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Ensuring European Security and Stability

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Organizing for Victory...or Self-Deterrence?

The recent North Atlantic Treaty Organization (NATO) Summit in Washington D.C. was a commemoration of the 75th anniversary of the signing of the Washington Treaty that created the alliance. NATO is the oldest and most successful alliance in history – never perfect – but always successful in achieving its purpose of collective defense of all of its members.

However, the summit was also a missed opportunity for NATO to improve the strategic security environment of the transatlantic region for generations. Rather than ensuring Ukraine defeats Russia by restoring full sovereignty back to its internationally recognized 1991 borders, the priority of the West is avoiding escalation, giving Ukraine just enough to stay in the war. This, in effect, is actually prolonging the war and the killing of innocent people and will lead eventually to some sort of negotiated settlement that will give Russia the time it needs to rebuild its forces and defense industry while waiting for the West to repeat the historical pattern of losing interest.

Russian victory over Ukraine would result in millions more Ukrainian refugees pouring into Poland and Germany, an enlargement of Russian armed forces as thousands of Ukrainian troops are pressed into the Russian Army, and a continued disruption of food and energy supplies from Ukraine, affecting much of the world. It would also increase the likelihood of a direct conflict between Russia and NATO, the opposite of what the West wants.

Yet, despite these very obvious and predictable threats, the alliance, led by the United States and Germany, is so fearful that Russia might use a tactical nuclear weapon that it self-deters, stopping short of clearly defining a strategic objective for this war and instead implementing an incremental approach to delivering the minimum necessary support to Ukraine. Leaders have good reason to be concerned about the Kremlin's nuclear threats. Russia has thousands of nuclear warheads, and it clearly does not care about how many innocent people are killed, including its own. But the question is why and under what circumstances would it actually use a nuclear weapon. I believe it is extremely unlikely and we should stop giving in to Russian nuclear blackmail.

There are no positive outcomes for Russia if it uses a nuclear weapon. President Biden has warned of "catastrophic consequences" for Russia if it does so. Even China and India have warned Russia not to go down this road – because they fear the disruption of the delivery of their cheap oil and gas. There is no place on the battlefield where Russian employment of a tactical nuclear weapon would actually achieve something more significant than what it is already doing with conventional explosive weapons. In short, Russia does not actually need to use a nuclear weapon to exploit the fear of the West. So the question is: Do we have the political will, industrial capacity, economic leverage and military capability to organize for victory? Or will we just kick the can down the road?

The Kremlin's war against Ukraine continues, ten years since Russia first invaded Ukraine, and now more than two years since the start of its large-scale invasion. And Russia has assistance. Iran, its close ally, delivers Shahed drones to Russia and helpfully distracts Western resources and attention away from Ukraine through the attacks across the Middle East of its proxies Hamas, Hezbollah and the Houthis. North Korea has established a new security

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agreement with Russia and provides ammunition to Moscow, including large ballistic missiles that have been used against Ukrainian cities.

China continues to cross President Biden's red lines regarding material support for Russia's war effort, openly providing critical components needed for the production of missiles and drones used to kill innocent Ukrainian civilians. Beijing is waiting to see whether the West has the political will to stop Russia, while determining its own next moves.

Russia, China, Iran and North Korea share a disdain for the international rules-based order created after the Second World War from which so many have benefitted and which seems to be taken for granted. They use multiple means to exploit the lack of trust and coherence. They consider the disastrous conclusion to the 20 years of war in Afghanistan as evidence that no nation can really trust the West as a reliable partner.

These challenges are linked and should be seen as parts of a strategic whole. Doing so will help develop clearly defined strategic objectives and priorities and raise industrial capacity and military capabilities to the necessary levels for effective deterrence and defense.

So how does the West muster the combined political will, unlock the enormous industrial capacity, use all of the economic tools at their disposal and deploy their unmatched military capabilities to meet these threats to strategic interests? The Second World War offers an example.

In January 1942, after nearly three years of disaster for Great Britain at the hands of Nazi Germany and Imperial Japan, and in the immediate aftermath of Japan's destruction of most of the U.S. Pacific Fleet in Pearl Harbor, U.S. President Franklin D. Roosevelt and British Prime Minister Winston Churchill met in Washington D.C. to discuss a strategy for winning the war. Without much reason for optimism, and knowing that most Americans opposed a land war in Europe, Roosevelt and Churchill nonetheless agreed on the strategic priority of defeating Nazi Germany first. One year later, in January 1943, at the Casablanca Conference, the leaders met again to agree on the strategic objective: "unconditional surrender" of Germany and Japan. Having thus established the war's strategic objective and priority, the allied leaders organized their defense industries and built the enormous armies, navies and air forces needed to win the war.

There needs to be a return to the clarity of Churchill and Roosevelt. The West must defeat Russia first. This is how an expanded war in Europe and the Middle East is prevented, and China is deterred. The current situation in Ukraine is obviously very difficult but not lost. In fact, I remain confident that Ukraine can eventually defeat Russia and reestablish the 1991 borders.

After ten years of war, with the Kremlin holding every advantage, Russia still only controls one-fifth of Ukraine. The Russian navy and air force have failed their principal tasks and are suffering huge losses. Ukraine has changed the character of naval warfare, winning the battle of the Black Sea without a traditional navy of their own. Over 500,000 Russian soldiers have been killed and wounded. The Russians have not demonstrated the operational capability to achieve significant exploitation of their local tactical successes in the furthest eastern part of Ukraine, nor are they able to knock Ukraine out of the war. Ukraine can still win – but the West must do more.

History has shown that war is a test of will and a test of logistics. We have the industrial potential to deliver the necessary logistics to defeat Russia first, isolate Iran and North Korea, and deter China. Does the West have the political will to organize itself to win? Churchill and Roosevelt communicated clear strategic priorities to the public, industry and the military. Our elected leaders must speak to the people as adults, explain the threats, costs and sacrifices that must be made to protect strategic interests. We do not need to be scared; we need to be prepared.

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Ensuring European Security and Stability

After decades of relative peace and security, Europe is faced with a conflict on its doorstep that threatens to upend the recent stability and shift geopolitical order. Russia's war of aggression in Ukraine has forced Europe to confront its shortcomings with regard to providing its own security and to reconsider its reliance on the United States, which may be – under a potential Trump administration – much less supportive. This Forum focuses on what needs to be done now to address Europe's security concerns and guarantee stability for the foreseeable future. Is meeting NATO spending targets enough to support European defence? What would it take to make Europe more self-sufficient? How does Europe protect itself against malicious cyberattacks? And what role do women specifically play in supporting defence efforts and future reconstruction in Ukraine?

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Forum

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Daniel Fiott

The Challenges of Defence Spending in Europe

There can be no doubt that Russia's war on Ukraine has led to a sea change in the way that Europeans view defence. For more than three decades, European states have neglected their defence. This is not to say that they were militarily inactive, as the European Union (EU) in particular embarked on a series of crisis management operations over this thirty-year period. Rather, member states neglected making sizeable investments in key military capabilities and ensuring that the defence technological and industrial base in Europe was fit for purpose. This purpose has become glaringly obvious over the past two years, with deficiencies in how fast (and in what quantity) Europe could produce basic military equipment such as ammunition. For example, even though the EU pledged one million 150mm ammunition rounds to Ukraine over the past year, the reality is that only half this amount was delivered (Pugnet, 2024a).

Europe's defence manufacturing shortfalls are found not only in the production of ammunition, however; there have also been delays in the production of strategic capabilities such as main battle tanks. This has allowed external suppliers to provide Europeans with the equipment they need over the shorter term, such as South Korea's rapid delivery of Howitzers and K2 tanks (Poland Presidency, 2022). This realisation has led to fundamental assessments of how Europe's defence industry should be shaped in the coming years. At the EU level, political leaders have made clear that Europe not only needs to continue to support Ukraine with armaments, but that Europe's defence technological and industrial base is a core element of Europe's overall defence (European Council, 2022).

The realisation that Europe's defence industry needs political support has taken some time, but it is now an important point of consensus between EU member states and political groupings in the European Parliament. Yet, as this contribution to the Forum argues, defence expenditure is an intensely political affair, which makes our ability to assess the quality of defence investments harder. As we will see in this contribution, defence investment is a necessary factor for stimulating the long-term health of the defence industry. We also discuss how defence spending is assessed and managed in a NATO context in order to underline the specific nature of the EU's own process of encouraging defence investment among its member states.

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The importance of sustained defence investment

There are many ingredients needed to ensure that Europe can build back its defence technological and industrial base after years of neglect. There is a need to attract and retain human capital in defence industrial production processes and critical raw material inputs. The issue of skills gaps in the defence industry, for example, is in fact a structural issue that has long affected European defence (Rand Corporation, 2024), but it has become an even more salient challenge following the increase of defence investments since the war on Ukraine. Technologies and efficient management processes are also vital to ensuring that Europe can produce military equipment in a timely and high-performant fashion. Nevertheless, the majority of ingredients require intense and sustained defence investments, as has become abundantly clear since Russia's war on Ukraine (Fiott, 2022).

Put simply, defence can only truly thrive when it benefits from a consistent source of investment over multiple years and decades. Kick-starting a virtuous defence industrial cycle, where militaries can procure cost-effective and high-performance equipment and systems, requires long-term planning and investments. For one thing, the defence innovation required to develop and test the technologies that are integrated into systems (i.e. sensors integrated on fighter jets) takes many years (Fiott, 2019). The development of systems themselves can take multiple decades. Yet, for many pieces of defence equipment, several European governments are still planning for their needs over the next two years rather than developing a multi-year approach to procurement and investment (Aries et al., 2023).

However, the clear need for sustained defence investments is not a simple case of an increased government defence spending from year to year, regardless of how desirable this may be from a defence perspective. Instead, in national budgets, governments are constantly weighing how much investment to dedicate to defence as compared to health, education, social services and more. This has historically been called the "guns vs butter" or "war vs welfare" dilem-

ma. The reality, however, is that the decision is never simply a case of defence or social welfare, but rather how much defence and how much welfare a government can afford at any given time. In any case, some may even argue that defence is a form of welfare, as it aims to guarantee the most basic human instinct: survival.

The politics of defence spending

Defence investment is always an intensely political issue, especially in an alliance context. To be sure, the question of burden sharing between the United States and European NATO countries has been a mainstay of alliance management and politics. However, in recent years burden sharing has become a polarising issue, with former President Trump calling on European allies to increase defence spending beyond the 2% of GDP pledge or otherwise do without American security guarantees via NATO. The NATO Secretary General Jens Stoltenberg led the charge against President Trump with claims that the former president was undermining deterrence and defence through his comments (Sabbagh, 2024). Alternatively, however, one can see former President Trump's comments as a new, more robust, form of communicating a long-standing bugbear of the US on the lack of European defence investments (Kroenig et al., 2024).

In practice, the issue of whether Europeans invest enough in defence has become a sort of bellwether for the Republican Party's commitment to the alliance. As the US seeks to centre its defence policy on China, Europeans are starting to learn that down payments on defence are an effective symbol of their own commitment to NATO. The combination of pressure from the US and the war in Ukraine is having a positive effect on defence expenditure in Europe. NATO's own calculations on defence spending in the alliance demonstrate that 23 out of 31 allies are meeting the 2% of GDP pledge in 2024 (NATO, 2024a). This is a big change from a decade ago in 2014 after the Wales Summit, when only three allies met the pledge (the US, Greece and the UK). Interestingly, in 2024 a further five allies spent more than the 2% guideline, with Poland investing 4.12% of GDP in defence, Estonia 3.43%, the US 3.38%, Latvia 3.15% and Greece 3.08% (NATO, 2024a, p. 4).

The issue in this regard is how far Europe is prepared to move beyond the 2% of GDP pledge, especially as allies at the Vilnius Summit recognised "that in many cases, expenditure beyond 2% of GDP will be needed in order to remedy existing shortfalls and meet the requirements across all domains arising from a more contested security order" (NATO, 2024b). In this sense, today the 2% pledge should be considered as a baseline rather than a ceiling. This evolution in thinking on defence spending anticipates that the Alliance may have to aim for 3% or 4% of GDP in the coming years, depending on who is in the White House in 2025. Doing so will be a challenge for many allies, even though the majority have increased to 2% already. In fact, analysis suggests that while some countries, e.g. Germany, are investing enough in the short term to meet the 2% pledge, the money is likely to dry up after 2026 and leave a potential funding gap of €30 billion (Mölling & Schütz, 2024).

The EU's approach to defence expenditure

We should recall that the EU is not bound per se by the 2% of GDP pledge agreed upon by NATO allies. In fact, no like-for-like official pledge has been agreed upon at the EU level so far, although one can argue that those EU member states that are part of NATO are de facto bound by the spending pledge. Even so, the EU itself has not neglected the issue of defence spending targets. Back in 2007, ministers at the European Defence Agency (EDA) agreed to four collective benchmarks including a need to invest: first, 20% of total defence spending on equipment procurement (including research and development, R&D/research and technology, R&T); second, 35% of total equipment spending on European collaborative equipment procurement; third, 2% of total defence spending on defence R&T; and fourth, 20% of total defence R&T spending on European collaborative defence R&T. However, there are no timelines associated with these benchmarks and they are entirely voluntary and optional (EDA, n. d.). It is, therefore, no surprise that the EU member states have routinely failed to meet these four benchmarks.

Not even the establishment of Permanent Structured Cooperation (PESCO), agreed in 2017 to boost EU defence cooperation on military capabilities, has significantly altered the EU's approach. Indeed, the 20 binding commitments agreed to by participating PESCO member states only restate the four benchmarks as objectives and the first binding commitment calls for "regularly increasing defence budgets in real terms, in order to reach agreed objectives" (PESCO, n. d.). This is hardly compelling, and there is no mention of 2% or any target. Nevertheless, PESCO did push back against the idea of voluntary and optional benchmarks, and PESCO does introduce timelines for when member states should deliver on their spending pledges. This does not mean that the EU has developed a sanctioning tool for those member states that do not spend enough on defence, but the need to submit national implementation plans to the EU to show how each state will meet its obligations is a relatively new feature of EU defence spending politics.

This PESCO process is complemented by the Coordinated Annual Review on Defence (CARD), which sees individual member states share their defence planning horizons with

the EDA. Although this is a secretive dialogue where each member state's shortfalls remain undisclosed, a CARD report is released each year to give a collective picture of Europe's defence commitments. For example, the 2022 report indicated that EU member states had collectively increased defence spending since Russia's war, and the largest share of planned investments fall in the air (34%), maritime (14%) and land (14%) domains (EDA and EU Military Staff, 2022, p. 3). Again, nothing in CARD compels member states to spend more on defence, and it is certainly not true that reported increases in defence expenditure are the result of EU processes such as CARD. Nevertheless, such processes do allow EU institutions to have a better, more granular, understanding of where EU and NATO members will invest their defence budgets over the coming years.

What does and does not get counted?

The truth of the matter, however, is that defence spending guidelines in NATO and the EU can only be an abstract exercise designed to provide a generalised overview of a state's commitment to defence. Yet, even abstract guidelines do matter as they allow political leaders to collectively pressure one another on defence spending. We must, however, recognise that abstract figures such as a defence spending-to-GDP ratio hide much of the intricacies of defence spending in Europe. So, while European NATO members and Canada have added an extra US $200 billion in defence spending between 2014 and 2024 (to a total of US $430 billion in 2024), this hides the fact that the US still spends the most on defence across NATO (US $755 billion in 2024; EDA and EU Military Staff, 2022, p. 5). What is more, the abstract data hides the differences between EU member states in terms of where they invest the bulk of their defence budgets. For example, Belgium, Bulgaria, Croatia, Greece, Italy and Portugal dedicate 50% or more of total spending on personnel. In contrast, the bulk of spending in Estonia, Finland, Hungary, Luxembourg and Sweden goes towards operations, maintenance and major equipment purchases (EDA and EU Military Staff, 2022, p. 6). Such differences force us to appreciate the quality rather than quantity of defence spending in Europe.

In the EU, defence spending, as measured against the NATO 2% pledge, has always been lacklustre. For example, the EDA calculated in 2022 that the EU collectively invested 1.5% of its total GDP on defence (EDA, n. d.). Nevertheless, in the EU there is more of a fixation on how best to invest European defence spending together rather than any active plan for achieving an abstract or overarching objective of a defence spending-to-GDP ratio. This is not to say that increased defence spending in the EU is not important, as it clearly is, but the EU as a set of institutions recognises that they have limited political power to compel governments in what remains a sovereign decision to spend on defence. This is why the EU frequently relies on the mantra of "spending more, spending better, spending European" (European Commission, 2024). Stressing the European dimension here is designed to point to the structural constraints facing the European defence sector.

As the new European Defence Industrial Strategy indicates, joint procurement "will help speed up in a collaborative manner the adjustment of industry to structural changes" (European Commission/High Representative of the Union for Foreign Affairs and Security Policy, 2024, p. 9). This focus on using increasing levels of defence investment on joint procurement and joint development of capabilities is based on sound logic. Analytical studies have confirmed that it will become increasingly difficult for individual nations to develop their own national, single, defence systems. Even though some nations may insist upon developing national platforms, for Europeans the costs are high as individual national development programmes face stiff international competition. The logic that has gripped the EU, therefore, is that it is better to invest European defence budgets into collaborative European platforms, equipment and technologies. In this way, it is argued, a virtuous cycle can be established whereby Europeans invest in their own defence technological and industrial bases in order to help produce cost-effective, autonomous systems en masse (Briani, 2013; Bellais & Fiott, 2017).

Yet, in addition to this drive to enhance joint defence development and procurement, a lot of the EU's existing – and relatively newer – sources of defence expenditure do not get included in national, EU or NATO reporting on defence expenditure. For example, through the EU budget, a figure of €8 billion is being invested in defence innovation and prototyping via the European Defence Fund (EDF). An additional €1.5 billion is dedicated from the EU budget to military mobility. Under the European Peace Facility (EFP), which the EU has been using to support Ukraine (e.g. through ammunition deliveries) and to conduct "train and equip" missions, the member states have dedicated an additional €17 billion. Finally, an additional €2 billion from the EU budget has been found for ammunition production and joint procurement. In total, therefore, approximately €30 billion in financial sources at the EU level is supporting defence, but none of this is considered to be part of Europe's contribution to defence (including Europe's contribution to NATO burden sharing).

True, at this precise moment, a figure of €30 billion would be a negligible amount of the EU's overall contribution to defence investment. Yet, the EU is increasingly engaged in defence, and there are plans to significantly increase the Union's investments. Indeed, under the planned European

Defence Industrial Programme (EDIP), which is currently being negotiated by EU member states, ambitious investment levels are being called for. At least one European Commissioner has argued that €100 billion be assigned to the EDIP from 2028-2034 (Pugnet, 2024b). Inspired by the Union's ability to borrow money under the NextGenerationEU mechanism, which was designed to take on debt to help Europe's economic recovery after the COVID-19 pandemic, the idea is now to replicate this process for defence investments at the EU level.

Conclusion

Of course, it remains to be seen whether the EU will agree to a joint debt for defence, not least because the German government is directly opposed to financing defence through debt. Not only are there constitutional considerations for Germany, but ideology and industrial interests mean that there is a reluctance to borrow money for EU joint procurement efforts. Time will tell how wise this policy by Germany is. To be sure, however, Germany is not alone in its reservations, and French industry has also raised concerns about the idea of joint procurement in certain capability areas. Both France and Germany are locked in a first-mover dilemma, whereby any communitarianisation of defence investments at the EU level may be perceived as harmful to national defence industrial competitiveness. Paris and Berlin would prefer that European customers buy directly from them, or, at the very least, not set in motion EU frameworks that will favour the other side industrially. On top of this are concerns about technology sharing and agreeing on what types of military equipment should be prioritised. It could be that this disagreement between France and Germany is enough to derail any EU efforts to boost joint defence procurement. Again, time will tell.

What is clear is that the EU's defence investments will not be enough to placate personalities such as Donald Trump, who would be largely unaware – or uninterested – in what the EU does or does not achieve. Should Trump emerge victorious in the forthcoming US presidential election, defence spending will again become a core feature of alliance politics. The EU will not be fully immune from these headwinds, and there may even be a return to the same position that the EU advanced during the first Trump presidency: namely, hedging against US retrenchment in Europe by re-energising the EU's defence efforts. If this is coupled with a political hollowing out of NATO by Trump, then defence spending will be but one among many major challenges for European security. In advance of the US presidential election, Europe can only keep up its political messaging on its defence investments. Where Europe goes beyond investing 2% of its GDP on defence remains to be seen.

References

Aries, H., Giegerich, B., & Lawrenson, T. (2023, June 19). The Guns of Europe: Defence-Industrial Challenges in a Time of War, *IISS Survival Online.* https://www.iiss.org/en/online-analysis/survival-online/2023/06/the-guns-of-europe-defence-industrial-challenges-in-a-time-of-war/

Bellais, R., & Fiott, D. (2017). The European Defense Market: Disruptive Innovation and Market Destablisation. *The Economics of Peace and Security Journal*, *12*(1). https://www.epsjournal.org.uk/index.php/EPSJ/article/view/287

Briani, V. (2013, April). *The Costs of Non-Europe in the Defence Field*, IAI Rome. https://www.iai.it/sites/default/files/CSF-IAI_noneuropedefence_april2013.pdf

European Commission. (2024, February 28). *Speech by President von der Leyen at the European Parliament Plenary on strengthening European defence in a volatile geopolitical landscape*. https://neighbourhood-enlargement.ec.europa.eu/news/speech-president-von-der-leyen-european-parliament-plenary-strengthening-european-defence-volatile-2024-02-28_en

European Commission/High Representative. (2024, March 5). *European Defence Industrial Strategy*, JOIN(2024) 10 final, p. 9.

European Council. (2022, March 11). *Versailles Declaration*. https://www.consilium.europa.eu/media/54773/20220311-versailles-declaration-en.pdf

European Defence Agency (n. d.). *Defence Data*. https://eda.europa.eu/publications-and-data/defence-data

European Defence Agency and EU Military Staff (2022, November). *2022 Coordinated Annual Review on Defence Report* (p. 3). https://eda.europa.eu/docs/default-source/eda-publications/2022-card-report.pdf

Fiott, D. (2022). The Fog of War: Russia's War on Ukraine, European Defence Spending and Military Capabilities. *Intereconomics*, *57*(3), 152–156. https://www.intereconomics.eu/contents/year/2022/number/3/article/the-fog-of-war-russia-s-war-on-ukraine-european-defence-spending-and-military-capabilities.html

Fiott, D. (2019). Strategic Investment: Making Geopolitical Sense of the EU's Defence Industrial Policy. *EUISS Chaillot Paper*, 156. https://www.jstor.org/stable/pdf/resrep21145.1.pdf

Pugnet, A. (2024a, April, 17). Where does the EU stand on its ammunition pledge to Ukraine? *Euractiv*. https://www.euractiv.com/section/defence-and-security/news/where-does-the-eu-stand-on-its-ammunition-pledge-to-ukraine/

Pugnet, A. (2024b, March 5). Breton pitches €100 billion fund for defence industry cooperation. *Euractiv*. https://www.euractiv.com/section/defence-and-security/news/breton-pitches-e100-billion-fund-for-defence-industry-cooperation/

Poland Presidency. (2022, December 6). Poland receives first consignment of Korean tanks, howitzers. *Euractiv*. https://www.president.pl/news/poland-receives-first-consignment-of-korean-tanks-howitzers,62099

Permanent Structured Cooperation. (n. d.). *Binding Commitments*. https://www.pesco.europa.eu/binding-commitments/

Kroenig, M., Negrea, D., & Wolters, T. (2024, March 7). Trump is Right on NATO Spending. *Foreign Policy*. https://foreignpolicy.com/2024/03/07/trump-nato-europe-russia-defense-spending/

Mölling, C., & Schütz, T. (2023, July 19). Germany's Defense Budget 2024: The Planned Increase is Not Yet Enough. *DGAP Memo*. https://dgap.org/en/research/publications/germanys-defense-budget-2024

NATO. (2024a, June 12). *Defence Expenditure of NATO Countries (2014-2024)*, p. 4. https://www.nato.int/nato_static_fl2014/assets/pdf/2024/6/pdf/240617-def-exp-2024-en.pdf

NATO. (2024b, July 11). *Vilnius Summit Communiqué*. https://www.nato.int/cps/en/natohq/official_texts_217320.htm

RAND Corporation. (2020, January 1). *Understanding Skills Gaps in the European Defence Sector*. https://www.jstor.org/stable/resrep24282?seq=1

Sabbagh, D. (2024, February 14). NATO chef rebukes Donald Trump and announces record defence spending. *The Guardian*. https://www.theguardian.com/world/2024/feb/14/nato-chief-rebukes-donald-trump-and-announces-record-defence-spending

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Debt Financing European Air Defence

Ukraine is not the only part of Europe vulnerable to missiles and air attacks (Dausend et al., 2024). Existing capabilities, in particular NATO's integrated air and missile defence systems (NATO, 2023), are insufficient to comprehensively protect European territory. Experience in both Ukraine and Israel shows that effective missile defence is actually feasible. Yet, air defence systems such as the US-made Patriot or the German Iris-T are expensive – one reason why European governments have not invested sufficiently.

EU debt outside of national fiscal rules would provide resources for the costly roll-out of the European public good air defence as a response to an imminent threat to European security. This act of mutual assistance would free national budgetary resources and provide long-term funding stability, thereby also helping to boost the domestic defence industry.[1] We discuss how such EU debt could be justified in EU law and concretely implemented.

Defence has typically been considered an area of purely national sovereignty with little willingness to advance integration due to differences in preferences. Defence and military capabilities are likened to core sovereignty issues and a country's ability to effectively exercise state power (Dobbs, 2014). This has led some national constitutional courts to identify defence as a core function of the nation state for its sovereignty. This would imply that transferring competence for defence to the EU could be unconstitutional and core defence capabilities would therefore have to remain under national control (German Federal Constitutional Court, 2009). The sensitivity of defence as an issue of national concern is further reflected in the very limited collaboration that defence has seen throughout the EU integration process. Accordingly, European Treaties flag defence and military issues (just like the Common Foreign and Security Policy more generally) as areas of national competence, where EU-based defence activities are limited in scope and constrained by unanimity voting.

Yet, Mérand and Angers (2014) highlight that European defence integration enjoys consistently high levels of public support. Genschel and Jachtenfuchs (2015) identify the increasing integration without federalisation of core state powers, including defence, in the EU. Graf (2020) demonstrates that strategic threat perceptions can impact public opinion on European defence cooperation and integration, e.g. the perception that Russia's military activities in Ukraine are a threat to Germany's security increases support for the creation of a common European army. Likewise, Burgoon et al. (2023) underline that crises relax the "constraining dissensus" in relation to defence integration. They find both cross-border support for European defence as well as converging preferences on the actual design of such policy. It is therefore perhaps no surprise that the somewhat ad hoc German proposal on air defence, the European Sky Shield Initiative (ESSI), put forward by Chancellor Scholz in August 2022, has rapidly been endorsed by 21 participating states, with Poland also considering taking part.

The initiative, however, has been criticised by France and others, in part because of its focus on US and Israeli defence companies providing central elements of the air defence systems.

Yet, if EU debt were additional, purchases from US companies would not crowd out European industrial development. Moreover, EU debt funding for air defence could include spending on the further development of European air defence industrial capacities, including the French/Italian SAMP-T systems, as highlighted by President Macron (2024). Moreover, while the debt financing is strictly limited in scope and quantity to European air defence (mainly for the legal reasons outlined below), the financial investments would also provide long-term funding that would ensure the necessary stability for effective industrial policy and fiscal forward guidance for the industry to

1 Since EU debt would be additional, i.e. outside of national fiscal rules and budget consolidations, increased spending in the short term would not come at the expense of defence industrial policy objectives. Germany, for example, bought Patriot systems in 2023 and 2024 for several billion euros. These purchases absorbed a significant part of a special €100 billion German defence fund (*Sondervermögen*). If EU funding were made available, freed-up fiscal resources could be focused on domestic and European military purchases – for example drones – including from European high-tech defence companies.

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enhance production capacities. The build-up of capacities of domestic defence companies in air defence is all the more important in order to have a diversity of systems rendering European air defence more resilient to possible disruptions from foreign suppliers.

Since air defence concerns Europe as a whole and not only the EU, an EU funding initiative should be open to European allies, including the United Kingdom and Norway, which are part of the same airspace that needs to be defended. While the EU borrowing mechanism that we propose would focus on EU procurement, non-EU allies could be associated with that mechanism.

ESSI and its proper governance design

Why air defence is a European public good

Defence is almost by definition a public good as states hold the monopoly on the use of force. What requires further justification is to what extent defence is a European public good. A European public good can be defined as a good not supplied at an adequate level without public intervention (Breton, 2024; Fuest & Pisani-Ferry, 2020), and which should be provided, at least partially, at the EU level to internalise externalities and reap benefits of scale, notwithstanding potential differences in national or local preferences (Claeys & Steinbach 2024). This definition from the fiscal federalism literature (Tiebout, 1956; Oates, 1972; Alesina et al., 2005) does not necessarily apply to all dimensions of defence to the same extent. In the EU, as well as in NATO, any national army provides a public good beyond its own security to some extent as it can be called up and contribute to collective defence via NATO Article 5 and Article 42(7) Treaty on European Union. This is a direct way of contributing to collective deterrence and thereby shows that national defence capacities are, at least to some extent, a European public good. As countries can, to a degree, count on assistance from others, there is an incentive to free ride on others' provisioning of military services.

An area with particularly strong scale effects and externalities is air defence. When it comes to threat detection, the more radar and other detection systems are interconnected and data shared, the easier it is to detect threats early on and the lower the investment needed for every individual country. For aircraft, cruise missiles and drones flying at low to medium altitude, countries of first entry should typically be the ones that neutralise the threat, thereby providing a public good to all countries further away that might have been targeted. Even for high-altitude ballistic missiles, the detection and provision of neutralisation can happen from countries other than the one targeted. For example, a ballistic missile threatening the Netherlands is unlikely to be intercepted only in the Netherlands. European air defence is therefore a particularly strong type of public good that few to no European countries could provide on their own. Scale economies and externalities thus offer a strong rationale for providing the public good at the European level rather than nationally. With fixed costs for building up air defence being significant, integrating national efforts into one unified approach can untap substantial saving potential.

At the same time, the Germany-led ESSI – while having been endorsed by 22 European countries – has been seen critically in France and Italy in particular. The criticisms concern the strategic level, questions of scale and availability as well as industrial policy questions (Arnold & Arnold, 2023). While preference heterogeneity exists at the European level, it is not impossible in the case of air defence to overcome some of the differences to provide the good at the EU level. At the strategic level, there is the worry that building up a strong air defence would upset the balance of power and deterrence between Russia and Europe, in particular as concerns high altitude deterrence such as the one provided through the Arrow 3 system. There is also fear that there is too much investment in air defence rather than in capacities for deep strikes. As concerns the questions of scale and availability, the reservation is that ESSI relies too strongly on US-based systems, in particular on the Patriot system, which creates strategic dependencies on the US and limits availability based on the production capacity of the US company Raytheon. Finally, the industrial policy worry is that European taxpayer money would boost US defence companies instead of advancing European systems from France and Italy, in particular SAMP-T.

Since the inception of ESSI, some convergence has been achieved on these three dimensions, and French President Emmanuel Macron has explicitly recognised the importance of ESSI for countries without nuclear deterrence (Federal Government, 2024). When it comes to the balance between deterrence and strike capabilities, there is a growing recognition that air defence cannot come at the expense of strike capabilities – while at the same time, the importance of air defence has been recognised for countries with limited nuclear deterrence. When it comes to strategic dependence, MDBA Germany is building a factory to produce Patriot missiles, but capacities might still be insufficient and dependencies exist. These drawbacks must, however, be balanced against the advantages of the availability of the US systems and their high performance. To make debt funding acceptable and ensure Europe's air defence industry strives, it will be important to strengthen the interoperability of systems and

include SAMP-T systems, Iris-T as well as other European systems in the European funding efforts.

The adequate governance design for air defence as a European public good

Characterising air defence as a European public good does not necessarily imply that all its elements should be centralised at the EU level (Claeys & Steinbach, 2024). Rather, the EU legal and institutional framework offers a menu of design options that allow customising the governance of the public good guided by efficiency and trade-offs described above. One design option that accounts for policy preferences that are too diverse is the provision of "club goods" rather than EU27 provision of European public goods. The Treaties generally allow for the provision of "club goods" through "enhanced cooperation" and defence is a case in point (Fuest & Pisani-Ferry, 2019; Demertzis et al., 2018). One design option offering flexibility in governance would be the Permanent Structured Cooperation (PESCO). PESCO is an area of security and defence cooperation through the development of national contributions towards more defence capabilities in relation to development, research, acquisition and armaments.[2] Projects involving non-EU countries have also been pursued under the PESCO umbrella. PESCO could thus become the framework for some air defence equipment purchases and for enhancing R&D in air defence in collaboration, where applicable, with the European Defence Agency and the European Defence Fund.

ESSI is currently running outside of the EU as a Germany-led initiative among European countries that are also NATO members.[3] ESSI currently includes 21 states, of which 17 are EU members (Poland may soon join) while four are European allies (Norway, the UK, Switzerland, Turkey). The PESCO cooperation framework counts 26 EU member states. The PESCO framework provides sufficient flexibility for at least the 17 EU ESSI members to cooperate in PESCO projects. ESSI could become a new PESCO project, and those 17 EU countries (of the 26 PESCO members) supporting the project can agree on a "club good" based initiative of ESSI.[4]

The participating member states would agree among themselves on the arrangements for, and the scope of, their cooperation and the management of that project. Integrating non-European countries into ESSI is possible under the PESCO architecture, as it has already been practiced in the past by integrating the US and Canada into the PESCO Military Mobility project.[5]

The advantage of pursuing ESSI within PESCO is that a suitable institutional governance exists that could provide the basis for joint debt financing and could also be used for increasing cooperation in procurement as well as R&D. In particular, integrating ESSI into PESCO would allow the use of resources from the European Defence Agency (EDA), for example, to enhance the interoperability of different systems and invest in R&D, including the French and Italian air defence system.

Also, supplying air defence as a public good can be customised by its delivery in a central or decentral fashion. In our understanding, the EU would play no operational role in air defence, which would remain solely the competence of member states and the agreed NATO framework. Some elements, however, could be delivered at the EU level, such as defence procurement of air defence (e.g. joint large-scale purchases of military equipment). In a less ambitious approach, the purchases would still be done nationally but under a joint framework contract. Jointly issuing debt would not require the European Commission to decide on spending as this would remain in principle the responsibility of the member states, or, if centrally decided, subject to unanimity in the Council.

As joint procurement will create not only winners but possibly also some losers, such as incumbent industrial players who may lose their (national) market shares, it is important to consider political implications. Incumbent industrial players seek to retain their (national) market shares, but joint (rather than national) procurement and purchase of air defence armaments can revitalise competition, break up national markets and threaten national "champions" (Burgoon et al., 2023). Some regions may be adversely affected if the regional industry loses market shares. While some compensation mechanisms are politically advisable to strengthen the domestic defence industrial base (which would not benefit significantly from the US/Israel-oriented industry), the key point in our proposal is that the overall market size should increase more rapidly, making the joint debt issuances and joint procurement a positive sum game. With the larger spending, it should be possible to include TWISTER and SAMP-T in the ESSI purchases.

2 Article 42(6), 46 TEU and Protocol No 10 to the TEU.
3 Article 46 TEU.
4 Article 5 of Council Decision (CFSP) 2017/2315.
5 https://www.pesco.europa.eu/pressmedia/development-delivery-and-determination-pesco-forging-ahead

Debt financing ESSI

Economic rationale for EU debt funding

PESCO projects are generally financed by those countries participating in PESCO projects.[6] In the case of air defence, joint debt issuance could raise the resources to fund the member states spending on ESSI in the context of PESCO while also reserving some funds for centrally organised purchases and R&D. The idea would be to use EU debt as a mechanism to prevent the catastrophic event of a direct military threat from Russia (Wolff, 2020).

The economic rationale for debt funding air defence is straightforward: building the air defence systems represents a huge upfront investment cost. Once the system is in place, the operating costs are relatively small. The operation of the radar systems and sustaining the readiness is costly but nothing compared to the actual costs of putting up the systems. Large upfront investments should be funded by deficits for tax-smoothing arguments as well as for spreading costs over the periods during which systems will be used.

Legal implications of EU debt financing air defence

The legal implementation of exceptional debt financing ESSI is challenging but feasible. There is a general restriction for the EU budget to fund expenditure arising from operations having military or defence implications. However, our solution introduces EU borrowing "off-budget" and outside the regular EU budget (like with NextGenerationEU). Further guarantees to protect the (financial) interests of neutral states are possible.

With NextGenerationEU as the precedent of debt financing EU expenditure, there are several legal strings attached to repeating debt financing. A distinction must be made between *borrowing* for ESSI purposes and *spending* for ESSI activities. The central legal authority for the Commission to borrow on behalf of the EU is the Own Resources Decision (ORD) (Grund & Steinbach, 2023). The ORD requires both a unanimous Council decision that designates the main sources of EU financing and ratification by each member state. The ORD authorises borrowing and specifies how the borrowing proceeds are to be used. This implies that borrowing requires a new ORD and hence ratification by EU countries in line with domestic constitutions (as specified by Article 311 TFEU). The financial resources that the EU "borrows" under Article 311 TFEU and the ORD are externally assigned revenues just like under NGEU.

In turn, spending of the funds raised needs to have a distinct legal anchor, which, in the case of NGEU, was the emergency clause of the EU Treaties (Article 122 TFEU). This provision is also referred to as a "solidarity clause" and it justifies the financing of targeted and temporary economic measures in exceptional situations. The emergency clause requires linking the use of borrowed funds to addressing the "exceptional occurrence" within the meaning of Article 122 TFEU. Despite obvious differences with NGEU, the building up of an ESSI-based air defence can be likened with an emergency and solidarity situation under Article 122 TFEU, in which member states give mutual assistance to divert an immediate security threat.

The Russian attack on Ukraine was an unforeseen shock hitting and putting at risk the security of the EU and its member states. Even if the attack primarily aimed at a non-EU country, there is wide consensus that Russian territorial imperialism engenders a direct threat to EU security (Cavoli, 2024). The legal standard has been specified by the German Federal Constitutional Court (2022) requesting that debt financing be limited in duration, volume and substance. The last requirement entails linking the use of borrowed funds to addressing the "exceptional occurrence" within the meaning of Article 122 TFEU. This was key to the German Federal Constitutional Court (2022) ruling, which held that the relevant instrument "remains strictly limited to the historically exceptional case of 'support[ing] the recovery in the aftermath of the COVID-19 crisis'". It may well be argued that an assault in the immediate neighbourhood country of the EU by military means can be likened to a "historically exceptional case", which leads the ESSI project fortifying European defence to respond to this exceptional event. Even today, the direct threat of a Russian attack on EU territory is visible. Increased hybrid attacks and stray missiles reaching EU territory are among some of the numerous indicators of the immediacy of the threat.

Conclusions

The increased threat perception has shifted sentiment in Europe, and the building up of defence capabilities has increased in importance in many countries. Surveys also indicate that citizens want the European Union to play a larger role in defence (Bertelsmann Stiftung, 2024). It is therefore no surprise that the German initiative to build up a European air defence system, called ESSI, has been welcomed and endorsed by 22 European countries. Yet, France and Italy in particular have expressed reservations

6 Article 8(2) of Council Decision (CFSP) 2017/2315.

about the initiative, even though some strategic convergence has become visible in the course of 2023.

This article argues that joint EU debt funding would be appropriate to boost European air defence. Joint funding can be justified by the fact that air defence is a European public good with a lot of externalities and spillovers. Debt funding is appropriate since air defence system build-up requires high upfront costs. We have discussed the legal approaches to such debt funding following a model that is close to the post-COVID-19 NextGenerationEU recovery plan and find that such a legal construction is tenable.

Policymakers would be well advised to rapidly set up such a major EU debt programme to boost European security in a spirit of solidarity between European countries. This would free national fiscal resources for other urgently needed defence systems. They should further adjust ESSI to take into account justified industrial policy concerns and support the research and development for system interoperability and the enhancement of European technology in air defence. Finally, policymakers need to find ways to include non-EU ESSI members in the efforts. While most of the jointly issued EU debt would be dispersed to EU ESSI members to fund their purchases and could therefore be matched by non-EU ESSI members' domestic funding, adding equivalent national debt contributions of the respective ESSI countries to any joint purchases and joint R&D efforts would complement the approach. On the whole, EU debt would allow the advancement of European defence efforts in a highly threatening security environment. Joint EU debt funding would internalise the major security externalities of air defence, be treaty compatible and politically highly welcome – without hindering EU industrial policy objectives.

References

Alesina, A., Angeloni, I., & Etro, F. (2005). International Unions. *American Economic Review*, *95*(3), 602–615.

Arnold, S., & Arnold, T. (2023). Deutschlands schwache Führungsrolle bei der europäischen Luftverteidigung. *SWP-Aktuell*, 2023/02. https://www.swp-berlin.org/10.18449/2023A02

Bertelsmann Stiftung. (2024, February 14). Two Years of War: European citizens want a common defense policy. https://www.bertelsmann-stiftung.de/en/topics/latest-news/2024/february/two-years-of-war-european-citizens-want-a-common-defense-policy

Burgoon, B., van der Duin, D., & Nicoli, F. (2023). What would Europeans want a European defence union to look like? *Bruegel Working Paper,* 09/2023. https://www.bruegel.org/working-paper/what-would-europeans-want-european-defence-union-look

Breton, T. (2024, January 10). A Europe that protects its citizens, transforms its economy, and projects itself as a global power [Keynote speech], European Policy Centre.

Cavoli, C. G. (2024, April 10). Statement of General Christopher G. Cavoli, United States Army, United States European Command, US House Armed Services Committee. https://armedservices.house.gov/sites/evo-subsites/republicans-armedservices.house.gov/files/USEUCOM%20GEN%20Cavoli%20CPS_HASC_2024.pdf

Claeys, G., & Steinbach, A. (2024). A conceptual framework for the identification and governance of European public goods. *Bruegel Working Paper*, 14/2024. https://www.bruegel.org/working-paper/conceptual-framework-identification-and-governance-european-public-goods

Dausend, P., Friederichs, D. H., Hägler, M., Krupa, M., Lau, J., & Wefing, H. (2024, April 27). Landesverteidigung: Das fatale Loch im Himmel. *Die Zeit*. https://www.zeit.de/2024/18/landesverteidigung-bundeswehr-flugabwehr-drohne

Demertzis, M., Pisani-Ferry, J., Sapir, A., Wieser, T., & Wolff, G. (2018). One size does not fit all: European Integration by differentiation. *Bruegel Policy brief*. https://www.bruegel.org/policy-brief/one-size-does-not-fit-all-european-integration-differentiation

Dobbs, M. (2014). Sovereignty, Article 4(2) TEU and the Respect of National Identities: Swinging the Balance of Power in Favour of the Member States? *Yearbook of European Law*, *33*(1), 298–334. https://doi.org/10.1093/yel/yeu024

Federal Government. (2024, May 28). Pressekonferenz von Bundeskanzler Scholz und Präsident Macron zum 24. Deutsch-Französischen Ministerrat am 28. Mai 2024 (komplett). https://www.bundesregierung.de/breg-de/aktuelles/pressekonferenz-von-bundeskanzler-scholz-und-praesident-macron-zum-24-deutsch-franzoesischen-ministerrat-am-28-mai-2024-komplett--2288912

Fuest, C., & Pisani-Ferry, J. (2019). A Primer on Developing European Public Goods, Report written at the request of Ministers Bruno Le Maire and Olaf Scholz.

Genschel, P., & Jachtenfuchs, M. (2015). More integration, less federation: the European integration of core state powers. *Journal of European Public Policy*, *23*(1), 42–59. https://doi.org/10.1080/13501763.2015.1055782

German Federal Constitutional Court. (2009). Judgment of the Second Senate of 30 June 2009 (2 BvE 2/08). https://www.bundesverfassungsgericht.de/SharedDocs/Entscheidungen/EN/2009/06/es20090630_2bve000208en.html

German Federal Constitutional Court. (2022, December 6). Judgement of the Second Senate—2 BvR 547/21, 2BvR 789/21. https://www.bundesverfassungsgericht.de/SharedDocs/Entscheidungen/EN/2022/12/rs20221206_2bvr054721en.html

Graf, T. A. (2020). Unity in the face of threat? Exploring the empirical relationship between strategic threat perceptions and public support for a common European army in Germany. *European Security*, *29*(1), 55–73. https://doi.org/10.1080/09662839.2019.1704267

Grund, S., & Steinbach, A. (2023). European Union debt financing: leeway and barriers form a legal perspective. *Bruegel working paper*, 15/2023. https://www.bruegel.org/sites/default/files/2023-09/WP%2015.pdf

Macron, E. (2024, April 24). *Europe speech* [Speech transcript]. Elysee. https://www.elysee.fr/en/emmanuel-macron/2024/04/24/europe-speech

Mérand, F., & Angers, K. (2014). Military integration in Europe. In P. Genschel & M. Jachtenfuchs (Eds.), *Beyond the Regulatory Polity? The European Integration of Core State Powers* (pp. 46–65), Oxford University Press.

NATO. (2023, June 13). NATO Integrated Air and Missile Defence. https://www.nato.int/cps/en/natohq/topics_8206.htm

Oates, W. (1995). Toward A Second-Generation Theory of Fiscal Federalism. *International Tax and Public Finance*, 12, 349–373.

Tiebout, C. M. (1956). A Pure Theory of Local Expenditures. *Journal of Political Economy*, *64*(5), 416–424.

Wolff, G. (2020, April 22). EU debt as insurance against catastrophic events in the euro area: key questions and some answers. *Bruegel blog*. https://www.bruegel.org/blog-post/eu-debt-insurance-against-catastrophic-events-euro-area-key-questions-and-some-answers

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Annegret Bendiek and Jakob Bund

Hardening Norms and Networks: Europe's Cyber Defence Posture

As high-level European Union (EU) policy documents call for investment in active cyber defence capabilities, the legal and political powers for their use remain ill-defined.[1] To demonstrate their commitment to principles of responsible state behaviour and due diligence, the EU and its member states have a duty to establish the normative foundations for the use of active cyber defence measures ahead of their deployment while carefully managing the risk of a gradual militarisation of the cyber and information domain.

In November 2022, Australia brought together its Federal Police and the Australian Signals Directorate in a Joint Standing Operation (JSO) dedicated to disrupting cyber criminals. In the months prior, hackers had attacked Medibank – Australia's largest nationwide health insurer – and one of the country's leading telecommunications providers, Optus (Turnbull, 2022). On a large scale, the personal and sensitive health data of around 40% of the Australian population was stolen and published. In a break with traditional methods of policing, the hundred-strong JSO no longer reacts after crimes have been committed, but instead tries to prevent cyber criminals from committing their deeds beforehand.

Incidents like those experienced by Australia illustrate the increasing importance of mitigating cyberattacks and cooperating internationally to hold cyber criminals accountable. The latest developments were also in the background of the consultations for Germany's National Security Strategy, which, in addition to considerations on strengthening resilience, included active cyber defence measures to prevent damage from cyberattacks in advance. This would require an amendment to Germany's Basic Law, which the Federal Government is also seeking. Germany's first National Security Strategy, presented in June 2023, commits the government to reviewing the existing powers for cyber defence and the capabilities required for this (Bundesregierung, 2023). Recognised legal principles of due diligence, proportionality of countermeasures and international norms on responsible state behaviour in cyberspace are guiding actions in this regard. The document reiterates that the German government is ruling out "hackbacks" as a means of cyber defence. In response to a parliamentary inquiry, the government noted earlier that the term itself lacks a clear definition (Deutscher Bundestag, 2023a). The German cyber ambassador, Regine Grienberger, separately pointed out the high legal hurdles for the proactive disruption of cyber threats (Grienberger, 2023). A prerequisite for this is the reliable and robust attribution of attacks, based on the identification of the attacker according to technical, political and legal standards. The enforcement of existing law inevitably also depends on having the necessary cybercrime prevention and law enforcement capabilities in place.

NATO's new Strategic Concept, adopted in 2022, describes cyberspace as being continuously contested (NATO, 2022). David van Weel, then Assistant Secretary General Innovation, Hybrid, and Cyber, outlined that this assessment applies regardless of whether one is in an armed conflict situation (Martin, 2023). At the NATO summit in Vilnius in July 2023, members of the alliance therefore backed a new cyber defence concept to ensure civil-military cooperation at all times – "through peacetime, crisis and conflict" (NATO, 2023) – and facilitate the involvement of private-sector actors.

Cyber defence considerations in the alliance, at the EU level and also in some EU states are moving away from a reactive understanding and towards a proactive approach against threats. Central to these deliberations is how member states define the active cyber defence responsibilities that they assign to civilian agencies – including law enforcement – and their distinction from responsibilities of the military. Do these developments point to a more fundamental paradigm shift in the European approach to cyber threats – from a reactive to a more proactive defence posture? A review of emerging state practice identifies key questions that Europe needs to work through, as close partners such as the United States, the United Kingdom and Australia are already engaging in disruptive defence operations to frustrate threats. Due diligence remains a fundamental prerequisite in this endeavour.

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Ambiguous definitions for cyber defence

In the November 2022 Communication on an EU Cyber Defence Policy, the European Commission called on member states to develop capabilities across the full spectrum of cyber defence, including active measures (European Commission, 2022). The Council Conclusions on Cyber Defence Policy of May 2023 further emphasise the importance of civil-military cooperation. Capabilities for early detection, defence against and deterrence of cyber threats would have to complement the portfolio of defence instruments (Council of the European Union, 2023). While underscoring that these are national competencies – with the decision and responsibility for the deployment of cyber defence measures lying squarely with the governments of member states – the Council pointed to the defensive character of these measures. Which techniques and procedures member states might explore as part of their active cyber defence ambitions is left open. Instead, the member states are called upon to specify their own goals and outline measures for achieving them. The methods of active cyber defence documented so far through policy papers, interviews and limited examples from state practice include the diversion of harmful data traffic, the disabling of botnets and the takeover of servers or internet domains by law enforcement agencies to strip attackers of control over their infrastructure (Healey et al., 2020; Shulman & Waidner, 2022; Herpig, 2021). The defence tools also include the identification and deactivation of malware in computer systems and intervention in attacking IT infrastructure outside the systems of the affected victims. In this vein, active cyber defence may include disinformation campaigns, the manipulation of foreign media, the electronic disruption of servers and the halting of data traffic abroad.

The principle of due diligence

The German government, EU member states and the EU are guided by the requirements of "due diligence" in the implementation of their cybersecurity strategies. This obligation binds states in peacetime to ensure that no activities emanating from their territory violate the rights of other states. In its cybersecurity strategies, the EU points out that the protection of computer systems and networks is essential for a modern, high-tech and digitised industrial state. To this end, the resilience of infrastructure, the ability to defend against and detect (also state-directed) cybercrime, and awareness of disinformation campaigns are the focus of enhanced defence efforts.

The EU and Germany pursue a defensive cyber security strategy based on international agreements. The concept of due diligence is, however, not per se in conflict with active cyber defence. Yet, intervening in adversary cyber operations poses new challenges to state due diligence in peacetime, even as such actions may be justifiable in terms of defence against "imminent danger". International norms act as anchor points for the design of active cyber defence measures. Proactive cyber defence therefore requires the disclosure of norm-violating behaviour in order to justify in comparable cases that the intervention was carried out to avert danger or in the context of an imminent threat. US authorities have repeatedly demonstrated the willingness to make operational insights public through indictments of threat actors, even where those responsible are likely to remain beyond prosecution.

Revealing such information as part of attribution efforts signals a commitment to hold threat actors accountable to allies. Steps in this direction have strengthened an international "attribution coalition" among EU and NATO states and international partner countries. To clearly define what is considered acceptable behaviour, details on the powers and mandates of the new authorities must be provided, especially in the case of active defence initiatives. Exposing adversary activity and distinguishing own and allied actions from hostile operations are instrumental for preserving the progress in shaping the very norms that provide legitimacy for disrupting threats. At the same time, states will have to find a delicate balance in their public reporting to protect sources and methods and to avoid undermining their ability to conduct future operations.

State practice of active cyber defence

The US Department of Defence transitioned to a new approach to cyber defence in 2018. In the attempt to "defend forward", US Cyber Command, under this doctrine, focuses on countering threat activities as close to their source as possible to avert damage before it can occur and intercepting hostile actors. It pursues this approach through "persistent engagement" – the targeted disruption of cyber threats and the degradation of an adversary's capabilities – in order to impose costs on attackers and influence behaviour that has proven difficult to shape through other instruments, or otherwise could only be addressed after the fact. The National Cyber Security Strategy published in March 2023 develops this approach further for civilian agencies (The White House, 2023). The document establishes a stand-alone pillar of disrupting and weakening threat actors. According to the former General Paul Nakasone, head of US Cyber Command and director of the National Security Agency, the US Department of Defence's new cyber strategy – adopted two months later and classified – builds on the change of course made in 2018 (Matishak, 2023). The Department's fourth edition, the 2023 strategy, is the first to be "informed by years of significant cyberspace operations" (U.S. Department of Defense, 2023).

In contrast to the rise in pronouncements about active cyber defence initiatives, little is known about the scenarios for their deployment. Public cases and operational details are sparse even for the US, which has been among the most transparent about its willingness to use offensive capabilities.

The first known case of active intervention in malicious cyber activity by US Cyber Command was aimed at disconnecting the Trickbot botnet from command-and-control servers in autumn 2020 to counter a possible ransomware campaign in the run-up to the US elections (Chesney, 2020).

The Cyberspace Solarium Commission, a body set up by the US Congress to develop a concept for defence against serious cyberattacks, proposed an expanded interpretation of "defend forward" in 2020 (U.S. Cyberspace Solarium Commission, 2020). According to this interpretation, consistent implementation of the doctrine no longer draws solely on military instruments, but all state capabilities (diplomacy, regulatory powers, etc.), especially to make intelligence on threat activities available to potential targets, thereby contributing to their resilience. The Commission's interpretation indicates that a robust "defend forward" policy will also be measured by whether and to what extent it contributes to strengthening international norms of behaviour. In the public summary of its new cyber strategy, the Department of Defence recognises its capabilities are most effective when deployed as part of an integrated approach, though it does not address other instruments in further detail (U.S. Department of Defense, 2023).

Countering attack activity is only one step in bringing about a change in adversary behaviour. Demonstrating the ability and determination to continue to do so to potential attackers underwrites these signalling efforts. According to General Nakasone, in response to Russia's invasion in the spring of 2022, the US conducted offensive cyber operations in support of Ukraine, in addition to defensive ones (Martin, 2022).

Other states also intend to use operational influence capabilities to actively disrupt malicious cyberattacks. In addition to the aforementioned deployment of the Australian JSO for cyber defence, the Australian government announced earlier this year that it will triple its investment in offensive cyber defence capabilities (Australian Signals Directorate, 2023).

The UK has made public a range of assistance measures since Russia's invasion of Ukraine in February 2022 (U.K. Foreign, Commonwealth & Development Office, 2022). The programme includes supporting critical infrastructure and Ukrainian government agencies in dealing with cyber incidents, assistance to avert sabotage attempts against the power supply, forensic intelligence, and access to security solutions to protect high-value targets from future attacks. Not all of these measures have received full endorsement among EU member states. Nor are the technical cyber capabilities that are necessary for more active support roles equally distributed among EU member states. Ukraine's resilience to Russia's attacks suggests that it may have benefited from forward-leaning cyber defence measures. Kyiv's proactive calibration of defence efforts relied, among other things, on the results of Hunt Forward Operations (HFOs), which were conducted by US Cyber Command and Ukrainian partners between December 2021 and March 2022.

Hunt Forward Operations as active threat prevention

As interpreted by US Cyber Command, HFOs are defensive efforts in which internal protection teams – at the request of partner states – scan networks on site for malware in order to detect new attack patterns early on and close security gaps and backdoors (U.S. Cyber Command, 2022b). The key advantage of the hunt-forward approach, according to General Nakasone, is that threat actors and their tools can be detected in advance (Martin, 2022). To date, US Cyber Command has conducted more than 50 HFOs with at least 23 countries (U.S. Cyber Command, 2023). Partners have included several EU member states and NATO allies, including Albania, Montenegro and Northern Macedonia (U.S. Cyber Command, 2020; U.S. Embassy in Albania, 2023). Shortly after Russia's invasion of Ukraine in February 2022, teams were deployed to Lithuania and later Latvia (U.S. Cyber Command, 2022a). European partners have thus not only already participated bilaterally in HFOs, but are directly requesting deployments in their networks.

Germany and other EU states interested in exploring HFOs may engage in three separate ways. A joint deployment in their own networks makes it possible to draw on the analytical capabilities of international partners in the reconnaissance of attack activities to a degree that could not be achieved through an exchange of information only. In the opposite direction, such an operation in support of international partners can provide new knowledge about tactics and attack tools that are being tested. This knowledge expands the possibilities to prepare for attempted attacks and, ideally, to prevent them before they can cause damage.

European states are faced with the question of whether the development of anticipatory capabilities requires similar programmes under their own leadership. Without committing member states to participate directly, a European project could be set up with the aim of maintaining independent capabilities and having clarified operational modalities in case of need. The EU's Permanent Structured Cooperation (PESCO) provides an existing framework within which member states could invest in HFO resources (Federal Ministry of Defence, 2023).

Future-proofing normative foundations

A strategic reorientation towards active cyber defence is politically controversial among member states. The head of the French Cyber Defence Command, General Aymeric

Bonnemaison, expressed reservations to this effect in a hearing of the National Assembly in December 2022 (Assemblée Nationale, 2022). In Bonnemaison's rendition, even defensive missions that serve to scout out adversary activity in allied networks remain aggressive. Support of this kind, especially for Eastern European countries, while providing reassurance, presupposes far-reaching access to the networks concerned and requires a strong operational presence – which in Bonnemaison's view would make accompanying diplomatic engagement and capacity-building on the ground indispensable. To address these points, the French cyber commander floated the idea of a European cyber intervention group that offers assistance similar to US-led HFOs. Even for countries that stand to benefit from this assistance in light of long-term security challenges, it could require temporary, far-reaching access to their sensitive networks.

At a low-threshold level, EU Cyber Rapid Response Teams (EU CRRTs) already offer support to third countries in monitoring and combating cyber threats (Grossmann, 2023). A group of eight member states has built up the necessary capabilities within PESCO. The EU CRRTs comprising eight to twelve national experts, were the first operational units under PESCO. The states participating in the PESCO project alone decide on mobilisation (Deutscher Bundestag, 2023b). Although operational since 2019, an EU CRRTs was activated for the first time at the request of Ukraine in February 2022, shortly before the start of Russia's war of aggression (European Defence Agency, 2022). After initial efforts to deploy forces both onsite and remotely, Russia's assault necessitated a change of course towards fully virtual support. The first physical deployment of a CRRT was mobilised in November 2022, when the unit conducted a vulnerability assessment in Moldova. A second deployment to Moldova was announced in April 2023 (Deutscher Bundestag, 2023a). The EU also delivered equipment for a cyber lab to the Ukrainian armed forces in December 2022 under the European Peace Facility (European External Action Service, 2022). The lab will serve as a training environment to build additional capabilities through real-time simulations to detect, understand and defend against attempts to penetrate Ukrainian networks.

Emerging state practice by the US, the UK and Australia outlines the rationale and expected contributions of active defence measures in containing threats. Any deploying state has a duty to ensure that such deployments are appropriate and comply with accountability obligations. Any consideration of active cyber defence first needs to define which active measures should be meaningfully pursued by which domestic actors and in which international or European partnerships. It also requires clarity on how these actions address security concerns that otherwise lack remedy and how they can contribute to the resilience of partners. In an increasingly volatile strategic environment for the EU, the potential of active cyber defence increasing the cost of engaging in malicious activity may be appealing, but needs to be tied to the definition of preconditions regarding transparency, legitimacy and accountability of such operations, at least in the following areas.

Active defence measures

Active defence measures should be closely linked to firm operational principles and a careful impact assessment. This places high demands especially on explaining the necessarily forward-looking character of defensive and at the same time disruptive actions. Their purpose of disrupting offensive operations must be clearly distinguished from actions designed with the intention to cause harm. Considerations of the effects must not be limited to influencing an adversary's cost-benefit calculations but should also include downstream consequences for global stability in the cyber and information space. Similarly, there is a need for an evaluation framework and metrics that allow for an integrated, strategic, operational and tactical assessment beyond the mere number of operations conducted or their immediate tactical effects.

Cross-border active cyber defence interventions

The Solarium Commission emphasises that the tactical and operational implementation of the "defend forward" policy includes deployment in networks of partners and allies if disruptive measures can only achieve their goal in this way (U.S. Cyberspace Solarium Commission, 2020). As the example of the deletion of propaganda material of the Islamic State from a German server shows, such cross-border active cyber defence interventions require a shared situational understanding and advance communication between the countries concerned. Against this backdrop, the Commission pointed out that such actions should be carried out with the support of allied partners whenever possible. Regardless of their willingness to develop active cyber defence capabilities, from the US perspective this requires close coordination with allies and other like-minded governments. On the EU side, the planned Cyber Defence Coordination Centre (EUCDCC) could in the future be a platform for coordination with international partners. At least initially, the EUCDCC's efforts to establish a situational awareness of ongoing cyber operations will focus on Common Security and Defence Policy missions and operations (European Commission, 2022).

Sharing capabilities

Existing formats for sharing voluntarily provided cyber capabilities, such as NATO's SCEPVA programme (Sovereign Cyber Effects Provided Voluntarily by Allies), show how difficult it is to put cooperation in this area into practice. Participating actors are concerned about revealing the building

blocks of their own capabilities. In practice, therefore, capabilities are not shared but deployed at the request of allies. For active defence, these hurdles to capability-sharing sit even higher, considering its premise of the continuous and proactive engagement of threat activity. Active defence takes aim at activities below the threshold of an armed attack. Rules of engagement are therefore much broader in scope than for SCEPVA, which is limited to alliance operations and missions.

These developments might increase the political pressure to be able to pursue active cyber defences, at least to some extent, or else risk falling behind. The development of national capabilities raises questions about the possible displacement effects that simply push malicious activities – if these are not target-specific (e.g. ransomware, certain types of industrial espionage) – to the next low-hanging target. Such crowding-out effects risk disruptive approaches evolving into beggar-thy-neighbour policies, whereby countries that choose not to respond with disruptive means may find themselves exposed to concentrated threat activity. An example of this is Australia, whose motivation for establishing the JSO was to ensure that it did not present itself as a soft target.

A common understanding of defence measures

Information on how the new active cyber defence powers are exercised should be an integral part of a shift in policy and posture. Detecting adversary activities and distinguishing between allied actions and hostile operations are important to demonstrate responsible behaviour and the protection of norms. A common understanding of active cyber defence measures can only be achieved if states link both disrupted offensive operations and the defensive measures deployed for their disruption to discussions on state behaviour in cyberspace.

The public disclosure of "defend forward" operations does not necessarily conflict with protecting sources and methods. On the contrary, transparency about the rationale, the objective and the achieved effect of active defence measures can strengthen the acquis of norms and support the declaratory doctrine. Although there may be cases of operational disruptions to consider in which adversaries do not suspect outside interference, a general presumption that communications on these points routinely depend on disclosing intelligence assets sells short how far public accounts have come.

Transparency

Similar mechanisms for responsible transparency are already in place for the proactive use of FBI authorities to delete pre-positioned malware – in these cases the underlying affidavit is usually made public (Greig, 2023).

A UK National Cyber Force (NCF) report published in early April 2023 assesses active cyber defence as an expression of the responsible exercise of "cyber power" (U.K. National Cyber Force, 2023). The paper outlines a framework for engaging in disruptive measures while clearly upholding and reinforcing internationally recognised norms and international law. To this end, the NCF paper sketches out a roster of operational prerequisites and identifies indicators for assessing active cyber defence measures in terms of their impact and stabilising influence. In the absence of concrete operational examples, however, how this framework is applied to ensure that operations are conducted according to its "responsible", "precise" and "adapted" standards remains unclear (U.K. National Cyber Force, 2023).

In this context, the document points out that transparency with the public is an essential building block of the NCF's "licence to operate" (U.K. National Cyber Force, 2023). The paper links this provision, among other things, to the additional financial resources that the UK government has dedicated to the development of cyber capabilities.

A critical consideration for ensuring legitimacy and accountability not directly referenced in the document is the forward-leaning character of active cyber defence measures. This expansion of the scope of action is becoming apparent in Germany, not least because of the intended amendment of the Basic Law to grant new authority. An informed public discourse about any potential extension of powers only gains in importance with respect to the claim that corresponding capabilities are to be deployed in a democratically supported and responsible manner.

Conclusion

For close to a decade, the US has detailed the responsibilities of individual operators and the timing of their actions in indictments and in cooperation with European partners in the form of notices about sanctions. Indeed, efforts to publicly attribute responsibility for cyberattacks have laid the groundwork for the imposition of costs on which any endorsement of active defence would have to stand. As part of their respective cyber defence doctrines, states need to consider the circumstances under which information about the use of active defence measures can be made public, especially where such information is already known to the adversary. Such data also provide the feedstock for evaluating whether active defence meets its stated purpose.

A paradigm shift in the strategic culture of European cybersecurity from a reactive to a defensively designed active cyber defence requires critical engagement with the issues raised above. The development of tools for evaluating such missions – in particular assessing the risks of conflict esca-

lation, collateral damage and inadvertent consequences – must be designed into the deliberations about extended powers from the very beginning. European cybersecurity should be measured against its own due diligence principles. A paradigm shift from reactive to active cyber defence is only justifiable with democratic support. At the foundation of this approach is a public understanding of the strategic environment, and by extension, of the conditions that shape cyberspace as a permanently contested field of conflict. Empirically driven cyber conflict and peace research can be a valuable resource in this communication effort. Public data collection to track the development of cyber threats and state responses, as conducted by the European Repository of Cyber Incidents, can make an important contribution towards ensuring that cyber defence considerations are discussed responsibly and democratically supported.

References

Assemblèe Nationale. (2022, December 7). *Report Commission de la défense nationale et des forces armées*. https://www.assemblee-nationale.fr/dyn/16/comptes-rendus/cion_def/l16cion_def2223027_compte-rendu.pdf

Australian Signals Directorate. (2023). REDSPICE. https://www.asd.gov.au/about/what-we-do/redspice

Bendiek, A., & Bund, J. (2023). *Shifting Paradigms in Europe's Approach to Cyber Defence*. SWP Comment, 2023/C 48. https://www.swp-berlin.org/publications/products/comments/2023C48_Europe_CyberDefence.pdf

Bundesregierung. (2023, June 14). *Nationale Sicherheitsstrategie. Bundesregierung*. https://www.nationalesicherheitsstrategie.de/National-Security-Strategy-EN.pdf

Chesney, R. (2020, October 12). Persistently Engaging TrickBot USCYBERCOM Takes on a Notorious Botnet. *Lawfare*. https://www.lawfaremedia.org/article/persistently-engaging-trickbot-uscybercom-takes-notorious-botnet

Council of the European Union. (2023, May 23). Council Conclusions on the EU Policy on Cyber Defence, 9618/28. https://www.consilium.europa.eu/media/64526/st09618-en23.pdf

Deutscher Bundestag. (2023a, February 9). Antwort der Bundesregierung auf die Kleine Anfrage der Fraktion der CDU/CSU, 20/5597. https://dserver.bundestag.de/btd/20/055/2005597.pdf

Deutscher Bundestag. (2023b, April 19). Deutscher Bundestag Stenografischer Bericht 96. Sitzung, Plenarprotokoll 20/96. https://dserver.bundestag.de/btp/20/20096.pdf#page=111

European Commission. (2022). *Joint Communication to the European Parliament and the Council, EU Policy on Cyber Defence*, JOIN/2022/49 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022JC0049

European Defence Agency. (2022, February 24). Activation of first capability developed under PESCO points to strength of cooperation in cyber defence. https://eda.europa.eu/news-and-events/news/2022/02/24/-of-first-capability-developed-under-pesco-points-to-strength-of-cooperation-in-cyber-defence

European External Action Service. (2022, December 2). *Ukraine: EU sets up a cyber lab for the Ukrainian Armed Forces*. https://www.eeas.europa.eu/eeas/ukraine-eu-sets-cyber-lab-ukrainian-armed-forces_en

European Repository of Cyber Incidents. (2024). https://eurepoc.eu

Federal Ministry of Defence. (2023, July 7). *Cyber and Information Domain Coordination Centre (CIDCC)*. https://www.bmvg.de/en/news/cyber-and-information-domain-coordination-centre-pesco-5646100

Greig, J. (2023, September 8). FBI, DOJ defend 'offensive' actions against Chinese, Russian operations. *The Record*. https://therecord.media/fbi-doj-defend-offensive-actions-against-chinese-russian-operations

Grienberger, R. (2023). *Cyberangreifer benennen, globale Normen stärken: Erfahrungen mit dem Attributionsverfahren der Bundesregierung*. Bundesakademie für Sicherheitspolitik. https://www.baks.bund.de/de/arbeitspapiere/2023/cyberangreifer-benennen-globale-normen-staerken-erfahrungen-mit-dem

Grossmann, T. (2023). *Cyber Rapid Response Teams: Structure, Organization, and Use Cases, Center for Security Studies*, ETH Zürich. https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/Cyber-Reports-2023-11-Cyber-Rapid-Response-Teams.pdf

Healey, J., Work, J. D., & Jenkins, N. (2020). Defenders Disrupting Adversaries: Framework, Dataset, and Case Studies of Disruptive Counter-Cyber Operations, 12th International Conference on Cyber Conflict. NATO CCDCOE Publications. https://ccdcoe.org/uploads/2020/05/CyCon_2020_14_Healey_Jenkins_Work.pdf

Herpig, S. (2021, November). Active Cyber Defense Operations – Assessment and Safeguards. *Stiftung Neue Verantwortung Policy Brief*. https://www.interface-eu.org/storage/archive/files/active_cyber_defense_operations.pdf

Martin, A. (2022, June 1). US military hackers conducting offensive operations in support of Ukraine, says head of Cyber Command. *Sky News*. https://news.sky.com/story/us-military-hackers-conducting-offensive-operations-in-support-of-ukraine-says-head-of-cyber-command-12625139

Martin, A. (2023, June 5). NATO: Military cyber defenders need to be present on networks during peacetime. *The Record*. https://therecord.media/nato-peacetime-cyberdefense-david-van-weel-cycon

Matishak, M. (2023, May 8). Nakasone on the military's cyber strategy, surveillance powers and 'hunt forward' missions. *The Record*. https://therecord.media/nakasone-cyber-strategy-section-702-hunt-forward-russia-ukraine-nato

NATO. (2022, June 29). *NATO 2022 Strategic Concept*. NATO. https://www.nato.int/cps/en/natohq/topics_210907.htm

NATO. (2023, July 11). *Vilnius Summit Communiqué*. NATO. https://www.nato.int/cps/en/natohq/official_texts_217320.htm

Shulman, H., & Waidner, M. (2022, October 10). ATHENE Whitepaper, *Aktive Cyberabwehr*. https://www.athene-center.de/fileadmin/Downloads/aktive-cyberabwehr.pdf

The White House. (2023, March). *National Cybersecurity Strategy*. https://www.whitehouse.gov/wp-content/uploads/2023/03/National-Cybersecurity-Strategy-2023.pdf

Turnbull, T. (2022, September, 29). Optus: How a massive data breach has exposed Australia, *BBC*. https://www.bbc.com/news/world-australia-63056838

U.K. Foreign, Commonwealth & Development Office. (2022, November 1). *UK boosts Ukraine's cyber defences with £6 million support package*. https://www.gov.uk/government/news/uk-boosts-ukraines-cyber-defences-with-6-million-support-package

U.K. National Cyber Force. (2023, April 3). *Guidance – Responsible Cyber Power in Practice*. https://www.gov.uk/government/publications/responsible-cyber-power-in-practice/responsible-cyber-power-in-practice-html

U.S. Cyber Command. (2020, December 3). Hunt Forward Estonia: Estonia, US strengthen partnership in cyber domain with joint operation. https://www.cybercom.mil/Media/News/Article/2433245/hunt-forward-estonia-estonia-us-strengthen-partnership-in-cyber-domain-with-joi/

U.S. Cyber Command. (2022a, May 4). *US conducts first hunt forward operation in Lithuania*. https://nsarchive.gwu.edu/document/29311-46-us-conducts-first-hunt-forward-operation-lithuania-may-4-2022

U.S. Cyber Command. (2022b, November 15). https://www.960cyber.afrc.af.mil/News/Article-Display/Article/3219164/cyber-101-hunt-forward-operations/

U.S. Cyber Command. (2023, September 12). *"Building Resilience": U.S. returns from second defensive Hunt Operation in Lithuania*. https://www.cybercom.mil/Media/News/Article/3522801/building-resilience-us-returns-from-second-defensive-hunt-operation-in-lithuania/

U.S. Cyberspace Solarium Commission. (2020, March). *Cyberspace Solarium Commission Report*. https://www.solarium.gov/report

U.S. Department of Defense. (2023, September 12). *DOD 2023 Cyber Strategy Summary*. https://media.defense.gov/2023/Sep/12/2003299076/-1/-1/1/2023_DOD_Cyber_Strategy_Summary.PDF

U.S. Embassy in Albania. (2023, March 23). *"Committed partners in cyberspace": U.S. concludes first defensive hunt operation in Albania*. https://al.usembassy.gov/committed-partners-in-cyberspace-u-s-concludes-first-defensive-hunt-operation-in-albania/

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Florian Dorn

Defence Spending for Europe's Security – How Much Is Enough?

European states have enjoyed three decades of peace and relative external security and have cut their expenditure on defence for many years. Russia's attack on Ukraine, however, has increased the geopolitical risks and called Europe for a reassessment of its own security and defence capabilities. Nevertheless, European NATO members still rely on security guarantees from the United States and have so far been unwilling and unable to provide Ukraine with sufficient military support or even to achieve capabilities to defend Europe on their own. The hesitant prioritisation of defence spending of European governments seems even more naïve considering the current debate about concerns of changing relationships with the US (see Fuest, 2024). The leading superpower may be more protectionist and less supportive under the possible leadership of Donald Trump and his prospective Vice President J. D. Vance, both emphasising that several NATO members are free riders at the cost of US citizens and that Europe must be (more) responsible for its own security. Regardless of a second Trump presidency, the US – across party lines – expects Europe to spend more on its own security. The US contributes more than two-thirds of the overall defence spending within NATO, whereas defence capabilities of the European members would quickly be depleted without US support. The fact that Europe's security depends to an extent on the outcome of the US presidential election demonstrates the degree to which Europeans have neglected their own security interests – and this despite more than two years of Russia's war in Ukraine and aggressive threats of the nuclear power against Europe. Europe must urgently address the question of how to reduce its reliance on the US. Ultimately, it will only move forward by developing more autonomy and a credible programme for stronger European defence capabilities. But what would it take to make Europe more self-sufficient? How much should Europe spend on defence for sufficient deterrence and external security? And how can these targets be achieved?

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Is meeting the NATO targets enough?

A benchmark in the debate on defence efforts is the so-called NATO 2% target, according to which a minimum of 2% of GDP was to be spent on defence. NATO members first agreed on the 2% target in 2006 and formally renewed it in 2014[1] to ensure a fair contribution to maintaining the alliance's military readiness. Ten years later, European NATO members are expected to exceed the 2% target of their combined GDP for the first time, whereas the largest increases in defence expenditures occurred on NATO's Eastern flank after Russia's invasion of Ukraine (Dorn et al., 2023; NATO, 2024). However, there are several reasons to believe that meeting 2% of GDP for defence might not be enough to achieve sufficient defence capabilities in Europe.

Europe's defence spending was well above 3% during the Cold War era

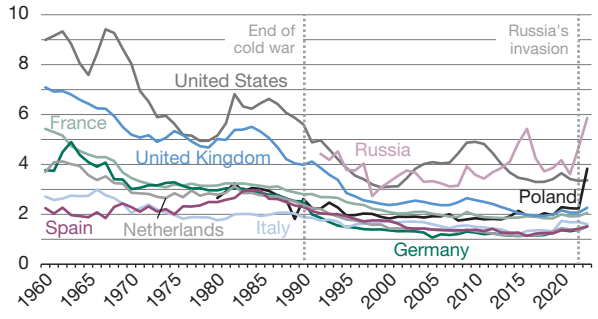
The official commitment to the 2% target was taken in response to Russia's illegal annexation of Crimea a decade ago, but Europe has now been confronted with direct aggression from Russia and a real war on its doorstep for two years, threatening its security.[2] When Western Europe last faced an external threat from the Soviet Union and the Eastern bloc during the Cold War era, most of the NATO countries were used to spending much more than 2% of their GDP on defence (Figure 1).[3] Germany, France and the Netherlands, for example, spent around 3% of GDP in the 1970s/1980s, while defence spending was around 5% in the UK and 6% of GDP in the US. In the decade before, which included high geopolitical risks like the Cuba missile crisis and the construction of the inner German wall, the share of defence expenditure was even higher. However, the US geopolitical interests were more concentrated on defending Europe during the Cold War era, whereas they have been shifting towards the Indo-Pacific for some time now. This means a call on European countries to do more, not less, compared to the Cold War years, in order to quickly build up sufficient defence capabilities.

1 NATO first agreed on the 2% target in 2006, and it was renewed official NATO Summit Declarations in 2014 and 2023.

2 Moreover, for achieving the NATO target, military aid for Ukraine and related national expenditure by other resorts are also included by many European governments. It is questionable whether these policies increase Europe's own military readiness, and whether the NATO targets are still sufficient to afford external deterrence and security.

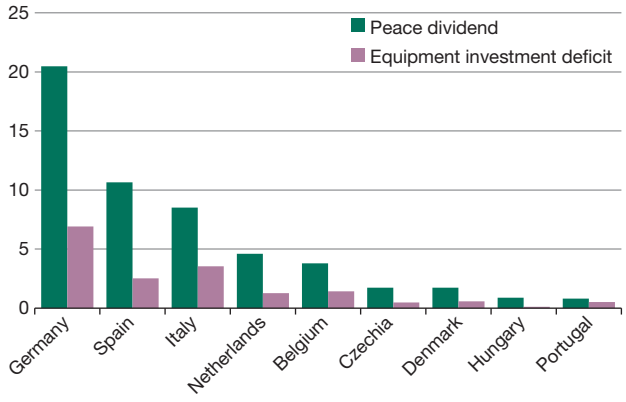
3 At the end of the Cold War, NATO defence spending even exceeded 4% of GDP (NATO, 2023a).

Figure 1
Defence spending, 1960-2023
in % of GDP



Source: SIPRI (2024), own calculations.

Figure 2
Annual average peace dividend and investment deficits, 1990-2023
in billion euros, price adjusted (2023 prices)



Note: Calculated as distance to NATO targets: 2% of GDP defence spending and 20% target of equipment investments as share of defence spending.

Source: Dorn et al. (2024).

How much Europeans would have to spend on their own defence capabilities to ensure sufficient deterrence depends above all on the scale of the threat – including the military capabilities of a potential aggressor. Figure 1 shows that Russia maintained its defence spending at an average level of around 3.5% after the Cold War but has increased it to over 4% since the annexation of Crimea in 2014, and has surpassed the US ever since. After the invasion of Ukraine, however, Russia has converted large parts of its economy towards a war economy and raised military spending to around 6% in 2023 and 2024. Some experts report that if Russia continues these military efforts, its army might be able to test the European alliance and Article 5 of the NATO treaty within a few years (see, for example, Mölling & Schütz, 2023; Bronk, 2023). If European governments want to be prepared for such a nightmare scenario, they must act quickly and prioritise their budgets and efforts accordingly.

Europe must compensate for large deficits in military investment

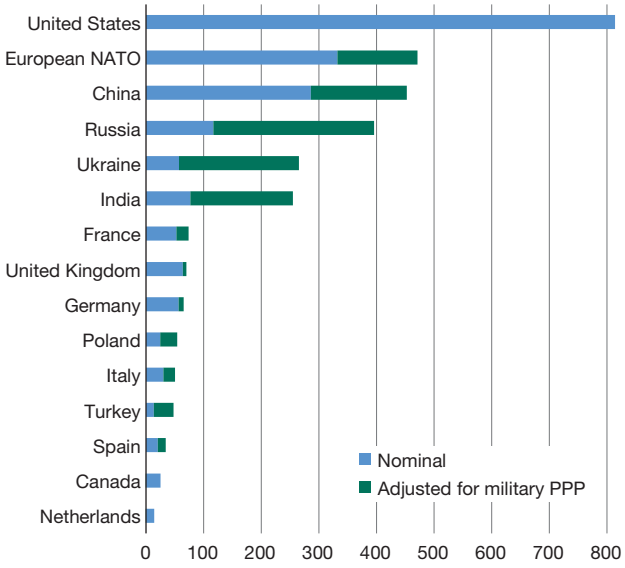
After the fall of the Berlin Wall, the threat of war on Europe's eastern border ended and defence spending fell significantly in all countries (Figure 1). Many European NATO members reduced their armies and defence investments, and consequently the number of soldiers, ammunition stocks and heavy equipment (see Dorn et al., 2022a). Some countries, for example France, the UK and Poland, continued to spend around 2% of their GDP for defence activities (Figure 1). Other countries have reduced their annual expenditure to a very low level of 1.1%-1.5% of GDP – including Germany, Italy, Spain, Belgium and the Netherlands. As a result, national governments generated an annual "peace dividend" for other spending categories, primarily to finance and expand their welfare states (see Dorn et al., 2024). Figure 2 shows the average annual peace dividend in 2023 prices, using 2% of GDP as a benchmark for sufficient defence spending to maintain military capabilities during peacetime. The national government of Germany, for example, had more than an annual €20 billion higher budget for other spending between 1990 and 2023. In Spain and Italy, the annual peace dividend was more than €10 billion and €8 billion respectively.

Some may argue that lower defence spending seems justifiable in peacetime and the absence of a risk of war, because governments do not need to maintain a large army and a large stock of weapons. The lack of investment in defence capabilities, however, affects the availability and modernisation of operational weapons, ammunition and heavy military equipment such as combat aircraft, tanks and artillery. If the external security situation changes, such as after Russia's invasion of Ukraine, a shortage of operational equipment is problematic, as these shortfalls cannot simply be compensated at short notice.

In 2014, the NATO members also agreed on a 20% rule, supposing that at least one-fifth of the targeted 2% of GDP defence expenditures should be devoted to defence investments, ensuring that the armies are equipped with sufficient ammunition and modern, major military equipment.[4] If this spending rule had been followed for the past three decades, Spain would have additionally invested more than €80 billion in their military equipment, Italy

4 This includes associated research and development, perceived as a crucial indicator for the scale and pace of modernisation.

Figure 3
Real defence spending, 2023
in billion constant euros (2022)



Note: Adjusted for military purchasing power parities, to reflect cost and wages differences across countries as of 2021. European NATO without Turkey, including Sweden and Finland.

Sources: SIPRI (2024), Roberston (2021), ECB, own calculations.

almost €120 billion, and Germany almost €230 billion in 2023 prices (Figure 2). If European NATO countries are willing to quickly increase their defence capabilities, many of them would need to invest much more than 2% of GDP to compensate the large investment deficits of the last decades.

Europe must compensate for higher real military costs

International comparisons of defence spending are necessary for monitoring security risks, assessing own defence capabilities and planning defence budgets. Although defence spending as a share of GDP is a good indicator to compare the efforts and priorities of countries, absolute figures depend on the size of the economies. Figure 3 shows absolute defence spending by country in 2023. The US is by far the country with the highest military expenditure in the world. European NATO countries[5] are in second place, ahead of China and Russia. Europe even spends more than twice as much as Russia on defence, although Russia has been catching up in recent years. However, such comparisons are misleading as they do not consider different input prices of military personnel and equipment. Wages of soldiers and maintenance costs for military equipment in Russia are significantly lower than in Western European countries or the US (see Robertson, 2021). That is, Russia can afford more soldiers and military equipment with the same amount of money as its Western counterparts. When considering military purchasing power parities (PPP) of countries in the figures, the gap between the European NATO countries and Russia or China is almost non-existent (Figure 3). Single European countries fall completely behind Russia when military costs are considered. Russia has almost five times the military purchasing power of the French defence spending and six times that of Germany or the UK. While defence spending only reflects the effort to produce defence capabilities, the figures illustrate how the Europeans remain dependent on the security guarantees of their US ally to ensure sufficient deterrence against a potential Russian aggressor.

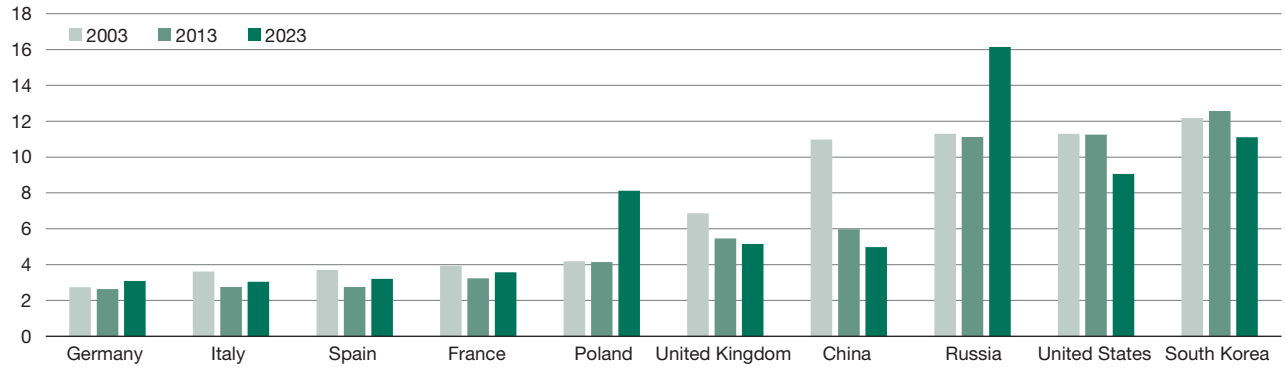
Security is a question of budget priorities

The war in Ukraine has reminded Western societies of the horrors of war and that Europe must spend more on defence to ensure its own security and deterrence. But this would also require a rethinking of European budgetary policy. Figure 4 shows the different prioritisation of defence in the government budgets for selected countries between 2003 and 2023. South Korea and the US, both prepared for the constant risk of war, are used to spending more than 10% of their budgets to maintain their own defence capabilities. Russia has also earmarked more than 10% of its national budget for military spending for the past 20 years and has increased this share to almost 16% by 2023 to finance the recent war in Ukraine. In Europe, however, national governments show varying willingness to adjust their budgets as response to the new threat at the Eastern flank. Some have assigned defence a much higher priority in their budgets. Poland, for example, quickly shifted its budget priorities to increase the country's defence capabilities, from 4% in 2013 and 2003 to 8% in 2023. Others, in particular Western European governments, made very little significant changes in their budgets and did not cut other political spending priorities in favour of stronger security.

Security is a fundamental responsibility of states, but Europeans must remember this public good does not come for free. If Europeans are concerned about their own security and a lack of defence capabilities, the public debate must address the costs of permanent higher defence spending and the trade-offs arising from leaving the era of the peace dividend behind. However, the fiscal space of several European governments is limited due to high levels of debt and social spending, and low economic growth. Some politicians are calling for higher taxes or the

5 Including the new members Finland and Sweden; excluding the USA, Canada and Turkey.

Figure 4
Defence as share of government spending, 2003-2023
in %



Source: SIPRI (2024).

reduction or abolition of debt rules to avoid unpleasant decisions associated with limiting other political spending programmes.

Tax increases are also likely to be difficult. The tax burden in most EU countries is already significantly higher than in other OECD countries, so that additional burdens would further impair the competitiveness of European economies. Financing higher defence spending permanently by debt, however, is fiscally not sustainable and would shift the fiscal burden of today's security to future generations.

European governments need a credible plan for how to permanently increase defence spending towards a higher level without jeopardising fiscal stability and economic competitiveness (Dorn et al., 2024). Clearly, there are trade-offs in budgetary policies, as many European countries must invest to strengthen the competitiveness of their economies and for decarbonisation. Therefore, in most European countries a sustainable strengthening of the defence budget can only be achieved through a credible and permanent increase in the government budget over the next years, which is best done by limiting the growth of consumption spending (as discussed in detail in Dorn et al., 2024). The peace dividend has been used to expand social spending over the past 30 years. Reversing this will face considerable political resistance. The avoidance of excessive social spending cuts may be necessary for preserving social peace and an agreement on more restrictive spending policies. However, new fiscal space must be created and used for increasing defence spending.

Some countries initiate one-off debt programmes to immediately increase defence capabilities and compensate for past investment deficits. This would allow them to gradually increase defence spending in the government budget over the coming years. Germany, for example, tried to make a pivot (*Zeitenwende*) in 2022 and increased their defence capabilities by a debt-financed programme of an additional €100 billion (*Sondervermögen Bundeswehr*). In theory, this sum could make up for the deficits in investment in military equipment over the past decade (see Dorn et al., 2022b). But almost half of the €100 billion will not be used for new investments in military equipment (Dorn & Schlepper, 2023). Moreover, the investments are starting slowly and will be used over the coming years without any significant increases of inflation-adjusted defence spending in the government budget. The special fund therefore only serves to close the gap of NATO's 2% target instead of making up for the investment deficits of the past decades. Contrarily, there are almost no efforts by the German government to meet the 2% target without debt. When the debt programme comes to an end, the next one will be called by some politicians for sure. This German example shows that a turnaround in budgetary policy has barely arrived in many (Western) European countries, despite the increased geopolitical risks.

In addition, due to the lack of availability of state-of-the-art weapon systems in Europe, many European countries bought new weapon systems outside of Europe (see Maulny, 2023; Schlepper, 2024).[6] While this makes sense in the short term for the efficient use of resources and faster availability of state-of-the-art systems in times of crisis, it increases geopolitical dependencies in security issues and defence technologies. Moreover, such procurement strategies make it more difficult to maintain and develop the skills of the European defence industry. To change the game, European defence industry would also need a credible budget plan for permanently higher de-

6 Moreover, buying different systems from abroad makes it even more problematic for European armies to communicate and cooperate.

fence spending and corresponding long-term investment commitments of European governments (see Marsh et al., 2024). This way, the European defence industry will have more planning security and incentives for investments in the expansion of their European production capacities, as well as in the research and development of new products and modern defence systems. In addition, bureaucracy must be reduced in many European states to accelerate procurement and approval processes in times of geopolitical risks and threats to external security.

More efficiency through better European cooperation

Defence spending reflects the input side and shows whether countries provide sufficient resources to increase defence capabilities. However, spending figures do not show the output, i.e. the effectiveness of defence capabilities (see Rasmussen, 2024). Moreover, raising defence budgets does not guarantee that funds are spent in the most efficient way. Defence capabilities, however, could also be increased by more efficiency, for example in procurement of new equipment. Kirsten (2023), for example, suggests that Germany is 40% less efficient in the use of its defence budget than the average of its European peers. While calculating inefficiencies is based on many assumptions and must be evaluated, efficiency in procurement and the use of funds can clearly be improved in many European countries. The identification of high inefficiencies in the use of defence resources rather suggests that even more of the budget would need to be used to achieve the required defence capabilities to compensate for inefficiencies in the short term.

However, efficiency can also be strengthened via better coordination and integration among the European partners. While it will take some time to bear fruit, this seems to be an important step forward. Although it is not realistic to think about abandoning national armies soon, better coordination of specialisations between national armies could strengthen the comparative advantages of different units. Furthermore, European partners also have great potential to raise efficiency via joint European procurement and R&D programmes, in which national and political interests should be avoided. The European defence industry is widely fragmented along national borders and uses a variety of defence systems, which are rarely compatible with each other or work in integrated systems (Schlepper, 2024). Compared to the US, European countries spend less on defence but have five times as many defence systems as the US and many more defence companies (Chinn et al., 2024).[7] As a result, leading European defence companies generate on average just 30% of the sales of their American competitors. While the American market is significantly larger, the fragmented European market means that economies of scale cannot be leveraged, and defence systems can only be produced in smaller quantities at high unit prices. Better cooperation among European partners in the development and purchase of the next generation of military equipment and of modern and integrated defence systems, such as the European Sky Shield Initiative, increase efficiency as well as common defence capabilities as a European public good (see Fuest & Pisani-Ferry, 2019; Steinbach & Wolff, 2024).

Finally, Europe needs to reorganise its innovation policy in the direction of a European Defense Advanced Research Projects Agency to strengthen breakthrough innovations (see Dietrich et al., 2024; Fuest et al., 2024). That way, R&D in defence and dual-use innovations should get easier access to research funding to gain more technological autonomy in defence in Europe.

Policy conclusions

European countries must improve their defence capabilities. The accession of Finland and Sweden to NATO was an important step, but much more is needed. Several European NATO members have recently moved towards NATO's 2% target, but there are several reasons to question whether reaching the NATO target for defence spending is sufficient for deterrence.

First, Europeans spent well above 2% of GDP on defence each year during the Cold War era.[8] That is, many European governments themselves prioritised the maintenance and expansion of defence capabilities in their budgets, even though the US expressed a stronger commitment to defending its allies in democratic Europe at that time. Today, however, many US politicians want Europe to do more for its own security.

Second, it will not be enough to increase defence spending to achieve better military readiness, as intended by NATO's 2% target. Many European countries have been cutting their defence budgets for many years and have hardly invested in ammunition depots and modern military equipment. In order to compensate for these investment deficits, significantly more than the 2% must be

7 In Europe, for example, 19 different types of main battle tanks are in use, compared to just one in the USA (Chinn et al. 2024).

8 Today, the NATO states at the Eastern border that are most at risk of being attacked by Russia have higher defence spending than 2% of GDP (SIPRI, 2024). The three Baltic states are aiming for 3% of GDP, and Poland reached 3.8% of GDP in 2023. Other countries that are facing constant security threats have also spent more than 2% of GDP on average on defence over the past ten years, for example: South Korea (2.6%), United States (3.4%) and Israel (5.2%).

spent if Europe want to rapidly improve its own defence capabilities and deterrence capacity.

Third, military costs are much higher for the Europeans than for Russia. This is why Russia alone (without its allies) has lower costs for a large army the likes of all European NATO countries combined.

Finally, NATO (2023b) itself announced that the members "affirm that in many cases, expenditure beyond 2% of GDP will be needed in order to remedy existing shortfalls and meet the requirements (…) from a more contested security order."

Defence spending needs to be increased but this is not yet reflected in the budget priorities of many (Western) European governments. After the end of the Cold War era, many European countries reduced their defence spending and increased social spending. Reversing the peace dividend faces considerable political resistance, but the fiscal space of several European governments is limited due to high levels of debt and social spending, and low economic growth. European governments need a credible plan to permanently increase defence spending towards a higher level without jeopardising fiscal stability and economic competitiveness (Dorn et al., 2024). Whether Europe will get more self-sufficient and less reliant on the US ultimately depends on whether it prioritises a sufficient defence budget. Defence capabilities must also be increased by more efficiency. That said, the EU's military weakness is only partly due to a lack of defence spending; it is also a consequence of the fragmentation of Europe's armed forces and defence industries. Europe's security can also be strengthened by a better and more efficient integration among European partners and a better and closer cooperation in R&D and the procurement of integrated European defence systems.

References

Bronk, J. (2023). *Europe Must Urgently Prepare to Deter Russia Without Large-Scale US Support* [Commentary]. RUSI. www.rusi.org/explore-our-research/publications/commentary/europe-must-urgently-prepare-deter-russia-without-large-scale-us-support

Chinn, D., Grießmann, N., Lavandier, H., Ocejo, R., Otto, T., & Wagner, K. (2024). *Innovation and Efficiency: Increasing Europe's Defense Capabilities*. McKinsey. https://www.mckinsey.com/industries/aerospace-and-defence/our-insights/innovation-and-efficiency-increasing-europes-defense-capabilities

Dorn, F., Fuest, C., Potrafke, N., & Schlepper, M. (2022a). Sind wir noch bedingt abwehrbereit? Die Entwicklung der deutschen Verteidigungsfähigkeit seit dem Ende des Kalten Krieges. *ifo Schnelldienst*, *75*, Special Issue, 46–52.

Dorn, F., Potrafke, N., & Schlepper, M. (2022b). Zeitenwende in der Verteidigungspolitik? 100 Mrd. Euro Sondervermögen für die Bundeswehr – (k)ein großer Wurf. *ifo Schnelldienst*, *75*, Special Issue, 37–45.

Dorn, F., Potrafke, N., & Schlepper, M. (2023). NATO Defense Spending in 2023: Implications One Year After Russia's Invasion of Ukraine. *EconPol Policy Brief*, *7*(50).

Dorn, F., Potrafke, N., & Schlepper, M. (2024). European Defence Spending in 2024 and Beyond: How to Provide Security in an Economically Challenging Environment. *EconPol Policy Report*, *8*(45).

Dorn, F., & Schlepper, M. (2023). Fiskalische Zeitenwende in Deutschland – Implikationen des Sondervermögen Bundeswehr auf die Haushaltspolitik. *ifo Schnelldienst*, *76*(7), 23–31.

Fuest, C., & Pisani-Ferry, J. (2019). A Primer on Developing European Public Goods. *EconPol Policy Report*, *3*(16); Report written at the request of Ministers Bruno Le Maire and Olaf Scholz.

Fuest, C. (2024, March 21). A New Trump Era and Its Consequences. *EconPol Expert Opinion*. https://www.econpol.eu/expert-opinion/a-new-trump-era-and-its-consequences

Kirsten, B. (2023). Es geht nicht nur um Input und Geschwindigkeit. Ansätze zur Bestimmung der Effizienz von Verteidigungsausgaben im internationalen Vergleich. *GIDS Statement*, 12/2023. German Institute for Defence and Strategic Studies.

Marsh, N., Martins, B. O., & Mawdsley J. (2024). European Defense Spending: Trade-Offs and Consequences of Non-Alignment. *EconPol Forum*, *25*(4), 20–23.

Maulny, J.-P. (2023). The Impact of the War in Ukraine on the European Defence Market. *IRIS Policy Paper*. Institut De Relations Internationales Et Strategiques. https://www.iris-france.org/wp-content/uploads/2023/09/19_ProgEuropeIndusDef_JPMaulny.pdf

Mölling, C., & Schütz, T. (2023). Preventing the Next War – Germany and NATO Are in a Race Against Time. *DGAP Policy Brief*, 34.

NATO (2023a, September 27). *Defence spendings and NATO's 2% guideline*. www.nato.int/cps/en/natohq/topics_49198.htm

NATO (2023b, July 11). *Vilnius Summit Communiqué*. www.nato.int/cps/en/natohq/official_texts_217320.htm

NATO (2024, June 12). *Defence Expenditure of NATO Countries (2014-2024)* [Press Release].

Rasmussen, M. V. (2024). Rearmament with a Purpose. *EconPol Forum*, *25*(4), 24–27.

Robertson, P. E. (2022). The Real Military Balance: International Comparisons of Defense Spending. *Review of Income and Wealth*, *68*(3), 797–818.

Schlepper, M. (2024). Verteidigungspolitische Herausforderungen für die Europäische Union. *ifo Schnelldienst*, *77*(5), 39–43.

SIPRI. (2024). SIPRI Military Expenditure Database, 1949-2023 [Data set].

Steinbach, A., & Wolff, G. B. (2024). Debt Financing European Air Defence. *Intereconomics*, *59*(4), 193–197. https://www.intereconomics.eu/contents/year/2024/number/4/article/debt-financing-european-air-defence.html

DOI: 10.2478/ie-2024-0043

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Intereconomics, 2024, 59(4), 210-213

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The Essential Role of Women in European Security

Women are central to Ukrainian recovery and, therefore, to European security. This seemingly obvious point is, regrettably, better understood by conservative and right-wing politicians who wish to reverse gender-equity policies of the last decades (Graff & Korolczuk, 2022) than by progressive forces committed to building sustainable peace and security in a united Europe. True – putting women "back in their place" is easily achieved even by doing nothing, whereas advancing women's positions, especially in Europe's embattled periphery, would require a significant reorientation of economic and military investments. Yet the long-term costs of doing nothing, or even of treating the war in Ukraine like yet another opportunity for nominal liberal peace with women's rights as political ornaments, are much too high at this juncture. If the European project is to thrive, not merely survive, then the livelihood of women, particularly in its frontier zones, must be secured first.

War transforms and reaffirms gender roles

Women are critically important to Ukraine for three reasons. First, the war in Ukraine has been deeply gendered. As Kratochvíl and O'Sullivan (2023, p. 347) have argued, the war is explicitly fought over "the so-called traditional values, against gender and sexual equalities," since Russia views the latter as pillars of Western decadence. What is at stake in Ukraine, therefore, is gender rights themselves: not upholding them means ceding ground to Russia on both physical and ideological battlefields. In addition, the war is – as wars always do – transforming and reaffirming gender roles in Ukrainian society and beyond (Hozić & Restrepo-Sanin, 2022). While all Ukrainian citizens, men and women, children and elderly, have been affected by the brutality of this war, they face different challenges. Men between 18 and 60 years of age have been restricted in their movements whereas women and children could leave Ukraine. Men have been disproportionally killed and maimed on the front, but women have also joined the military in unprecedented numbers and have filled jobs vacated by soldiers (Mathers, 2024). Demobilized men – wounded and traumatized - need more than just physical care; women, within the context of war-battered families, are usually the only ones who can provide that care. The war's lasting consequences and family ruin are, therefore, unevenly experienced and shared: as extensive research shows, men will be debilitated, prone to violence, suicide and self-harm (Green et al., 2018; Huitt, 2021; Kostovicova et al., 2020). Women will be tasked with mitigating the war's effects for decades to come.

Second, Ukraine is experiencing a catastrophic demographic decline. The country has been losing population since the 1990s. After gaining independence, Ukraine's population was 51.5 million; in 2019, its estimated population was 37 million. Future estimates put Ukraine's population "at between 24 million and 35 million individuals and argue that by 2030 Ukrainian society may likely be one of Europe's oldest, with a high proportion of individuals suffering from multiple illnesses, disabilities, post-traumatic stress disorder (PTSD) and depression because of massive emigration, high mortality, and low birth rates" (Rogoża, 2023). The war exacerbates all these trends, yet the need for people who can secure Ukraine's future has never been greater. Whatever security scenario is envisioned for Ukraine, recruitment of soldiers will be the state's principal problem.

Third, women's labor is the crucial link between the Ukrainian and European (and world) economies. Before the Russian invasion in 2022, Ukraine was the largest recipient of remittances in Europe and Central Asia, which accounted for nearly 10% of its GDP (World Bank, 2022) and as much as 15.7% in 2022 (European Commission, 2023). The remittances are the result of the mostly female migration and work abroad. In 2020, there were approximately 1.5 million Ukrainians in Europe. Nearly 55% of them were women, although in some countries – like Italy – that percentage was even higher, nearly 75%. The majority of Ukrainian women were employed in the care sector – so many in fact that in Italy "the term 'Ukrainian' became equivalent to that of 'badante' (caregiver), in the same way as some decades ago in Italy, it was common to use the word 'Philippino' as synonymous with 'domestic worker'" (Salaris & Tedesco, 2020). The pattern has held since the Russian invasion. EU states have granted fleeing Ukrainian women a temporary protected status, which gives them the right to work. However, language barriers, lack of available childcare (most of the refugees are single mothers) and non-transferable or not

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recognized qualifications have pushed refugees into the informal labor market, particularly care provision. A 2023 study by Care in Poland, albeit limited in scope, showed that most Ukrainian refugee women, although highly educated, found work in the low-paid domestic sector – cleaning, caring for children, elderly or pets, housekeeping or gardening (Klakla et al., 2023). Because of the lower wages and increased need to care for families abroad, it was estimated that remittances declined from US $18.1 billion in 2021 to US $15.7 billion in 2023 (IOM Ukraine, n. d.). But open borders and gendered mobility may also be disguising the true value of money transfers from Ukrainians abroad (surveys show that 95% of Ukrainian women refugees rely on cash (Iskenderian, 2023)) and the extent to which Ukraine continues to depend on remittances for its survival.

These three factors are all interrelated and dependent on women's bodies and their reproductive labor. They can work at cross-purposes, creating a vicious circle of instability – or they can be addressed with well-calibrated policies to enhance Ukrainian, and European, security. NATO and EU leaders may believe that they have other, more significant, priorities than women's well-being but there will never be enough drones to replace a country's population. And a traumatized, aging Ukraine in perpetual economic decline is hardly the secure frontier on Europe's eastern border worthy of the enormous sacrifices exacted by the ongoing war.

Recovery plans structurally disadvantage women

Ukraine's most recent recovery plan, which informs the Ukraine Facility – the European Union's financial assistance program for Ukraine – aims to "build back better" by simultaneously attracting investments into Ukraine and promoting targeted reforms that would align Ukrainian legislation with EU standards (Ukraine Facility, 2024). It revolves around five male-dominated sectors, "assessed to have the largest potential for unleashing economic growth": energy, agriculture, transport, critical raw materials and information technology. The plan also recognizes three "foundational sectors" – education, health care and social services – which usually employ women as "important to build up the labour force, incentivise the return of Ukrainians abroad, and improve the general quality of life" (Ukraine Facility, 2024, p. 10). An entire chapter in the plan is devoted to "human capital," viewed as crucial to putting the economy back on its path in face of the war's damages to the very fabric of social life – including the number of people killed, wounded, disabled, internally displaced or taking refuge abroad. The plan makes several references to gender equality, acknowledging that "gender bias in education, limited accessibility of childcare facilities and gender imbalances in the labour market" (Ukraine Facility, 2024, p. 120) may be hurting not only women but the economy as a whole.

The details of the plan, however, echo previous post-conflict recovery plans in structurally disadvantaging women, despite their enormous support for the war effort. Massive privatization of state-owned enterprises (SOE) and reform of the public sector, which have in other contexts favored male asset-owners and led to decreases in female labor participation, are already on the way. Replenishment of "human capital" is envisioned primarily through the rebuilding of physical health care and education infrastructure, again favoring male employment in the construction sector. Meanwhile, "foundational sectors," which are both critical employers of female labor and facilitators of women's labor participation, are viewed as ripe for private investment.

The plan highlights "a big potential to significantly develop the private sector within the traditional sectors like education (including military education, attracting international students), healthcare (including medical tourism that was already developing before the full-scale invasion), social services (including foster care), cultural heritage (which will facilitate tourism, including foreign tourists)" (Ukraine Facility, 2024, p. 22). The potential for unequal access to such privatized services and their detrimental effects on gender equality are never discussed. Similarly, the plan envisions "deinstitutionalization of care" – closure of mental health facilities, orphanages and senior care centers – without addressing the impact of their privatization on families, and women in particular. Finally, the plan acknowledges that projected labor shortages might not be met by Ukrainians alone, thereby requiring "an effective state migration policy that will facilitate the return of Ukrainian citizens and attract foreign labour" (Ukraine Facility, 2024, p. 127). Remittances, which are mostly sent by women working abroad and by far exceed foreign direct investment in Ukraine and even the value of its agricultural exports, are not mentioned even once in the entire plan.

Including gender objectives

In June 2024, participants at the third Ukraine recovery conference in Berlin recognized the insufficient inclusion of women in recovery and peace planning, leading to the creation of the Alliance for a Gender-Responsive and Inclusive Recovery for Ukraine. Highlighting the fact that nearly 90% of official development assistance to Ukraine does not include gender objectives, the Alliance is committed to increasing funding for projects that advance gender equality and protect women and girls; supporting the full, equal and meaningful participation of women and

women's rights organizations in decision-making processes at all levels; and delivering financial and technical assistance that addresses the specific needs of women and girls, utilizing tools for gender-responsive planning and budgeting, and financing projects identified in the Ukraine Plan and the Rapid Damage and Needs Assessment (UN Women, 2024). Building upon the conference and arguing in favor of giving women greater prominence through the Alliance, Verveer and Donovan (2024) recommended retraining Ukrainian women to better fit in critical sectors: finance and cybersecurity. Their recommendations dovetail with the Ukrainian plan in suggesting that women's access to the market, which has hitherto been limited, needs to be enhanced with loans, empowerment and entrepreneurship.

Such individual solutions do not address the conditions that have led to a dramatic deterioration of the position of women since the independence (Klemparskiy et al., 2022), and which the current vision of Ukrainian post-conflict recovery may not improve. Ukraine's macroeconomic circumstances remain dire. The government is cash strapped and the asset managers are asking that Ukraine repay its debt, despite the ongoing war. The costs of servicing the debt are now skyrocketing, and default is avoided by incurring more debt. Over the last decade of warfare in Ukraine, and under the International Monetary Fund (IMF) guidance, Ukraine's austerity policies have disproportionally depended on women's labor to sustain the increased militarization. The defense budget was exempt from IMF's conditionalities through a "national security loophole" (Mathers, 2020). Meanwhile, spending on social services in Ukraine dwindled to less than 1% of state expenditures in 2023, whereas in Europe it represents 20%-30% of the budget of the social sphere (Ukraine Facility, 2024). Even the cost of an increase in energy prices has been mostly born by women (Dolan-Evans, 2021); stimulating resource extractivism as the magnet for foreign direct investment resembles recommendations for other war-torn but resource-rich countries: without recognizing the degree to which violence and extraction are co-dependent. As Duncanson and Cohn (2020) write, International Financial Institutions (IFIs) continue to conflate recovery from war with recovery of the economic system because of the rootedness of their plans in neoclassical economics, but also because of their neglect of the lessons drawn by feminist political economists.

Western Balkans, where the IFIs have led the recovery while the region was left behind by the EU integration processes until recently, offers a grim picture of Ukraine's potential future. Women's labor participation in the Western Balkans is among the lowest in Europe, and especially in Bosnia and Herzegovina (40%) and Kosovo (20%). Even the introduction of gender mainstreaming measures, including gender budgeting, proved ineffective for as long as tax structures remained unchanged (Bojičić-Dželilović & Hozić, 2020). Women trafficking, violence against women and femicides have become endemic. Women in political leadership positions only mask the degree to which women are generally absent from public spaces and media, unless hyper-sexualized. Berry and Lake's (2021) inconvenient research finding has demonstrated that efforts at women's inclusion may often mask other forms of exclusionary politics. Most importantly, inadequate funding of "foundational sectors" and/or their privatization has led to the utmost depletion of the care industry, now the principal exporter of labor to the EU. According to some estimates, over the last 13 years, more than 400,000 health workers have left Bosnia and Herzegovina, including more than a thousand medical doctors and thousands of nurses (Hozić, 2024).

Conclusion

Europe benefits from the exodus in its periphery. The European crisis in the care sector (Dowling, 2021), driven by its aging population and heightened by the COVID-19 pandemic, is now mitigated by immigrant labor. Selective visa regimes are attracting workers from Europe's less secure edges. According to a Pillars of Health (2022) report, Germany alone has imported 200,000 nurses since 2013, 17.3% of whom came from the Western Balkans, representing 29.3% of nurses in the region itself. The move was made possible by the Western Balkan Regulation of 2016, which made "refugee talent visible and accessible to EU labor markets" (Wagner et al., 2023). While intended to ease political pressures over the "refugee crisis" in Europe, the development of these new "complementary pathways" effectively linked conflicts and crises elsewhere with the fulfillment of needs for skilled workers within the EU (Wagner et al., 2023). The most recent German legislation on the employment of foreigners, which came into effect in November 2023, raised the annual quota of workers from the Western Balkans from 25,000 to 50,000 and indefinitely extended the previous legislation. "The systematic brain-drain of health workforce towards Germany," concluded Pillars of Health (2022) report, "is a European and a global health scandal" that poses "a significant risk for the source countries."

There is still time to reverse this vicious circle with smart public investment in foundational sectors throughout Europe, but especially in its fragile border zones. Militarization, conscription, and the building of a war economy seem to be the preferred political solutions of the European elites grappling with polycrisis and the lack of in-

ternal consensus. There is almost no discussion of the gendered implications of such military buildup, leaving the terrain of demographic fears and fantasies wide open to the demagogues on the extreme right of the political spectrum. Rebuilding Ukraine better and safer may mean investing in its hard security for generations. Ukrainian women, exceptionally well educated as they are, may indeed become the country's best investors and engineers. But without rebuilding the sectors where the majority of women work and that make their work possible – childcare, health care, care for the elderly and mentally ill, education – if gender equity is even addressed as envisioned, it will only lead to a select few elite women presiding over an increasingly empty land.

References

Berry, M., & Lake, M. (2021, January 5). On inconvenient findings. *The Duck of Minerva*. https://www.duckofminerva.com/2021/01/on-inconvenient-findings.html

Bojičić-Dželilović, V., & Hozić, A. A. (2020). Taxing for inequalities: gender budgeting in the Western Balkans. *Review of International Political Economy*, *27*(6), 1280–1304. https://doi.org/10.1080/09692290.2019.1702572

Cohn, C., & Duncanson, C. (2020). Whose recovery? IFI prescriptions for postwar states. *Review of International Political Economy*, *27*(6), 1214–1234. https://doi.org/10.1080/09692290.2019.1677743

Dolan-Evans, E. (2021). Pipes, profits and peace: toward a feminist political economy of gas during war. *Review of International Political Economy*, *30*(2), 437–462. https://doi.org/10.1080/09692290.2021.2012223

Dowling, E. (2021). *The Care Crisis: What Caused it and How We Can End It?* Verso.

European Commission. (2023). *Ukraine 2023 Report* [Commission Staff Working Document]. https://neighbourhood-enlargement.ec.europa.eu/system/files/2023-11/SWD_2023_699%20Ukraine%20report.pdf

Graff, A., & Korolczuk, E. (2022). *Anti-Gender Politics in the Populist Moment*. Routledge.

Green, J. D., Kearns, J. C., Ledoux, A. M., Addis, M. E., & Marx, B. P. (2018, January) The Association Between Masculinity and Nonsuicidal Self-Injury. *American Journal of Men's Health*, *12*(1), 30-40. https://doi.org/10.1177/1557988315624508

Hozić, A. (2024, May 15). Insecurity and Economies of Care. In T. L. Domi (Ed.), *The Western Balkans 2024: Assessment of the Current Security Posture and Geopolitical Challenges*. New Lines Institute. https://newlinesinstitute.org/political-systems/insecurity-and-economies-of-care/

Hozić, A., & Restrepo-Sanin, J. (2022, May 10). *Reimagining the aftermath of war, now* [Women, Peace, and Security – London School of Economics Blogs]. https://blogs.lse.ac.uk/wps/2022/05/10/reimagining-the-aftermath-of-war-now/

IOM Ukraine. (n. d.). *Remittances in War: How Money From Abroad is Helping Ukraine*. https://cstor.eu/pillarsofhealth/2022/09/b3b4063d-pillars-of-health_country-report-on-health-worker-migration-and-mobility_germany.pdf

Iskenderian, M. E. (2023, November 6). *Financial Inclusion vs. Financial Resilience: What Ukrainian Women Refugees Can Teach Us*. https://www.linkedin.com/pulse/financial-inclusion-vs-resilience-what-ukrainian-can-us-iskenderian-p5lse/

Klemparskyi, M. M., Pavlichenko, H. V., Prokopiev, Y. R., Mohilevskyi, L. V., & Burniagina, Y. M. (2022). Gender inequality in the labour market of Ukraine. *Work Organisation, Labour & Globalisation*, *16*(2), 140–157. https://doi.org/10.13169/workorgalaboglob.16.2.0140

Klakla, J. B., Koss-Goryszewska, M., Kulesa, A., Pająk-Załęska, K., & Zarychta, M. (2023). *In the Shadows: Ukrainian Domestic Workers in Poland*. Warsaw: Care International Poland. https://www.care-international.org/sites/default/files/2023-10/In%20the%20Shadows_Ukrainian%20Domestic%20Workers%20in%20Poland_long_final_24_10.pdf

Kostovicova, D., Bojicic-Dzelilovic, V., & Henry, M. (2020). Drawing on the continuum: a war and post-war political economy of gender-based violence in Bosnia and Herzegovina. *International Feminist Journal of Politics*, *22*(2), 250–272. https://doi.org/10.1080/14616742.2019.1692686

Kratochvíl, P., & O'Sullivan, M. (2023). A war like no other: Russia's invasion of Ukraine as a war on gender order. *European Security*, *32*(3), 347–366. https://doi.org/10.1080/09662839.2023.2236951

Mathers, J. G. (2020). Women, war and austerity: IFIs and the construction of gendered economic insecurities in Ukraine. *Review of International Political Economy*, *27*(6), 1235–1256. https://doi.org/10.1080/09692290.2020.1725903

Mathers, J. G. (2024). Women, Civil Society, and Ukraine's War. *Political Insight*, *15*(1), 26-28. https://doi.org/10.1177/20419058241238190

Pillars of Health. (2022, September). *Country report on health worker migration and mobility: Germany*. https://cstor.eu/pillarsofhealth/2022/09/b3b4063d-pillars-of-health_country-report-on-health-worker-migration-and-mobility_germany.pdf

Rogoża, J. (2023, November 7). *Ukraine in the face of a demographic catastrophe* [OSW Commentary]. Centre for Eastern Studies, Warsaw. https://www.osw.waw.pl/en/publikacje/osw-commentary/2023-07-11/ukraine-face-a-demographic-catastrophe

Salaris, L., & Tedesco, N. (2020) Migration and the Labour Market: Ukrainian Women in the Italian Care Sector. *Journal of International Migration and Integration*, 21, 1–20. https://doi.org/10.1007/s12134-019-00656-1

Suitt, T. H. III. (2021). *High Suicide Rates Among United States Service Members and Veterans of 9/11 Wars. Costs of War Project*. Watson Institute. Brown University. https://watson.brown.edu/costsofwar/files/cow/imce/papers/2021/Suitt_Suicides_Costs%20of%20War_June%2021%202021.pdf

Svitych, O. (2023). Development for whom? The case of USAID in Ukraine's Donbas. *Review of International Political Economy*, *30*(6), 2406–2422. https://doi.org/10.1080/09692290.2023.2170444

True, J., & Hozić, A. A. (2020). Don't mention the war! International Financial Institutions and the gendered circuits of violence in post-conflict. *Review of International Political Economy*, *27*(6), 1193–1213. https://doi.org/10.1080/09692290.2020.1732443

Ukraine Facility. (2024). *Ukraine Plan 2024-2027*. https://www.ukrainefacility.me.gov.ua/wp-content/uploads/2024/03/ukraine-facility-plan.pdf

UN Women. (2024). *New alliance promotes gender-responsive recovery efforts in Ukraine*. https://www.unwomen.org/en/news-stories/news/2024/06/new-alliance-promotes-gender-responsive-recovery-efforts-in-ukraine

Verveer, M., & Donovan, K. (2024, June 14). Women should play a central role in rebuilding Ukrainian economy. *New Atlanticist*. https://www.atlanticcouncil.org/blogs/new-atlanticist/women-should-play-a-central-role-in-rebuilding-ukraines-economy/

Wagner, M., Katsiaficas, C., & Güzelant, G. (2023, July). *Germany's Western Balkans Regulation: Inspration for Facilitating Refugee Labour Mobility?* International Center for Migration Policy Development. https://www.icmpd.org/file/download/59868/file/Germany_Western_Balkans_Regulation_Refugee_Labour_Mobility.pdf

World Bank. (2022, May 12). *Remittances to Reach $630 billion in 2022 with Record Flows into Ukraine* [Press Release]. https://www.worldbank.org/en/news/press-release/2022/05/11/remittances-to-reach-630-billion-in-2022-with-record-flows-into-ukraine

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EU Concerns About Chinese Subsidies: What the Evidence Suggests

China uses subsidies extensively to take a leading role in the global markets of green-tech products such as battery electric vehicles and wind turbines. Against the background of the current EU investigations into Chinese subsidies in these sectors, this article takes a careful look at the Chinese subsidy system and provides new data on direct government subsidies to leading Chinese producers of electric cars and wind turbines. Extensive government support has allowed Chinese companies to scale up rapidly, to dominate the Chinese market and to expand into foreign markets. The article concludes that the EU should use its strong bargaining power due to the single market to induce the Chinese government to abandon the most harmful subsidies.

Green technologies are increasingly at the centre of international trade and technology policy. The Chinese government has recognised the future importance of such technologies early on and is particularly active in supporting these industries. China has become a world leader in photovoltaics and battery cell production and is trying to do the same in electric vehicles and wind power. Subsidies are a key instrument in the Chinese government's strategy to support the development of these industries.

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The massive subsidisation of Chinese companies has led to fierce criticism in the West, however.

The European Commission accuses the Chinese government of distorting competition with subsidies for electric cars and has launched an official anti-subsidy investigation into electric cars in China in October 2023. The anti-subsidy investigation has been intended to confirm the Commission's allegations that manufacturers of battery electric vehicles (BEV) in China benefit from countervailable – i.e. specific and advantageous to the receiving companies – subsidies that are causing or threatening to cause economic damage to BEV manufacturers in the EU and justify the introduction of countervailing duties (European Commission, 2023, 2024c). Similar discussions have been held regarding subsidies to Chinese producers of wind turbines: in April 2024, EU Commissioner Margrethe Vestager (2024) announced the start of an investigation into Chinese wind turbines under the EU's foreign subsidies regulation.

These allegations must be taken seriously. The data situation is currently highly unsatisfactory and the requirements for legally secure interventions, namely the imposition of countervailing duties on Chinese imports by the European Commission, are high. And even if the legal requirements for the imposition of such duties were met, there is still the question of whether such duties would be in the long-term interests of the EU.

Against this background, the article assembles data on overall industrial subsidies in China from different sources and provides some new data based on the analysis

of the Chinese government's latest reviews of purchase subsidies for new energy vehicles and the annual reports of the most important Chinese companies in the electric car and wind energy sectors. Based on the empirical findings, arguments for and against EU interventions are discussed.

Quantification of overall Chinese industrial subsidies

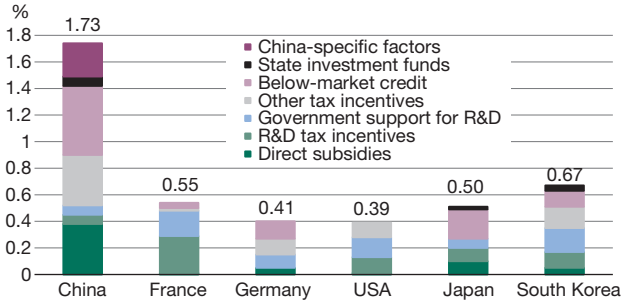
Chinese industries receive considerable public support in the form of direct and indirect subsidies, and there can be little doubt that overall industrial subsidies in China are significantly higher than those in the EU or in the countries of the OECD, more generally.

A recent study by the Center for Strategic and International Studies (CSIS) quantifies overall industrial policy spending by the Chinese government, comparing it to other major economies (DiPippo et al., 2022). The study considers government support provided to industry in the form of direct subsidies, government support for R&D, R&D tax incentives, other tax incentives, below-market credit to state-owned enterprises (SOEs), support through state investment funds (government guidance funds, GGF), and "China-specific factors", which include, most notably, below-market land sales.[1] Estimates for some of these types of support are lower bounds as some elements are not quantifiable.

For China, the study estimates public support for industry to add up to at least €221.3 billion, or 1.73% of GDP in 2019, even when taking a conservative approach and considering only quantifiable factors (DiPippo et al., 2022). This is far higher than estimated support in the other leading economies in the sample, both in absolute terms and in relation to GDP (see Figure 1). Relative to GDP, public support is about three times higher in China than in France (0.55%) and about four times higher than in Germany (0.41%) or the United States (0.39%).[2]

As for the relative importance of the different instruments in China, three instruments stand out: below-market credit to SOEs with 0.52% of GDP, and direct subsidies and other tax incentives with 0.38% of GDP each. R&D tax incentives and government support for R&D are relatively low in China, with 0.07% of GDP each. With this, the structure of Chinese subsidies differs strongly from that in the US and France, where R&D tax incentives and government support for R&D are the largest support elements. For Germany, the support structure is somewhat closer to that of China. As in China, below-market credits and other tax incentives are the largest support elements in Germany. Direct subsidies are much less important in Germany than in China, whereas government support for R&D is relatively more important in Germany.

Figure 1
Industrial support spending in China and key OECD countries in relation to GDP, 2019



Note: China-specific factors include, most notably, below-market land sales.

Source: DiPippo et al. (2022); authors' own illustration.

The OECD (2021, 2023) provides another quantification of China's overall industrial subsidies using publicly available firm-level information for 306 of the world's largest manufacturing firms (almost a quarter of firms in the sample are from China; about a fifth from the EU).[3] The study covers the years 2005-2019 and focuses on four key instruments of policy support: tax concession, government grants, below-market borrowing and below-market equity.

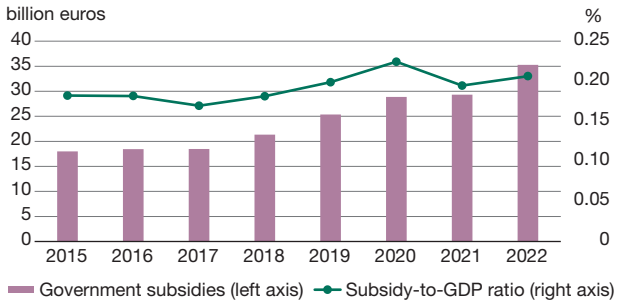
In line with the CSIS study (DiPippo et al., 2022), the OECD (2021, 2023) finds that China offers its large industrial firms disproportionately more support – both overall and in each of the four instruments considered – than other countries covered in the analysis. The industrial firms from China covered in the sample received government support equivalent to about 4.5% of their revenues. By

1 Direct subsidies and tax incentives include only support for SOEs and listed private firms, but not that for non-listed private firms. Support in the form of below-market credits covers only support for SOEs, not private firms. For details on the definition and measurement of the different support instruments, see DiPippo et al. (2022).

2 In absolute terms, the US comes second, with an estimated government support equaling about €75 billion (US $84 billion), which is about one-third of China's support spending. In Germany and France government support amounts to €14.3 billion and €13.3 billion, respectively, broadly one-sixteenth of the level of support in China.

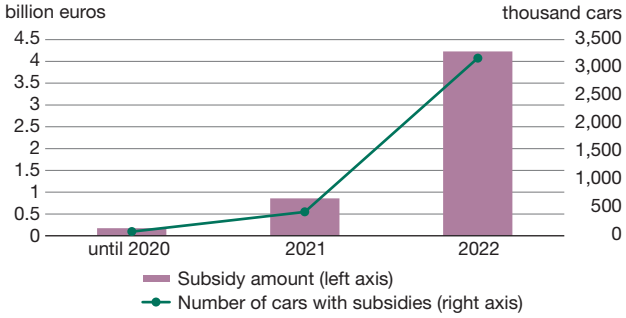
3 For most sectors included in the sample, the companies covered account for at least two-thirds of global sales or capacity (OECD, 2021, p. 27).

Figure 2
Direct subsidies to listed companies in China, 2015-2022



Sources: Bruegel (2024), National Bureau of Statistics of China (2023) and Deutsche Bundesbank (2024); authors' own currency conversion, calculation of ratios and illustration.

Figure 3
Approved NEV purchase subsidies in China



Note: The average exchange rate for 2020 is used for calculating NEV purchase subsidies in euro for the first period (until 2020).

Sources: Ministry of Industry and Information Technology of China (2023, 2024) and Deutsche Bundesbank (2024); authors' own calculations and illustration.

far the largest part of this support comes in the form of below-market borrowing.[4]

These results suggest that through tax concessions, government grants and below-market borrowing alone, large industrial companies in China may receive almost nine times more government support (relative to company sales) than comparable companies in the OECD. And this does not include support in the form of below-market equity, or through subsidised input prices, preferential treatment in public procurement or other forms of support that are even harder to quantify and to compare internationally.

The results of the two studies of CSIS and OECD just described relate to the years 2019 and 2005-2019 respectively. More recent quantifications of Chinese subsidies are available for selected instruments or sectors only. The China Economic Database (Bruegel, 2024) provides data for direct government subsidies to listed companies up to 2022.[5] In 2022, the 5,260 companies in the sample received about €35.3 billion in direct government subsidies (Figure 2). This is double the amount in 2015.[6] Relative to 2019, the last year before COVID-19 and the reference year of the above CSIS study, subsidies increased by about 27.3% in 2022. The database also shows that in 2022 almost all listed companies in China (more than 99% in the database) have received direct government subsidies (Bruegel, 2024).

Chinese subsidies in battery electric vehicles

China's rise to the world's largest market and production base for battery electric vehicles has been boosted by the Chinese government's longstanding extensive support of the industry, which includes both demand- and supply-side subsidies. Substantial purchase subsidies and tax breaks to stimulate sales of battery electric vehicles (BEV) are, of course, not unique to China but are also widespread within the EU and other Western countries, where (per vehicle) purchase subsidies have often been substantially higher than in China. A distinctive feature of purchase subsidies for BEV in China, however, is that they are paid out directly to manufacturers rather than consumers and that they are paid only for electric vehicles produced in China, thereby discriminating against imported cars.

While these purchase subsidies have been phased out altogether by the end of 2022, they played an important role in the development phase of the sector.[7] Until 2022, the purchase subsidies for new energy vehicles (NEV), which

4 Firms based in China received tax concessions amounting to about 0.75% of their revenues, government grants of more than 0.63% of revenues and support in the form of below-market borrowings of more than 2.35%. For OECD-based firms, the corresponding figures are 0.32%, less than 0.1% and close to 0% (OECD, 2021, 2023; Chimits, 2023). For below-market equity, a support level of about 0.75% of sales appears to be a reasonable estimate for China, according to Chimits (2023). For the OECD, the relative benefit per government-invested firm seems to be comparable on average to that in China, the aggregate effect is substantially smaller in the OECD, however, due to the much smaller number of government-invested firms there (OECD, 2021).

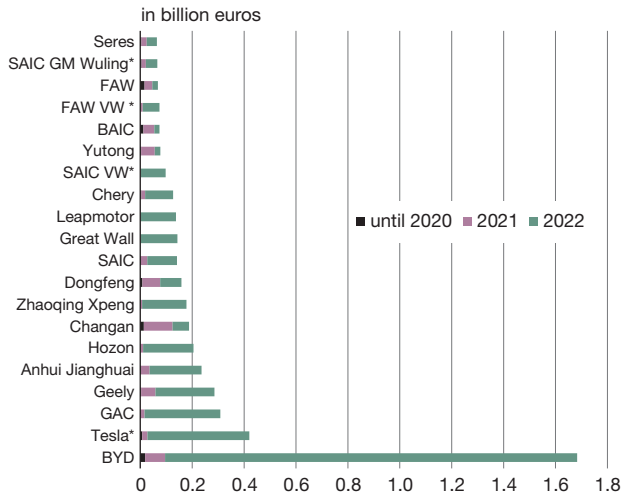
5 Companies listed in China are legally obliged to report on the subsidies they receive. However, this only applies to direct "official" subsidies, while various indirect or hidden forms of subsidies are not covered.

6 Relative to GDP subsidies increased from 0.18% of GDP in 2015 to 0.21% in 2022.

7 Zhang et al. (2024) find evidence that purchase subsidies have led to a substantial uptake in the sales of domestic EVs, while at the same time discouraging the uptake of imported EVs.

Figure 4

Approved new energy vehicle purchase subsidies in China: Top 20 recipients

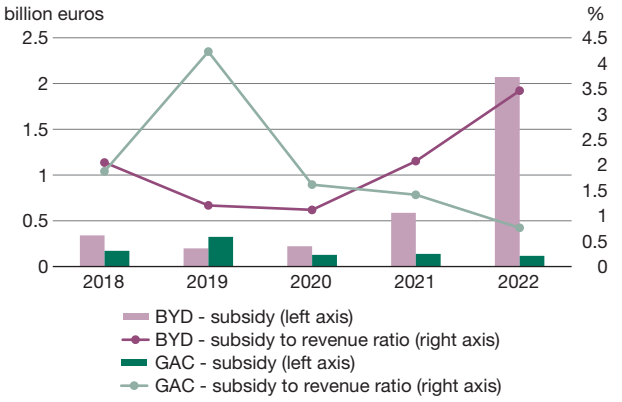


Note: * Sino-foreign joint ventures or foreign-owned firms. New energy vehicles include battery electric vehicles, plug-in hybrid vehicles and fuel cell vehicles.

Sources: Ministry of Industry and Information Technology of China (2023, 2024), Deutsche Bundesbank (2024); authors' own calculations and illustration.

Figure 5

Direct government subsidies to BYD and GAC, 2018-2022



Note: Government subsidies consist of newly added longer-term government subsidies and new government subsidies of the year disclosed in the annual reports.

Sources: BYD annual report 2018-2022 and GAC annual report 2018-2022; Deutsche Bundesbank (2024); authors' own calculations and illustration.

include BEV as well as plug-in hybrid vehicles (PHEV) and fuel cell vehicles, amounted to about €5.3 billion (Figure 3). The lion's share of the subsidies was paid in 2022, the final year of the policy. In 2022, purchase subsidies of about €4.2 billion were allocated to almost 3.2 million NEV, up from a total of €0.2 billion for about 75,000 NEV for the period 2010 to 2020. The average subsidy per NEV decreased over time, from about €2,300 between 2010 and 2020 to €1,300 in 2022.

By far the largest recipient of purchase subsidies was Chinese NEV manufacturer BYD, which in 2022 alone received purchase subsidies amounting to €1.6 billion (for about 1.4 million NEV) (Figure 4). The second largest recipient of purchase subsidies was US-headquartered Tesla, which received about €0.4 billion (for about 250,000 BEV produced in its Shanghai Gigafactory). While the ten next highest recipients of purchase subsidies are all Chinese, there are also three Sino-foreign joint ventures (the two VW joint ventures with FAW and SAIC as well as SAIC GM Wuling) among the top 20 purchase subsidy recipients.[8]

The large differences in purchase subsidies received mainly reflect differences in the number of NEV sold and eligible for subsidy. In 2022, Tesla and the three Sino-foreign joint ventures taken together received purchase subsidies for about 408,000 NEV, whereas BYD alone received subsidies for 1.4 million NEV. The 16 Chinese NEV manufacturers among the top 20 purchase subsidy recipients combined received subsidies for 2.63 million NEV.

Purchase subsidies per vehicle depend on the technology (BEV or PHEV) and the basic performance characteristics (e.g. electric range, battery energy density, maximum speed) of individual car models. We find that BYD received more subsidies than its largest competitors — Tesla and GAC but also compared to VW joint ventures SAIC-VW and FAW-VW — in every relevant subsidy rate class in 2022, reflecting the breadth and competitiveness of the BYD model range.

Even as purchase subsidies have been phased out, BEV continue to be exempt from the vehicle purchase tax (usually 10% on car price including VAT). More specifically, there will be a complete purchase tax exemption for all NEV, not only but mostly BEV, up to savings of RMB 30,000 (about €3,920) per vehicle in 2024 and 2025. The exemption will be halved in 2026 and 2027. For the four years, this incentive package is scheduled

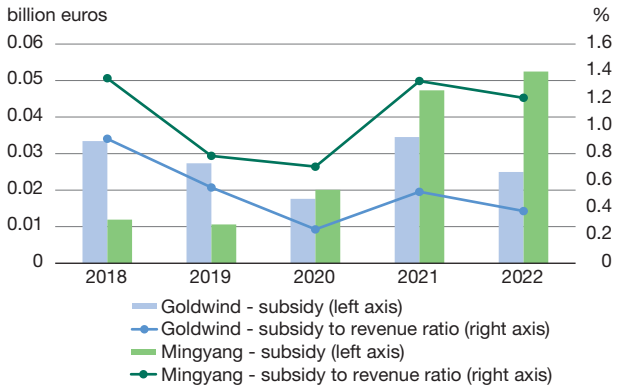
8 In 2022, the top 20 purchase subsidy recipients jointly received about 95% of the total amount of NEV purchase subsidies and accounted for almost 96% of the total number of subsidised NEV.

to amount to RMB 520 billion (about €68 billion) (China Briefing, 2023).

Apart from purchase subsidies (until 2022), there are several other forms of subsidies given to BEV manufacturers. According to the information in BYD's annual reports, direct government subsidies to that company totalled €3.4 billion in the period from 2018 to 2022. They increased massively, recently, from about €0.2 billion in 2020 to €0.6 billion in 2021, and to €2.1 billion in 2022 alone (Figure 5). Relative to business revenues, this corresponds to an increase of direct subsidies from 1.1% of revenues in 2020 to 3.5% in 2022. Direct subsidies to GAC, the second largest Chinese recipient of NEV purchase subsidies, were much lower and tended to decrease in recent years.

Other important forms of government support (not included above) are, e.g. below-market debt and equity, (discriminatory) government procurement (DiPippo et al., 2022), or the purchase of important inputs (such as steel and EV batteries) at subsidised prices, which are hard to measure, however.

Figure 6
Direct government subsidies to Goldwind and Mingyang, 2018-2022



Note: Government subsidies consist of newly added longer-term government subsidies and new government subsidies of the year disclosed in the annual reports.

Sources: Goldwind annual report 2018-2022 and Mingyang annual report 2018-2022; Deutsche Bundesbank (2024); authors' own calculations and illustration.

Chinese subsidies for wind turbines

In the mid-1990s, the Chinese government introduced a purchase guarantee and feed-in-tariff schemes for wind energy as well as strong local content requirements, mandating that wind farms purchase at least 70% domestically manufactured equipment (Li et al., 2023). This resulted in a rapid expansion of installed wind energy capacity (from 1.26 GW in 2005 to 31 GW in 2020) and a rapid growth of the market share of domestic wind turbine manufacturers (from 25% in 2004 to 90% in 2010) (Li et al., 2023).

In the following years, feed-in tariffs were repeatedly adjusted downwards in accordance with falling wind energy costs. Eventually, the central government has completely abolished (preferential) feed-in tariffs for both onshore wind and offshore wind in 2020 and 2021.[9] In view of the sharp fall in the cost of wind power generation in China, the central government no longer seems to consider specific subsidies on the demand side to be necessary. Several large provinces including Guangdong, Shandong and Zhejiang have announced their own regional subsidy policies to stand in for the national ones, however (Caixin, 2023).

The strict local content requirements were revoked in 2009, allowing foreign producers to bid for projects (Li et al., 2023; Scheifele et al., 2022).[10] However, the market share of Western turbine manufacturers has fallen even further, allegedly also due to discriminatory treatment by the wind farm operators in award procedures. European wind turbine producers such as Vestas or Siemens Gamesa are still producing wind turbines in China but mainly or even only for export.[11]

While some important forms of government support for the wind turbine industry in China were abolished several years ago, the central and regional governments continue to support the industry through various other instruments. Notable examples are the direct subsidies for turbine manufacturers. Goldwind and Mingyang, two of the largest Chinese wind turbine manufacturers, each received €0.14 billion of these subsidies between 2018 and 2022 (Figure 6). For Mingyang, these subsidies have even increased substantially over recent years, from €0.02 billion in 2020 to €0.05 billion in 2022. Although they are much lower in absolute terms than those for the leading NEV manufacturers, they are of similar size in relation to business revenues as subsidies to car maker GAC. In 2021

9 The feed-in tariff model is replaced by a grid-parity model in which electricity generated from wind (renewables) will receive the same renumeration as electricity generated from coal-fired power plants (Global Wind Energy Council, 2023).

10 Statistical analysis by Scheifele et al. (2022) suggests that these local content requirements (LCR) have significantly increased exports of wind energy components from China.

11 Already in August 2021, Siemens Gamesa announced it would continue producing wind turbines in Tianjin, China, but only for export (Wirtschaftswoche, 2021).

and 2022, subsidies amounted to about 1.2%-1.3% of business revenues for Mingyang and about 0.4%-0.5% for Goldwind.

In addition, there is a variety of indirect forms of support for the industry, including preferential land and financing arrangements (below-market debt and equity injections) from central or local governments. Another important form of support is lower prices for key inputs due to government subsidies or regulations in related industries. This includes, in particular, steel and rare earth materials but also shipping and shipbuilding, which are essential inputs in the offshore wind industry.

Limits to quantifying subsides and other forms of government support

The subsidies discussed above, however important, clearly underestimate the full extent of government support to Chinese companies as the Chinese subsidy system is extremely complex and intransparent, and it defies complete quantification. Subsidies are granted by different constituencies, and they can also be mediated by public financial institutions or SOEs. An open registry of public subsidies does not exist, and subsidies from local governments and support intermediated by SOEs are not adequately recorded (Chimits, 2023). The annual reports of publicly listed companies provide an alternative data source as these companies are legally obliged to report on subsidies received. However, listed firms account for just a small fraction of Chinese firms, and the annual reports only cover direct "official subsidies" and not the various more indirect or hidden forms of support that are omnipresent in China.

Public support is provided on almost all stages of production. Producers benefit not only from subsidies they receive, but also from subsidies provided to their suppliers (via cheaper input supplies) or customers (via increased demand). Due to the complexity of supply chains, it can be difficult to identify the final beneficiaries of government support. Moreover, Chinese producers benefit from tax breaks, below-market credits and below-market equity. OECD estimates suggest that these more indirect forms of support might be several times higher than the direct "official subsidies" (OECD, 2021).

Importantly, there are various other channels of government support for Chinese companies that are even harder to quantify. These include the Chinese government's long-term safeguarding of critical raw materials, forced technology transfer, strategic use of public procurement and preferential treatment of domestic firms in administrative procedures. While the use of such policy levers is not unique to China, the comprehensiveness and intensity of their use is unparalleled (Chimits, 2023), and likely to have a substantial impact on the competitiveness of Chinese industries.

Discussion

The empirical evidence presented in this article clearly shows that China strongly subsidises manufacturing industries that rank high on its economic policy agenda, including many green tech industries. Here industrial policies are targeted to help China to become independent of foreign technology, to establish itself as a global supplier of key manufactured products and to further strengthen its role as a leading export nation (Bickenbach & Liu, 2023). Extensive government support has allowed Chinese green manufacturing industries to scale up rapidly and to start dominating the Chinese home market and increasingly also foreign markets. This is true for solar panels or batteries for EVs, where Chinese companies have dominated the EU markets for several years now, and increasingly also for BEV and wind turbines where Chinese companies are only just starting to penetrate EU markets.

The European Commission has made clear that it is prepared to take strong action against subsidised imports from China. In October 2023, it officially launched an anti-subsidy investigation into the import of BEV from China (European Commission, 2023). And in April 2024, Commissioner Vestager announced the launch of an investigation under the newly enacted Foreign Subsidies Regulations into Chinese wind turbine companies participating in the development of wind parks in five European countries (Vestager, 2024).[12] In the BEV case, the European Commission stated on 12 June 2024 that as part of its ongoing investigation it "has provisionally concluded that the battery electric vehicles (BEV) value chain in China benefits from unfair subsidisation, which is causing a threat of economic injury to EU BEV producers" (European Commision, 2024c). As a result, the Commission announced the imposition of countervailing duties on imports of BEVs from China that would be introduced from 4 July 2024, should discussions with Chinese authorities not lead to an effective WTO-compatible solution. The duties would

12 Earlier this year, the Commission had already launched investigations under the Foreign Subsidies Regulation (Regulation (EU) 2022/2560) into Chinese train manufacturer CRRC for allegedly using subsidies to undercut EU competitors in a public procurement procedure in Bulgaria (European Commission, 2024a) and into the potentially market distortive role of foreign subsidies given to two partly Chinese bidder consortia in a public procurement procedure for a photovoltaic park in Romania (European Commission, 2024b). Both investigations have been closed by the Commission after the companies concerned withdrew from the procurement procedures.

range from 17.4% for BYD to 38.1% for SAIC as well as all other BEV producers in China that did not cooperate in the investigation (European Commission, 2024c).[13]

However, whether such an intervention would be in the interest of the EU is anything but clear. An increase in import restrictions on green-tech products from China would likely lead at least in the short term to higher costs of such products in the EU and could make the green transition of the EU economy more expensive and slower. This applies even more to import restrictions on those green technology products for which the EU industry currently has too little capacity to meet the increasing domestic demand such as EV batteries or wind turbines.

From a more dynamic perspective, such an argument may neglect important geopolitical externalities, path dependencies, and the issue of technology control in key industries.[14] Battery cell technology, for example, is not only one of the key technologies in the energy transition, but also a general-purpose technology (GPT). Early mover advantages and spillovers into related sectors (aviation, underwater shipbuilding, medicine) could make it beneficial to push such technologies and avoid one-sided dependencies on systemic competitors like China. Import restrictions on such products may thus help reduce the EU's critical reliance on China ("de-risking") or even strengthen national security given the espionage or sabotage risks brought up against imports of wind turbines or connected cars from China.[15]

On the other hand, due to China's strong position as a production base for European firms and as a source of many critical products for the EU market (Langhammer, 2022), China has strong retaliatory capabilities against the EU. Hence, the costs for EU industries and consumers of import restrictions on subsidised Chinese goods could increase considerably if the Chinese government were to respond with countermeasures such as export restrictions on inputs on which the (green-tech) industries in the EU are heavily reliant, such as refined rare earths.[16] Such export restrictions would harm the EU industry not just on the internal EU market but also with respect to its exports to China or third-country markets. And export restrictions on necessary inputs are just one of a myriad of possible countermeasures through which China could harm EU companies in the industry directly affected by EU measures or indeed any other EU companies trading with or producing in China. This is likely one reason why German carmakers, who are heavily engaged in trading, production and R&D in China, are rather sceptical about a potential EU intervention.[17]

Even without considering possible Chinese retaliatory measures, it is far from clear whether and to what extent EU industry would actually benefit from restrictions on Chinese imports. Take, for example, the case of EU import duties on BEV from China. First, these tariffs would also affect imports of BEV manufactured by European (German) companies producing in China.[18] Second, the (direct) effect of EU import tariffs on BEV from China would be restricted to the EU market, and would not help European producers on third-country markets and in China itself. Third, EU import tariffs would be equivalent to an implicit tax on EU exports since the domestic price of imports would rise relative to the price of exports. This would impede EU export competitiveness in related markets as well, and not only in the BEV market. Fourth, less intense competition due to import restrictions could reduce the EU industry's incentives to invest in R&D and in cost-efficient production facilities, thereby weakening the industry in the medium term.

From a purely industrial economics point of view, tariff protection or subsidies for the EU industry could be justified if subsidised imports from China would hinder the EU industry from scaling up and achieving the economies of scale necessary to compete internationally. Given the strong increase in demand and the comparatively high transport costs for BEV (or for other heavy and large green energy products such as wind turbines), it seems likely

13 Geely would be subject to a duty of 20%. All other BEV producers that cooperated with the European Commission in the investigation but have not been sampled for in-depth investigation would be subject to a duty of 21% (the weighted average of duties for the three sampled companies BYD, Geely and SAIC). Following a substantiated request, Tesla may receive an individually calculated duty rate, when definite duties are fixed (European Commission, 2024c). In all cases, the countervailing duties would be added to the existing import duty of 10% on BEV imports.

14 It neglects the risk of predatory dumping, that is that Chinese companies may raise the price after having driven EU suppliers out of the market.

15 There is also a purely EU-internal, political-economy argument in favour of a more stringent EU action against subsidised imports from China: without such action, EU policy is likely to find it increasingly difficult to fend off internal EU demands (lobbying activities) for higher subsidies and the promotion of European/national champions to compete with China on equal terms.

16 Of course, dependencies are not one-sided. In several respects, the Chinese economy is also reliant on the European and US economies, e.g. as a source of technology or a buyer of Chinese products. A recent estimate suggests that a complete decoupling between China (and its allies) and the West would actually be substantially more costly (in terms of welfare) to China than to the EU or the US (Baqaee et al., 2024).

17 The interests and dependencies of individual German companies or those of a single sector (automotive manufacturing) must not be confused with those of the entire German (or European) economy, of course.

18 In 2023, the majority of BEV imports from China was still coming from Western carmakers such as Tesla, Renaults' Dacia or BMW (Transport & Environment, 2024).

that the industry will be able to substantially increase production in the EU despite increasing Chinese imports. At least in the medium term, companies producing in Europe can be expected to have a substantial advantage in serving EU customers (the more so as import tariffs for BEV into the EU now stand at 10% even without additional countervailing duties). As technologies mature, manufacturers will have increased incentives to expand production near consumers to reduce shipping costs (Springford & Tordoir, 2023). We would thus also expect Chinese BEV manufacturers (like Chinese EV battery manufacturers before them) to build up production capacities in Europe to serve the EU market, unless they are prevented from doing so by Chinese or EU policy.

So how then should the EU deal with the problem of subsidised imports from China? In our view, there is a case in favour of driving forward the current EU proceedings against imports of green-tech products from China. The EU should use the information obtained there and its strong bargaining power due to the single market to enter into negotiations with the Chinese government and to try to induce the Chinese government to abolish the Chinese support measures that are particularly harmful to the EU. Given the current weak macroeconomic situation in China, the focus of the Chinese government on its political conflicts with the US and, at the same time, the relative strength of China's green-tech industries, there is a realistic chance that such negotiations will be successful.

References

Baqaee, D., Hinz, J., Moll, B., Schularick, M., Teti, F. A., Wanner, J., & Yang, S. (2024). What if? The Effects of a Hard Decoupling from China on the German Economy. *Kiel Policy Brief*, 170.

Bickenbach, F., Dohse, D., Langhammer, J., & Liu, W.-H. (2024). Foul Play? On the Scale and Scope of Industrial Subsidies in China, *Kiel Policy Brief*, 173.

Bickenbach, F., & Wan-Hsin L. (2023). Wie China internen und externen wirtschaftlichen Herausforderungen begegnen. *Wirtschaftsdienst*, *107*(7), 484–490. https://www.wirtschaftsdienst.eu/inhalt/jahr/2023/heft/7/beitrag/wie-china-internen-und-externen-wirtschaftlichen-herausforderungen-begegnen-will.html

Bruegel. (2024). *Bruegel China Economic Database* [Dataset]. Retrieved 22 March 2024, from https://www.bruegel.org/dataset/china-economic-database

Chimits, F. (2023). What Do We Know About Chinese Industrial Subsidies? *CEPII Policy Brief*, 42. http://cepii.fr/CEPII/en/publications/pb/abstract.asp?NoDoc=13835

Deutsche Bundesbank. (2024). *Exchange Rate Statistics March 2024*, *Exchange Rate Statistics 1 April 2024*. https://www.bundesbank.de/resource/blob/927760/3d95a8347dbd5b141341266d38d3dd15/mL/2024-03-15-11-36-18-wechselkursstatistik-data.pdf

DiPippo, G., Mazzocco, I., & Kennedy, S. (2022). *Red Ink: Estimating Chinese Industrial Policy Spending in Comparative Perspective*. Center for Strategic & International Studies. https://www.csis.org/analysis/red-ink-estimating-chinese-industrial-policy-spending-comparative-perspective

European Commission. (2023). Notice of Initiation of an Anti-subsidy Proceeding Concerning Imports of New Battery Electric Vehicles Designed for the Transport of Persons Originating in the People's Republic of China. *Official Journal of the European Union*, C/2023/160. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C_202300160

European Commission. (2024a, 3 April). *Commission Opens First In-depth Investigation under the Foreign Subsidies Regulation* [Press Release]. https://ec.europa.eu/commission/presscorner/detail/en/IP_24_887

European Commission. (2024b, 16 February). *Commission Opens Two In-Depth Investigations under the Foreign Subsidies Regulation in the Solar Photovoltaic Sector* [Press release]. https://ec.europa.eu/commission/presscorner/detail/en/IP_24_1803

European Commission. (2024c, 12 June). Commission Investigation Provisionally Concludes that Electric Vehicle Value Chains in China Benefit from Unfair Subsidies [Press release]. https://ec.europa.eu/commission/presscorner/detail/en/ip_24_3231

Global Wind Energy Council. (2023). *Global Wind Report 2023*. https://gwec.net/globalwindreport2023/

Interesse, G. (2023, 28 June). China Extends NEV Tax Reduction and Exemption Policy to 2027, *China Briefing*. https://www.china-briefing.com/news/china-extends-nev-tax-reduction-and-exemption-policy-to-2027/

Langhammer, R. J. (2022). Reluctant US vs Ambitious German Direct Investment in China – the Tale of Two Strategies? *Kiel Policy Brief*, 162.

Li, A., Sun, Y., & Song, X. (2023). Gradual improvement and reactive intervention: China's policy pathway for developing the wind power industry. *Renewable Energy*, *216*, 119068. https://doi.org/10.1016/j.renene.2023.119068

Ministry of Industry and Information Technology of China. (2023). *Public Announcement on the Final Review of the Clearance of Subsidies for the Promotion and Application of New Energy Vehicles in 2021 and Prior Years and the Advance Allocation of Subsidies for the Years 2021-2022*. https://www.miit.gov.cn/zwgk/wjgs/art/2023/art_28940a03395c4866b2606b65f077e322.html

Ministry of Industry and Information Technology of China. (2024, 27 February). *Public Announcement on the Final Review of the 2022 New Energy Vehicle Promotion and Application Subsidy Funding Clearance and the Advance Allocation of Subsidies for the years 2016-2022*. https://www.miit.gov.cn/zwgk/wjgs/art/2024/art_aefde322192a4bd3a6b16c34e4bd3852.html

National Bureau of Statistics of China. (2023). *China Statistical Yearbook 2023*. https://www.stats.gov.cn/sj/ndsj/2023/indexch.htm

OECD. (2021). Measuring Distortions in International Markets: Below-market Finance. *OECD Trade Policy Papers*, 247. https://doi.org/10.1787/a1a5aa8a-en

OECD. (2023). Government Support in Industrial Sectors. A Synthesis Report, *OECD Trade Policy Papers*, 270. https://www.oecd.org/publications/government-support-in-industrial-sectors-1d28d299-en.htm

Scheifele, F., Bräuning, M., & Probst, B. (2022). The Impact of Local Content Requirements on the Development of Export Competitiveness in Solar and Wind Technologies. *Renewable and Sustainable Energy Reviews*, *168*, 112831. https://doi.org/10.1016/j.rser.2022.112831

Schlesiger, C. (2021, 27 August). Siemens Gamesa beendet China-Geschäft und plant Preiserhöhung, *Wirtschaftswoche*. Retreived 25 March 2024, from https://www.wiwo.de/unternehmen/industrie/windtochter-von-siemens-energy-siemens-gamesa-beendet-china-geschaeft-und-plant-preiserhoehungen/27549856.html

Springford, J., & Tordoir, S. (2023). *Europe Can Withstand American and Chinese Subsidies for Green Tech. Centre for European Reform*. https://www.cer.eu/sites/default/files/pbrief_JS_ST_green_tech_9.6.23.pdf

Transport & Environment. (2024). To Raise or Not to Raise. How Europe Can Use Tariffs as Part of an Industrial Strategy. https://te-cdn.ams3.cdn.digitaloceanspaces.com/files/2024_03_TE_EV_tariffs_paper.pdf

Vestager, M. (2024, 9 April). *Speech by Executive Vice President Vestager on Technology and Politics at the Institute for Advanced Study*. https://ec.europa.eu/commission/presscorner/detail/en/speech_24_1927

Xiaoying, Y., & Xuan, Z. (2023). *China's Offshore Wind Sector Gears up for Life after Subsidies*. Caixin. Retrieved 25 March 2024, from https://asia.nikkei.com/Spotlight/Caixin/China-s-offshore-wind-sector-gears-up-for-life-after-subsidies

Zhang, T., Burke, P. J., & Wang, Q. (2024). Effectiveness of Electric Vehicle Subsidies in China: A Three-Dimensional Panel Study. *Resource and Energy Economics*, *76*, 101424.

DOI: 10.2478/ie-2024-0045

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Paolo Pasimeni

Twenty Years After the Big Enlargement: Integration Within the Single Market

The enlargement of the European Union in 2004 marked a significant milestone in the history of European integration, bringing ten new member states into the Union. This paper provides a comprehensive analysis of the economic impact of this enlargement two decades later. Drawing from the economic literature and descriptive analysis, the paper examines both anticipated benefits and realised outcomes. Preceding the enlargement, *ex ante* analyses projected substantial gains in GDP, trade integration and welfare for both acceding and existing member countries. These expectations were largely met. At the macroeconomic level, the paper shows a significant reduction in trade costs, enhanced trade integration and deepening participation in cross-border value chains within the Single Market. Some challenges remain, however, in terms of social and territorial cohesion in these countries. The lessons learned from this enlargement underscore the continuous nature of integration, beginning with accession preparation and producing tangible effects throughout the process.

The enlargement of 2004 was the most significant wave of expansion in the history of the European Union so far, as it brought almost 75 million people into the Union. It marked the accession of ten new member states (EU10), predominantly from Central and Eastern Europe, as well as the Mediterranean region.[1]

This enlargement was the culmination of a long process that began shortly after the fall of the Iron Curtain and the collapse of communism in Eastern Europe. The promise of stability and shared long-term prosperity was arguably the main driver for the desire of Central and Eastern European nations to join and for the EU to expand. Geopolitical considerations were at the root of the EU's decision to include new member states, particularly the fear that keeping them out would endanger their economic transition, and, in turn, threaten the prosperity of western Europe (Baldwin, 1995).

This paper analyses the economic impact of the 2004 enlargement, 20 years on. It first reviews the economic literature about the impacts. It then provides some descriptive evidence about the economic benefits that this enlargement brought to the ten member states and to the rest of the EU. Subsequently, it presents general evidence at the macroeconomic level along four dimensions (trade costs, overall trade integration, supply chains integration, and impact on growth and consumption) and offers conclusions.

Economic literature about the big enlargement

The economic literature about the EU enlargement has discussed integration within the Single Market and the analysis of the benefits arising from this integration. In this section, we review the studies that were conducted before the accession and propose a prospective analysis of the enlargement. Then, we review those studies that provide *ex post* empirical estimations of the impacts of the enlargement.

The enlargement was seen as an opportunity for both the new entrants and the current members of the Union. Baldwin et al. (1997) estimated with a global applied general equilibrium model that EU membership would

1 The ten new member states (EU10) were Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

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be "enormously beneficial" to the countries joining and that the others, too, would gain from the accession of the new members. However, they estimated that the benefits would be unevenly distributed, with Germany, France and the UK reaping two-thirds of the total gain.

Lejour et al. (2001) examined the economic implications of EU enlargement with a focus on integration aspects beyond formal trade barriers, such as accession to the internal market and free movement of labour. They argued that candidate countries would gain substantially from accession to the internal market, with GDP per capita increasing by more than 8% in the long run (9% in Hungary and 5.8% in Poland). They also suggested heterogeneous impacts across sectors, and that most EU countries would experience small welfare gains.

Interestingly, Breuss (2002) suggested that the enlargement would act as an exogenous asymmetric shock for the Union: Central and Eastern European countries would gain "around ten times more from enlargement" than the other EU countries; Hungary and Poland would increase their real GDP by around 8%-9% percent over a 10-year period, Czechia a little bit less (5%-6%). The EU on average would gain around 0.5% of real GDP over a six-year period. Although on average the enlargement was seen as a win-win game, the impact would be quite different across countries, with Austria, Germany and Italy gaining the most and with some expected net losses for Spain, Portugal and Denmark.

Maliszewska (2004) used a computable general equilibrium model to study the accession to the Single Market, with an explicit focus on the removal of border costs and of costs of producing to different national standards. The results of that study pointed to significant welfare gains for the candidate countries (with GDP expected to increase by 1.4%-2.4%) and modest gains for the rest of the EU. Poland was expected to gain 3.4% of GDP, while Hungary almost 7%. Wages of unskilled workers were also expected to rise at a faster pace than those of skilled workers.

Another important aspect of accession was its effect on the labour market in the candidate countries. Nahuis (2004) expected significantly heterogeneous impacts across industries, with enlargement likely to benefit some industries while negatively affecting others; he also emphasised the importance of flexibility in labour market policies to reap the potential benefits of enlargement. Some sectors were expected to benefit greatly from the accession into the EU Single Market, while others were expected to suffer significant losses. Internal flexibility, which would expedite the relocation of jobs across sectors, was considered the key to success for the EU10 economies. This is, in fact, what happened in most cases.

A few years after the enlargement, a number of studies have tried to assess the economic impacts of the accession of those ten new member states. They have highlighted both the benefits and the challenges associated with integration into the EU. Campos et al. (2014) used a synthetic counterfactual method and found that EU membership had positive effects on GDP per capita and labour productivity for most countries that joined. These positive effects have led to an average 12% gain in per capita incomes, but such gains have nevertheless been quite heterogeneous across countries and over time. Per capita GDP and labour productivity increased in particular in Estonia, Hungary, Latvia, Slovenia and Lithuania, while the effects were smaller, albeit still mostly positive, in Poland, Czechia and Slovakia.

Gilbert and Muchová (2018) studied the changes in the export shares of the Central and Eastern European economies that joined the EU in 2004 and measured the changes in export competitiveness. They found that all of these economies increased their share of world merchandise exports over the period, with the most significant changes in Poland, followed by Lithuania, Slovakia and Latvia. Changes in Slovenia and Hungary were much smaller. The average world export market share for the other EU economies, by contrast, declined substantially over the period. Increased competitiveness was noted in all of the countries joining the EU in 2004, the largest of which was in Poland, Slovakia and Czechia. At the same time, a substantial decline in competitiveness in the old members of the EU was also observed.

The question of the asymmetric benefits between the accessing countries and those already within the Single Market is an open one. Caliendo et al. (2021) use a multi-country dynamic general equilibrium model with trade in goods and labour mobility across countries to study and quantify the economic effects of trade and labour market integration. They found that EU enlargement primarily benefited new member states, with increasing employment rates for low-skilled workers, and had smaller welfare gains for old member states. Trade policy moderated migration flows and mitigated congestion effects,[2] benefiting both new and old member states.

2 Caliendo et al. (2021) refer to congestion effects "associated with the strain put on local fixed factors and from a worsening of the terms of trade associated with the downward pressure on wages…that negatively impact high- and low-skilled households more than offsetting the welfare gains from trade policy in EU-15 countries".

Other studies have explained the benefits of the accession into the Single Market through the analysis of the border effect. Vermeulen (2022) found that five years after the enlargement, firms in non-EU member states near a new external EU border experienced a fall in sales of 40% and in exports of 70% relative to firms near borders that did not change. Firms on the EU side of the same border experienced no such negative effect. This suggests that establishing a common EU market affects not only firms inside, but also those outside.

Trade integration

This section delves into the descriptive evidence of the various dimensions of the enlargement, providing a comprehensive overview in terms of reduction in trade costs, export and import shares, and integration in cross-border supply chains.

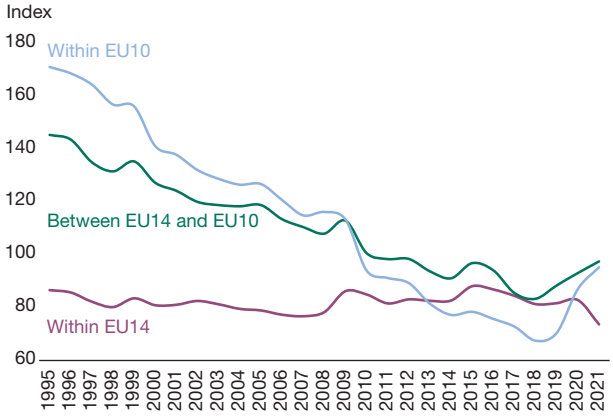
Reduction in trade costs

One way to measure the process of integration is to analyse the progressive reduction of average bilateral trade costs. The World Bank publishes a database of bilateral trade costs between countries. By grouping all country pairs and calculating the averages by year, we can get the evolution of average trade costs within a group of countries and between groups, too. This way, we calculate the evolution of average trade costs: between the EU10 (countries that joined on 1 May 2004) and the EU14 (countries which were already part of the Union, without the UK); within the group EU10; and within the group EU14. Figure 1 shows this trend between 1995 and 2021, the most recent year for which data is available.

There has been a considerable reduction in trade costs between the countries that joined the EU in 2004 and those that were already part of the Union (green line); this points to a clear path of convergence and integration. In parallel, there has been a considerable reduction of trade costs within the EU10 group (blue line), pointing to clear benefits for the enlargement countries. These trends started well before the official accession of 2004, proving the importance of the accession process in driving integration within the Single Market, but it continued also after 2004, until reaching the same levels as within the EU14 group.

While average trade costs did pick up since 2019, this can be mainly attributed to two specific cases (Luxembourg and Cyprus) and hence is unlikely to constitute a sustained reversal in trend. Questions remain about whether the post-pandemic world is going to be less integrated, and what sort of implications there may be for the Single Market.

Figure 1
Average trade costs, 1995-2021



Notes: The indicator shows the evolution of an index calculated as the average of all indices of bilateral trade costs, for each country pair within each group. The green line shows the average of the country pairs across the two groups. The EU10 are countries that joined the EU on 1 May 2004; the EU14 are countries that were already part of the EU, without the UK.

Source: Author's own elaboration on World Bank data.

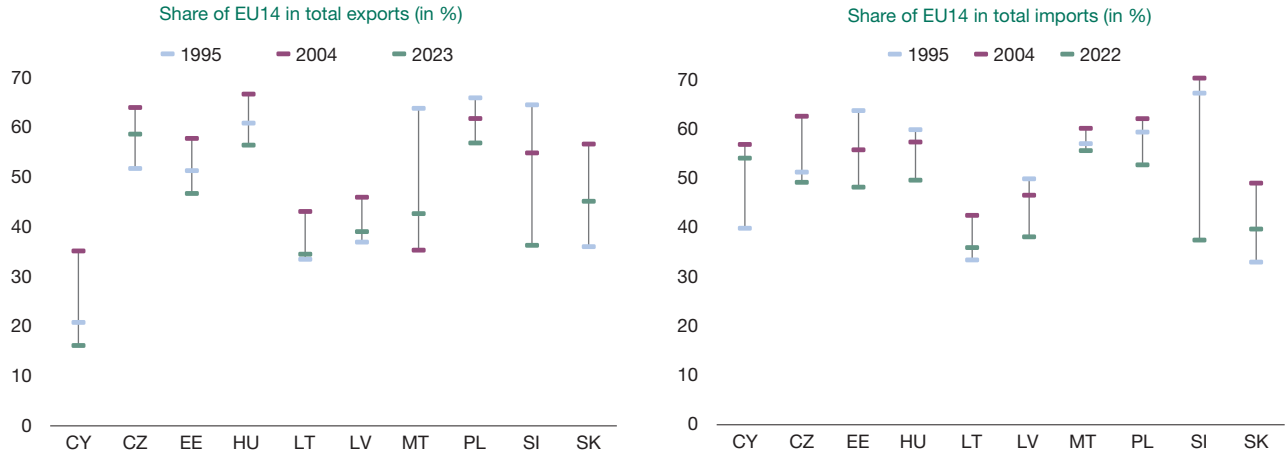
Trade flows

We now look at the evolution of cross-border trade in goods between the countries that joined the Single Market in 2004 and those that were already part of it. While total trade increased in absolute terms and as a share of GDP, we adopt a more focused approach. We analyse the evolution of the value of total trade between each country pair and aggregate the results for the two blocs, to calculate the respective import and export shares.

First of all, we find a difference in terms of levels: while the EU14 is the main trade partner of the EU10, accounting for more than half of total export and import, the opposite is not true: the EU10 represents a lower share for the EU14 (less than 10% in most recent years). However, this is driven by a size effect, as the size of the group of countries that joined the EU in 2004, in terms of GDP, is about one-tenth the size of the group that was already part of the Union.

The second, and probably more important, observation is that while the EU14 remains a relevant partner for the EU10, its relative importance as a trade partner has actually decreased compared to the rest of the world. This may seem counterintuitive; however, it is most likely linked to the fact that the EU10 has been increasingly opening up to the rest of the world, in particular after the accession. This is proved by the fact that the share of EU14 in total EU10 imports and exports has been declining, while the absolute value has been increasing as total trade has increased. We could argue that the preparation for acces-

Figure 2
Trade of EU10 with EU14 - Relevance by country



Note: The EU10 are countries that joined the EU on 1 May 2004; the EU14 are countries that were already part of the EU, without the UK.

Source: Author's own elaboration on IMF data.

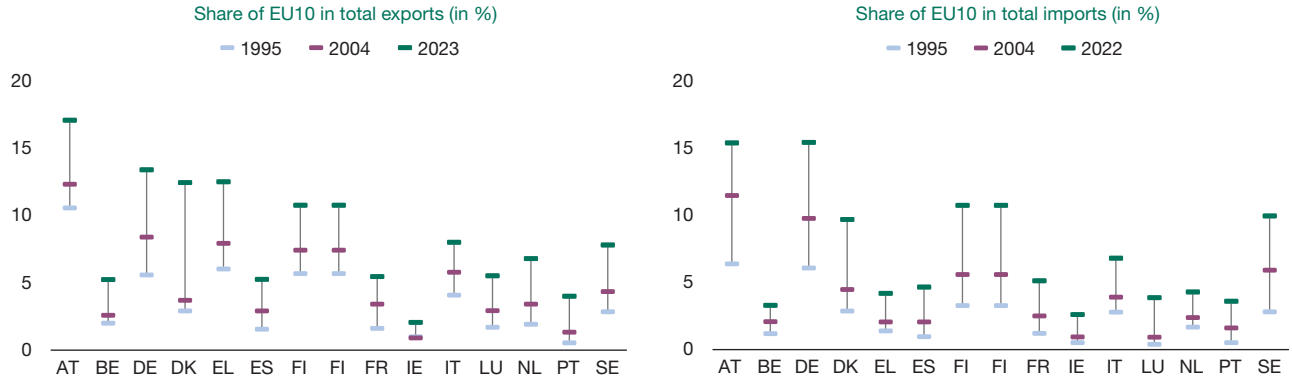
sion has been the driver of fast trade integration with the EU, and that the accession has been a kind of gateway for global trade integration of the EU10.

On the other side, then, we see that, despite the initial low level, the share of the EU10 in total EU14 imports and exports has been increasing steadily throughout the entire period. This tells us that the EU10 is an increasingly relevant trade partner for the EU14.

The country detail visualisation presented in Figure 2 confirms that for each country that joined the EU in 2004, the share of the EU14 in total exports and imports is lower today (or the most recent available data point) than at the moment of the accession. The overall share remains particularly high (above 40% in all cases, except for Cyprus' exports), but the trend suggests that the EU10 economies have indeed been increasingly open towards the rest of the world.

On the side of the EU14 group of countries, the picture is different: while the overall level remains lower, the most recent data show the highest share of EU10 in total exports and imports (Figure 3). As one would expect, the EU10 group is a significant trade partner for Austria, and a significant source of imports for Germany. We analyse this in more detail in the following subsection.

Figure 3
Trade of EU14 with EU10 - Relevance by country



Note: The EU10 are countries that joined the EU on 1 May 2004; the EU14 are countries that were already part of the EU, without the UK.

Source: Author's own elaboration on IMF data.

These findings are generally consistent with what other studies had found. In particular, Gilbert and Muchová (2018) highlight that the EU10 economies have for the most part been successful in increasing their export competitiveness with respect to the EU market; electrical machinery and parts, mechanical appliances and vehicle parts are the sectors that have been most successful in gaining market shares. They also claim that, given the low growth rate of the EU14 relative to the rest of the world, a strong reliance on EU markets could actually hurt the gain of market shares of the EU10 relative to the world average. The trend of increasing openness towards the rest of the world that we observe here might be justified by this fact. In terms of business cycle synchronisation, Beck (2020) finds that after the global financial crisis, there has been a clear decoupling; in the Central and Eastern European countries, the role of the European factor has been decreasing, while regional and country factors have been increasing.

Supply chain integration

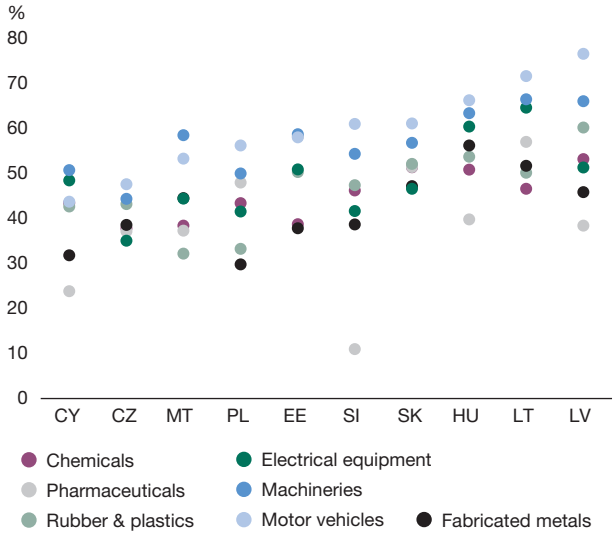
A third element of the progressive integration of the EU10 into the EU Single Market is the participation in cross-border value chains. The more these economies integrated into the Single Market, the more the companies in these countries participated in cross-border value chains with businesses that were already part of the Single Market (EU14).

To test the extent to which this process took place, we look at the share of value added produced in each EU14 country that was actually due to intermediate inputs that originated from each EU10 country. We aggregate the figures of each country pair and calculate the overall share of value added produced by the EU14 countries, which depends on intermediate inputs coming from the EU10 group. Between 1995 (the first year for which data are available) and 2020 (the latest year for which data are available) the contribution by the EU10 to EU14 supply chains has more than doubled. In the specific case of integration in manufacturing supply chains, this contribution is even larger and has increased by a factor of three; and between 2004 and 2020, the contribution has almost doubled. It is interesting to note that in the specific case of progressive integration in supply chains within the Single Market, the process started well before the official accession and continued throughout the 2004-2020 period.

To dig deeper into the details of integration within the EU supply chains, in particular in manufacturing, we analyse the specific sectoral detail for each country. In other words, we look at how much each country in the EU10 group relies on the Single Market for sourcing its intermediate inputs. To do so, we calculate the value added produced by each country in each sector that is due to intermediate inputs originating from other countries within the Single Market, excluding domestic intermediate inputs. This is therefore a measure of how important the Single Market is as a source of strategic inputs.

Figure 4

Relevance of the Single Market for the provision of intermediate inputs – sectoral and country detail



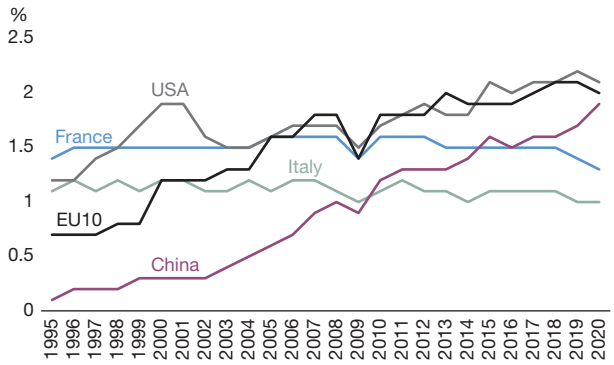
Note: The figure shows the percentage of total value added produced (by country and sector) that originates from intermediate inputs coming from cross-border supply chains within the Single Market.

Source: Author's own elaboration on OECD data.

Six sectors stand out for their highest reliance on the Single Market (Figure 4). First of all, we observe that manufacturing of motor vehicles, which is the most integrated sector within the Single Market, is also the one in which most of the EU10 economies rely extensively on intra-EU supply chains. Only in the case of Malta, Cyprus and Estonia does manufacturing of machineries seem to be more integrated with the rest of the Single Market than motor vehicles. The third sector in which the integration of the EU10 in the Single Market has reached very high levels is manufacturing of electrical equipment, followed by manufacturing of rubber and plastics products. Finally, chemical products and pharmaceuticals are the other two most integrated sectors. This picture of the EU10 economies does not vary greatly from the rest of the EU.

We now look at one specific case, that of the largest EU economy, Germany, which has benefitted the most from

Figure 5
Participation in Germany's supply chains



Note: The indicator shows the percentage of total value of German exports that depends on intermediate inputs originating from other economies.

Source: Author's own elaboration on OECD data.

integration with the EU10 bloc.[3] Germany has been in the process of deepening economic integration, which has led to the development of a dynamic supply chain within Europe (the "Germany-Central European Supply Chain") with Czechia, Hungary, Poland and Slovakia in particular (Elekdag et al., 2015). We analyse the extent to which the German export-led economic model has relied on the integration of the EU10 countries into its supply chains over time.

To this end, we study the so-called "backward participation in global value chains", a measure of the extent to which the exports of one country depend on intermediate inputs that this country sources from other countries through integrated supply chains. In this specific case, we analyse the value added share of German exports due to inputs originating from the EU10 and compare it with the share of the other major trading partners.

Figure 5 shows that the relative share of the EU10 almost tripled between 1995 and 2020. During this period, the relevance of the intermediate inputs provided by the EU10 to the German economy has overcome its traditional and large trade partners such as Italy, France, the Netherlands and the UK, to reach a level similar to that of to the United States. In 2020, the most recent year for which data are available, the relevance of inputs originating from the EU10 for the German exports is slightly lower than those originating from the United States and slightly higher than those originating from China.

This striking result is even more significant when we consider that the overall size of the EU10 bloc, in terms of GDP, is about one-tenth the size of each of the two largest economies of the world. This observation corroborates the previous finding that the economies that joined the EU in 2004 have deeply integrated into the Single Market.

Economic impact

The question then arises about the extent of the overall economic impact of belonging to the EU Single Market. Since the accession in 2004, the EU10 countries have been among the fastest growing economies of the EU; only Ireland's economy grew at a faster rate than that of Malta, and only two other economies out of those that were already in the Union, namely Sweden and Luxembourg, grew at a similar rate to the EU10 group. The bloc altogether outperformed the other member states and grew from representing 6.5% of the total EU economy to 9% today.

Even in terms of income per capita, all of the countries that joined the EU in 2004 improved their conditions, in most cases even outperforming the rest of the countries that were already part of the Union. Nine EU10 countries improved their position relative to the EU average since the accession. All countries, except Cyprus, grew in that period faster than the rest of the EU.

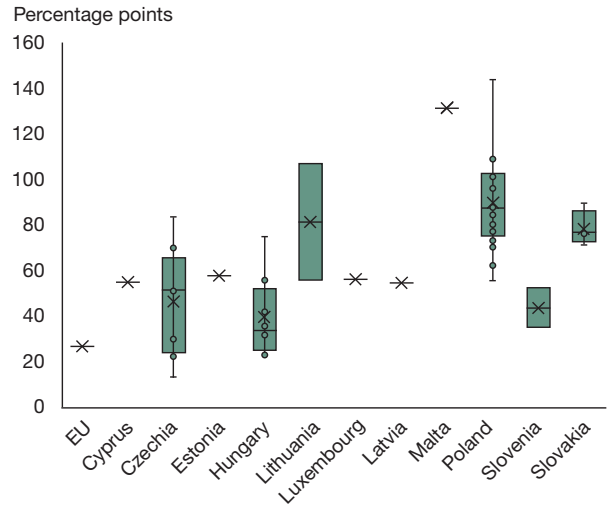
The difference between growth of the overall economy and growth in relative per capita income is of course due to population changes. In particular, in some countries, the markedly positive change in relative per capita income masks the fact that they also lost a relevant part of the population due to emigration during the same period (e.g. the case of Latvia). In others, the higher net migration rate may reduce per capita income values (e.g. the case of Malta and Cyprus).

Cohesion

A closer look at the territorial distribution of the positive growth performance of the EU10 countries unveils significant dispersion in those countries in which the accounts are available at the NUTS2 level (Figure 6). In most of these countries, the drivers of growth have been concentrated in metropolitan areas, while other areas have lagged behind, with deepening interregional disparities (European Commission, 2024). Poland exhibits

3 Dustmann et al. (2014) describe the German economic model, explaining how "to increase the competitiveness of its own final products, the manufacturing sector has made increased use of trade integration with Eastern European countries through inputs imported from abroad, and far more so than other European countries". In particular, the comparison showed a German reliance on inputs sourced from the enlargement countries that was four times higher than that of France and Italy.

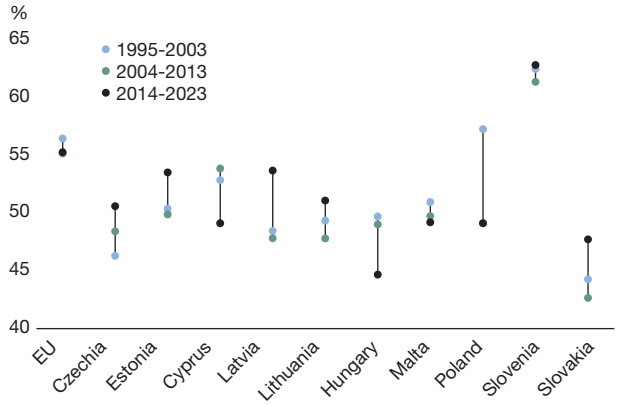
Figure 6
Real GDP growth rate and dispersion at NUTS2 level, 2004-2022



Note: The indicator shows the real GDP growth rate of each country, between 2004 and 2022, in percentage points, with the indication of the regional dispersion within each country, at NUTS2 level.

Source: Author's own elaboration on Eurostat data.

Figure 7
Labour share in EU10, 1995-2023



Note: The indicator shows the adjusted wage share, in percentage of GDP at current market prices.

Source: Author's own elaboration on AMECO data.

the greater disparity, as well as the best average growth performance, after Malta. The dispersion of growth rates is also considerable in Czechia and in Lithuania, where, despite having only two NUTS2 regions, the difference between the capital region and the other one is extremely large.

The broadly positive performance in terms of GDP and income per capita has gone hand in hand with the progressive integration of the EU10 in the Single Market. This integration has developed over time, starting well before the official accession, and has led to these economies being central in cross-border value chains of manufacturing sectors. Some studies have linked this progressive integration to the specific labour market conditions of these economies, where more flexible and lower wages than in the rest of the EU could have improved their cost competitiveness, allowing them to reap the benefits of an integrated market, very much in line with the *ex ante* expectations of Nahuis (2004).

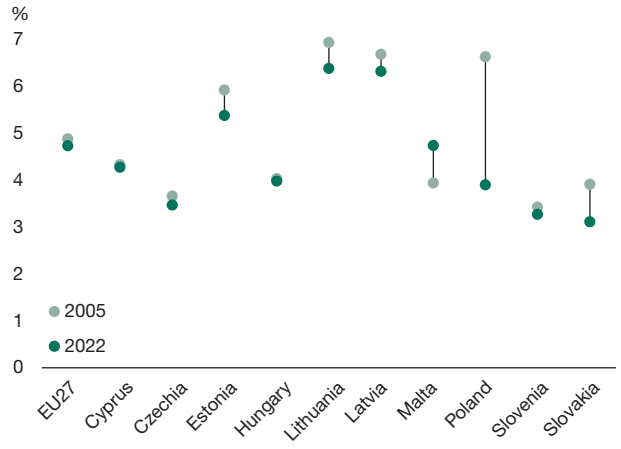
Szymczak et al. (2022) find that wages in these countries are higher when their industry is at the beginning of the value chain or at the end than in the middle; in sectors close to final demand, greater production fragmentation is associated with lower wages. These findings point to a more nuanced picture, in which the progressive structural transformation of the economy towards higher value added sectors might lead not only to higher growth but also to better wages.

In order to disentangle this possible effect, we look at the distribution of growth over time within the EU10 countries. At the macroeconomic level, the functional distribution of income captures the extent to which growth is shared between labour and capital in one country (Bowley & Stamp, 1927; Samuelson, 1964; Johnson, 1954; Kaldor, 1957).

We take the labour share of total GDP, which tends to be rather stable over time, but with relevant variations in case of structural changes in the economy, and calculate the average for each country over the three decades for which data are available. We therefore compute this average for the decade preceding the accession in the EU for the first and for the second decades after the accession, and compare each country with the EU average.

As shown in Figure 7, the EU10 countries joined the EU with an average share of income accruing to labour, which was lower than the EU average, with the notable exception of Slovenia. Income polarisation was also higher in these countries than in the ones that were already in the EU (Wang et al., 2017). Over time, however, the structural transformation of the economies has led in most cases to an increased labour share, in particular during the most recent decade, bringing it closer to the EU average. The exceptions to this trend are Hungary, Poland and Cyprus, where the share has actually decreased in the recent decade.

Figure 8
Income quintile share ratio (S80/S20), 2005 and 2022



Note: The indicator shows the adjusted wage share, in percentage of GDP at current market prices.

Source: Author's own elaboration on AMECO data.

In order to have a closer look at the possible effects of these trends on income inequality, we analyse the income quintile ratio (S80/S20). This indicator measures income inequality by comparing the income of the top 20% (S80) of the population to the income of the bottom 20% (S20). A decreasing income quintile ratio indicates a reduction in income inequality, meaning that the income gap between the richest and the poorest is narrowing.

In all countries, the level of inequality, as measured by this indicator, has decreased or remained stable between the accession into the EU and the latest year for which data are available (Figure 8). The only exception is Malta, where this ratio has slightly increased, but remaining in line with the EU average. The Baltic States joined the EU with levels of income inequality considerably higher than the EU average, but these levels have decreased since.

Poland is a special case. Income inequality in Poland decreased the most among all countries of the group during the seventeen years considered, bringing it below the EU average. However, Poland's labour income share fell the most in the period considered, which may seem counterintuitive and certainly peculiar. One reason for this may be linked to shifts in income sources: even in the case of a falling labour income share, policies such as social welfare programmes, progressive taxation and minimum wage increases can lead to an increase in income for lower-income groups. Another reason may be linked to the progressive increase in the relevance of the financial sector in the economy and the transfer of income from the real sector to it. If a large part of the population gains access to the financial sector and financial income is more equally distributed, this may explain the peculiar case of a falling share of income accruing to labour and a contemporaneous decrease in inequality.

Model estimates of net impact

The positive absolute figures about economic growth, however, do not provide precise information about the growth impact of having accessed and integrated the EU Single Market. Some ad hoc model-based analyses, built on counterfactual simulations, can provide broad estimations of the total benefits derived from the integration of each country in the Single Market.

Felbermayr et al. (2022) use a quantitative multi-country, multi-sector trade model to estimate the welfare losses of "undoing Europe", in terms of the change in real consumption in percentage of the level in the baseline year. They look at different integration layers: the Single Market, the common currency, the Schengen Area and free trade agreements with third countries. By estimating this cost of "undoing", they provide an estimation of the benefits of being part of the Union.

Like in most analyses of the relevance of a common market for individual countries, the benefits are of course inversely related to the size of the economy (the smaller, the higher the reliance on external markets). Overall, the breakdown of the Single Market is clearly the most impactful scenario, for the majority of member states: the largest effects are observed for Malta (–14.6%), Hungary (–8.2%), Slovakia (–8.1%), Czechia (–7.4%), Estonia (–7.2%) and Slovenia (–6.8%). These can be considered measures of the benefit of being integrated in the Single Market.

Fontagne and Yotov (in press) use a state-of-the-art structural gravity model to quantify the effect of the EU on each member state's real GDP. They too simulate a scenario without the EU. For the EU10, the impact ranges from 4.7% of GDP for Poland to 6.6% for Slovakia. Since the authors looked at gains from trade integration, those gains can be viewed as a conservative measure, because other effects through capital or labour mobility or EU funding are not assessed or captured.

Conclusion

In retrospect, the 20 years following the enlargement of the European Union in 2004 have provided ample evi-

dence of the transformative power of integration within the Single Market. This paper has examined the economic impact of the EU10 member states' accession, shedding light on both the anticipated benefits and the realised outcomes. Through a comprehensive analysis of economic literature, empirical studies and descriptive evidence, it becomes clear that the accession has yielded significant benefits for both the new entrants and the existing members of the Union.

The economic literature reviewed paints a picture of optimistic prospects preceding the enlargement, with *ex ante* analyses projecting substantial gains in GDP, trade integration, growth, and employment opportunities, for both the acceding countries and the existing members. These expectations were largely met, as evidenced by *ex post* empirical analyses, which highlight positive effects on GDP per capita, labour productivity, export competitiveness and trade integration. Moreover, the findings suggest that the enlargement facilitated deeper integration into global supply chains, enhancing the EU's overall competitiveness in key industries.

At the macroeconomic level, the evidence presented in this paper reveals a significant reduction in trade costs, enhanced trade integration, and deepening participation in cross-border value chains within the Single Market, leading to positive structural transformations of these economies. It also shows significant gains in terms of GDP growth and income per capita among the EU10 countries, outpacing many of the other EU countries. Model-based estimations further underscore the net benefits of EU membership, revealing substantial welfare gains from trade integration and the preservation of the Single Market.

A few remaining challenges for EU10 countries refer to interregional disparities, with better living standards concentrated in metropolitan areas, and to socioeconomic disparities, with the need to ensure inclusive economic growth and a more equitable distribution of income.

In conclusion, we can say that the countries that joined the EU on 1 May 2004 have integrated progressively and steadily into the Single Market and today make a significant contribution to the value added produced in the EU. This has generated economic benefits for both new and old member states. As we look to the future, the important lesson that can inform the next waves of enlargement is that integration in the Single Market is a continuous process that begins during the accession preparation and produces immediate tangible effects.

References

Baldwin, R. (1995). The eastern enlargement of the European Union. *European Economic Review*, *39*(3-4), 474–481.

Baldwin, R., Francois, J. F., & Portes, R. (1997). The costs and benefits of eastern enlargement: the impact on the EU and central Europe. *Economic policy*, *12*(24), 125–176.

Beck, K. (2020). Decoupling after the crisis: Western and eastern business cycles in the European Union. *Eastern European Economics*, *58*(1), 68–82.

Bowley, A. L., & Stamp, J. (1927). *The national income, 1924: A comparative study of the income of the United Kingdom in 1911 and 1924*. Clarendon Press.

Breuss, F. (2002). Benefits and dangers of EU enlargement. *Empirica*, 29, 245–274.

Caliendo, L., Opromolla, L. D., Parro, F., & Sforza, A. (2021). Goods and factor market integration: A quantitative assessment of the EU enlargement. *Journal of Political Economy*, *129*(12), 3491–3545.

Campos, N. F., Coricelli, F., & Moretti, L. (2014). Economic Growth and Political Integration: Estimating the Benefits from Membership in the European Union Using the Synthetic Counterfactuals Method. *IZA Discussion Paper*, 8162.

Dustmann, C., Fitzenberger, B., Schönberg, U., & Spitz-Oener, A. (2014). From sick man of Europe to economic superstar: Germany's resurgent economy. *Journal of Economic Perspectives*, 28(1), 167–188.

Elekdag, S., Muir, D., & Wu, Y. (2015). Trade linkages, balance sheets, and spillovers: The Germany-Central European supply chain. *Journal of Policy Modeling*, *37*(2), 374–387.

European Commission. (2024). *Ninth report on economic, social and territorial cohesion*. Publications Office of the European Union.

Felbermayr, G., Gröschl, J., & Heiland, I. (2022) Complex Europe: quantifying the cost of disintegration. *Journal of International Economics*, *138*.

Fontagne, L., & Yotov, Y. (in press). *Reassessing the impact of the Single Market and its ability to help build strategic autonomy*.

Gilbert, J., & Muchová, E. (2018). Export competitiveness of Central and Eastern Europe since the enlargement of the EU. *International Review of Economics & Finance*, *55*, 78–85.

Johnson, D. G. (1954). The functional distribution of income in the United States, 1850–1952. *The Review of Economics and Statistics*, *36*, 175–182.

Kaldor, N. (1957). A Model of Economic Growth. *The Economic Journal*, *67*(268), 591–624.

Lejour, A. M, de Mooj, R. A., & Nahuis, R. (2001). EU Enlargement: economic implications for countries and industries, *CESifo Working Paper*, 585.

Maliszewska, M. (2004). EU enlargement: benefits of the single market expansion for current and new member states. *CASE Network Studies and Analyses*, 273.

Nahuis, R. (2004). One size fits all?: Accession to the internal market; an industry-level assessment of EU enlargement. *Journal of Policy Modeling*, *26*(5), 571–586.

Samuelson, P. (1964). *Economics: An Introductory Textbook*. McGraw-Hill.

Szymczak, S., Parteka, A., & Wolszczak-Derlacz, J. (2022). Position in global value chains and wages in Central and Eastern European countries. *European Journal of Industrial Relations*, *28*(2), 211-230.

Vermeulen, W. N. (2022). Stuck outside the single market; Evidence from firms in central and eastern Europe. *Journal of Comparative Economics*, *50*(2), 415–434.

Wang, J., Caminada, K., & Wang, C. (2017). Measuring Income Polarization for Twenty European Countries, 2004–13: A Shapley Growth-Redistribution Decomposition. *Eastern European Economics*, *55*(6), 477–499.

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Giovanni Dosi and Maria Enrica Virgillito

Minimum Wage for Italy: From Social Justice to Productive Efficiency

This article discusses the case of the minimum wage for Italy as a policy instrument to foster both social justice and productive efficiency. After briefly reviewing the empirical evidence on the effects of minimum wages upon employment, wage distribution and firm-level reallocation, it presents a series of channels, from the micro to the macro level that can represent transmission mechanisms able to trigger positive feedback loops in the macroeconomic system.

During the summer of 2023, Italy was facing high inflation, record-low tourism and climate change-related wildfires devastating entire regions of the country. Discussion in institutional circles and in parliament during this period revolved around the implementation of a minimum wage. Opposition parties, presenting various legislative proposals, concur on the necessity of enacting a legal minimum wage. Proposals vary in terms of the amount, yet converge at the introduction of a minimum wage aimed at serving as a safeguard against poverty in employment, affecting at least four million workers in Italy.

The conservative right-wing government (Dosi & Roventini, 2022), which aligns with the interests of the Italian corporate elite and favours those deemed productive contributors while demonising poverty, feigned openness to discussion on the minimum wage. However, it then effectively halted the legislative process by deferring the matter to the National Council for Economics and Labour. What is surprising is not the rejection itself of the minimum wage proposal but rather the deceptive pretext of safeguarding the role of unions in the negotiation process.

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Politically, it appears almost farcical to witness right-wing parties united in their endeavour to prevent the weakening of union bargaining power following the introduction of a minimum wage. However, from an empirical standpoint, there is a lack of studies that support the claim that a minimum wage weakens union bargaining power. On the contrary, it tends to enhance negotiating capacity. Recent studies, such as Ress and Spohr (2022), empirically examine the effect of the introduction of the minimum wage in Germany on union coverage. Their research did not find any effect on the entry into or exit from unions (German Trade Union Confederation) for low-wage workers benefiting from the policy. Rather, the introduction of the minimum wage had an overall positive impact on union membership, strengthening unions' power. Similarly, Clemens and Strain (2023) in their study of the US labour market found higher net positive effects for union membership due to rising minimum wages, even if at the margins direct minimum-wage beneficiaries exit unions.

It should be noted that all legislative proposals maintain the preservation and application of sectoral minimum wage agreements unless they fall below the statutory minimum wage. This would imply that sectoral minimum wage agreements must be legally equal to or higher than the statutory minimum wage, preventing unscrupulous unions from signing contracts with hourly rates as low as €4. While some argue that a minimum wage would encourage the informal economy, it is worth recalling that opposing a measure aimed at ensuring dignity and social justice is not justifiable in light of potential violations. And to those who claim that it would disadvantage employment opportunities for the affected segment of the workforce, there is a great deal of empirical evidence that found no negative effects of the minimum wage on employment.

Moving forward, let us delve into the theoretical foundations of the economic orthodoxy that views the minimum wage as a threat to free competition and examine empirical evidence regarding its effects to dispel any prevailing myths.

The liberalisation of the labour market

The statutory minimum wage, along with other provisions aimed at regulating the labour market, such as protection against layoffs and centralised bargaining, has been subject to particular hostility from international institutions ("unified theory" or "transatlantic consensus" or "OECD-IMF orthodoxy"; Howell, 2005). It has also endured scrutiny during the wave of liberalisation that began in the 1980s in Anglo-Saxon countries and spread in the 1990s throughout the rest of Europe. Minimum wage has been considered one of the institutions behind the "rigidity" of the labour market, whose erosion in real terms began in the United States as early as the 1970s.

The rigidity of the labour market has been viewed as the cause of all evils: in the 1980s, of the so-called Eurosclerosis (unemployment rates higher than those in the United States), leading to the theory of hysteresis in the unemployment rate (Blanchard & Summers, 1986); in the 1990s, as a cause of excessive inflation due to the linkage between productivity and wages; and finally, starting in the 2000s, it has been considered the cause of loss in international competitiveness. The dominant ideology of the need to liberalise the labour market has widely permeated European countries, including liberal market economies (such as the United Kingdom and Netherlands), coordinated market economies (Germany and Sweden) and hybrid forms like Mediterranean countries (France and Italy). The underlying idea is that labour markets should be competitive and fluid, allowing for:

- elastic adjustments of changes in labour demand to wages, eliminating the downward rigidity problem;
- allocation of the best workers to the best firms and vice versa.

Competition and fluidity, it is argued in the theory of competitive labour markets, allow for higher growth rates. Wherever there are obstacles of any form and nature to competition and optimal allocation, they should be removed.

Thirty years of liberalisation, however, have produced effects far different from those promoted by the theory of flexible labour markets. Instead of fostering sustained growth, these policies have materialised in alarming trends affecting both the macroeconomic and microeconomic spheres, such as:

- a decline in the wage share of national income, contravening what Kaldor (1961) argued was one of the stylised facts of contemporary capitalism, namely a balanced functional distribution of income;
- precariousness and casualisation of employment relationships, with an explosion of temporary contracts, involuntary part-time work, agency contracts and overall weakening of collective contractual forms in the regulation of labour relations;
- weakening of the centralised bargaining role of unions, with the "doctrine of union responsibility" in the 1990s, the emergence of decentralised bargaining, derogations from national sectoral contracts and the lack of union coverage for precarious work;
- slowing of output growth and stagnation of productivity, with the explosion of neo-dual configurations in which a few large firms exhibit high productivity and growth while the rest of the productive fabric stagnates;
- increase in dispersion in productivity and wages, resulting in stagnation of both macroeconomic aggregates; an increase in income inequality among workers employed in firms in the same sector; and heterogeneity in the market performance of otherwise similar firms.

Given these trends, which are characterised by an exacerbation of inequality, a slowdown in growth and a deterioration in working conditions, the legal minimum wage would represent a measure of equity, support for growth and stimulus for efficiency.

Myths about the minimum wage[1]

The minimum wage has been considered one of those labour market regulation tools to weaken or, better yet, remove. The economic debate on the role of the minimum wage in relation to employment dates back to the late 1970s. The Minimum Wage Study Commission established in the United States in 1977 with the aim of studying the impact of indexing the minimum wage to inflation, agreed that the impact of the minimum wage on employment is negligible. This distinguishes between effects on teenagers, young adults and adults. In general, where there is an impact, it seems to be on seasonal jobs or related to restaurant jobs among teenagers. Card and

1 See also the discussion in Schmitt (2013).

Krueger (1994), conducting an experimental study, confirmed the absence of an impact of minimum wage on the employment rate of workers in the fast food sector in New Jersey. In their book *Myth and Measurement: The New Economics of the Minimum Wage*, Card and Krueger (1995) conclude that the impact of the minimum wage is reflected in wage increases for low-wage workers but not in a reduction in employment. This line of research, defined as "new minimum-wage research", has faced opposition from another research group, led by Neumark and Wascher (2008), who in their 2008 book *Minimum Wage* argue that there is a negative impact.

Meta analyses conducted by Doucouliagos and Stanley (2009), containing more than a thousand empirical estimations from 1972 to 2007, agree that minimum wage does not impact the employment of low-wage workers. An important recent advancement regarding the impact of the minimum wage in the United States is the contribution of Dube et al. (2010), who, generalising the analysis of Card and Krueger (1994), study the effect of minimum wage by comparing different counties over sixteen years. The greater spatial and temporal variability certainly makes the contribution an advancement over previous studies. Once again, the authors conclude that there are no employment impacts while wage increases are observed. Furthermore, they identify the trend in the employment rate as the variable that most influences the employment of the low-income worker segment: variations in the employment rates of this segment, whether increasing or decreasing, are largely attributable to the state of the regional economy – not solely to minimum wage. Therefore, controlling for local labour market trends is crucial to isolating the pure effects of the minimum wage and to avoiding giving it undue significance.

A recent experiment with the introduction of minimum wage in Europe was conducted in Germany following the 2008 crisis. Germany was one of the few countries, along with Italy, Austria and the Scandinavian countries at the time, that did not have a minimum wage. The introduction of the minimum wage was set at €8.50 starting from 2015 with biennial review (Dustmann et al., 2022). The measure affected about four million workers, largely employed in mini-jobs (defined as monthly salary of around €450 euros) and located in East Germany (Bruttel et al., 2022). A recent contribution emphasises how the overall effects on the number of employed workers were negligible and, in any case, largely lower than the initial pessimistic expectations; instead, a reduction in working hours in mini-jobs is observed, an effect that in itself is not necessarily negative (Caliendo et al., 2019). One of the most interesting elements is the wage reallocation effect of minimum wage. Dustmann et al. (2022) find that the minimum wage increases the likelihood that a low-wage worker moves to a larger company with higher wages. At the same time, the geographical areas most affected by minimum wage recorded an increase in firm size. A similar result, in terms of cleansing the market of low-productivity firms, is also observed in China following the introduction of the minimum wage in 2004 (Mayneris et al., 2018).

Given the empirical evidence, one wonders why the impact of the minimum wage is so different from what was predicted by the competitive labour market model.

Debunked myths, urgent measures[2]

The micro and macroeconomic mechanisms through which the minimum wage can have positive effects are manifold.

Reduction of inequalities. The introduction of the minimum wage represents, first and foremost, a measure of fairness and dignity for workers at the margins of the production system. In addition to impacting marginalised workers, this measure would strengthen the bargaining power of workers and increase median wages. Italy has experienced a long stagnation in real wage dynamics, positioning itself among the countries with the lowest average wages in Europe. It is noteworthy how the segment of so-called marginal workers has increased since the 2008 crisis and how entry-level wages, even for skilled workers, are extremely low. The so-called race to the bottom with the spiral of low wages/de-skilling jobs could be cracked. This will also have an impact on reducing the gender wage gap and gender inequalities, as marginalised workers are mostly female.

From lower inequality to higher macroeconomic growth. The introduction of the minimum wage would represent, via Keynesian channels (positive feedback loops to macroeconomic growth), a boost to aggregate demand and therefore to the country's output. This would occur through an increase in the average wage rate, leading to higher consumption, given the higher propensity to spend of wage earners compared to high-income earners, profit earners and rent earners. Lower inequality would therefore lead to higher growth.

From lower inequality to greater efficiency and productivity. The introduction of the minimum wage would finally represent an efficiency measure: it would allow the implementation of "healthy" mechanisms of Schumpeterian competition where underperforming firms leverage low

2 See also Dosi et al. (2020) and Dosi et al. (2021) for companion evidence based on agent-based modelling results.

labour costs. Such firms would be forced, following the increase in labour costs, to either internally redistribute the share of profit margins, or to invest in new products/processes/machinery to increase productivity. Alternatively, they would have to exit the market (price increases would also be possible, although international competition, particularly in complex and high-technological intensive industries, does not easily allow passing on the increase in labour costs). In general, firms exposed to international competitions record higher size and average wages; therefore, minimum wage introduction would not impact the key strategic industrial players.

Reduction of the North-South divide and increase in tax revenue. The target audience, approximately four million Italian workers, would be largely concentrated in the southern regions of the country, and in small enterprises, similar to Germany before the minimum wage introduction. In fact, wages below contractual minimums are widely found in small-scale enterprises with fewer than ten employees, predominantly in seasonal sectors linked to catering and tourism, but also female-dominated occupations. Moreover, one should not underestimate the positive effect in terms of tax revenue resulting from the regularisation of undeclared work and from the fight against labour exploitation by intermediaries, which could potentially counterbalance the push to undeclared work due to violation of the minimum wage (see Heise & Pusch, 2020 for the German case).

Conclusion: Minimum wage and centralised bargaining[3]

The introduction of a minimum wage should be considered a complementary measure rather than a replacement for collective bargaining. Clearly, in the presence of centralised bargaining capable of setting a sectoral minimum wage *erga omnes*, the statutory minimum wage would be redundant. However, one cannot ignore the weakening of industrial relations, the effective absence of coverage of contractual minimums for numerous sectors (due to the lack of *erga omnes* coverage), the proliferation of national contracts (recorded to be more than 1,000 in 2023), of which only a third is signed by "authentic" and "representative" union organisations. This is coupled with the evasion of minimum contractual obligations in numerous enterprises and the emergence of pirate agreements.

Given the limited conditions of centralised bargaining capacity and its effects of increasing minimum wage and average wage overall, including the incapacity of the current wage indexation scheme to properly cope with inflation increases (Maccarrone, 2023), the introduction of the minimum wage must coexist with the role of trade unions. This could be achieved through the extention of the sectoral minimum wage *erga omnes*, defining the minimum wage solely as the starting point for bargaining, but extending it to the entire workforce without downward sectoral distinctions. On the other hand, the presence of a legal minimum threshold could strengthen rather than weaken sectoral bargaining, which could instead focus on defining higher wages vis-à-vis the minimum working conditions and hours. Finally, attention should be paid to the scope of what would be regulated by the minimum wage, whether simply the monetary minimum or also the extension of the thirteenth month pay, vacations, bonuses, and thus the entire comprehensive economic package.

The risks associated with the introduction of minimum wage would therefore essentially involve risks of non-compliance by employers, exiting from national contracts and thus weakening wage bargaining not due to a reduced role of unions but instead to a possible retreat of employers' associations. Monitoring and compliance checks, along with forms of guarantees and protections for workers reporting violations regarding wages, would clearly be the minimum necessary along with a renewed season of recognition of the dignity of work and fair compensation.

In general, the statutory minimum wage would be seen as a measure capable of increasing the bargaining power of the workforce, as a redistributive tool, but also as a means of efficiency enhancement. Its introduction would not entail the replacement of union bargaining but should be established as an indispensable legal minimum to protect about four million working poor individuals. The recent EU minimum wage Directive[4] defines this minimum floor as 60% of median and 50% of average wage, although in countries with a compressed wage structure such as Italy, the floor might not be sufficient to ensure a decent standard of living (Müller & Schulten, 2020). However, the Directive has recently been applied (November 2023) in a judicial statement of the Supreme Court as a reference parameter to set the adequate wage in a law dispute. Again, the German experience might represent a path to follow in order to define the minimum level, today proposed at €9 gross per hour in Italy, and the indexation mechanism. A multilateral commission, including all partners of the social dialogue, might represent the institution that is in charge of setting the level and is always guided by the constitutional principle, defined in Article 36 of the Charter, of the right of a decent pay to conduct life with dignity.

3 See also Garnero e Lucifora (2019).

4 https://www.consilium.europa.eu/en/policies/adequate-minimum-wages/.

References

Blanchard, O. J., & Summers, L. H. (1986). Hysteresis and the European unemployment problem. *NBER macroeconomics annual*, 1, 15–78.

Bruttel, O., Baumann, A., & Dütsch, M. (2018). The new German statutory minimum wage in comparative perspective: Employment effects and other adjustment channels. *European Journal of Industrial Relations*, *24*(2), 145–162.

Caliendo, M., Wittbrodt, L., & Schröder, C. (2019). The Causal Effects of the Minimum Wage Introduction in Germany – An Overview. *German Economic Review*, *20*(3), 257–292. https://doi.org/10.1111/geer.12191

Card, D., & Krueger, A. (1995). *Myth and Measurement: The New Economics of the Minimum Wage*. Princeton University Press.

Card, D., & Krueger, A. (1994). Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania. *American Economic Review*, *84*(4), 772–793.

Clemens, J. P., & Strain, M. R. (2023). Why Do Labor Unions Advocate for Minimum Wage Increases? *IZA Discussion Paper*, 16059.

Dosi, G., & Roventini, A. (2022). The Leopard: How a Post-Fascist Party Rose to Power in Italy. *Intereconomics*, *57*(5), 270–271. https://www.intereconomics.eu/contents/year/2022/number/5/article/the-leopard-how-a-post-fascist-party-rose-to-power-in-italy.html

Dosi, G., Pereira, M. C., Roventini, A., & Virgillito, M. E. (2020). The labour-augmented K + S model: A laboratory for the analysis of institutional and policy regimes. *EconomiA*, *21*(2), 160–184. https://doi.org/10.1016/j.econ.2019.03.002

Dosi, G., Freeman, R., Pereira, M. C., Roventini, A., & Virgillito, M. E. (2021). The impact of deunionization on the growth and dispersion of productivity and pay, *Industrial and Corporate Change*, *30*(2), 377–408. https://doi.org/10.1093/icc/dtaa025

Doucouliagos, H., & Stanley, T. D. (2009). Publication Selection Bias in Minimum-Wage Research? A Meta-Regression Analysis. *British Journal of Industrial Relations*, *47*(2), 406–428. https://doi.org/10.1111/j.1467-8543.2009.00723.x

Dube, A., Lester, T. W., & Reich, M. (2010). Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties. *Review of Economics and Statistics*, *92*(4), 945–964. https://doi.org/10.1162/rest_a_00039

Dustmann, C., Lindner, A., Schönberg, U., Umkehrer, M., & vom Berge, P. (2022). Reallocation Effects of the Minimum Wage. *The Quarterly Journal of Economics*, *137*(1), 267–328. https://doi.org/10.1093/qje/qjab028

Garnero, A., & Lucifora, C. (2020). L'erosione della contrattazione collettiva in Italia e il dibattito sul salario minimo legale. *Giornale di diritto del lavoro e di relazioni industriali*, *166*(2).

Heise, A., & Pusch, T. (2020). Introducing minimum wages in Germany employment effects in a post Keynesian perspective. J*ournal of Evolutionary Economics*, *30*(5), 1515–1532.

Howell, D. (Ed.) (2005). *Fighting Unemployment*. Oxford University Press.

Kaldor, N. (1961). *Capital accumulation and economic growth. In The Theory of capital: proceedings of a conference held by the International Economic Association* (pp. 177–222). Palgrave Macmillan UK.

Maccarrone V. (2023). Inflation and real wages. The insufficiencies of the Italian collective bargaining system, *Sinappsi*, *XIII*(2), 96–109.

Mayneris, F., Poncet, S., & Zhang, T. (2018). Improving or disappearing: Firm-level adjustments to minimum wages in China. *Journal of Development Economics*, *135*, 20–42. https://doi.org/10.1016/j.jdeveco.2018.06.010

Müller, T., & Schulten, T. (2020), The European minimum wage on the doorstep. *ETUI Research Paper-Policy Brief*, 1.

Neumark, D., & Wascher, W. L. (2008). *Minimum Wages*. MIT Press.

Ress, S., & Spohr, F. (2022). Was it worth it? The impact of the German minimum wage on union membership of employees. *Economic and Industrial Democracy*, *43*(4), 1699–1723. https://doi.org/10.1177/0143831X211035828

Schmitt, J. (2013). *Why does the minimum wage have no discernible effect on employment*. Center for Economic and Policy Research. https://cepr.net/documents/publications/min-wage-2013-02.pdf

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Greening Central Bank Policies: Euro Area vs Non-Euro Area EU Member States

Climate change has become relevant for central banks worldwide, but they are adopting their instruments at different speeds. This article compares the reactions of the Eurosystem with those of the other EU central banks. Do these central banks differ in their efforts to make their own policies "greener"? The article argues that the options and constraints to react to climate change diverge between central banks.

Climate change is a global problem and there is a great need for international coordination to prevent "free riding" in climate policy (Nordhaus, 2015). This includes central banks as divergent policies could trigger financial carbon leakage, i.e. a shift of "brown" investment finance into financial markets with weaker climate risk disclosure requirements (Benincasa et al., 2022). Therefore, various central banks and financial regulators worldwide have joined together to form the Network for Greening the Financial System (NGFS), with the aim of strengthening the role of the financial sector in managing risk and mobilising capital for low-carbon investments. However, such climate clubs only make recommendations, lack sanction mechanisms and are essentially voluntary.

This article asks why central banks adapt their policy frameworks to climate targets with diverging intensity. Is this because central banks cannot become greener or because they do not want to do so? Some studies support the former and point to legal constraints, especially policy mandates (Dikau & Volz, 2021; Parajon Skinner, 2021; Calliess & Tuncel, 2023). This leaves open the question about other potential political costs that may make it less attractive for individual central banks to participate in the fight against climate change. Some papers analyse the political economy of greening central banking (Simandan & Paun, 2021; Cullen, 2023) and address the incentives and obstacles that green central bank policies face, but do not explain why central banks with similar mandates weigh climate protection goals differently.

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We consider climate policies in the European Union and compare the Eurosystem with central banks from EU member states outside the euro area (EU8).[1] In 2019, the EU8 together accounted for 26.6% of all CO_2 emissions in the EU.[2] We argue that all banks in the sample share similar mandates and show that some of the central banks have greater difficulty than others in making their instruments climate neutral. Results suggest that it is not only central bank laws that make it difficult to protect against climate change, but also country-specific incentives and restrictions.

Climate change and central bank policies

The literature on climate change and central bank policy consists of two strands.[3] One strand considers the consequences of climate change and of climate policy measures for financial stability and the ability of central banks to fulfil their monetary policy mandate. Climate change is important for central banks for several reasons (Schnabel, 2021a). First, it affects short-term inflation dynamics and increases medium-term macroeconomic volatility (Cantelmo et al., 2023). Second, climate risks are not yet fully reflected in asset prices (Eren et al., 2022) and ratings do not reflect the risk position (Network for Greening the Financial System, 2018). Once these risks materialise, the banking sector may suffer from losses, which will affect monetary policy transmission (Acharya et al., 2020). Third, climate change weakens growth prospects, increases uncertainty and raises the risk of natural disasters; this lowers the long-term real interest rate (Bylund &

1 Balgarska Narodna Banka (BNB), Banca Națională a României (BNR), Česká Národní Banka (CNB), Danmarks Nationalbank (DNB), Hrvatska Narodna Banka (HNB), Magyar Nemzeti Bank (MNB), Narodowy Bank Polski (NBP), and Sveriges Riksbank (SRB). We handle Croatia as a non-euro country because it only recently joined the euro area.

2 https://www.statista.com/statistics/789024

3 Although banking supervision in Denmark, Poland and Sweden does not lie with the central bank but with separate supervisory authorities, we will continue to speak of "central bank policies".

Jonsson, 2020) and may reduce the effectiveness of conventional monetary policy instruments.

The other strand asks to what extent central banks are able to influence climate change and mitigate its economic consequences. Monetary policy influences not only the inflation rate but also economic activity, which matters for climate change because CO_2 emissions and economic activity are strongly correlated (Khan et al., 2019). In order to influence climate change, central banks may proactively address this issue and apply a climate-adjusted Taylor rule, which adds an emissions gap as a third target to the traditional targets for inflation and the output gap. The associated reaction coefficient measures the responsiveness of the policy interest rate to deviations of CO_2 emissions from their steady-state value. In this case, the central bank could run into a dilemma because there is a risk of overburdening monetary policy (Chen et al., 2021).

Quantitative easing (QE) could be used for climate-protection purposes. One way would be a targeted privileging of green bonds which finance green projects that promote climate goals or serve environmental protection. The effectiveness of "green QE" depends on how it is implemented where procedure and speed play a role (Ferrari & Nispi Landie, 2020). With respect to procedure, two possibilities exist: the central bank keeps its total securities holdings constant and sells brown bonds in exchange for green bonds; alternatively, it increases its total securities holdings and acquires green bonds by issuing its own liabilities. In both cases, the green sector's financing costs decrease: the brown sector's costs increase only in the first scenario, resulting in a decrease in (new) CO_2 emissions. However, the resulting emission reduction does not lead to a significant decrease in the (cumulative) CO_2 stock in the atmosphere.

In terms of speed, there are the following options: a gradual increase in securities purchases, a front-loaded green QE or a temporary green QE, i.e. the central bank first buys green bonds and then lets their holdings fall (Ferrari & Nispi Landie, 2020). The impact on CO_2 emissions is greater with frontloading, but even in this case, the impact on the total stock of CO_2 is small. There is also the possibility that green QE increases (new) emissions, provided that green and brown consumer goods are complementary and the expansion of production of green goods also increases the production of brown goods.

An alternative to green QE would be the preferential treatment of green bonds in the collateral framework. By tilting the framework towards green bonds, the central bank affects the relative price of green and brown bonds because banks can use green bonds more easily to settle liquidity deficits. This may initiate a permanent shift towards green technology but this shift is small and accompanied by adverse side effects, such as higher risk-taking by banks (Giovanardi et al., 2022).

Another alternative would be to differentiate minimum reserve requirements for banks according to the carbon footprint of their liabilities (Campiglio, 2016). Central banks could also design green targeted long-term refinancing operations (T-LTRO) that provide banks with cheap funding if they lend to sustainable activities (van 't Klooster & van Tilburg, 2020). This requires an appropriate taxonomy to identify sustainable activities, which is currently unavailable. A programme that ties refinancing to the renovation of energy-inefficient housing would be easier to implement (Batsaikhan & Jourdan, 2021). Finally, central banks could use macroprudential instruments to initiate a green transition. Green differentiated capital requirements (GDCR) can slow down climate change and reduce the associated risks. The effect is rather small but increases when GDCR are used together with a green fiscal policy (Dafermos & Nikolaidi, 2021).

Greening central bank policy

The EU has set itself the goal of reducing net greenhouse gas emissions by at least 55% by 2030, but the necessary fiscal policy instruments have not yet been developed. A carbon tax currently exists in only some member states, because its introduction has met with considerable political resistance from taxpayers. The key instrument is emissions trading, but so far only a few sectors of the economy are included. As a result, carbon prices, both in the form of taxes and trading schemes, were relatively low in the EU (Avgousti et al., 2023). Pressure on central banks to step in as "climate rescuers of last resort" (Bolton et al., 2020) is growing.

What can central banks do?

The possibilities for EU central banks to actively participate in the fight against climate change are specified in Article 127 TFEU. The primary objective of the European System of Central Banks is to maintain price stability. There is also a duty to support the general economic policies in the European Union, as long as price stability is not jeopardised. Monetary policymakers should thus select the policy options that contribute most to price stability. If two or more policy alternatives contribute equally to price stability, they can be prioritised according to their support for secondary objectives.

EU central banks make different use of this room for manoeuvre. The European Central Bank (ECB) assumes a "secondary objective" and derives from its mandate an obligation to pursue climate-friendly policies – as long as price stability is not

endangered (Elderson, 2021). From the ECB's point of view, climate protection measures promote price stability because they have a stabilising effect on macroeconomic dynamics, reduce the risks associated with climate change and prevent a decline in the natural rate of interest (Schnabel, 2021b).

Central bank laws of the EU8 allow similarly broad interpretations. The primary objective is always to maintain price stability (or a low and stable inflation); as long as this is not jeopardised, the central bank should support the general policy. In Bulgaria, the legislator also requires the central bank to promote the policy of sustainable and non-inflationary growth. The new central bank law in Hungary goes furthest in giving the central bank a green mandate and in requiring the bank to support the government's environmental policy.

Provided Article 127 TFEU is not violated, central banks have various options for gearing their instruments more closely to climate policy. Measures can be classified into three categories: passive actions that raise public awareness of climate issues, preventive/prudential actions through which central banks protect themselves from climate change risks and proactive/promotional actions through which central banks participate in slowing climate change (Boneva et al., 2021). The first category includes NGFS membership, public statements highlighting climate change and exerting political pressure on financial sector actors to disclose climate risks. The second category includes efforts by central banks to disclose their own carbon footprint, to verify their vulnerability to climate risks through "climate stress testing" and to reduce the share of brown or other climate-risk assets in their balance sheet. In addition, central banks need to adapt their monetary policy strategy to climate change.

The last category covers measures to increase demand for sustainable financial securities. This includes increasing the share of green financial assets in own portfolio that are not held for monetary policy purposes. In addition, the share of green assets in foreign exchange reserves or in domestic securities held for monetary policy purposes can be increased. Central banks can base their lending to credit institutions on sustainability criteria by calibrating haircuts accordingly or by including sustainability criteria in the collateral framework. Minimum reserve ratios or minimum capital requirements can also be aligned with sustainability criteria.

What have central banks done so far?

All central banks are members of the NGFS, except the BNB, CNB and NBP.[4] While central bank communication on climate change has increased strongly (Arseneau et al., 2022), these topics are mainly found in publications of the ECB, MNB, DNB and SRB, as well as some national central banks within the Eurosystem. Text analyses show that climate change is now mentioned almost as often as inflation in official speeches by ECB representatives. In contrast, climate aspects in other EU8 central banks play only a minor role; there, statements on pandemics, digitisation of payment systems, fintech or banking supervision dominate (Deyris, 2023).

The ECB reviews the management of climate risks by the banks it supervises, setting them staggered deadlines on an institution-by-institution basis. It expects banks to adequately assess their climate risks and incorporate them into their risk management (ECB, 2022). Riksbank also intends to conduct "climate stress tests" and to analyse how a sharp increase in the price of emission rights could affect the banks through their lending to non-financial corporations (SRB, 2023b). It has not yet explained how it will respond if individual banks fail the test. The MNB has also asked the banks to assess the environmental risks and impacts of their operations and portfolios (MNB, 2021a, 2022). In contrast, mandated climate risk disclosures are not yet reported for the other central banks. The NBP does not publish numbers on the carbon footprint of its assets. The BNR has announced it will monitor climate change risks to the banking sector and conduct annual stress tests on climate risk-related issues (BNR, 2021). Similar announcements have been made by the HNB (2021).

Only some central banks so far have taken preventive or proactive measures. The Eurosystem announced in its strategy review that it would take the consequences of climate change into account. The Governing Council will adapt its monetary policy framework and give greater weight to climate criteria in disclosure, risk assessment, corporate sector asset purchases and the monetary collateral framework. A timetable is set for the implementation of these aspects. However, the ECB does not plan to "lean against the wind", i.e. it will not react to climate change with interest rate policy, but will tighten monetary policy if necessary to achieve price stability (Schnabel, 2021c).

The key preventive measure taken by central banks is to change the composition of their securities portfolio in the direction of assets with low climate risks. Only the Danish and Swedish central banks record the climate risks of their net foreign claims and adjust the composition of their foreign exchange reserves accordingly. The DNB excludes companies that violate sustainability goals from its foreign exchange reserve. It is also examining how it can

4 The Polish Financial Supervision Authority (KNF) is a member.

measure whether the companies in which the foreign exchange reserve is invested are transitioning in alignment with the Paris goals (Ingholt et al., 2021). Riksbank has begun to consider sustainability aspects in managing the foreign exchange reserves. It measures and reports the carbon footprint of its foreign government bond holdings in foreign reserves and has sold some assets with excessive carbon intensity (SRB, 2023a, 2023b).

In contrast, other central banks do not adjust their foreign reserves to climate goals. In the case of the ECB, a climate policy orientation of foreign reserves has not yet been planned. The NBP invests the majority of its foreign reserves in government bonds of countries with high credit ratings, which are characterised by the highest level of safety and liquidity. The non-government securities in the investment portfolios are mainly those issued by international institutions and government agencies. A portion of the reserves is held in the form of short-term deposits with banks with high credit ratings (NBP, n. d.). The remaining central banks do not provide information about the carbon footprint of their foreign reserves.

The ECB has already compiled its portfolio of "other securities" according to ecological criteria; however, it only accounts for just under 10% of the total securities holdings of the Eurosystem. Quantitatively much more significant are the "securities for monetary policy purposes", which are purchased under the Public Sector Purchase Programme (PSPP) and the Corporate Sector Purchase Programme (CSPP) and now comprise a volume of €5 trillion. So far, Eurosystem has deliberately applied broad criteria for the eligibility of securities for purchase, so that environmental aspects played neither a positive nor a negative role. It has "bought the market" in order to avoid price distortions in individual market segments and not to contradict the principle of an open market economy with free competition (De Santis et al., 2018). Because there are indications that the assets purchased by the Eurosystem in the CSPP are mainly from high emission intensity companies (Papoutsi et al., 2021), the Eurosystem plans to pursue a "tilting strategy" in the future and gradually adjust its purchases more to sustainability criteria. A complete stop of the purchase of brown financial assets is not planned, because this could destroy the incentive for these sectors to invest in climate-friendly technologies (Schnabel, 2021b, 2021c, 2022).

Minimum reserve ratios do not play an important role in the Eurosystem's monetary policy framework and there are currently no plans to adjust them in line with climate policy. Instead, the ECB intends to adjust the collateral list accordingly; sustainability-linked bonds are currently already included. However, a finer adjustment of lending to commercial banks has so far failed to provide a sufficient metric, making it difficult to separate "green" from "brown" loans, so that the Eurosystem cannot use its T-LTRO for climate policy purposes (Schnabel, 2022).

The MNB started the Green Home Programme and provides refinancing loans at a low interest rate to commercial banks. This resource can be used to grant mortgage loans to the banks' retail customers on favourable terms. Loans can only be granted for the construction and purchase of new apartments and detached houses with very high energy efficiency. The MNB decided to purchase mortgage bonds qualifying for green bond status; moreover, the MNB introduced preferential capital requirements for green corporate and municipal financing (MNB, 2021a).

Few central banks have taken climate aspects into account in their macroprudential instruments. The ECB has begun applying additional capital requirements to banks that fail to effectively manage climate and environmental risks. It has also warned that further action will be taken if institutions do not meet all of the supervisory expectations within the next two years (ECB, 2022). Since 2020, MNB has set lower capital requirements for banks granting new eligible green housing loans with an interest rate discount (MNB, 2020).

Why do central banks react differently?

Differences in attitudes

Central banks disagree about whether they should take active steps against climate change. The ECB finds that central banks must participate in the fight against climate change because global carbon pricing alone "will not be sufficient to ensure a swift transition to a carbon-free economy" (Schnabel, 2021b).[5] Environmental externalities create a market failure that is transmitted to financial markets, which disadvantages climate-friendly investments for two reasons (Schnabel, 2020). First, there is a lack of a clear, consistent and transparent global taxonomy to assess environmental risks of financial assets. This hinders investments in green assets and makes companies reluctant to declare investments as climate-friendly in order to avoid being suspected of green washing. Secondly, there is no global price for CO_2 emissions, causing financial markets to overstate the returns on carbon-intensive assets. Moreover, financial markets in the EU are bank-dominated, and commercial banks are less effective than equity markets in financing technological innovation and climate-friendly technologies (De Haas & Popow, 2023).

5 MNB (2021b) seems to share this view.

Due to such market failures, the Eurosystem does not want to be a bystander and uses its operational framework to influence credit allocation towards climate-friendly projects.

The CNB takes a different position and argues that central banks should confine themselves to their core tasks and competencies (Mora, 2021; Rusnok, 2021).[6] The task of monetary policy is to maintain price stability and financial market stability; monetary policy is unsuitable to correct market failures or to save the climate, for which other policy areas are more suitable. Central bankers cannot decide whether, e.g. bonds issued by a nuclear power plant are green or not. Central banks must include the consequences of climate change in their analyses, but not use their instruments to actively combat climate change. If they do, climate policy could become a gateway for greater political influence on central banks.

Differences in capabilities

The structure of their balance sheets affects the ability of central banks to conduct climate-adjusted monetary policy. Only few central banks conduct their monetary policy operations predominantly in domestic assets, either by lending to the banking sector or by buying (public or private) securities in open markets. This applies to the Eurosystem and the central banks of Sweden and (to a much lesser extent) of Hungary. Base money creation in the remaining central banks predominantly occurs through the purchase of foreign assets; and foreign reserves have traditionally played a prominent role in central bank balance sheets.

Because these central banks do not conduct liquidity-creating tender or open market operations with the commercial banking sector, they are unable to incorporate climate aspects into their policy framework via the "domestic component" of monetary base creation. This does not apply to foreign currency assets accumulated by debtor central banks as a result of interventions in the foreign exchange market, the composition of which may well be based on climate policy aspects. However, the obstacles to a climate policy orientation of foreign assets are different from those of a corresponding alignment of domestic assets (Fender et al., 2022).

A central bank's ability to align the composition of its foreign reserves with climate criteria depends on the purpose that international reserves serve. Historically, foreign reserves served to guarantee fixed exchange rates and signal to markets that a country's international solvency was assured. On this basis, the accumulation of foreign reserves was guided by the import ratio or short-term external debt, and "liquidity" or "safety" were important criteria in deciding the composition of foreign reserves. Meanwhile, many countries have moved to flexible exchange rates and hold more foreign reserves than necessary to signal international solvency; for these countries, yield considerations play a greater role than liquidity and risk exposure in investment selection (Fender et al., 2019).

Differences in external pressures

Even though central banks are independent, they still respond to political pressure, mostly from governments or private pressure groups. The "demand" for central bank independence (CBI) has decreased due to several reasons (Binder, 2021). Low inflation rates during the great moderation have made traditional arguments for CBI less relevant. Central banks have gained political power during the financial crisis, raising public concerns about legitimacy and accountability. As a result, there are growing calls for central banks to serve societal goals other than guaranteeing price stability, such as the desire to become active in climate policy.

Differences in policy pressure may be another reason why some central banks respond more flexibly than others to calls for climate-friendly policies. Although there is a lack of data on political pressure on central banks from climate policy lobby institutions, there is indirect evidence that it varies across the EU. One indicator is the number of climate strikes organised by Fridays for Future between March 2019 and November 2021 in EU member states.[7] These protests indicate that climate change is seen as a pressing issue in some large euro zone member states as well as in Denmark and Sweden; however, in the six other EU member countries discussed here, the political pressure is considerably lower. This picture is mirrored by results of a survey conducted among 26,600 EU citizens (European Commission, 2021).

Policy preferences are transmitted to central bank decisions in different ways. One channel is climate change litigation, which clarifies whether the Eurosystem takes environmental aspects sufficiently into account and does not violate Article 11 TFEU. Such a case was pending before a Belgian court in early 2021 until the plaintiff withdrew the charge after the ECB acknowledged its legal obligations to take climate into account (Setzer et al., 2021; Client Earth, 2022). Another channel is formed by the European Parliament, whose members since 2017 have increased

6 Governors of HNB and BNR share this position (Vujčić, 2021; Isărescu, 2022).

7 See https://fridaysforfuture.org/what-we-do/strike-statistics/list-of-countries.

pressures on the ECB regarding its role in fighting climate change (Massoc, 2022). Moreover, there is evidence that the ECB reacts to public opinion and responds to public dissatisfaction by expanding the scope of its policy message (Moschella et al., 2020; Deyris, 2023). Central bankers have a "home bias" and their position-taking is also shaped by domestic political considerations and by the ideological inclinations of their governments (Bennani & Neuenkirch, 2017; Moschella & Diodati, 2020).

Conclusion

EU central banks can be divided into three groups: one that takes climate change into account relatively strongly (Eurosystem, MNB), a group that acts cautiously (DNB, SRB) and a group (BNB, BNR, CNB, HNB, NBP), that has been less active in climate policy. The divergences cannot be attributed to different mandates, but are based on different assessments of the role of central banks as climate protectors, different capacities to take climate change into account and different external pressures.

The reported divergences suggest that the willingness, at least in the Czech Republic and Poland, to join the euro area in the near future will continue to decline. Neither country intends to join the Exchange Rate Mechanism in the foreseeable future. With the ECB currently taking a cautious course towards stronger compliance with climate targets, internal reservations about joining the eurozone are likely to increase further.

References

Acharya, V., Imbierowicz, B. Steffen, S., & Teichmann, D. (2020). Does the Lack of Financial Stability Impair the Transmission of Monetary Policy. *Journal of Financial Economics*, *138*(2), 342–365.

Arseneau, D. M., Drexler, A., & Osada, M. (2022). Central Bank Communication About Climate Change. *Finance and Economics Discussion Series*. Federal Reserve Board, Washington D.C.

Avgousti, A., Caprioli, F., Caracciolo, G., Cochard, M., Dallari, P., Delgado-Téllez, M., Domingues, J., Ferdinandusse, M., Filip, D., Nerlich, C., Prammer, D., Schmidt, K., & Theofilakou, A. (2023). The Climate Change Challenge and Fiscal Instruments and Policies in the EU. *Occasional Paper*, 315, European Central Bank.

Banca Națională a României. (2021). *National Bank of Romania's Declaration of Engagement as a Member of Network for Greening the Financial System*. https://bnr.ro/page.aspx?prid=20097

Batsaikhan, U., & Jourdan, S. (2021). Money Looking for a Home [Technical Report]. *Positive Money Europe*. http://www.positivemoney.eu/wp-content/uploads/2021/02/2021_ Building-Renovation-TLTROs.pdf

Benincasa, E., Kabas, G., & Ongena, S. (2022). "There is No Planet B", But For Banks "There are Countries B to Z": Domestic Climate Policy and Cross-Border Lending. *Swiss Finance Institute Research Paper*, 22–28.

Bennani, H., & Neuenkirch, M. (2017). The (Home) Bias of European Central Bankers: New Evidence Based on Speeches. *Applied Economics*, *49*(11), 1114–1131.

Binder, C. C. (2021). Political Pressure on Central Banks. *Journal of Money, Credit, and Banking*, *53*(4), 715–744.

Bolton, P., Despres, M., Pereira da Silva, L. A., Samana, F., & Svartzman, R. (2020). *The Green Swan. Central Banking and Financial Stability in the Age of Climate Change*. Bank for International Settlements, Basel.

Boneva, L., Ferrucci, G., & Monegelli, F. P. (2021). To Be or Not to Be "Green": How Can Monetary Policy React to Climate Change? *Occasional Paper*, 285. European Central Bank.

Bylund, E. & Jonsson, M. (2020). How Does Climate Change Affect the Long-run Real Interest Rate? *Economic Commentaries*, 11. Sveriges Riksbank.

Calliess C., & Tuncel, E. (2023). The Role of Article 11 TFEU in the Greening of the ECB's Monetary Policy. *German Law Journal*, 1–29.

Campiglio, E. (2016). Beyond Carbon Pricing: The Role of Banking and Monetary Policy in Financing the Transition to a Low-Carbon Economy. *Ecological Economics*, *121*, 220–230.

Cantelmo, A., Melina, G., & Papageorgio, C. (2023). Macroeconomic Outcomes in Disaster-Prone Countries. *Journal of Development Economics*, *161*, 103037.

Chen, C., Pan, D., Huang, Z., & Bleischwitz, R. (2021). Engaging Central Banks in Climate Change? The Mix of Monetary and Climate Policy. *Energy Economics*, *103*, 105531.

ClientEarth. (2023, November 29). *ClientEarth Withdraws Belgian Central Bank Lawsuit after EU Greens Monetary Policy* [Press Release]. https://climatecasechart.com/wp-content/uploads/non-us-case-documents/2022/20221129_2138C_press-release.pdf

Cullen, J. (2023). Central Banks and Climate Change: Mission Impossible? *Journal of Financial Regulation*, *9*(2), 1–36.

Dafermos, Y., & Nikolaidi, M. (2021). How can Green Differentiated Capital Requirements Affect Climate Risks? A Dynamic Macrofinancial Analysis. *Journal of Financial Stability*, *54*, 100871.

De Haas, R., & Popov, A. (2023). Finance and Green Growth. *Economic Journal*, *133*, 637–668.

De Santis, R. A., Hettler, K., Roos, M., & Tamburrini, F. (2018). Purchases of Green Bonds under the Eurosystem's Asset Purchase Programme. *Economic Bulletin*, 7/2028.

Deyris, J. (2023). Too Green to Be True? Forging a Climate Consensus at the European Central Bank. *New Political Economy*, *28*(5), 1–18.

Dikau, S., & Volz, U. (2021). Central Bank Mandates, Sustainability Objectives and the Promotion of Green Finance. *Ecological Economics*, *184*, 107022.

Elderson, F. (2021, February 13). *Greening Monetary Policy* [Blog Post]. https://www.ecb.europa.eu/press/blog/date/2021/html/ecb.blog210213~7e26af8606.en.html

Eren, E., Merten, F., & Verhoeven, N. (2022). Pricing of Climate Risks in Financial Markets: A Summary of the Literature. *BIS Papers*, 130.

European Central Bank. (2022, November 2). ECB Sets Deadlines for Banks to Deal with Climate Risks´ [Press Release]. https://www.bankingsupervision.europa.eu/press/pr/date/ 2022/html/ssm.pr221102~2f7070c567.en.html

European Commission. (2021). *Climate Change. Special Eurobarometer*, *513*. https://climate.ec.europa.eu/system/files/2021-07/report_2021_en.pdf

Fender I., McMorrow, M., Sahakyan, V., & Zulaica, O. (2019, September). Green Bonds: The Reserve Management Perspectice. *BIS Quarterly Review*, 49–63.

Fender I., McMorrow, M., & Zulaica, O. (2022). *Sustainable Management of Central Banks' Foreign Exchange (FX) Reserves*. https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2022/07/INSPIRE-paper-6-Sustainable-management-of-central-banks-foreign-exchange-FX-reserves.pdf

Ferrari, A., & Nispi Landi, V. (2020). Whatever it Takes to Save the Planet? Central Banks and Unconventional Green Policy. *ECB WP,* 2500.

Giovanardi, F., Kaldorf, M., Radke, I., & Wicknig, F. (2022 mimeo). *The Preferential Treatment of Green Bonds*. University of Cologne.

Hrvatska Narodna Banka. (2021). *Climate Pledge*. https://www.hnb.hr/en/about-us/functions-and-structure/cnb-and-climate-change/climate-pledge

Ingholt, M. M., Jygert, L., & Marcussen, A. B. (2021, July). Climate Change and the Role of Central Banks. *Danmarks Nationalbanken, Analysis*, 19.

Isărescu, M. (2022). Sustainability and Climate Change – A More Delicate Balancing Act. https://www.obserwatorfinansowy.pl/bez-kategorii/rotator/sustainability-climate-change-a-more-delicate-balancing-act/

Khan, H., Metaxoglou, K., Knittel, C. R., & Papineau, M. (2019). Carbon Emissions and Business Cycles. *Journal of Macroeconomics*, *60*, 1–19.
Magyar Nemzeti Bank. (2020). *Facilitation, Deadline-Extension in the Green Preferential Capital Requirement Programme*. Budapest.
Magyar Nemzeti Bank. (2021a, April 21). *New Supervisory Recommendation Published for Credit Institutions on Climate-related and Environmental Risks* [Press Release].
Magyar Nemzeti Bank. (2021b). *Sustainability and Central Bank Policy – Green Aspects of the Magyar Nemzeti Bank`s Monetary Policy Toolkit*. Budapest.
Magyar Nemzeti Bank. (2022). *The Magyar Nemzeti Bank's Climate-Related Financial Disclosure*. Budapest. https://www.mnb.hu/letoltes/tcfd-jelente-s-2022-en.pdf
Massoc, E. C. (2022). Climate Change versus Price Stability. How 'Green' Central Bankers and Members of the European Parliament Became Pragmatic (Yet Precarious) Bedfellows. *Positive Money Europe*. https://www.positivemoney.eu/wp-content/uploads/2022/06/Climate-change-versus-price-stability.pdf
Mora, M. (2021, March 24). Finger weg von der Klimapolitik (in German). *Frankfurter Allgemeine Zeitung*, 25.
Moschella, M., & Martocchia Diodati, N. (2020). Does Politics Drive Conflict in Central Banks' Committees? Lifting the Veil on the European Central Bank Consensus. *European Union Politics*, *21*(2), 183–203.
Moschella, M., Pinto, L., & Martocchia Diodati, N. (2020). Let's Speak More? How the ECB Responds to Public Contestation. *Journal of European Public Policy*, *27*(3), 400–418.
Narodowy Bank Polski. (n.d.). *Foreign Exchange Reserve Management*. https://nbp.pl/en/about-nbp/foreign-exchange-reserve-management/
Network for Greening the Financial System. (2018, October). *First Progress Report*.
Nordhaus, W. (2015). Climate Clubs: Overcoming Free-Riding in International Climate Policy. *American Economic Review*, *105*, 1339–1370.
Papoutsi, M., Piazzesi, M., & Schneider, M. (2021, mimeo). *How Unconventional is Green Monetary Policy*.
Parajon Skinner, C. (2021). Central Banks and Climate Change. *Vanderbilt Law Review*, *74*(5), 1301–1364.
Rusnok, J. (2021, May 17). *The Changing World of Central Banking*.
Schnabel, I. (2020, September 28). When Markets Fail – the Need for Collective Action in Tackling Climate Change, Frankfurt am Main.
Schnabel, I. (2021a). *Climate Change and Monetary Policy*. https://www.imf.org/en/Publications/fandd/issues/2021/09/isabel-schnabel-ECB-climate-change
Schnabel, I. (2021b, June 14). *From Market Neutrality to Market Efficiency. Welcome Address at the ECB DG-Research Symposium "Climate Change, Financial Markets and Green Growth"* [Speech]. Frankfurt/Main.
Schnabel, I. (2021c, March 3). *From Green Neglect to Green Dominance? Intervention at the "Greenings Monetary Policy – Central Banking and Climate Change"* [Speech]. Frankfurt/Main.
Schnabel, I. (2022). *A New Age of Energy Inflation: Climateflation, Fossilflation and Greenflation* [Speech at the ECB and its Watchers XXII Conference]. Frankfurt/Main.
Setzer, J., Higham, C., Jackson, A., & Solana, J. (2021). Climate Change Litigation and Central Banks. *European Central Bank Legal Working Paper Series*, 2021/21.
Simandan, R., & Paun, C. (2021). The Costs and Trade-Offs of Green Central Banking: A Framework for Analysis. *Energies*, *14*(16).
Sveriges Riksbank. (2023a). *Asset Management and Sustainability*. https://www.riksbank.se/en-gb/about-the-riksbank/the-riksbanks-work-on-sustainability/asset-management-and-sustainability/
Sveriges Riksbank. (2023b). *The Riksbank's Climate Report 2023*. https://www.riksbank.se/en-gb/about-the-riksbank/the-riksbanks-work-on-sustainability/climate-report/the-riksbanks-climate-report2/foreword/
van 't Klooster, J., & Tilburg, R. van (2020). Targeting a Sustainable Recovery [Technical Report]. *Positive Money Europe*.
Vujčić, B. (2021). Adapting to Climate Change Has No Alternative [Governor`s Speech at the Online Event "The Role of Banks in Greening Our Economies", Zagreb]. https://www.hnb.hr/en/-/adapting-to-climate-change-has-no-alternative

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Trump's 2025 Tariff Threats

Former US President Donald Trump's public statements on tariffs have ranged from merely alarming to evidently impossible, but one thing is clear: these tariff threats should be taken seriously. Both the candidate and his advisers have been relentlessly consistent in their repeated emphasis on raising tariffs and cutting income taxes. Trump's specific proposals include both a 10% across-the-board tariff on all trading partners as well as 60% or higher tariffs on goods from China. These tariff proposals occur alongside calls for tax cuts that would cost as much $5 trillion over ten years. Trump has even floated the idea of completely replacing income taxes with tariffs.

Reducing the role of the federal income tax and replacing it with revenues from sky-high tariffs on imports would be deeply harmful to both the US economy and the world economy. In the United States, it would cost jobs, increase federal deficits, and generate both recessionary and inflationary pressures, risking stagflation. It would also increase the tax burden on the poor and middle class while benefitting those at the top. Abroad, this policy would antagonize US allies and partners, provoking worldwide trade wars, damaging global economic growth and undermining international collective action. It would also destabilize the global financial system.

Can Trump's tariffs replace the income tax? Simply put, no. Tariffs would be levied on a tax base comprised of US imported goods, which totaled $3.1 trillion in 2023. The income tax is levied on a tax base that consists of incomes, which exceed $20 trillion. The US government raises about $2 trillion in individual and corporate income taxes at present. It is impossible for tariffs to fully replace income taxes. Tariff rates would have to be implausibly high on such a small base of imports to replace the income tax, but as tax rates rise, the base itself would shrink as imports fall. In our recent analysis,[1] we show the revenue-maximizing tariff rate is likely to generate only a fraction of the revenue needed to replace the income tax.

But tariffs could still finance significant income tax cuts. A recent Peterson Institute policy brief calculated that revenues from Trump's 10%-60% tariff proposals could total more than $200 billion per year in current dollars, money that could be put toward income tax cuts.[2] Even higher tariffs could raise more revenue, perhaps as much as $780 billion per year (from a 50% across-the-board tariff). Both figures are optimistic assessments of the revenue potential of tariffs, however, since they do not account for many important negative factors, including lower US economic growth due to retaliation, and the negative growth effects from the tariffs themselves. Such high tariffs would create big distortions in Americans' economic activity, while increasing tax avoidance, tax evasion and lobbying for exemptions.

What are the consequences of tariffs for the tax system? Tariffs are a particularly distortionary form of consumption tax. Because they only tax imports, tariffs shift production in the economy away from things it does well and toward activities in which a country has no comparative advantage. Further, even a straightforward consumption tax has important effects on the distribution of the tax burden, since poorer households save very little and consume more traded goods as a share of their income than richer households, who save far more and consume relatively few

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1 https://www.piie.com/blogs/realtime-economics/2024/can-trump-replace-income-taxes-tariffs.
2 https://www.piie.com/publications/policy-briefs/2024/why-trumps-tariff-proposals-would-harm-working-americans.

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traded goods as a share of their income. In a recent policy brief, we showed that tariff burdens are therefore starkly regressive, even as they make all households worse off.[3]

Trump proposes not only to levy tariffs, but to use the revenue to cut income taxes. Imagine he pushes this policy to the maximum, raising $780 billion in tariff revenue and cutting income taxes by $780 billion, in proportion to the current income tax burdens of individuals and corporations. The dramatic distributional consequences of this fiscal shift (ignoring growth effects). The bottom 80% of the income distribution loses, with only those at the top benefiting. The pattern of regressivity is stark; the bottom quintile loses the most, nearly 9% of their after-tax income, whereas the top 1% of households gain an amount that is nearly 12% of after-tax income.

Some have argued that increased tax burdens might be worth it to workers who benefit from an industrial renaissance due to the protection of high tariffs. Yet, neither the economics nor experience supports this view. The US economy is already at full employment, so expanding production in tariffed sectors inevitably draws resources away from other sectors in the economy. Manufacturers who rely on imported intermediate inputs would face higher costs. At the same time, high tariffs would lead inevitably to forceful retaliation by US trade partners alongside massive disruptions to supply chains. As multiple studies show, the first round of Trump tariffs harmed both job growth and industrial competitiveness.

These tariff and income tax plans will have large ripple effects on the world economy: raising the equilibrium value of the US dollar, harming the outlook for global economic growth, creating inflationary pressures and harming international collaboration across many issue areas.

Consider first the effect on the dollar's exchange rate. A range of macroeconomic models predict that permanent tariffs on US imports would cause the dollar to strengthen in the foreign exchange market. With a 50% tariff, the dollar's appreciation could be massive – a substantial fraction of the huge tariff hike. The accompanying tax cuts would reinforce its effect. A rising dollar is one reason why Trump's tariffs and tax cuts are unlikely to resolve the persistent US trade deficit. Further, dollar appreciation risks financial instability in the world economy, as countries that have borrowed in dollars experience rising debt burdens and as global financial conditions tighten.[4]

Another large risk is trade wars. After the Trump Administration significantly increased tariffs on Chinese goods, China responded proportionately, reducing Chinese imports of US goods substantially.[5] If countries throughout the world raise their own tariffs in response to Trump's new tariffs, global economic headwinds will increase as the gains from trade diminish across the world. At the same time, higher import costs will entail upward price pressure, risking stagflation.

Waves of retaliation and counter-retaliation in the trade arena will also make it more difficult for jurisdictions around the world to work together to respond to other pressing global collective action problems like climate change, public health emergencies, nuclear non-proliferation and security.

A lot is at stake in the next US election, which will have ramifications that stretch far beyond trade policy. Trump's tariff proposals would affect more than $3 trillion in trade, nearly ten times the trade targeted by his earlier China trade war. Whereas the Biden Administration has recently announced new tariffs on Chinese goods (and kept Trump's earlier tariffs), these new tariffs affect only $18 billion in trade, well under 1% of the volume of trade that Trump's proposals target. The Biden Administration's trade policies are more narrowly targeted at strategic aims. Trump proposes to make tariff proceeds a key component of US federal tax revenue. While the benefits of this impractical plan, if any, are unclear, its costs seem especially dangerous at this fragile moment in history.

3 https://www.piie.com/publications/policy-briefs/2024/why-trumps-tariff-proposals-would-harm-working-americans.
4 https://www.brookings.edu/wp-content/uploads/2022/09/BPEA-FA22_WEB_Obstfeld-Zhou.pdf.
5 https://www.piie.com/research/trade-investment/us-china-trade-war.