1972, "Capability Distribution, Uncertainty, and Major Power War, 1820–1965," in Russett, Bruce, ed., *Peace, War, and Numbers*, Beverly Hills: Sage, pp. 19–48.

2025 is not due until about December 2026, so every 2025 value is its own end-2024 figure carried forward and flagged as imputed. Trade flows, along with outward and inward FDI with China, are log-transformed to address positive skewness and capture proportional rather than absolute changes — a standard approach for economic variables that vary by orders of magnitude across countries.<sup>117</sup>

## Chinese Development Finance

Chinese development finance data are taken from AidData's China's Global Loans and Grants Dataset (CLG-Global 1.0, released November 2025), which covers 217 countries and territories and identifies flows in 200 of them, including 72 high-income countries. Amounts are reported by AidData in constant 2023 US dollars under the so-called TUFF 4.0 methodology and are converted to current US dollars before being expressed as a share of GDP, so that the numerator and denominator share a price basis; mixing the two would import the US deflator path into the ratio and manufacture a downward trend in aid exposure. Records are aggregated on the implementation start-year and restricted to those AidData flags for aggregation, which excludes canceled and suspended projects, non-binding pledges and umbrella agreements whose subsidiary transactions appear separately.<sup>118</sup> Because many country-years record no Chinese aid or inbound FDI at all, each of these flows enters the model as two sub-indicators — presence (any flow vs. none) and volume — via the hurdle specification set out in [Part I](#).

AidData CLG-Global's project registration ends in 2023 while implementation detail runs to 2025. The effect on the panel is abrupt. Between 2013 and 2023, between 104 and 144 of the 184 country-years in each year record a positive Chinese aid flow; in 2024 that falls to 28, and in 2025 to one, Iraq. No European country records a positive flow in 2025. Because a country-year with no record inside the dataset's coverage is treated as a genuine zero rather than a missing value, this thinning enters the model as an absence of aid rather than as an absence of data, and no aid figure is carried forward. The 2024 and 2025 values should not be read as a withdrawal of Chinese development finance. Importantly, the ranking of states in 2025 is roughly equal to that of 2023 (when AidData CLG-Global data is complete) with 2024 and 2025 samples excluded. This is not surprising given that aid is not a strong signal of exposure to Chinese power (Table 5).

## Relative Military Coercion Exposure

Relative military coercion exposure, whose rationale is set out in [Part III](#), is built in three steps. First, geographic proximity is computed as the minimum polygon-to-polygon distance from China's territorial boundary to each country's largest landmass polygon, using

---

<sup>117</sup> Wooldridge, Jeffrey M., 2010, *Econometric Analysis of Cross Section and Panel Data*, 2nd ed., Cambridge, MA: MIT Press.

<sup>118</sup> Dreher, Axel et al., 2022, *Banking on Beijing: The Aims and Impacts of China's Overseas Development Program*, Cambridge: Cambridge University Press; AidData, 2025, China's Global Loans and Grants Dataset, Version 1.0, Williamsburg, VA: AidData at William & Mary, <https://www.aiddata.org/data/chinas-global-loans-and-grants-dataset-1-0>.

Natural Earth 1:50m administrative boundaries;<sup>119</sup> overseas territories (e.g., New Caledonia for France, Guam for the US) are removed by retaining only the largest polygon per country, so that distance reflects the metropolitan core. Distance is then converted into a proximity weight through an inverse-squared decay function,

$$\text{proximity} = \frac{1}{1 + \left(\frac{d}{1500}\right)^2}$$

where  $d$  is measured in kilometers (km) and 1,500 km is the decay constant, following the loss-of-strength gradient tradition in international relations. Distances are measured as planar separations in a Web Mercator projection rather than geodesically; because the projection's scale factor increases with latitude, computed distances exceed true distances for high-latitude states.<sup>120</sup>

Second, military capability is operationalized as a discounted cumulative measure of military expenditure, accumulated by the perpetual-inventory recursion with an annual depreciation rate of 8 percent from Stockholm International Peace Research Institute (SIPRI) military expenditure flows beginning in 1990 and running through 2025.<sup>121</sup> Within-series gaps in the SIPRI flows are filled using last-observation-carried-forward and -backward imputation; countries with no SIPRI coverage at all across the 1990–2025 window are treated as having zero stock.

Third, the final exposure score is the product of proximity and the log of one plus the stock ratio,

$$\text{exposure} = \text{proximity} \times \log\left(1 + \frac{S_{\text{China}}}{(S_{\text{target}} + \kappa_t)}\right)$$

where  $\kappa_t$  is a year-specific additive softening constant set to the tenth percentile of positive target-country stocks in year  $t$  (bounded below at 0.01). This additive term keeps the capability ratio finite for states with zero or negligible recorded expenditure. It shifts the denominator for every country, so its effect is largest in the lower tail and decays as the

---

<sup>119</sup> Natural Earth, 1:50m Cultural Vectors (Admin 0 — Countries), <https://www.naturalearthdata.com>; accessed in R through the `rnatualearth` package. See also Kelso, Nathan and Patterson, Tom, 2010, “Introducing Natural Earth Data—Naturalearthdata.com,” *Geographia Technica*, Special Issue, pp. 82–89. Retaining only each country's largest contiguous polygon is analytically important because the distance measure is meant to capture proximity to the state's metropolitan political and military core, not to its farthest outlying territory. Using the unrestricted multi-polygon geometry would, for example, place the United States artificially close to China through Guam and the Northern Mariana Islands (roughly 2,500–2,700 km from the Chinese coast) and France close through New Caledonia in the South Pacific, even though neither territory hosts the relevant decision-making apparatus or principal military capability of the sovereign state to which it is attached. Treating such overseas points as the effective “distance to China” would systematically overstate the coercive exposure of the metropolitan state and mechanically compress cross-country variation in the proximity weight. Selecting the largest polygon anchors the distance measure to the principal landmass and therefore to a consistent locus of strategic decision-making across the sample.

<sup>120</sup> The distance-decay formulation follows Kenneth E. Boulding's “loss-of-strength gradient,” according to which a state's usable military power diminishes with distance from its home base. See Boulding, 1962, *Conflict and Defence*, ch. 12. For a contemporary quantitative treatment that informs the choice of a multiplicative distance-weighted capability measure, see Beckley, Michael, 2018, “The Power of Nations: Measuring What Matters,” *International Security* 43, no. 2, pp. 7–44.

<sup>121</sup> Stockholm International Peace Research Institute, *SIPRI Military Expenditure Database*, Milex 1949–2025 v1.2, Current US\$ series, last accessed on September 2, 2026, <https://www.sipri.org/databases/milex>. The perpetual-inventory accumulation of expenditure flows into a capital stock follows the standard method introduced in Goldsmith, Raymond W., 1951, “A Perpetual Inventory of National Wealth,” in *Studies in Income and Wealth*, vol. 14, Cambridge, MA: National Bureau of Economic Research, pp. 5–73; the 8 percent annual depreciation rate is consistent with values used in applied work on military capital stocks.

target stock grows.<sup>122</sup> The resulting measure is a geographically-weighted index of Chinese military power asymmetry and belongs to the same family of bilateral, distance-adjusted capability measures that depart from aggregate capability indices such as the COW CINC.<sup>123</sup>

## Chinese Arms Transfers

Chinese arms transfers are compiled from SIPRI's Arms Transfers Database as a country-year record of whether China delivered major conventional arms. Because most countries record no Chinese transfers in most years, the continuous specification did not converge globally, and the indicator enters the model as a binary presence-or-absence measure (Part II).<sup>124</sup>

## Diplomatic Recognition of Taiwan

Diplomatic recognition of Taiwan draws on the political scientist Timothy S. Rich's dataset and is supplemented by additional coding from official records published by Taiwan's Ministry of Foreign Affairs, indicating whether a country maintained formal diplomatic relations with Taipei in each year.<sup>125</sup>

---

<sup>122</sup> Three calibration choices in this construction are set by the author rather than taken from an established convention. The distance adjustment is motivated by the loss-of-strength tradition, in which deployable capability declines with distance; that literature does not fix a functional form, an exponent, or a half-weight distance, so the bounded inverse-quadratic kernel and the 1,500 km constant are calibrations rather than findings. An earlier specification used 1,000 km; the European ordering is not sensitive to the choice within this range. The 8 percent annual depreciation rate implies a half-life of 8.3 years, so expenditure from 1990 retains about 6 percent of its weight by 2025 and the measure reflects recent rather than legacy spending. Because the underlying series records total military expenditure — personnel, pensions and operations as well as procurement — the accumulated quantity is a discounted cumulative-expenditure proxy and not a measured weapons inventory. Finally,  $kt$ , the tenth percentile of positive target-country values in each year with a floor of 0.01 billion USD, is a regularisation constant that keeps the ratio finite where the denominator approaches zero; neither the percentile nor the floor is a standard. Because it is additive rather than a floor in the  $\max(T, kt)$  sense, it shifts every denominator: it doubles the denominator where the target value equals  $kt$  and raises it by about 11 percent where the target value is nine times  $kt$ .

<sup>123</sup> No off-the-shelf indicator is tailored to bilateral exposure to Chinese military coercion over 2013–2025, and the design choices of the indicator used here are worth situating against the main alternatives. The Correlates of War (COW) project's Composite Index of National Capability (CINC) aggregates six components — total population, urban population, iron and steel production, primary energy consumption, military personnel, and military expenditure — into a single per-country capability share; see Singer, Bremer and Stuckey, 1972, "Capability Distribution, Uncertainty, and Major Power War, 1820–1965." Unfortunately, the most recent release of the National Material Capabilities data (v6.0) covers only 1816–2016 and has not been updated to extend through 2025 horizon, whereas SIPRI military expenditure is maintained annually and currently runs through 2025. For data availability reasons, I constructed the Chinese military variable with SIPRI instead of COW data.

<sup>124</sup> SIPRI, *Arms Transfers Database*, Trend-Indicator Values (TIV), as cited in note 20.

<sup>125</sup> Rich, Timothy S., 2009, "Status for Sale: Taiwan and the Competition for Diplomatic Recognition," *Issues & Studies* 45, no. 4, pp. 159–188. The recognition series itself is Rich, Timothy S., 2011, *Diplomatic Recognition of Taiwan (the Republic of China) From 1950–2007*, ICPSR30802, Ann Arbor, MI: Inter-university Consortium for Political and Social Research, extended by the author.

## Confucius Institutes

Confucius Institute counts have no single authoritative source, so several are layered in a fixed order of reliability, each used only where the ones above it have no figure. Country-years checked individually against the public record take precedence. Below them sit AidData's institute-level register, which carries opening and closing dates and yields a year-end stock for 2013–2021, dated captures of the Chinese International Education Foundation (CIEF) Network directory for 2023–2025, AidData's country-year file, and archived DigMandarin snapshots.<sup>126</sup> A closure rule is applied last: where DigMandarin's count falls below its own running maximum, closures have occurred and the figure is capped at that operating count.<sup>127</sup> The layered construction is followed by last-observation-carried-forward imputation for any remaining gaps, and country-years predating a country's first recorded institute are set to zero. Every country-year carries an observed count, but no roster is adequate alone and the series is spliced across several, so the count itself is uncertain. The CIEF directory records only that an institution was listed on a given date: it has no closure field, and it runs five to nine percent below CIEF's own published global totals, since the directory lists institutions while the annual report counts them and the two are compiled months apart. Absence from a later capture is therefore a closure candidate, not a closure. DigMandarin is the only source that records closures, though it does not always register them.

## Bilateral Visa-Free Entry

Bilateral visa-free entry to each target country for holders of ordinary Chinese passports is coded on a three-level ordinal scale: no visa-free or visa-exempt entry (0), visa-free or visa-exempt entry with an initial stay of 30 days or less (1), and visa-free or visa-exempt entry with an initial stay of more than 30 days (2). Status is measured at year-end (as of 31 December each year) rather than on 1 January, so that within-year policy changes are attributed to the year in which they took effect. The 2013 baseline is taken from the Determinants of International Migration (DEMIG) VISA database; post-2013 revisions are compiled from the November 2023 consular-affairs release of the Chinese Ministry of Foreign Affairs, the National Immigration Administration's page on mutual visa-exemption agreements, the

---

<sup>126</sup> Custer, Samantha et al., 2018, *Ties That Bind: Quantifying China's Public Diplomacy and Its "Good Neighbor" Effect*, Williamsburg, VA: AidData at William & Mary; Chinese International Education Foundation (CIEF, 中国国际中文教育基金会), *Confucius Institute Annual Development Report*, editions 2020–2024, <https://ci.cn/gvwm/nb>. The CIEF is a government-organised non-governmental organisation established in June 2020 when the Confucius Institute programme was restructured: the state agency Hanban (officially, the Office of Chinese Language Council International) was renamed the Centre for Language Education and Cooperation (CLEC), and responsibility for the Confucius Institute brand, contracts, and funding was transferred to the newly created CIEF. Since 2020, the annual development reports covering global Confucius Institute deployment have been published under the CIEF imprint rather than Hanban's. The Tan roster refers to an institute-level dataset derived from early Hanban listings used here for roster-level cross-validation.

<sup>127</sup> AidData's Chinese Public Diplomacy Dashboard v3.0 bundles a country-year file and a separate institute-level register of 576 records with opening and closing dates. The register reconciles to AidData's published country-year series on 1,668 of 1,674 cells (99.6 percent); the two agree exactly on 1,149 of the 1,155 country-years in which the register records at least one institute, and on all 519 register-zero cells. Both are global — the 2021 values are the United Kingdom 28, Russia 18, France 18, Germany 17, Italy 12, Spain 8 and the United States 21. An earlier note describing this variable as covering Asia and the Pacific only was in error; that limit applies to other files in the same archive.

Wikipedia article on visa requirements for Chinese citizens, and contemporary Reuters and Associated Press reporting on high-salience policy reversals.<sup>128</sup>

## Panda Presence

Panda presence is coded based on the animals rather than the agreements: for each panda living outside mainland China between 2013 and 2025, we record arrival in and departure from the host country. The base layer is the 2018 Pandas Around the World Dataset, compiled by Peter Ng, Nhung Vu and Chee Meng Tan, which supplies identity, birth date and arrival date for every animal it lists, and departure where recorded. It ends in 2019; later departures and all subsequent arrivals come from host-zoo releases, Chinese government announcements and contemporaneous reporting, cross-checked against the Giant Panda Global database. The assembled panel holds 182 residency stays, covering 176 animals across 22 host states, 21 of them inside the 2013–2025 study period. Countries that hosted at least one panda (at any part of the year for any country-year) are noted with a ‘one’ in the panel; countries that never hosted get a ‘zero.’ Cubs born abroad count toward the country in which they are born as long as they remain in that country, so breeding success rather than diplomatic activity can account for much of the year-to-year movement in Japan, Spain, Belgium, and France. Coverage is complete, and the uncertainty is in the timing of individual departures rather than in the years the series reaches. The indicator enters the model as a binary, because roughly half of all non-zero country-years equal two — the standard breeding pair — so the count adds little beyond presence outside a few prolific breeding programs.

## Sample Construction

Several states were excluded from the final sample due to systematic data deficiencies: the Marshall Islands, Vatican City, Somalia, Eritrea, San Marino, South Sudan, Venezuela, Yemen, and North Korea. Mainland China is excluded by construction, since the CEI measures exposure to Chinese power. The final sample comprises 184 countries observed

---

<sup>128</sup> The 2013 baseline is drawn from De Haas, Hein, Natter, Katharina and Vezzoli, Simona, *DEMIG VISA Database*, International Migration Institute, University of Oxford, <https://www.migrationinstitute.org/data/demig-data/demig-visa-data>. Post-2013 changes are compiled from the Ministry of *Foreign Affairs* of the People’s Republic of China, consular-affairs bulletin updated November 2023, which lists stay-length details and unilateral visa-free arrangements; the National Immigration Administration of the People’s Republic of China, page on mutual visa-exemption agreements; and “Visa requirements for Chinese citizens,” Wikipedia, last accessed on September 2, 2026, [https://en.wikipedia.org/wiki/Visa\\_requirements\\_for\\_Chinese\\_citizens](https://en.wikipedia.org/wiki/Visa_requirements_for_Chinese_citizens), retained for the breadth of its historical coverage despite being a non-authoritative secondary source. Specific country-year events were documented from contemporary Reuters and Associated Press reporting on Indonesia’s 2020 suspension, Thailand’s 2023–2024 progression to a 60-day exemption effective 15 July 2024, Ecuador’s 2024 reinstatement of visa requirements, and Malawi’s 2024 exemption, supplemented where available by Royal Thai consular and Malawi High Commission announcements. Cases flagged for manual review — chiefly where waivers are conditional, tourism-only, ETA/eTA-based, or extendable beyond the initially granted stay — include Gabon, Kenya, Kiribati, Malawi, Mozambique, St. Kitts & Nevis, Thailand, Tunisia, Uzbekistan, and Zambia. Coding rules applied to these cases follow a generous reading: electronic travel authorization (ETA/eTA) schemes were coded as visa-free at the stay length granted under the authorization, on the grounds that such schemes involve online pre-registration rather than consular visa processing; tourism-only waivers were coded at the tourist-entry stay length; and stays that can be extended upon application after entry were coded at the initial stay length granted at the border, not the maximum extendable length. The source trail is not country-by-country complete for the full 2013–2025 window, which is a known limitation of this indicator relative to the others used in the CEI.

from 2013 to 2025, covering roughly 82 percent of world GDP and 81 percent of world population in 2024; the remainder is largely mainland China itself.<sup>129</sup>

## Appendix Table 1. Indicator summary

184 countries, 2013-2025 | Bayesian latent-factor model

| Indicator                  | Mean  | SD    | % zero | Min   | Max     | Source                                     | Model                   | Link                                               |
|----------------------------|-------|-------|--------|-------|---------|--------------------------------------------|-------------------------|----------------------------------------------------|
| <b>Economic</b>            |       |       |        |       |         |                                            |                         |                                                    |
| Exports / GDP              | 0.760 | 0.838 | 5.4    | 0.000 | 4.243   | IMF IMTS                                   | Gaussian (log)          | $\log(1+x) = \alpha + \lambda\eta + \varepsilon$   |
| Imports / GDP              | 1.511 | 0.588 | 2.6    | 0.000 | 3.602   | IMF IMTS                                   | Gaussian (log)          | $\log(1+x) = \alpha + \lambda\eta + \varepsilon$   |
| FDI to China / GDP         | 0.042 | 0.284 | 19.0   | 0.000 | 3.900   | IMF DIP                                    | Gaussian (log)          | $\log(1+x) = \alpha + \lambda\eta + \varepsilon$   |
| Any FDI from China+HK      | 0.782 | 0.413 | 21.8   | 0.000 | 1.000   | IMF DIP                                    | Hurdle presence (logit) | $\text{logit } P(x>0) = -\alpha_0 - \lambda_0\eta$ |
| FDI from China+HK / GDP    | 0.056 | 0.247 | 21.8   | 0.000 | 2.670   | IMF DIP                                    | Hurdle lognormal        | $\log(x) x>0 = \alpha + \lambda\eta + \varepsilon$ |
| Any Chinese aid            | 0.554 | 0.497 | 44.6   | 0.000 | 1.000   | AidData CLG-Global 1.0 (current USD)       | Hurdle presence (logit) | $\text{logit } P(x>0) = -\alpha_0 - \lambda_0\eta$ |
| Aid / GDP                  | 0.510 | 2.040 | 44.6   | 0.000 | 39.910  | AidData CLG-Global 1.0 (current USD)       | Hurdle lognormal        | $\log(x) x>0 = \alpha + \lambda\eta + \varepsilon$ |
| <b>Military-Political</b>  |       |       |        |       |         |                                            |                         |                                                    |
| Military Coercion Exposure | 0.806 | 1.554 | 0.0    | 0.001 | 8.215   | SIPRI + Natural Earth                      | Gaussian (identity)     | $x = \alpha + \lambda\eta + \varepsilon$           |
| Arms Sales (binary)        | 0.112 | 0.315 | 88.8   | 0.000 | 1.000   | SIPRI                                      | Bernoulli (cloglog)     | $\text{cloglog } P(x=1) = \alpha + \lambda\eta$    |
| Confucius Institutes       | 2.614 | 6.837 | 27.6   | 0.000 | 111.000 | AidData CPD + CIEF directory + DigMandarin | Neg. Binomial (log)     | $\log \mu = \alpha + \lambda\eta$                  |
| ROC Recognition (binary)   | 0.079 | 0.270 | 92.1   | 0.000 | 1.000   | Rich (2011), ext.                          | Bernoulli (cloglog)     | $\text{cloglog } P(x=1) = \alpha + \lambda\eta$    |
| Visa-Free Entry (ordinal)  | 0.191 | 0.527 | 87.0   | 0.000 | 2.000   | DEMIG VISA, ext.                           | Cumulative (logit)      | $\text{logit } P(y \leq k) = \tau_k - \lambda\eta$ |
| Panda Diplomacy (binary)   | 0.092 | 0.289 | 90.8   | 0.000 | 1.000   | Ng, Vu & Tan (2018) + Giant Panda Global   | Bernoulli (cloglog)     | $\text{cloglog } P(x=1) = \alpha + \lambda\eta$    |

Values use model-input scales: the three  $\log(1+x)$  variables remain logged. Presence rows show  $1[x > 0]$ ; volume rows show observed values, including zeroes.  $\eta$ : latent exposure (prior SD = 1);  $\lambda$ : factor loading;  $\alpha$ : intercept;  $\varepsilon \sim N(0, \sigma^2)$ . Hurdle models combine a presence and a positive-volume equation.

## Part V: Estimation Strategy and Diagnostics

Models were estimated in R using brms with the cmdstanr backend. Posterior inference employed HMC with four chains of 9,000 iterations, the first 3,000 of each discarded as warm-up, leaving 24,000 retained draws, with adapt\_delta set to 0.92. The joint parameter vector comprises the 2,392 country-year China exposure scores together with 34 additional structural parameters: 13 factor loadings, 10 equation intercepts, 2 hurdle intercepts, 6 residual standard deviations, one negative-binomial shape parameter and 2 ordinal cut-points. All key diagnostics associated with CEI's Bayesian latent factor analysis met conventional thresholds:

- $R < 1.01$ ;
- BFMI (Bayesian Fraction of Missing Information)  $> 0.3$ ;
- Effective sample size  $> 1,000$  for all parameters;
- No divergent transitions.<sup>130</sup>

<sup>129</sup> GDP and population are taken from World Bank, *World Development Indicators*, indicators NY.GDP.MKTP.CD (GDP, current US\$) and SP.POP.TOTL (population, total) — the same series used for the GDP denominators above — and are expressed as a share of the World Development Indicators world aggregate for 2024, the most recent year for which GDP is published for almost every country in the panel. Cuba, Nauru and Syria have no 2024 GDP figure and are excluded from the numerator, so the GDP share is a lower bound.

<sup>130</sup> Model development involved further prior-sensitivity and diagnostic checks than can be reported here, including comparisons of alternative priors and scales for their effect on loading direction, ranking, uncertainty and convergence. Full diagnostic output and sensitivity results are available from the author on request.

## Part VI: Interpreting the Loadings on the Indicator Scale

Table 5 in the main text translates each estimated factor loading into two complementary substantive quantities, read in opposite directions. The first is a marginal association read forward, from the index to the indicator: how countries that are one standard deviation higher on the CEI differ in the observed indicator, on the indicator's natural scale. The second is an approximate reverse effect: the implied shift in the CEI associated with a unit change in the indicator, holding the measurement model fixed. Both quantities are deterministic transformations of the estimated loading and the measurement equation; neither is a full counterfactual prediction.

The forward quantity is computed on the natural scale of each indicator.

- For indicators modeled with a Gaussian likelihood on the log-transformed value (exports, imports and FDI to China, each expressed as a share of GDP), the model is fitted on  $\log(1 + \text{share})$ , so the implied percentage change depends on the baseline and is evaluated at the panel median  $m$  as  $100 \times \frac{[\exp(\log(1 + m) + \lambda) - 1 - m]}{m}$ . The simpler multiplicative form,  $(\exp(\lambda) - 1) \times 100$  percent, applies instead to the positive-volume components of the two hurdle indicators (aid and inbound FDI), which are modeled on the log scale directly.
- For binary indicators — arms transfers, Taiwan recognition, panda presence, and the hurdle (zero vs. non-zero) components of aid and inbound FDI — the base event rate is mapped to the link scale (logit for hurdle components, complementary log-log for Bernoulli components), the loading is added and the inverse link is taken; the reported change is the resulting percentage-point difference in probability.
- For the count outcome (Confucius Institutes), the reported change is the empirical mean multiplied by  $(\exp(\lambda) - 1)$ , i.e., the implied difference in count. For the ordinal outcome (visa-free entry), the loading is reported directly as a category-threshold shift on the cumulative-logit scale. For relative military coercion exposure, which is fitted with a Gaussian likelihood on its own constructed scale rather than on a log or probability scale, the loading is already expressed in the indicator's own units and is reported directly as a difference in exposure units; the reverse quantity correspondingly uses a one-unit step on that constructed index.
- For the two hurdle indicators, the sign of the reported effect is inverted so that the direction refers to the likelihood of any flow rather than the likelihood of zero.
- The reverse quantity asks the inverse descriptive question: given a specified change in an indicator, what conditional, model-implied difference in the latent index follows from the fitted measurement equation? It maps an indicator reading back to the score.
- For a Gaussian measurement equation  $y = \alpha + \lambda\eta + \varepsilon$  with  $\text{Var}(\varepsilon) = \sigma^2$  and  $\text{Var}(\eta) = 1$ , the reverse slope is  $\beta_{\text{rev}} = \frac{\lambda}{1 + P}$ , where  $\sigma^2$  is the residual variance of that indicator's own equation and  $P$  is the total precision that the 13 components jointly add to the latent score, read from the posterior draws as  $\frac{1}{\text{mean}(\text{Var}(\eta))} - 1$ , with the mean taken across country-years.
- For log-transformed continuous indicators, a “+1 percent of GDP” change is first expressed on the log scale via  $\Delta_{\log} = \log(\text{median} + 2) - \log(\text{median} + 1)$ ; these

series are modeled as  $\log(1 + \text{share})$  and held in percentage units, so one percentage point is a step of one. The implied latent shift is  $\beta_{\text{rev}} \times \Delta_{\log}$ . For the two hurdle volume components the plain log is used, with a step of one for aid and of 0.01 for inbound FDI, which is held as a ratio.

- For count indicators modeled on the log scale, the same construction is used with  $\Delta_{\log} = \log(\text{mean} + 1) - \log(\text{mean})$ , evaluated at the panel mean of the count.

Where a loading's 95 percent credible interval includes zero, no substantive quantity is reported. The binary and ordinal indicators do not admit the same continuous unit-step interpretation used above and are treated separately below.

The 13 loadings in Table 5 are not in comparable units. They are slopes on 13 different response scales — percent of GDP, counts of institutes, the probability of a yes — so the largest loading does not necessarily identify the indicator that says most about a country's exposure. A loading is also silent on how noisy its indicator is: one that moves sharply with exposure but scatters widely may be worth less than one that moves little but cleanly.

Expected Fisher information provides one way to assess the 13 components together. For indicator  $j$  it is the expected squared sensitivity of that indicator's log-likelihood to the latent score,<sup>131</sup>

$$I_j(\eta) = E \left[ \left( \frac{\partial \log p_j(x_{ij} | \eta)}{\partial \eta} \right)^2 \right] \quad (4)$$

which is the precision that one reading of indicator  $j$  is expected to contribute. It is evaluated analytically from each response family:  $\frac{\lambda_j^2}{\sigma_j^2}$  for a Gaussian indicator, which does not depend on the score;  $\lambda_j^2 \text{hu}(1 - \text{hu})$  for a hurdle presence component, where  $\text{hu}$  is the modeled probability of a zero; and the corresponding expressions for the count, complementary log-log and cumulative-logit equations. Precisions add across components, so the 13 can be written as shares of one total.

Appendix Table 2 reports the Fisher information. Because inward FDI and aid each enter through a hurdle-presence and a positive-volume equation, the table adds each pair within the same posterior draw and reports 11 indicators rather than 13 components; the fitted model retains all 13. A larger share means the indicator is, across the fitted country-year panel, a sharper statistical signal of the latent score.

A share says how well an indicator tracks the score. Confucius Institutes hold the largest share, which means the number of institutes in a country-year is the single reading that most sharply separates one level of exposure from another. Two things make it so informative. It is an indicator with real range — 36 distinct values from zero to 111, where a binary indicator can place a country-year in one of two states and no more. And the count records a contested decision rather than an administrative fact; section 6 sets out the

---

<sup>131</sup> Expected Fisher information is evaluated separately for each joint posterior draw and then averaged over country-years and posterior draws. This posterior-draw use of information in a Bayesian latent-variable setting follows Ren, H., Choi, S. W. and van der Linden, W. J. (2020), "Bayesian Adaptive Testing with Polytomous Items," *Behaviormetrics* 47, pp. 427–449, <https://doi.org/10.1007/s41237-020-00114-8>. Under the model's conditional-independence assumption, information from distinct indicator equations can be combined; the aid and inward-FDI hurdle components are combined within each draw before they are reported as substantive indicators. The statistic is used here as a model-based diagnostic of expected measurement precision, not as a causal measure of importance.

British example. Because hosting a Confucius Institute is often fought over in public, the resulting number carries information about the relationship.

Expected Fisher information is not only a diagnostic. It also enters Table 5 directly, and six of that table's rows could not be computed without it. Most rows of Table 5 report what a familiar change in an indicator implies for the score: a further percent of GDP in exports, one more Confucius Institute. Six rows cannot be read that way. Arms transfers, Taiwan recognition, panda presence and the two presence components are yes-or-no, and visa-free entry has three ordered categories. There is no such thing as one more unit of recognizing Taiwan; a country either does, or does not. For these six, Table 5 reports a gap instead — the difference in score between a country-year in which the indicator is present and one in which it is absent.

**Appendix Table 2. Expected measurement information by CEI indicator**

| Indicator                  | Share of expected information<br>(mean and 95% credible interval)                        | Mean Fisher<br>information |
|----------------------------|------------------------------------------------------------------------------------------|----------------------------|
| Confucius Institutes       |  47.2% | 1.262                      |
| Panda Diplomacy (binary)   |  15.7%  | 0.419                      |
| FDI from China+HK          |  13.4%  | 0.357                      |
| ROC Recognition (binary)   |  9.2% | 0.244                      |
| Exports / GDP              |  5.4% | 0.143                      |
| Aid                        |  4.2% | 0.113                      |
| Imports / GDP              |  3.1% | 0.082                      |
| Military Coercion Exposure |  1.2% | 0.031                      |
| Arms Sales (binary)        |  0.5% | 0.013                      |
| Visa-Free Entry (ordinal)  |  0.2% | 0.007                      |
| FDI to China / GDP         |  0.0% | 0.001                      |

Posterior expected Fisher information across the full fitted country-year panel. For each of 4,000 posterior draws (a subsample of the retained draws), expected Fisher information about the China exposure score is evaluated across 2,392 fitted country-year scores and averaged; shares are normalized to sum to 100% within each draw. Intervals are 95% posterior credible intervals. A share says how sharply an indicator separates one level of exposure from another; it is not a share of any country's score.

That gap depends on how firmly the rest of the model already fixes the score. If the other 12 components pin it down tightly, a single yes-or-no reading moves it very little; if they leave it loose, the same reading moves it a great deal. Expected Fisher information is what measures that, which is why the same quantity reported in Appendix Table 2 is also what makes these six rows possible. Table 5 works from the 13 components rather than the 11 indicators, and their shares are rescaled to sum to the fitted posterior precision  $P$  of the latent score. Each contrast is then computed against what the other 12 components leave undetermined.

The contrast is built in three steps. First, what the other 12 components leave undetermined is represented as a centered normal reference distribution,

$$\eta \sim N\left(0, \frac{1}{1 + P_{\text{other}}}\right), \quad P_{\text{other}} = P - \tilde{I}_j \quad (5)$$

where  $\tilde{I}_j$  is that component's rescaled share. The zero is a reference point, not the estimated score of any country-year. Second, a temporary intercept is chosen so that the model's average predicted probability of a "yes" matches the indicator's observed prevalence in the panel; it serves only this calculation and does not alter the intercept estimated in the fitted model. Third, the expected score after observing "yes" is compared with the expected score after observing "no." For visa-free entry, the same procedure calibrates temporary cut-points to the observed category shares and compares the two lowest observed categories. The seven remaining rows need none of this: they have natural units, and their quantities are the forward and reverse calculations set out above.

## Part VII: Time-Series Smoothing Strategy

The factor model estimates each country-year score cross-sectionally; temporal dynamics are not built into its measurement equations. With only 13 annual observations per country, country-specific dynamics would require functional-form assumptions that are difficult to defend uniformly across 184 heterogeneous cases. Estimating those dynamics jointly would also add substantial computational burden. We therefore separate measurement from dynamics and apply a post-estimation smoother to distinguish substantive movement from noise.

To distinguish substantive year-to-year movement from simulation noise, we pass the posterior country-year scores through a univariate state-space smoother applied country by country. Forward filtering uses a Kalman filter and backward smoothing uses a Rauch-Tung-Striebel (RTS) pass, so each smoothed score is informed by the entire observed trajectory for that country rather than only its own year.<sup>132</sup>

For each country, two state-space families are fit: a Local Level model, which treats the trajectory as a random walk with a time-varying level and no deterministic drift; and a Local Linear Trend model, which adds a stochastically evolving slope. Within each family, a grid of level and, where relevant, slope innovation variances is evaluated. Candidate specifications are model-averaged with weights proportional to  $\exp\left(-\frac{\Delta}{T}\right)$ , where  $\Delta$  is their negative-log-likelihood difference from the best-fitting candidate and  $T$  is a temperature constant set to 1.35 within a family, with candidates more than eight negative-log-likelihood units from the best dropped; the same rule combines the two families at a temperature of 1.75. The Local Linear Trend family is disabled for countries with fewer

---

<sup>132</sup> Durbin and Koopman, 2012, *Time Series Analysis by State Space Methods*; Harvey, 1989, *Forecasting, Structural Time Series Models and the Kalman Filter*. The Local Level and Local Linear Trend specifications follow Harvey's structural time-series taxonomy; the Kalman filter and RTS smoother are textbook treatments in Durbin and Koopman.

than six usable observations or fewer than five usable transitions, which cannot identify a separate slope.

The observation variance supplied to the smoother is each country-year's posterior variance from the factor model multiplied by one common scaling factor. That factor is selected over a 30-point logarithmic grid, evaluated on up to 40 countries, by an objective that penalizes systematic one-step-ahead prediction failures — a median innovation standard deviation away from one, a non-zero median innovation mean, with positive means penalized more heavily, and a median exceedance rate away from its nominal 5 percent, an exceedance being a standardized innovation beyond 1.96 — together with over-smoothing, where the median ratio of smoothed to raw total variation falls below 0.55, under-smoothing, where it rises above 0.95, and collapse of the slope component, where the mean Local Linear Trend weight falls below 0.15.

Posterior uncertainty is propagated by rerunning the smoother on a subsample of posterior draws of each country's raw score series, restricted to the highest-weighted candidates within each family — at most three, covering 95 percent of candidate weight. Draw-based variation across smoothed trajectories is added to conditional smoothing variance to produce 95 percent credible intervals. For figures and regressions requiring complete smoothed draws, the smoother is run on 640 subsampled posterior draws, which holds Monte Carlo error on the draw-based standard deviation to roughly 3 percent. Where no local fit covers a country-year, the fallback shifts and rescales the original posterior draws to the smoothed mean and standard deviation. Median innovation standard deviations and means, exceedance rates and raw-to-smoothed total-variation ratios are recorded for each country and enter the calibration objective above.

Finally, the published scores are placed on a common reporting scale in two steps. The country-year estimates are first re-scaled so that their spread across the panel is one unit, and then re-centered within each posterior draw so that the cross-country average in 2013 is zero.

## Acknowledgements

The author is particularly indebted to two individuals for this project. The first person is Thorsten Benner of GPPi. He gave me confidence that it was possible to author a think tank report that includes Bayesian statistics. This project was only possible with Mr. Benner's insight, support, and guidance. The second person is Mikko Huotari, who invited me to MERICS in Berlin and gave me an opportunity to develop the project at a critical early stage. This project benefited tremendously from Dr. Huotari's incisive and challenging comments throughout its development.

Good research is only possible with a group of people (selflessly) dedicating time and effort to engage with ideas and data. I am grateful for conversations, suggestions, and critical feedback on drafts — at different stages of the project — from Julia Bentley, Bryan Burack, Peter Chou, Jacques DeLisle, Rush Doshi, Lionel Fatton, Paul Flachenecker, Ulf Gartzke, Eugene Gholz, Bill Hayton, Jakob Hensing, Amanda Hsiao, S. Philip Hsu, Florian Klumpp, Raymond Kuo, Maximilian Mayer, Frieder von Mecklenburg, Silvia Menegazzi, Stefan Messingschlager, Matei Mihalca, David Sacks, Yifeng Tao, Tom Tugendhat, Ken Weinstein, Jennifer Welch, and Claudia Wessling, among others. I thank Henry Hsiao for his research assistance.

I also wish to thank participants at workshops hosted by the Heritage Foundation in Washington DC (fall 2025) and MERICS in Berlin (summer 2026) for their comments, which greatly benefited this report.

Thank you to Oliver Jung and Oliver Read for editorial support, infographics, typesetting, as well as production and outreach efforts.

For this study, I am grateful for financial support from National Taiwan University, MERICS, and the Indo-Pacific Forum. The Indo-Pacific Forum was co-founded by Ken Weinstein and the late Japanese Prime Minister Shinzo Abe to promote security, prosperity, connectivity, and resilience across the Indo-Pacific. The views expressed are my own and do not reflect the positions of National Taiwan University, MERICS, the Indo-Pacific Forum, or any of those who commented on drafts of this report. I am responsible for any errors or omissions.

