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1 Introduction

Over a period of just fteen years, Europe has been confronted with a nancial shock that originated in the United States, a pandemic shock that originated in China but could have come from anywhere, and an energy shock provoked by Russia's invasion of Ukraine. ese events have prompted a re-examination of e ciency/security trade-o s that arise as a result of international integration, and particularly as a result of specialisation in international trade and the vulnerabilities of global supply chains.

Economists and policymakers have long worried about similar trade-o s. At the most fundamental level, such trade-o s arise from the standard tension between growth and economic crises: higher growth is often accompanied by greater instability. For example, regulation of nancial and product markets may prevent or mitigate nancial or environmental hazards at the cost of dampening entry and growth of rms. Similarly, in open economies, trade and nancial integration may be good for growth, but can expose economies to imported shocks.

e most recent set of concerns – as exempli ed, for example, by a series of European Commission (2021, 2022) papers and an associated legislative agenda (see section 4, and McCa rey and Poitiers, 2024) – di ers from these standard preoccupations in two respects.

First, economic risks relate increasingly not just to crises or shocks, but to deliberate economic coercion by foreign governments or even non-governmental entities (such as criminal groups). is is probably the reason why the term 'security' – as opposed to 'stability' or 'resilience' – has become popular to describe the mitigation of economic, rather than just national security threats (we discuss the di erence in section 2). One reason to be concerned with economic coercion is that China, an increasingly powerful and authoritarian country, has been applying coercion regularly in response to political actions by trade partners (for example, Australia's call for investigations into the origin of the COVID-19 pandemic and Lithuania's decision to let Taiwan open a representative o ce in Vilnius[1]). But the concern is not just about China: the policies of President Trump between 2017 and 2020 showed that even one's closest ally can be tempted to leverage its market power and its control of the technical and nancial infrastructures of globalisation. e possibility of a second Trump term is now prompting a re ection on the need for Europe to prepare for such a risk (Gonzales Laya *et al*, 2024).

Second, recent concerns have focused mostly on trade-related rather than nancial vulnerabilities. is re ects the fact that trade-related vulnerabilities have become more prominent as a result of specialisation and the vulnerability of global supply chains that maximise e ciency, but at the cost of creating hidden fragilities. But the prominence of trade concerns may also re ect a rather myopic reasoning, as the last two or three external shocks that Europe (and, to a lesser extent, the US) has su ered have been trade-related: supply chain disruptions related to COVID-19 and energy price shocks following the Russian invasion of Ukraine.

In line with this concern, we focus mostly on trade-related external economic security. is should not be taken to imply that Europe does not need to worry about nancial security. But unlike trade-related security, nancial risks continue to be mostly of the nancial-stability variety, linked to shocks and nancial vulnerabilities rather than coercion. To the extent that nancial coercion is a serious concern, it is linked to one main potential source: the United

In this Policy Brief we seek to answer two critical questions. First, how should trade-related vulnerabilities be identi ed, and what trade relationships make Europe particularly vulnerable to shocks and coercion? Second, how can these vulnerabilities be reduced while minimising the costs of 'de-risking' and reducing the chances of unintended consequences? Four such potential costs come to mind:

- Foregoing some of the gains from trade specialisation and trade openness. is could weigh on European growth and competitiveness, which depend on export specialisation and on importing raw materials and intermediate inputs more cheaply than they could be produced at home (if at all). It could also make it harder to attain emission reduction objectives, by raising the cost of the transition to renewable energy sources. In turn, this could exacerbate social and political divisions related to climate action.
- Becoming more vulnerable to domestic shocks including natural disasters, epidemics and home-grown nancial crises – and more generally, to any shock whose consequences would be mitigated by international trade and/or capital ows.
- Damaging international cooperation. is could include European Union cooperation with China on vital matters of common interest, such as climate-change mitigation, as well as respect for the rules of the multilateral trading system. Notwithstanding the damage that the World Trade Organisation has su ered over the last decade, these rules continue to be largely respected (Mavroidis and Sapir, 2024). Bt of the trDn-1. (, thes)cattad conseq1 (em)

'economic security' di ers from those of 'economic crisis prevention' or 'national security'. To the extent that the perceived nature of the risk and risk propagation has changed, it is important to understand how it has changed, to avoid duplication, and to prevent overreaction to perceived new risks when the old risks and risk propagation channels might still be there.

Economists concerned with crisis prevention and mitigation typically focus on risks and vulnerabilities related to the nancial system or the structure of production. For example, credit cycles can expose countries to nancial crises, which are propagated internationally. Dependence on commodity exports or imports exposes economies to swings in international prices and to disruption to domestic production that relies on commodity imports.

Military and security experts worry about a di erent type of threat: harm that is in icted purposely by outside actors, normally nation states, but also terrorist or criminal organisations. Murphy and Topel (2013) widened the de nition of national security to include ald the deUcide actgs i

ideal way to answer this question would be through a rm-level model of trade and supply relationships, both across borders and within the EU. e model would 'know' who trades with whom, how speci c inputs enter each stage of production, and to whom rms sell. It would also have information about the ease of switching suppliers if a supplier fails or sharply raises its prices. Such a model could be used to stress test European economies in relation to speci c supply chain or customer risks. Where large e ects are found, it would be used to identify trading relationships worth de-risking. Unfortunately, such a model does not exist and may never exist because of data limitations. We are therefore constrained by the available information and should make the best of it.

3.1 Critical goods and the risk of import disruption

Suppose we were mainly interested in risks related to import disruption. is would be the case if exports are either well diversi ed or go mainly to countries that one would not consider to be ma-

To these, Mejean and Rousseaux (2024) suggested adding a small number of "*critical goods*" that, if insu ciently supplied, "*can result in human losses and other severe non-economic consequences*". ese would include between two and 19 pharmaceutical products, depending on where the substitutability cut-o is set, as well as inputs to the green transition. Interestingly, most of these inputs – including most critical raw materials, which have been among the main justi cations for the drive to de-risk imports, particularly from China – currently fail one or several of Mejean's and Rousseaux's dependency tests. While highly relationship-sticky, batteries and their components, hydrogen technologies, rare earth metals and solar panels fail the concentration test, and most components of solar panels fail both the concentration test and the relationship-stickiness test. Yet, Mejean and Rousseaux urged caution with respect to these products, on the grounds that demand for them is developing so fast that the structure of EU imports during 2015-2019, on which concentration indices and import needs are based, may be a poor proxy for trade dependencies in the future.

Mejean and Rousseaux's work represents the most exhaustive analysis so far to identify dependencies on the basis of ranking critical imports with respect to concentration and relationship substitutability, and deciding on thresholds above or below which concentration is deemed too high or substitutability too low. Precisely because it is more thorough and comprehensive than previous attempts in this literature, Mejean and Rousseaux (2024) illustrates the intrinsic limitations of this approach.

- We have so far no systematic way of telling which imports are genuinely critical. Focusing on upstream products and pharmaceuticals may miss other products (such as computer chips), the accidental scarcity of which would cause large economic or non-economic losses. Meanwhile, some upstream products and pharmaceuticals might not be critical if they can be substituted by other products. e European Commission's (2021) approach of designating whole "*ecosystems*" (sectors, such as health, energy, digital, electronics and aerospace) as critical, seems even more problematic, both because many products in these sectors are not in fact critical and because products outside these sectors that may well be critical could be missed (for example, most of Mejean and Rousseaux's upstream products).
- As both Mejean and Rousseaux (2024) and Bown (2024) emphasised, data limitations imply that import dependence measures do not re ect indirect exposure. If the EU has an import exposure to a country that is itself import dependent on China for this product (or

3.2 Risk from export disruptions and from decoupling

Another problem is that an approach focused on reducing dependence on critical imports does not consider disruptions to exports, which could equally have a macroeconomic impact if they were highly concentrated in any one destination country. For example, 20 percent of EU exports got to the US, 13 percent to the United Kingdom and 9 percent to China; while 41 percent of UK exports go to the EU, 21 percent to the US and 5 percent to China. Furthermore, just as import dependency numbers ignore indirect exposures, so do export shares. For example, direct UK export dependency to China is only 5 percent, but the UK's indirect exposure via the EU alone could be larger if UK products are part of the value chains of goods ultimately destined for the Chinese market.

While demand shocks via exports are a standard risk of trade integration, geopolitical conflict can take this risk to an entirely new level

While demand shocks via exports are a standard risk of trade integration, geopolitical conflict can take this risk to an entirely new level. First, hitting the exports of specific industries through import bans, high tariffs or social-media campaigns can be a form of geopolitical coercion. As reported by Bown (2024) and McCafrey and Poitiers (2024), there are numerous examples of Chinese coercion of this type. This type of coercion is typically not macroeconomically critical, but may seek to exploit the lobbying power of groups that are hurt, as well as internal divisions (in the case of the EU, this may include divisions across member states). Second, deliberate economic sanctions can of course have a much greater impact than swings in export demand triggered by normal economic fluctuations, or even than an economic crisis in a trading partner.

Baqaee *et al* (2024) simulated the impact of a decoupling from China in a trade model with 43 countries and 56 sectors, in the form of a complete stop in trade between a 'Friends' bloc comprising the G7 countries, Spain, the Netherlands and an artificial country comprising the rest of the EU, and a 'Rivals' bloc including China and Russia, on the assumption that trade continues both within these blocs and with the rest of the world. As might be expected, the short-term effects are substantial, with German output calculated to decline by 3-5 percent of GDP. At the same time, the simulations suggest that the cost of a complete decoupling from China would be relatively low if done slowly over time: around 1.25 percent of GDP for Germany and Japan, while the US and the remaining European countries would suffer in the range of 0.47 percent to 0.69 percent of GDP. The intuition behind this result is that the welfare costs of an end to trade integration between China and the 'Friends' group are mitigated by the fact that the Friends continue to trade with each other and with the 'Neutrals', and that these groups are sufficiently large and diverse to preserve most of the gains from trade.

3.3 Putting it all together

Combining the insights of Baqaee *et al* (2024) and Mejean and Rousseaux (2024) with the assumption that external economic risks include not only exogenous shocks to trade but also coercion, and possibly a wider trade disruption involving China, leads to the following conclusions.

First, there is a strong case for de-risking concentrated exposures to critical imports, by either diversifying supply or making preparations to mitigate disruption. However, identifying such products turns out to be very difficult, mainly because it is hard to assess the criticality of products, ie the welfare losses inflicted by a shortage or price spike. While we know that some products are critical – chips, energy, some pharmaceuticals, some minerals and some upstream inputs – we do not know what other products are critical. A good way to start is by de-risking the products known to be critical. Because we don't know how long it would take to find new suppliers in a crisis, or how price sensitive these imports might be to a loss of the main supply source, products known to be critical should be de-risked even if their relationship stickiness in normal times is fairly low.

The identification of such products obviously needs to take into account the costs as well as the benefits of de-risking. Take the example of solar panels and their components, often cited as a prime de-risking candidate because of their importance in the green transition and China's overwhelming global market share (63 percent, according to Mejean and Rousseaux,

2024). However, the short-term economic costs to the EU of a complete stop in solar panel

impact, particularly if they reduce concentrated exposures to China in major sectors for the EU economy, such as the car industry.

Finally, it is important to highlight two trade-related economic-security concerns that are the intellectual cousins of the risks identi ed and quanti ed by Baqaee *et al* (2024) and Mejean and Rousseaux (2024), but are not directly discussed in those papers.

e rst is the obvious risk, already mentioned in section 2, of a broad disruption to European trade with the United States in the event of a return of Donald Trump to the US presidency[3]. Given the much larger share of US imports and exports in European trade, this could hit Europe even harder than a disruption to trade with China. While Baqaee *et al* (2024) did not directly simulate such a shock, this is suggested by their "*EU autarky*" scenario, which has substantial costs even in the long run, ie even when phased-in slowly (a permanent consumption loss of 9 percent of GDP).

It follows that de-risking the trade relationship with the US by reducing trade integration might makes sense only if an even more catastrophic sudden decoupling from the US is viewed as likely. However, a disruption to trade with the US would likely take the form of a (limited) tari war rather than a trade embargo. is argues against a pre-emptive reduction in trade with the US. Instead, the EU must be politically prepared to ght a trade war with the US, [illegible]

A second related concern is that exposures to China and other countries that might engage

in September 2021 has as part of its mission to improve the resilience and availability of medical supplies. It aims to achieve this mission by identifying key supply chain bottlenecks and addressing them through measures such as coordinated stockpiling and joint procurement.

e Anti-Coercion Instrument (ACI, in force since December 2023) is intended to provide to the EU a wide range of possible countermeasures when a third country exercises coercion. It gives the EU extensive powers to deploy countermeasures in response to an act of foreign coercion, including the imposition of tari s, restrictions on trade, services and intellectual property rights, and restrictions on access to foreign direct investment and public procurement.

e Internal Market Emergency and Resilience Act[11] (IMERA, formerly Single Market Emergency Instrument, on which agreement was reached between the Parliament and the Council in February 2024) aims at ensuring continued access to critical goods and services. Although primarily intended to respond to Covid-type emergencies, it also covers disruptions to the single market triggered by con icts, such as the war in Ukraine.

Commission initiatives on inward and outward investment screening and the coordination of export controls were proposed in January 2024. e coordination mechanism for inbound investment screening is in place since 2020, but it mainly commits member states to put an investment screening into place. e 2024 economic security package includes an update of this scheme, but remains vague on the prospect of outbound investment screening.

Limitations notwithstanding, the EU has assembled an impressive package that expresses a change of attitude. Considerable e ort has gone into addressing critical import dependencies, giving the European Commission powers to deter coercion (the Anti-Coercion Instrument, application of which must be triggered by a majority in the Council), and preventing a breakdown of the single market in an emergency (Internal Market Emergency and Resilience Act, IMERA). However, these e orts fall well short of meeting the policy objectives listed at the end of section 3.

First, and most obviously, export dependencies have been largely neglected. Aside from the intention to negotiate additional trade agreements with friendly nations, there is no instrument to encourage export diversi cation and/or reduce concentrated export dependence on China.

Second, instruments to address import dependencies remain imperfect and incomplete:

- While the European Chips Act, Critical Raw Materials Act (CRMA) and Health Emergency

leeway to subsidise investment in the areas covered by these acts. While this may lead to occasional successes (investment in a critical area that would otherwise not have happened), there is no governance structure to ensure that critical dependencies are reduced in a timely way. Furthermore, the approach mostly bene ts EU countries that have the scal resources to provide large subsidies, and large incumbents, which have the clout and scale to lobby for subsidies and participate in IPCEI consortia.

ird, the Commission has so far missed the opportunity to rally members states behind the push to increase resilience by deepening the single market. is would help the EU resist external shocks and coercion – whatever the source and the channel – by allowing faster re-direction of trade and supply. Banking and capital markets union would raise economic security both by funding new productive capacity and by improving automatic risk-sharing, Better risk sharing across intra-EU borders would in turn make the EU more cohesive, and would make it harder to exploit internal divisions.

Table 2: Economic security objectives and available instruments

Objective	Available instruments	Problems
Reduce import dependency for critical products	Important Projects of European Interest (IPCEIs) European Chips Act Critical Raw Materials Act Net Zero Industry Act and related sections of the Temporary Crisis and Transition Framework for State Aid Health Emergency Preparedness and Response Authority (HERA)	Imperfect match between critical products and targeted products. Lack of cost-bene t analysis Weak EU level instruments Weak governance – actions and funding rely mostly on member states and lobbying by large rms
Diversify concentrated export exposures at the rm level	None, except for intention to negotiate additional free trade agreements with 'friends'	Lack of instruments leaves EU vulnerable to coercion
Deepen the single market and make it more exible	Internal Market Emergency and Resilience Act (IMERA)	No economic security–motivated deepening agenda
Deter economic coercion	Anti-Coercion Instrument	Council majority required to allow the Commission to deploy ACI powers
Limit overall trade dependency on China's market	None, except for intention to negotiate additional free trade agreements with 'friends'	Economic cost of sudden decoupling may deter appropriate action by the EU

Source: Bruegel.

A more systematic attempt to strengthen economic security could involve the following elements.

1. A process for identifying and regularly reviewing critical import dependencies, based on the criteria developed in section 2, and better data (Mejean and Rousseaux, 2024; Bown, 2024). Better data may require more systematic due diligence on the part of European rms in relation to their supply chains, from an economic-security perspective.

2. Stronger governance and better funding for a competition-friendly EU-level industrial policy. is could involve:
   i. An institution similar to the US Advanced Research Projects Agencies (ARPA) to develop technology in areas that are identi ed as critical (Tagliapietra *et al*, 2023; Pinkus *et al*, 2024).
   ii. Where the technology exists already, allocation of production or investment subsidies through auctions (along the lines of auction mechanisms that are currently used to tender renewable energy capacity).

ese mechanisms would not necessarily require large funding. US ARPA budgets are relatively modest (in the single digit billon range), while the auction process could be co-funded by EU countries, along the lines of the 'Auctions as a Service' concept proposed by the European Commission in relation to climate goals (European Commission, 2023).

3. e use of WTO-consistent trade instruments to incentivise import and export diversi cation. ese could include:
   i. On the import side: countervailing duties, justi ed by the presence of a foreign subsidy, that are focused on an area in which there is a critical import dependency on the country that is responsible for the subsidy;
   ii. On the export side, a duty levied on EU exports to countries for which export exposure is considered excessive. e latter could be politically di cult, but would be fully consistent with WTO rules