

WORLD COMMERCE REVIEW

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ANDRÉ SAPIR, JACOB FUNK
KIRKEGAARD AND JEROMIN
ZETTELMEYER EXAMINE HOW
EUROPE CAN HOLD ITS OWN IN A
MULTIPOLAR WORLD

PATRICK VAN SCHIE
ARGUES THAT EUROPEAN
COUNTRIES SHOULD
GROW UP MILITARILY
WITHIN NATO

PATRICK MINFORD
DEMONSTRATES HOW THE
US IS DAMAGING ITS LONG
RUN PROSPECTS BY PURSUING
PROTECTIONISM

THE GLOBAL TRADE AND FINANCE PLATFORM

FOREWORD

The power of words and the fragility of democracy

Over the past three decades, political discourse has increasingly devolved into a battleground of inflammatory labels. Terms such as "fascist," "right-wing extremist," "Islamophobic," "racist," "transphobic," "homophobic," and "misogynist" are frequently weaponised against political opponents. This rhetoric, coupled with assertions that "the science is settled" on contentious issues, stifles debate and enforces conformity with elite consensus views. Dissenters risk being "cancelled," marginalised, or worse—targeted for their beliefs. Labelling someone a "right-wing extremist," for instance, can escalate beyond rhetoric, potentially placing them in the crosshairs of violence, as seen in recent politically motivated incidents.

This toxic polarisation has fractured the political landscape. The centre, once a moderating force, is now often branded as "extreme left" in the parlance of earlier decades, while the right is caricatured as "knuckle-dragging thugs" or "far-right extremists." Both sides cling to their ideological packages, leaving little room for consensus or rational dialogue. Such division recalls Martin Luther King Jr's warning about the "ultimate weakness of violence"

as a descending spiral that multiplies evil rather than eradicating it. In Germany, for example, a surge in politically motivated aggression—ranging from intimidation to physical attacks—illustrates how suppression, even when non-violent, fuels a cycle of polarisation, radicalisation, and societal fragmentation.

At its core, democracy rests on two interdependent pillars: the right to vote and the right to free expression. Voting enables citizens to participate in governance by selecting representatives or shaping policies. Free expression, equally vital, fosters open debate, allows criticism of authority, and ensures the exchange of ideas that inform democratic decisions. When free speech is curtailed, the ability to form and articulate political opinions is undermined, weakening the democratic process itself.

The rise of online censorship and restrictions on free thought, particularly when aligned with elite consensus, threatens to erode these democratic foundations. In Europe, measures such as content moderation laws or sanctions against dissenting voices risk sliding toward "illiberal democracy," where elections persist but fundamental freedoms are curtailed. This environment stifles the open exchange of ideas, raising critical questions about whether such a climate can sustain the innovation and growth that thrive on intellectual freedom and diversity of thought.

Democracy can endure under strain, but it flourishes only when free expression is robust. The current trajectory of polarisation and censorship demands a renewed commitment to the principles for which millions have sacrificed. To secure a future of prosperity and unity, society must resist divisive rhetoric, reject suppression, and champion the open discourse that underpins true democratic vitality. ■

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The rules-based international system has fundamentally altered. André Sapir, Jacob Funk Kirkegaard and Jeromin Zettelmeyer examine the short-term risks, medium-term scenarios and policy choices and discuss how Europe can hold its own in a multipolar world

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Andrew Bailey reflects on developments in the global economy and emphasises the important role a reformed multilateral economic system plays. He also discusses opportunities for innovation in the UK's payments infrastructure

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The struggle against hesitation

The EU is engaged in a struggle for independence, values and democracy in a world shaped by the re-emergence of imperial ambitions. Simone Tagliapietra says Ursula von der Leyen is right to say Europe is in a 'fight' around competitiveness and values, but it may lack the right pugilistic attitude

The time is right

The EU and India both rank among the world's five largest economies. Ignacio García Bercero and André Sapir offer a broad perspective on the EU-India trade relationship and argue the time is right to make a European Union-India trade deal happen

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The payment system is experiencing a technology-driven revolution. Christopher Waller outlines how the Fed is exploring the integration of emerging technologies such as tokens, smart contracts and AI into the payments system

How is innovation competition exacerbating global overcapacity?

The world is drifting toward a fragmented trade environment defined by subsidies, retaliation and industrial duplication. Jianwei Xu discusses how the world is moving into a period of entrenched manufacturing overcapacity, threatening deflation and stagnant growth

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There is a growing push for the European Commission to weaken merger control. Natalia Fabra, Massimo Motta and Martin Peitz argue for a strengthening of the guidelines and offer suggestions to guide the process

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For frontier AI models, more training data improves performance. Tweaks to EU copyright requirements in the AI Act Code of Practice will maintain the AI growth momentum, for now – but will also create new challenges. Bertin Martens discusses



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Creole Building, Rodney Bay, Gros Islet, St. Lucia, LC01 101, West Indies



info@euroeximbank.com



+44 208 207 2868 (UK)

+1 758 450 8349 (WI)

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Free trade remains the best policy

History shows that tariffs harm trade. Patrick Minford demonstrates how the US is damaging its long run prospects by pursuing old-fashioned protectionism

It has always been obvious to economists that the massive Trump tariff rollout in early April would be hugely damaging to the US. Tariffs seem to many politicians to be a way of forcing foreigners to pay for their country's exports, so making a gain for their voters; they also seem to think that by protecting their home industries they are scoring a gain in higher home output.

Unfortunately, in the world markets where trade takes place, none of this is true. In fact the opposite is true; the cost of tariffs on imports is paid by home consumers, while the rise in home output in the protected industries causes the contraction of more efficient unprotected industries, which lowers overall output.

Table 1 shows what happens with a 10% US tariff according to our world trade model; we use the model that fits best—the 'Classical' model, which assumes that world markets act in a highly competitive manner. What the tariff does is cause a loss of welfare for the US of around 8% of GDP*.

Roughly half of this is due to reduced output as resources leave the most productive sectors and move into less productive protected ones. The other half is due to consumer welfare losses from higher prices. Now that US average post-deal tariffs have reached 17%, the implied US costs are up to 13% of GDP. As for other countries the costs are minimal; this is because they can all divert their exports to other parts of the world market.

These are the long run costs. More immediately we also see short run effects causing lost output both in the US and abroad and raising US inflation as the tariffs raise prices.

It may appear as if President Trump has got away with his tariff policies in spite of these and other criticisms from economists like us. But in the short run exporters to the US may be willing to absorb some of the tariff cost to keep the US market until they can divert their exports elsewhere at the better prices available in world markets.

This will keep US prices down for a while. But once they have diverted their output to other world markets paying the normal world price, they will charge the same prices to US importers. So the US inflation hit will come through.

As for output, in the short run it depends on demand. So US demand will be set by US monetary and fiscal policies, which are likely to be expansionary. Similarly foreign demand will be set by the equivalent foreign policies, especially in Europe and China.

In the long run protection by the US alone will not affect the rest of the world and can be ignored, so that merely US trade collapses. This will permit the rest of the world to rebuild the world trading system until the US once more rejoins it at some future date

Table 1. World trade model simulation of 10% tariff by the US on agriculture and manufactures imported from all other countries/blocs

10% tariff on manufactures and agriculture by US	UK (% change)	Euro (% change)	US (% change)	CH (% change)	RoW (% change)
Y (GDP)	0.15	0.47	-5.38	0.33	0.27
Y _A	0.00	0.00	0.00	0.00	0.00
Y _M	-32.58	-19.99	82.86	-10.65	-21.95
Y _S	7.29	5.03	-19.80	6.03	6.45
Y _D	0.15	0.47	-5.38	0.33	0.27
E _A	0.56	1.24	-15.36	1.66	1.29
E _M	0.04	0.18	-1.35	0.53	0.47
E _S	0.18	0.53	-5.91	0.11	0.08
W	-1.55	-1.55	12.80	-1.55	-1.55
H	4.27	4.27	-7.87	4.27	4.27
L	-61.23	6.38	244.55	6.38	6.38
N	-0.16	-0.16	1.21	-0.16	-0.16
H	0.58	0.58	-2.00	0.58	0.58
L	-5.11	-4.73	-33.31	-5.01	-5.01
K	0.42	0.82	-4.32	0.52	0.55
P (CPI)	1.15	1.55	5.23	1.36	1.28
P _A	0.81	0.81	10.89	0.81	0.81
P _M	0.00	0.00	10.00	0.00	0.00
P _S	2.06	2.06	2.06	2.06	2.06
P _{W_A}	0.81	0.81	0.81	0.81	0.81
P _{W_S}	2.06	2.06	2.06	2.06	2.06
P _d	0.84	0.84	12.02	0.84	0.84
Welfare	-0.26	-0.39	-8.17	-0.42	-0.29

Notation: y=output; E=Expenditure; N= unskilled labour force (w=its wages); H- skilled labour force (h=its wages); L=land (l= land price); K=capital; Pw=world price (world price of manufactures is numeraire); subscripts-A=agriculture; M=manufacturing; S=services; D=non-traded

Note on welfare measure: Welfare loss from the tariff is computed as: [Welfare percent =% output loss/GDP+consumer surplus lost-Terms of Trade gain- gain as % of GDP], where the consumer surplus loss=percent rise in CPI x 0.5 and the TOT gain=% rise in world price of exports/world price of imports x share of trade in GDP.

But these are likely to offset the deflationary tariff effects only partially, as fiscal deficits are high and interest rates already lowered. We have yet to see how the world economy settles down in the short run as the tariff fog disperses. But in the long run output depends on supply. With the tariff raising the US prices of home manufactured output, manufacturing will expand as resources are switched from services, which give the US its comparative advantage and so are more productive. Hence overall output will fall.

What these figures underline is the self-harm from tariffs, explaining why most other countries have been reluctant to retaliate by raising their own tariffs. The exception was China for which the short run effects were highly threatening, given its huge excess capacity in its chosen and highly subsidised hi-tech sectors like EVs and batteries.

By retaliating with tariffs on the US only, it avoids the long run tariff costs as its consumers simply switch to non-US products so that import prices remain unchanged.

However, China's economy is slowing as its excess capacity is hard to divert to other countries, now resisting dumping, and its home policies are unable to offset home deflation due to the collapse in property and the loss of consumer confidence. In Europe generally public debt is high and limiting the scope for fiscal stimulus, while monetary policy has already eased as much as may be possible given the need to keep inflation down.

It is these short run problems with US tariffs that create the temptation to retaliate. In the interwar period, there was general retaliation as countries tried to protect the demand for their home industries in the face of falling export demand. So far retaliation has been the exception rather than the rule; China has retaliated against the US only but with the US targeting other parts of SE Asia to which China exports, this restriction may not last.

What this all means is that the US is damaging its long run prospects by pursuing old-fashioned protectionism, and the rest of the world will be reducing its US trade. US and world growth will probably be slower in the short run, as further policy loosening is difficult.

However, it is worth spelling out why free trade has been the best policy for the US as well as the world at large. Even as the US has now contracted out of trade, the rest of the world will need to rebuild the world trade order without it and not be tempted to join in a general trade war.

Why globalisation and free trade is good for the common man-the disastrous mistake of Trump has been to fail to see this and other countries must avoid the same trap

It is widely said that today's 'populist' agendas include the rejection of 'globalisation' and 'free trade' in favour of 'nationalism' and protectionism. Certainly it is true that the Trump agenda did include these. Yet this agenda is a disaster for the US common man who voted for it, as we saw above. As for the rest of the world, it should strongly resist being sucked into a trade war and must maintain free trade.

We illustrate why China should not retaliate with Table 2 showing the effect of China raising its tariffs in the same way as the US in retaliation. It shows the same self-harming effects as the US move.

In China's case welfare falls by 7%, with about 3% coming from the fall in output and the rest from consumer welfare due to higher prices. Again the effect on other countries is small. This US-China tariff war only badly damages those two countries, the damage in each case coming from self-harm. It does seem now that both countries are discovering this and gradually retreating to a lowering of these tariffs.

Notice that in fact China has at no stage put a tariff on others than the US; but if it did, it would have no long run effect on them, as they would all divert their exports elsewhere. The main gain for them from this Chinese policy is that there are no short run demand effects coming from China.

What this underlines is, as already noted, that other countries should not retaliate with their own tariffs, since this will only reduce their welfare further. To illustrate this (Table 3), we show the effects of a general application of 10% tariffs to all goods (manufactures and agriculture) from all other countries.

Now all countries are raising their goods prices internally by 10%, causing an initial world-wide shift of output into goods from services and of demand from goods into services.

However, this creates world excess demand for services which must be resolved by a rise in world service prices to eliminate these shifts in supply and demand. The overall result is a general rise in prices, damaging consumer welfare through the loss of surplus.

Notice that all these prices are expressed relative to the baseline world price of manufactures, which is kept fixed equal to 1, as the 'numeraire', so assuming zero inflation which the model does not calculate. Thus in this simulation the price of consumer goods rises by about 10% relative to consumer incomes, reducing the real value of consumption and losing half of this as surplus.

Conclusions

What all this shows is that globalisation and free trade are good for the economy and the average voter. Unfortunately, ignorant and ambitious politicians have tried, often successfully, to persuade this voter that he/she has been unfairly treated by the market forces these have unleashed, that they have been 'left behind'.

Table 2. World trade model simulation of 10% tariff by the US and China on agriculture and manufactures imported from all other countries/blocs

10% tariff on manufactures and agriculture by US & CH	UK (% change)	Euro (% change)	US (% change)	CH (% change)	RoW (% change)
Y (GDP)	1.86	2.02	-3.80	-3.26	1.86
Y _A	0.00	0.00	0.00	0.00	0.00
Y _M	-54.48	-33.74	67.07	25.60	-36.38
Y _S	14.18	10.02	-15.36	-18.52	12.67
Y _D	1.86	2.02	-3.80	-3.26	1.86
E _A	5.91	5.34	-10.84	-16.18	9.02
E _M	0.35	0.78	-0.95	-5.16	3.28
E _S	2.24	2.27	-4.17	-1.03	0.56
W	-1.90	-1.90	12.41	12.41	-1.90
H	8.76	8.76	-3.90	-3.90	8.76
L	-65.63	-5.69	205.46	38.64	-5.69
N	-0.19	-0.19	1.18	1.18	-0.19
H	1.04	1.04	-1.55	-1.55	1.04
L	8.34	9.10	-23.75	-22.95	8.42
K	1.59	2.33	-3.15	-1.93	1.67
P (CPI)	1.37	2.56	6.22	6.30	1.88
P _A	0.36	0.36	10.40	10.40	0.36
P _M	0.00	0.00	10.00	10.00	0.00
P _S	3.82	3.82	3.82	3.82	3.82
P _{W_A}	0.36	0.36	0.36	0.36	0.36
P _{W_S}	3.82	3.82	3.82	3.82	3.82
P _d	0.08	0.08	11.18	11.18	0.08
Welfare	1.46	0.58	-7.22	-6.55	1.08

Notation: y=output; E=Expenditure; N=unskilled labour force (w=its wages); H=skilled labour force (h=its wages); L=land (l= land price); K=capital; Pw=world price (world price of manufactures is numeraire); subscripts- A=agriculture; M=manufacturing; S=services; D=non-traded.

Table 3. World trade model simulation of 10% tariff by all trade blocs on agriculture and manufactures

10% tariff on manufactures and agriculture by ALL	UK (% change)	Euro (% change)	US (% change)	CH (% change)	RoW (% change)
Y (GDP)	-0.07	0.04	0.02	0.07	-0.02
Y _A	0.00	0.00	0.00	0.00	0.00
Y _M	-0.34	0.09	-0.02	0.20	-0.09
Y _S	-0.02	0.03	0.03	0.01	-0.01
Y _D	-0.07	0.04	0.02	0.07	-0.02
E _A	-1.05	0.03	0.00	0.28	-0.13
E _M	0.11	0.04	0.02	0.13	0.47
E _S	-0.12	-1.55	0.02	0.02	0.08
W	9.41	9.41	9.41	9.41	9.41
H	10.26	10.26	10.26	10.26	10.26
L	-56.98	18.05	160.09	18.05	18.05
N	0.90	0.90	0.90	0.90	0.90
H	0.08	0.08	0.08	0.08	0.08
L	-6.37	-6.37	-6.37	-6.36	-6.36
K	0.39	0.38	0.38	0.39	0.40
P (CPI)	10.45	10.32	10.29	10.28	10.38
P _A	10.56	10.56	10.56	10.56	10.56
P _M	10.00	10.00	10.00	10.00	10.00
P _S	10.26	10.26	10.26	10.26	10.26
P _{W_A}	0.51	0.51	0.51	0.51	0.51
P _{W_S}	10.26	10.26	10.26	10.26	10.26
P _d	10.70	10.70	10.70	10.70	10.70
Welfare	-4.55	-5.54	-5.97	-5.46	-4.78

Notation: y =output; E =Expenditure; N = unskilled labour force (w =its wages); H =skilled labour force (h =its wages); L =land (l = land price); K =capital; P_w =world price (world price of manufactures is numeraire); subscripts- A =agriculture; M =manufacturing; S =services; D =non-traded.

Note on welfare measure: Welfare loss from the tariff is computed as: [Welfare percent=% output loss/GDP+consumer surplus lost-Terms of Trade gain- gain as % of GDP], where the consumer surplus loss=percent rise in CPI x 0.5 and the TOT gain=% rise in world price of exports/world price of imports x share of trade in GDP.

Yet take for example American households: they have benefited from one of the fastest per capita growth rates in the OECD. While some industries have contracted, such as coalmining in West Virginia, the West Virginian residents like other voters displaced by global competition have enjoyed the massive expansion of Medicaid, Medicare and Social Security paid for by the economy's growth and resulting tax revenues.

By contrast the Trump agenda, notionally designed to benefit the 'left behind', is causing them acute harm, both in the short and the long term, as our tables reveal.

It is vital that the rest of the world refuses to retaliate against this US trade-destroying agenda. The temptation is there to retaliate to prevent the short run effects of export disruption and reduced demand from the US-just as happened in the 1930s.

But in the long run protection by the US alone will not affect the rest of the world and can be ignored, so that merely US trade collapses. This will permit the rest of the world to rebuild the world trading system until the US once more rejoins it at some future date. ■

Patrick Minford is Professor of Applied Economics at Cardiff University

** Details of this model-fitting exercise can be found in Minford, P, Xu, Y and Dong, X (2023) 'Testing competing world trade models against the facts of world trade', Journal of International Money and Finance, 2023, vol. 138, issue C.*

How Trump should have tackled the trade deficit

US trade deficits will have to be reduced to prevent a crisis down the road. Vijay Joshi and David Vines argue that fiscal consolidation, in association with a weaker dollar, appears to be the right way for the US to improve its trade balance

One does not have to be a Trumpist to believe that the large and persistent trade deficits of the US need correction. In 1980, the US was a net creditor to the rest of the world by an amount equal to 20% of GDP. In 2025, it is a massive debtor. US external debt is now 90% of GDP and rising unsustainably (Bayoumi and Gagnon 2025).

Trade deficits will have to be reduced materially to prevent a crisis down the road. The question arises: how best could Trump have achieved this objective when he took office? This is a non-trivial question in counterfactual history.

We think that for any such policy, the starting point must be fiscal consolidation. Such fiscal consolidation could be combined with either tariffs or with a currency depreciation. The latter would be better. But in the case of the US such a currency change could only be achieved in the presence of some kind of 'Mar-a-Lago currency accord'.

Some observers have been calling for fiscal consolidation and others have been arguing for a 'Mar-a-Lago accord'. The contribution of this column is that we identify a need for both approaches. Thus, our column is in the same spirit as the articles by Obstfeld (2025) and Clarida (2025). We develop our argument by going back to the ideas in James Meade's book on the balance of payments (Meade 1951), as set out by Trevor Swan, and as developed by Mundell, Fleming, and Dornbusch.

Trump has imposed tariffs on US imports to improve the US trade balance. But tariffs without concomitant macroeconomic retrenchment would not do this. If the exchange rate is floating, as in the US, tariffs tend to *reduce* exports. This is because the reduction in demand for imports would tend to strengthen the exchange rate directly; and exchange rate appreciation is also likely since the rise in interest rates caused by higher domestic economic activity would lead to higher capital inflows.

Moreover, the central bank is likely to reinforce the rise in interest rates in response to the tariff-induced rise in the price level. In a fully employed economy such as the US, the success of tariffs as a policy to switch demand towards domestic goods is thus conditional on there being sufficient fiscal contraction to make room for the extra demand for domestic goods. (Note that the US dollar has in fact depreciated.)

It appears that fiscal consolidation in association with a weaker dollar, is the right way for the US to improve its trade balance

Needless to say, this is because of the chaotic manner in which Trump's tariffs were introduced, which created huge uncertainty, reduced the incentive to invest, raised the risks of a US recession, and created doubts about US creditworthiness.)

Currency depreciation is an alternative way to switch demand towards domestic goods and improve the trade balance. But that too requires fiscal consolidation. If the exchange rate is floating, the only way to bring about a currency depreciation without causing inflation is if there is also – at the same time - a fiscal contraction.

That is because in a fully employed economy, the central bank will only be prepared to reduce interest rates if there is, at the same time, some kind of fiscal tightening. Given that the currency is floating, such a depreciation of the currency will divert demand away from imports and stimulate demand for exports, replacing the demand for domestic goods which has been reduced by the fiscal consolidation.

There are other, less conventional ways to weaken the dollar – for example, by taxing capital inflows (Pettis 2025, Pettis and Hogan 2024, Tett 2025) – but these would be inadvisable. Interfering with the market for government securities would run the risk of destroying confidence in the dollar as a safe haven. That would certainly damage dollar dominance in the longer term and, even worse, might lead to an immediate financial crisis.

So, both tariff increases and currency depreciation require fiscal consolidation if they are to be used as a policy that switches demand towards domestic goods and so improves the trade balance. But tariffs are likely to be worse than currency depreciation as a form of expenditure-switching policy. There are at least four reasons for this (Dornbusch 1987, Bordo and Levy 2025, Baldwin 2025a, 2025b).

First, a tariff acts on imports alone, while a currency depreciation acts both to reduce imports and to increase exports.

Second, tariffs bring with them efficiency costs in that US consumers pay more to obtain goods at home than from cheaper sources abroad (and the higher the tariff, the larger the cost).

Third, a tariff on imports is likely to lead to a reduction in the profitability of exporting, to the extent that protected import-competing goods are inputs into the production of exports, reducing the degree to which the expenditure-switching policy will be successful.

Finally, the US economy may become less productive over time as a result of import-competing firms being sheltered from foreign competition.

Of course, a tariff will cause foreigners to supply their exports at a cheaper price, especially for a large country such as the US, thereby improving the US terms of trade. This 'optimum tariff' argument has long been recognised as valid from a purely national perspective. (The height of the optimum tariff depends on the degree of market power possessed by the tariff-imposing country.)

Nevertheless, all tariffs, including optimum tariffs, hurt trading partners and therefore invite retaliatory action by foreign policymakers. A trade war is virtually certain to bring large losses all round, including to the tariff-imposing country (in this case, the US).

It appears, therefore, that fiscal consolidation in association with a weaker dollar, is the right way for the US to improve its trade balance.

Despite what we have just said, there has been a tendency to assume (eg. Pettis and Hogan 2024, Pettis 2025) that the US is powerless to resist a flood of excess savings from China and other surplus countries. Martin Wolf (2025) has also argued along similar lines:

*“The analysis suggests that the benefit to the US of its persistent net capital inflows is the ability to have a larger fiscal deficit and so grow its public debt. This does not look like a good bargain. **But if the government cut its deficit, while the external inflow continued, the outcome could be to drive the private sector into deficit, either via a slump in its income or a surge in its spending. The former means a recession. The latter means asset price bubbles...**”* (our highlights).

In Wolf’s view, US fiscal policy needs to remain expansionary in order to prevent the unemployment that would ensue from the deflationary impact of excessive savings in China and elsewhere.

We disagree. Our answer is that an external inflow to the US would not continue at the previous level because of the fall in US interest rates which we have described above; it is this fall in foreign inflow which would enable the fall of the dollar. Our view is thus that an appropriate fiscal/monetary policy mix could deliver some improvement in the US trade deficit even if the US acted unilaterally in the way that we have described.

Nevertheless, since the US is a large country, it is important to analyse the effects of US action on the rest of the world, and to consider how foreign countries might respond. The best – globally cooperative – outcome would be one in which there is an expansion in aggregate demand in China – and in some other surplus countries – at the same time as there is fiscal consolidation in the US.

In that case, extra demand from China and elsewhere would absorb the excess of exports over imports from those countries to the US – which is what has been enabling the US to run a trade deficit in the first place. And in that

case the depreciation of the dollar would also ensure that, within the US, demand switched from the purchase of imports to the purchase of home-produced goods, thereby sustaining the demand for such goods even although there had been fiscal consolidation.

No unemployment of resources would emerge, either in the US or anywhere else. The need for a cooperatively agreed outcome of this kind is what a 'Mar-a-Lago accord' should seek to achieve, which is why such an accord is needed. The idea of some kind of Mar-a-Lago accord thus has to be taken much more seriously than it has been, by, for example, Paul Krugman (Krugman 2025).

This is sort of outcome which the US should pursue, rather than attempting to sustain the demand for home-produced goods by means of a fiscal policy which remains expansionary, or indeed by means of tariffs. A flood of imports into the US is not inevitable. But it can only be avoided if there is global cooperation of the kind which we have described.

Of course, such cooperation may not be forthcoming. If the US were to act on its own, without a contemporaneous expansion of aggregate demand abroad, the outcome would, indeed, be a slump in demand and output in the US. This would then be spread abroad by a reduction in the US demand for imports. Such deflationary effects on foreign countries would be amplified by the depreciation of the dollar which the US policy was seeking to bring about.

In these circumstances there would, of course, be a danger of foreign retaliation. Currency wars are possible, just like tariff wars (Corden 1994: Appendix 13.1). The Chinese monetary authorities – and those in other countries – might resist the depreciation of the dollar, sending the effects of fiscal austerity straight back to the US, in the way that is feared by Wolf and Pettis. This is the outcome which it is crucial to avoid.

How might the world actually achieve the kind of orderly international adjustment which we have described, thereby avoiding a currency war and currency chaos? In particular, how might a weaker dollar be sustained in the face of the likely monetary policy reactions of trading partners?

Any dollar depreciation that is large enough to reduce the US trade deficit materially (say, 33%) would have significant foreign repercussions. The reactions of key countries, such as China, Japan, and the euro area, would be critical. Here it is relevant that ever since the amendment of the IMF Articles in 1987, the world has had a 'non-system' of exchange rates, in which each country can have any exchange rate regime of its choice (Corden 2004).

Imagine, therefore, that China and Japan shadow the US dollar in response to a dollar depreciation. Adjustment would obviously be impeded. (Note that both these countries have resisted floating at various times in the past – China systematically and Japan sporadically).

Moreover, since most of the adjustment would then be forced on to the euro area, Europe would also have good grounds to resist. That is a recipe for economic chaos. A material reduction in the US trade deficit would thus require macroeconomic cooperation between the key countries. (Countries in the rest of the world would be likely to shadow one or other of the key currencies.) The good news is that the appropriate direction of policies in the medium run is clear enough, given the macroeconomic positions of the countries in the accord.

In the US, there would have to be fiscal contraction and monetary expansion. In China, measures would be required to increase public and private consumption (not investment), combined with exchange-rate appreciation (Gourinchas *et al* 2024). In Japan, measures to increase household and corporate consumption are called for, along with monetary tightening. In the euro area, there would need to be measures to increase public and private spending (on both consumption and investment), together with tighter monetary policy.

The bad news is that the appropriate medium-run direction of policies may conflict with various short-term considerations. This is clearly true of fiscal consolidation in the US, but the point is more general than this. Richard Clarida argued recently that the Plaza accord of 1987 was only successful *because* it involved a cooperative policy adjustment of this kind (Clarida 2025). He is surely right.

Finally, how would the foregoing considerations affect dollar dominance? It is pertinent to note that exchange rate changes in the dollar so far (including dollar depreciations) appear not to have made much difference to dollar dominance. However, these exchange rate changes have been largely market-determined. What if, as above, the dollar depreciation is brought about by deliberate policy?

We suggest that, at the present conjuncture, dollar dominance is much more at risk from the inexorable build-up of US public and external debt. If dollar depreciation and associated exchange rate appreciations were explained to the market as designed to help reduce global imbalances and thereby put the world economy, including the US, on a more stable macroeconomic footing, this is likely to be accepted by the market as a necessary move. Changes in currency dominance will nevertheless happen over time, but they will be gradual, not sudden (Eichengreen 2025).

Of course, this approach is a far cry from Trump's actual policy, and from the policy advocated by his advisors. But it would have had a much greater chance of working out well for the US economy, and the world economy. ■

Vijay Joshi is Emeritus Fellow of Merton College and David Vines is Emeritus Professor of Economics and Emeritus Fellow of Balliol College, at the University of Oxford

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The financial sector and global dollar system



The US administration has a new approach to financial markets. Gary Gensler, Lev Menand and Joshua Younger catalogue the relevant policy shifts and consider how these shifts may impact financial stability, capital markets, and the global dollar system

The second Trump administration's approach to financial markets and institutions mixes familiar deregulatory policies with a range of other policies (financial and non-financial) that are largely without precedent and may lead to significant structural change in the long term. Combined, these policies have the potential to affect the financial sector in at least four ways.

First, they could threaten the foundations of the global dollar system – mutual cooperation, trust, and interdependency, both between the producers and consumers of financial instruments and among the nations that constitute the dollar bloc. Second, they may undermine financial stability by loosening prudential standards, especially with respect to limits on leverage. Third, they can jeopardise consumer and investor confidence by relaxing regulatory standards and lessening financial law enforcement. Fourth, they could frustrate the financial crimes and sanctions regime, notably by promoting stablecoins, which can be used beyond the reach of governments to enable various forms of illicit activity.

These effects, in turn, could have a negative impact on the economy in the medium to long term. They raise the risk of financial instability and a messy deleveraging. They also may put upward pressure on interest rates for public and private dollar-denominated debt. Although the global dollar system has proven robust to past disruptions, and remains well entrenched, the administration's new stance, if pursued to its logical end, could increase financial fragility and impair capital formation.

If that comes to pass, a future exogenous shock to the economic or financial system would pose significant risk to economic growth if policymakers are unable, in the face of such a shock, to come together swiftly to avert a disorderly monetary contraction.

This article proceeds in two parts. First, it catalogues the relevant policy shifts that are likely to affect the financial sector. Then it considers how these shifts may impact financial stability, capital markets, and the global dollar system.

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Policy shifts

In its first hundred days, the second Trump administration has taken a range of steps that directly affect the financial sector. They also have taken other steps (not directly related to finance), particularly in relation to international alliances and the administrative state, which may, in the long run, have significant effects on the financial sector. Some steps are of the sort that often follows a change in party control in Washington.

For example, the administration has adopted deregulatory and de-supervisory approaches to banking and markets frequently pursued by prior Republican administrations. Other steps, however, are more dramatic. For instance, the administration has asserted presidential supremacy over financial regulatory agencies, undermined central bank independence, and disrupted US relations with historic allies, all in ways with little to no precedent.

Deregulation

Banking

The core framework for the prudential regulation of US banks is provided by an international agreement known as the Basel Accord. Formed in the wake of a major international banking crisis in 1974 (Braun *et al* 2021)¹, and championed by the United States, Basel was created to level the playing field for dollar-denominated banking around the world. That, it was hoped, would forestall a race to the bottom in regulatory standards that could fuel dollar-based financial bubbles and ultimately precipitate acute monetary contraction.

Towards this end, the latest agreement, known as Basel III, was introduced in 2010 in response to the Global Financial Crisis. It was designed to significantly reduce leverage at global banks and tighten equity and liquidity requirements on the largest, most systemically important institutions.

The new US administration is now considering stepping back from the Basel framework. For the last several years, banking regulators have been working on the final round of rule changes associated with the Basel III agreement known as 'Basel III endgame'.

This April, Secretary of the Treasury Scott Bessent questioned whether it made sense to continue with those changes. Instead, he told a group of bankers that *"we could borrow selectively from them"* to the extent that *"they can provide inspirations."* And more generally, Bessent asserted that *"[w]e should not outsource decision making for the United States to international bodies."* *"Instead, we should conduct our own analysis from the ground up to determine a regulatory framework that is in the interests of the United States"* (Bessent 2025a).

The administration so far has suggested several changes to banking regulation that deviate noticeably from current Basel standards. Most notably, it has questioned the current calibration of the limit on bank leverage (the 'leverage ratio'). Secretary Bessent has criticised it as *"too frequently binding"* (when compared to risk-based capital rules) (Bessent 2025a).

He also has recently floated excluding Treasury securities from consolidated measures of leverage, which would be at odds with current Basel standards (Tarullo 2023). The Office of the Comptroller of the Currency (OCC) also has rolled back stricter merger review policies for national banks and federal savings associations (rescinding a 2024 policy statement and amending, without notice or comment, a 2024 final rule).

Consumer and investor protection

A similar liberalising push is apparent in other areas of financial regulatory policy. Most notably, the administration has nearly shuttered the Consumer Financial Protection Bureau (CFPB). Established as an independent federal agency by Congress in response to the 2008 financial crisis (as part of the Dodd–Frank Wall Street Reform and

Consumer Protection Act of 2010), the CFPB was intended to better protect American consumers from fraudulent and deceptive practices in the offering of financial products.

As Rohit Chopra, who ran the agency under President Biden, [recently put it](#): “At its core, *[the CFPB] is a law enforcement agency. It takes big financial institutions to court who cheat consumers, whether it’s a credit reporting agency or a large bank or a credit card giant.*”

Various lawmakers have been attempting to defund and disable the CFPB since its founding (Sitaraman 2021), and the first Trump administration sharply curtailed its enforcement actions (Peterson 2019). But the new administration has functionally dismantled the organisation, slashing its funding, firing the vast majority of its staff and leaving it without a dedicated leader (see Chapter 8 by Neale Mahoney).

Investor protection is also facing reversals. To date, the Securities and Exchange Commission (SEC) has delayed implementation of new rules related to Treasury markets mandating clearing for much of the Treasury market (SEC 2025; see also Yadav and Younger 2025). The SEC also has indicated a desire to make it easier for retail investors to invest in private funds (“*Such higher-risk, higher reward investments can help complete a diversified portfolio*”) (Uyeda 2025).

The new administration also has rapidly embraced cryptocurrencies. In his first week in office, President Trump signed an Executive Order designed to fashion the US into the “*crypto capital of the world.*” In March, the White House announced a Strategic Bitcoin Reserve and a US Digital Asset Stockpile. In April, the Department of Justice announced that it would disband its National Cryptocurrency Enforcement Team. Also in April, the new SEC Chair gave his first speech to a crypto roundtable, stating his view that the rise of cryptocurrencies would help to “*modernize aspects of our financial system*” (Atkins 2025).

Presidential supremacy over regulators

The White House also has asserted unprecedented claims to control government agencies including the financial regulators (see Chapter 3 by Gensler and Menand in this volume). These regulators have long benefited from significant autonomy from White House staff, especially in formulating legislative rules such as capital and liquidity requirements (Congressional Research Service 2023).

Under the administration's new policy, financial regulators will have to submit all proposed rules for review to the Office of Information and Regulatory Affairs (OIRA) in the White House, which can reject those proposals by declining to pass them back to the agencies for promulgation.

President Trump also has claimed the power to remove financial regulators at will, despite statutory language barring the president from removing them except for cause. This change may result in partisan domination of previously balanced multimember commissions such as the Federal Deposit Insurance Corporation (FDIC), the SEC, and the Commodities Futures Trading Commission (CFTC).

Further, the downsizing of agencies along with changes to civil service protections are likely to reduce policymaking capacity, lowering the expertise and experience of their staffs.

Central bank independence

In an even sharper break from recent administrations, the White House has attacked the legal foundations of central bank independence in the United States. In a recent [Executive Order](#), the administration has asserted power to control the regulatory and supervisory functions of the Federal Reserve. While the Executive Order disclaims the power to control 'monetary policy', this distinction may not end up amounting to much.

After all, the regulation of financial institutions is monetary policy, and a White House determined to relax monetary conditions could effectuate such a policy through changes to the rules governing bank balance sheets².

The administration also has shown little regard for monetary policy autonomy. On multiple occasions, the President has publicly called for a more accommodative stance. For example, in May he wrote: *"With these costs trending so nicely downward, just what I predicted they would do, there can almost be no inflation, but there can be a SLOWING of the economy unless Mr Too Late, a major loser, lowers interest rates, NOW."*

By statute, the president is permitted to remove Federal Reserve governors only 'for cause'. The new administration has called this limit into question, however, at several points. For example, in April, the President said that *"Powell's termination cannot come fast enough!"* The President also subsequently stated that *"if I want him out, he'll be out of there real fast, believe me."*

The President already has fired a half dozen officials on multi-member commissions similar in structure to the Federal Reserve (see Chapter 3). Further, these statements about having the authority to remove Chair Powell are consistent with legal positions the administration has already staked out in court.

Although legal observers have questioned whether the Supreme Court would accept an attempt by the President to ignore 'for cause' removal provisions in the Federal Reserve Act (allowing the president to remove Federal Reserve governors at will), the President also has made statements suggesting that he may have cause to remove Chair Powell.

For example, the President said: *"I don't think he's doing the job. He's too late. Always too late. A little slow and I'm not happy with him. I let him know it."* Though the President has subsequently said that he was not going to remove

Chair Powell, these comments at the time may have been in an effort to lay the ground for 'neglect of duty' and 'inefficiency' – two recognised 'for cause' removal grounds (Manners and Menand 2021)³.

Stablecoins

The administration's stance toward stablecoin issuers is of relevance to the monetary system. Stablecoins are digital assets designed to maintain a constant value relative to more traditional currencies. By far the most common application has been to mimic a US dollar. This is typically achieved by holding short-term, low-risk US dollar-denominated securities and bank deposits in a 'reserve fund'. Stablecoin tokens are 'minted' when funds are deposited; they are 'burned' when holders ask for their fiat currency back (subject to restrictions after being redeemed, either for currency or in kind) (Gorton and Zhang 2023).

The stated goal of stablecoin issuers is to create 'on-chain' dollars which are imbued with all the technological advantages of cryptocurrencies but maintain access to the payments and economic networks used by more traditional monies. Practically, they have offered people a way to move dollars outside of the banking system via transfers on permissionless (ie. open) blockchains.

They initially were created because many cryptocurrency intermediaries were unable to get bank accounts due to their inability or unwillingness to sufficiently comply with anti-money laundering requirements. Their primary use, by far, has been within the crypto trading and lending ecosystem. At present, the size of the market is between \$200 and \$250 billion and is dominated by two issuers, Tether and Circle.

An Executive Order released days into the new administration called on federal agencies to “[take] actions to promote the development and growth of lawful and legitimate dollar-backed stablecoins worldwide.”⁴ Congress is currently considering legislation that would provide a legal framework for banks and nonbanks to issue stablecoins.

In May 2025, the US Senate voted to debate a bill which, if enacted, would regulate stablecoin issuers operating in the United States. It would require issuers to back reserves at least one to one with highly liquid short-term assets (eg. Federal Reserve liabilities, Treasury bills, repurchase agreements, and demand deposits at federally regulated commercial banks), not pay interest, and confirms that such issuers are financial institutions under the Bank Secrecy Act.

These steps address a number of issues raised during the Biden administration. (President's Working Group Report on Stablecoins *et al* 2021) As the legislation would address stablecoins issued or sold only in the United States and stablecoins could still be transferred on permissionless ledgers, it leaves open their overseas use outside of the money laundering laws.

In a separate set of developments, the US Treasury Department announced that it has removed the requirement that US firms comply with Congressionally mandated beneficial ownership data collection. This had been an important initiative by Congress and prior administrations to fill holes in entity ownership information to best enforce anti-money laundering and sanctions laws.

International alliances

In its opening months, the new administration has taken an aggressive stance towards historical allies. The White House has challenged the sovereignty of independent nation states including Greenland, Panama, and even Canada. It has terminated longstanding international programmes such as USAID. Through the imposition of tariffs that are in many cases prohibitively high, it has upended a global trading system that has been in place for generations.

In recent months, market observers have raised concerns that the administration's adversarial posture might affect the future reliability of Federal Reserve central bank liquidity swap lines. Central bank liquidity swap lines are a key element of the existing global dollar system. These swap lines, often referred to as simply FX swap lines, are standing arrangements between the Fed and foreign central banks to lend dollars against foreign currencies.

They date back to 1962 when they were first used to stabilise offshore dollar markets as well as for exchange rate management (McCauley and Shenck 2020)⁵. Large-scale provisioning of offshore dollar liquidity using the swap lines proved essential in the Global Financial Crisis (Fleming and Klagge 2010) and Covid pandemic (Choi *et al* 2021).

Financial and economic consequences

The new administration's policy direction may have a range of possible financial and economic consequences including undermining the global dollar system, increasing risks to financial stability, reducing consumer and investor protections, and weakening controls on illicit financial activities.

The global dollar system

The global dollar system is an extensive and complex network. It is the product of a political project begun after World War II to build an international economy centred on the US dollar. This project, carried on by presidents of both parties, produced deep and liquid global capital markets and bank-based payment systems run on dollars as the international 'key' currency (Mehrling 2002)⁶.

Its stability depends on the confidence of a wide variety of participants. That confidence ultimately flows from governments, and particularly the willingness of those governments to cooperate amongst each other and, to some extent, sacrifice some of their own sovereignty in the interest of the collective whole. As one former Secretary

of the Basel Committee on Banking Supervision once put it: *“Global financial stability is a public good.”* Governments cooperate not to check each other but to provide this public good by checking the markets.

Many of the second Trump administration’s moves threaten to erode the trust that undergirds the system (Rogoff 2025). The first and most consequential [area of concern](#) is an uncertainty regarding the current administration’s willingness to backstop global dollar liquidity.

Although nothing concrete has been made public, the adversarial posture of the administration toward historical allies has led some to question whether, due to a combination of domestic political considerations and geopolitical brinksmanship, the swap lines may not be available or not active in time to avoid damaging scenarios in a future financial crisis (McCauley 2025)⁷.

The FX swap lines are not just a crisis fighting tool, they are critical to confidence in the global dollar itself. In the same way that federal deposit insurance and access to the Federal Reserve’s discount window are critical to ensuring the safety and interoperability of the \$20 trillion bank deposits issued by the US banking and credit union systems, the swap lines smooth out and lubricate the daily operations of dollar-issuing banks and the over \$12 trillion in Eurodollar deposits across the world.

In other words, the stability of the global dollar system as presently constituted rests on the uninterrupted and mostly unconditional access to US dollar liquidity⁸. This element of the global dollar system is often overlooked, due to the perceived pre-existing commitment of the Federal Reserve and the US government to offer it when needed.

This may be a reflection of military and political alliances that have themselves, until this administration, also been considered as firm commitments. Without reliable and timely access to emergency dollars, the next global crisis

would be significantly more severe (Ricks 2016). Even if participants in the global dollar system were to come to believe emergency liquidity might have political strings attached, it could potentially precipitate a crisis in the first instance.

Stepping back from the Basel Accord also could have negative repercussions for the global dollar. The Accord may not always be popular with each of its participating countries. International agreements rarely are. But they have proven effective at fostering a congruent set of principles to safety and soundness regulation – a key element of maintaining confidence in the global dollar system without requiring depositors to be fully versed on the intricacies of each local banking system.

Without it, the global dollar system could come to resemble the ‘free banking era’ of the 19th century in the United States, when substantial regional variation in bank regulation was a major impediment to the free flow of capital and, ultimately, a material drag on economic growth (eg. Sprague 1910, Jalil 2015).

In that vein, Secretary Bessent’s comments and the broader posture of the administration represent a potentially worrisome departure from prior norms. While the United States, under prior administrations, has not implemented all of the recommendations of the various Basel Accords, it has generally made a good faith attempt to incorporate the spirit of those standards⁹.

If the United States were to deviate significantly from international standards, it is plausible that other countries may feel both license and competitive pressure to abandon them as well. The frequent panics and rampant instability of the United States’ antebellum banking system still serves as a valuable lesson for those who might consider going down that road.

That said, to date the administration has taken few concrete steps toward changing regulatory standards. One exception of great relevance internationally is the potential for changes to the implementation of Basel III in the United States. The devil will be in the details. Modest deviations from international standards are commonplace.

More substantial changes, however, could contribute to the unravelling of international economic and financial cooperation. Such an unravelling could, in turn, trigger a global deregulatory unwinding that could be difficult to stop.

Among other things, the global system allows the US government to borrow at lower interest rates and supports robust economic growth (Levine 2003); a shift to other currencies and away from dollars could reverse these effects over time.

Financial stability

The administration's relaxation of regulatory standards has the potential to increase risks to financial stability by contributing to the buildup of additional leverage across the financial system over time.

That large financial institutions do not internalise the costs of their failure on their creditors and the economy at large can skew their incentives to adopt high leverage. To the extent that leverage is a binding constraint on a given institution, loosening those requirements without counterbalancing adjustments to equity requirements will therefore lead to lower capital levels.

De-supervision – policies that reduce the intensity of stress tests and oversight by examiners – also may lead to increased regulatory arbitrage, including actions geared toward achieving greater synthetic and on-balance

sheet leverage. A similar dynamic preceded the 2008 financial crisis, where a rollback in discretionary supervision facilitated firm behaviour that undermined the efficacy of bright-line rules (Menand 2018).

Increased reliance on leverage has been associated with fragility in Treasury markets (Kashyap *et al* 2025). More recently, the bank runs in 2023 were associated with de-supervision and deregulation of mid-sized banks and significant undercapitalisation (Hoenig 2023).

Presidential supremacy over financial regulators also could threaten financial stability over the medium to long term. This is because greater White House control over regulatory policy could favour financial actors seeking to arbitrage rules and, on the margin, could hamstring regulators seeking to prevent evasion.

Enforcement, especially by markets regulators, could drop. More highly resourced and politically favoured actors may benefit disproportionately. Further, the pace of rulemaking is likely to slow, with White House deregulatory goals prioritised.

Consumer and investor protection

Relaxed regulatory standards, as well as the shrinking of policymaking and enforcement capacity at financial regulators, is likely to put consumers and investors at greater risk.

What will happen to the enforcement authority the CFPB previously exercised is, as yet, uncertain. Though the new administration has suggested that these authorities should be transferred to other regulators, it is unclear if they will be and if so, how effectively or efficiently they will be used.

Legal protections, whether they are provided by the CFPB, SEC, CFTC, or others, are intended to provide investors and consumers with assurances that they can make informed decisions free of fraud and misleading information about risks, investments, and products. Although state regulators are primed to step into part of the breach, history suggests that only rigorous federal enforcement can provide sufficient protection. In the long run, the associated lack of confidence could harm risk appetite and capital formation more generally.

Another key area of focus of changed policy has been regarding crypto assets. The new administration has made clear that it intends to actively promote the development of crypto assets. That may leave investors more exposed to the kind of fraud and abuse revealed in these markets.

Financial crimes, illicit activities, and sanctions

The efficacy of guarding against illicit activities and enforcing sanctions depends upon the use of the dollar as the international key currency. Businesses worldwide use dollars for most large crossborder and domestic payments. That privileged position has allowed the United States and its allies a degree of control over critical nodes in financial payment networks (ie. chokepoints) as well as an invaluable informational advantage (ie. a panopticon; Farrell and Newman 2019).

As a result, in recent decades, financial sanctions have emerged as a key tool for advancing US interests through non-military means (Mulder 2021, Fishman 2025). National security policymakers have used sanctions to bloc problematic transactions, individuals, corporations, and even entire countries from parts of the global economy.

Stablecoins, however, can undermine the United States' ability to guard against illicit activities and promote national security policy (Massad 2024, Rauterberg and Younger 2024)¹⁰. As transactions involving these tokens settle outside of the banking system and are pseudonymous, stablecoins are well designed to evade authorities.

At the moment they are relatively small – less than half of 1% of the more than \$45 trillion in US dollar monetary instruments circulating globally (Gensler 2024) – and, as mentioned, they are mostly used within the crypto trading and lending ecosystem. Like many digital creations, though, stablecoins have the potential to grow quickly. Already, some cryptocurrency companies are offering a way to hold stablecoins while earning interest (among the biggest competitive disadvantages at present with other monetary instruments).

Secretary Bessent recently cited expectations that stablecoins could grow to more than \$2 trillion in just a couple of years (Bessent 2025b). This figure presumably reflects the anticipated effects of the administration's advocacy, including *"promot[ing] the development and growth of lawful and legitimate dollar-backed stablecoins worldwide."*¹¹

(A new stablecoin issued by World Liberty Financial, an organisation majority owned by the President's business interests, already exceeds \$2 billion.) Previously there were [significant hurdles](#) to stablecoins replacing bank deposits and other more traditional forms of currency in international trade and finance.

At the scale suggested by Secretary Bessent, however, in any jurisdictions in which stablecoins (or their affiliates) have the ability to pay interest, they could start to compete (although this introduces additional legal considerations; Birdthistle *et al* 2025). Were that to occur, the use of the global dollar-based banking system for sanctions and guarding against illicit activities could be degraded.

Even if the growth of stablecoins falls short of more enthusiastic projections, the administration is taking other steps that reduce the efficacy of financial sanctions. The US Treasury's recent announcements dropping requirements for new Congressionally mandated entity beneficial ownership reporting, for example, leaves a significant gap in the current tools for financial crimes and sanctions enforcement.

To the extent that this lowers the effectiveness of sanctions, it risks a destabilising shift towards more use of kinetic warfare rather than financial conflict.

Conclusion

The new administration is making policy changes that could pose long-term risks to the US financial system, including the global dollar architecture. Some of these are direct adjustments to financial policy, such as relaxing regulatory standards, reducing enforcement activity, and promoting nonbank stablecoins. Others are facially unrelated to the financial sector.

Most notably, the new administration has called into question traditional economic alliances and relationships and asserted unprecedented control over regulatory agencies. Incidentally, it is these more general changes that may have the biggest effects on the financial sector and by extension the economy.

Each of these shifts is still unfolding. None has yet done lasting damage to the dollar, financial stability, capital markets, consumer protection, or national security. The administration's actual and proposed actions, however, could eventually have significant impacts on each of these financial sector dimensions.

Mark Sobel, a former senior Treasury official, [recently warned](#): *"by weakening America's economic and institutional foundations, by not being a trusted partner, [the United States] is undermining the underpinnings of what has given rise to dollar dominance."* While there is, at present, no viable alternative to the US dollar, a transition away from key currencies to a more multipolar monetary system is certainly plausible.

By its actions and policy goals, the second Trump administration is potentially pushing and accelerating that transition. Similarly, degradation of our consumer and investor protections, our ability to combat illicit finance,

and checks on excessive leverage could contribute to future financial instability and higher cost of capital in the economy. ■

Gary Gensler is Professor of Practice, Global Economics and Management at the Sloan School of Management at Massachusetts Institute of Technology (MIT), Lev Menand is Associate Professor of Law at Columbia Law School, and Joshua Younger is Lecturer in Law at Columbia Law School

Endnotes

1. See also <https://www.bloomberg.com/news/articles/2025-01-16/the-hidden-history-of-eurodollars-part-3-spinning-out-of-control>.
2. The administration has also failed to clarify its stance with respect to lender of last resort activities, which play a critical role in preventing disorderly monetary contractions.
3. The president also has insinuated that Chair Powell is engaged in misfeasance, another recognised removal ground. (“Well, he should lower [interest rates]. And at some point, he will. He’d rather not because he’s not a fan of mine. You know, he just doesn’t like me because I think he’s a total stiff.”) It is hard to predict how courts would adjudicate a challenge following a removal by the president for cause, given the lack of recent precedent.
4. Executive Order 14,178, “Strengthening American Leadership in Digital Financial Technology”, The White House, 23 January 2025.
5. See also <https://www.bloomberg.com/news/articles/2025-01-15/the-hidden-history-of-eurodollars-part-2-defending-the-dollar-system>.
6. The key currency view of international monetary systems is often attributed to Charles Kindleberger, its most prominent advocate in the postwar years. This contrasts with a more multilateral approach championed by Robert Triffin and John Maynard Keynes.
7. See also <https://www.reuters.com/markets/after-tariff-shock-trump-may-weaponise-finance-against-allies-2025-04-04/>.
8. At \$13 trillion, the overseas dollar market is too big to rely on the domestic banking system alone (which is at most twice as large) (Gensler 2024).
9. A notable exception is the decision to exempt Treasuries and reserves from the Supplementary Leverage Ratio at both the bank holding and bank operating company levels in 2020. This was, however, done on a temporary basis and was specifically issued “[i]n light of recent disruptions in economic conditions caused by the coronavirus disease 2019 (COVID–19) and current strains in U.S. financial markets” (85 FR 20578, 14 April 2020).

10. Stablecoins threaten to undermine the efficacy of this “economic weapon” (Massad 2023).

11. Executive Order 14,17.

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Europe and its defence

Russia's expansionist drive reaches far beyond Ukraine. Patrick van Schie argues that European countries should grow up militarily within NATO, an organization that has operated with unmatched success at deterring the enemies of the free world

On the eve of the meeting between Trump and Putin in Alaska, Russian Foreign Minister Lavrov wore a remarkable T-shirt. His jacket was open just enough to reveal the letters CC, along with part of a letter before as well as after them. The full text undoubtedly read: CCCP, the Russian abbreviation for USSR.

This was not merely a nostalgic message but above all a deliberate threat: the current Russian regime seeks to restore dominion over the former 'Eastern Bloc' or, at the very least, over all territories that once belonged to the Soviet Union.

We want to gain control of all of Ukraine, Lavrov thereby (once again) indicated. But regarding Europe as a whole, the message that the Kremlin longs for the old Soviet empire directly affects at least ten current NATO member states: the three Baltic states, six former satellite states in Central and Eastern Europe, and Germany (as it now includes the territory of the former GDR).

Even if the Kremlin's ambitions were limited to reasserting control over the Soviet Union's former borders, the message would still be clear: after Ukraine, the Baltic states will be next. Estonia, Latvia, and Lithuania hardly needed reminding that they are on the Kremlin's 'menu'. Their centuries-long experience with Russian aggression and the trauma of half a century of communist oppression are deeply etched into their national consciousness. Other NATO members, however, would do well to realize that Putin's hunger for power extends far beyond the Donbas.

Many NATO states do indeed seem to have been awakened – after years of ignoring Putin's clear statements and failing to treat the Russian annexation of Crimea and its military meddling in eastern Ukraine as alarm bells. It was only the war that Putin and his allies launched against Ukraine in February 2022 that finally opened many eyes. Yet it remains to be seen whether Western politicians truly wish to recognize that Russia's expansionist drive reaches far beyond Ukraine.

An alternative lesson from the USSR era

That the Soviet Union was one of the last colonial powers, and that Russia has never accepted the decolonization that began in 1991. is something protesters in free countries, who demonstrate to incur colonial 'guilt' and 'colonial trauma', systematically ignore.

If Trump truly wants peace, he will at the very least have to commit troops himself. Until he is willing to send American forces to Ukraine, his peace initiative cannot be taken seriously

Russia, for its part, shows no sense of remorse; quite the contrary. But if Lavrov is fond of reminiscing about the 'good old days' of the Soviet Union, he might also reflect on other implications from half a century ago.

Back then, the Helsinki Final Act was signed. In it, the free West and the communist 'Eastern Bloc' agreed on principles such as freedom of conscience, religion, and the exchange of ideas and press. However, the communist signatories had no intention of honouring these principles. "*We are masters in our own house*", Soviet foreign minister Gromyko whispered reassuringly to Soviet leader Brezhnev, meaning: we ourselves will decide whether to observe these human rights.

The reason Soviet leaders accepted these (empty) promises on human rights was that they received something significant in return under what was called the *First Basket*: recognition of Europe's post-war borders and the solemn promise that these borders could only be altered peacefully and by mutual consent. This was the grand prize Brezhnev secured in 1975. But it is also an agreement that Putin and Lavrov flagrantly violate to this day.

When the Soviet empire collapsed around 1989-91, most regimes in Central and Eastern Europe underwent change, but borders mostly did not. Czechoslovakia split into two countries, but this was achieved without spilling a drop of blood and with the mutual consent of Czechs and Slovaks. The three Baltic states regained the independence and freedom violated in 1940, but their borders with the Russian rump state remained unchanged. By contrast, Putin's violent seizure and annexation of Crimea in 2014 was a unilateral act of aggression, constituting a breach of the Helsinki Final Act.

Any potential 'peace' between Russia and Ukraine that involved recognition of territories seized by the former from the latter – which, as I write this about a week after the Alaska summit, is still unforeseeable – would ipso facto constitute a violation of the Helsinki Final Act. Because it would be a reward for brute aggression.

And it would send a disastrous signal to other nations: that one can get away with waging war against another country and violently seizing its territory, indeed that one can even profit handsomely from it. Aggression pays, that would be the message. A message that would not be lost on eg. Beijing or Pyongyang.

What kind of peace?

Trump is right that the further loss of life among Ukrainian and Russian soldiers is extraordinarily tragic. An end to the war would, in that sense, be a good thing. Of course, every war eventually comes to an end. But *how* it ends and *under what peace terms* makes all the difference.

A peace that amounts to surrender for Ukraine may be more unbearable than continuing the fight. Otherwise, the soldiers already killed or maimed will have been sacrificed in vain. Moreover, an independent existence in freedom is far preferable to a life of oppression and servitude.

The Americans, in 1776 and the years that followed, did not choose to continue living as a British colony, even though the rule of King George III was far milder than the predatory regime of Putin and his associates.

Moreover, it is a mistake to believe that such a peace would satisfy Putin. If the Kremlin is rewarded for committing aggression, it will only whet its appetite for more. The Russians will bide their time until a favourable moment arises to strike again, hoping that the Western world will have grown weary of the conflict and cease its support for Ukraine.

It is therefore understandable that Ukraine seeks security guarantees and is not content with mere promises. Promises from the Kremlin are worthless, but paper promises from Western countries are hardly better. The only

pledge that carries real weight for Ukraine is boots on the ground. They must come from nations capable of exerting substantial military force.

Several European countries currently seem willing to provide this. Yet it would be unwise if the military force guaranteeing Ukraine's security consisted solely of Europeans. Would this really deter the Kremlin?

Ultimately, only the fear of nuclear retaliation or of conventional superiority will prevent Putin and his circle from launching another attack. Only an American military presence in Ukraine constitutes credible deterrence for the Kremlin.

Without American forces, Europeans would face a grim choice in the event of renewed Russian aggression: stand by passively while Ukraine is attacked and pushed back again, or go to war with Russia themselves. Europe would then be thrust into a situation that has been carefully avoided since February 2022.

If Trump truly wants peace, he will at the very least have to commit troops himself. Until he is willing to send American forces to Ukraine, his peace initiative cannot be taken seriously.

EU ≠ Europe

Trump is also correct that many European countries have shamefully neglected their defence for years. But he is certainly not the first American president to raise this issue; the question of fair 'burden sharing' was already contentious during the Cold War. At its end, many European nations irresponsibly slashed their defence budgets under the naïve assumption that war on the European continent had become unthinkable. What was dismantled then must now be rebuilt, at far greater effort and expense than if proper defence capacities had been maintained.

At the NATO summit this June, member states committed to spending at least 5% of their GDP on defence in the future, of which 3.5% for the armed forces themselves and 1.5% for related matters such as infrastructure and digital security. Whether all members will honour this commitment remains to be seen.

In the 1970s and 1980s, several members paid scant regard to the obligation to allocate at least 3% of GDP to defence. Even the 2014 Cardiff pledge to spend a minimum of 2% was until recently flouted by a large majority of member states. The fact that notorious free riders such as Spain and Belgium opposed the new requirement right up to the NATO summit in The Hague is also telling.

Although additional defence spending currently enjoys relatively broad voter support, it takes courage for politicians to sustain this in the long term. The commitment made in The Hague will cost most member states tens of billions annually, to be raised either through (even) higher taxes or by cutting social spending or healthcare, as these are typically the largest budget items in most Western countries. How much support for additional defence spending will remain once the threat from Russia or other hostile states appears somewhat less urgent?

The European Commission in Brussels now seeks to position itself as the willing executor of this new defence agenda. It wants to give the European Union (EU) a strong defence arm. It would be unwise to allow this. There already exists a streamlined organization responsible for Europe's military defence: NATO. There is no need for duplication.

Moreover, European nations must do everything possible to keep the United States engaged in their security. And some defence tasks cannot be assumed by Europeans – or only after a very long time.

It is also inconceivable that Europe would build a nuclear deterrent comparable to that of the US, regardless of whether such an endeavour would even be desirable. Even if, in the long run, the United States were (unfortunately) to loosen its ties with Europe, it remains of utmost importance that non-EU members such as Canada, Norway, and the United Kingdom – which has Europe's most capable and experienced armed forces – continue to stand militarily and politically shoulder to shoulder with the EU member states.

Europe is much more than the European Union. The EU would do better to focus on core tasks on which it is underperforming: completing the internal market, restoring the health of the eurozone, keeping budget offenders (such as France and Italy) in check, securing external borders against the influx of illegal migrants, and so forth.

European countries must urgently grow up militarily. They should do so within an organization that, over its 75-year existence, has proven not only to be mature but also to operate with unmatched success at deterring the enemies of the free world. This organization is NATO. ■

Patrick van Schie is a historian and Director of the TeldersStichting, the liberal think tank of the Netherlands

Building European autonomy

Rule of law is not the enemy of autonomy; it is its foundation. Christine Lagarde says the EU can pursue its policy choices because they are framed by legal commitments that others recognise and respect

One of the defining questions of our time is how can Europe advance its autonomy while remaining committed to multilateral cooperation and the rule of law? There are many ways in which Europe is trying to build its capacity to respond to the major challenges of our era – whether in the area of defence, the economy or technology. Yet I understand that behind these specific issues lie deeper questions that cut across them all.

Three key questions come to mind. First, how is ‘European autonomy’ defined in EU law in particular? Second, how can the EU’s pursuit of geopolitical and geoeconomic autonomy coexist with its commitment to multilateral cooperation? And third, how do rule-of-law norms relate to the independence of central banks in today’s world?

The definition of European autonomy

Autonomy can mean many things, and different people use the term in different ways. Most would agree, however, that autonomy is about Europe’s ability to act collectively, guided by its own values and interests.

We are at a global juncture where autonomy – or sovereignty, to use another term – is making a comeback as a central organising principle of international affairs. Yet the European model of autonomy seems to me to be distinct from others in two important respects.

First, European autonomy is *collective* autonomy. It is not the autonomy of a single sovereign state, but of a group of member states that have pooled some of their powers and exercise certain public functions together through common institutions. In other words, European autonomy is autonomy without a conventional state-type sovereign. Autonomy exercised through EU institutions under EU law is a form of shared sovereignty projected onto the world stage.

This, of course, poses challenges. In the EU, action on a global scale requires unanimity, or at least broad agreement, in the form of majority voting, which can sometimes be slow and cumbersome. And for some, this might appear to be a weakness. But Europe's constitutional order is based on checks and balances, and this also applies to autonomy-building. European autonomy is based upon competence-sharing under the Treaties, compromise and a commitment to follow rules that include and balance different perspectives.

European autonomy means acting decisively and collectively on the world stage to uphold our values and interests. Multilateralism means doing so in concert with others, under shared rules and through trusted institutions

Second, the EU – more so than other major powers – has tied its autonomy to commitments made under international law. The Treaty on European Union makes this abundantly clear, stating that in its relations with the wider world, the EU must contribute to *“the strict observance and the development of international law.”*

Even in creating space for itself to make autonomous choices on the international scene, the EU and its member states remain bound to their international legal commitments.

In financial and trade matters, this translates into respecting international agreements – whether International Monetary Fund (IMF) programmes or Basel Committee standards – and seeking out cooperative multilateral solutions within established legal frameworks, such as the World Trade Organization.

Squaring European autonomy with multilateralism

But this brings me to my second question: is this definition of European autonomy not increasingly contradictory? At first sight, reconciling autonomy with international law and multilateral cooperation looks like a paradox.

On the one hand, the EU, like other major powers, wants to defend its interests and act decisively. On the other, it wants to remain integrated with an international rules-based system. But I believe that law can align these two central notions, autonomy and cooperation, without compromising either.

First, autonomy can be exercised in a way that is both flexible and bounded. Autonomy-building inevitably involves high-level political judgements. Law in these areas is not always black and white. Rules have exceptions, and their interpretation requires careful attention to their purpose.

Legal advisers know this well: law provides for discretion to policymakers but also sets outer limits. Respecting those limits – the ‘red lines’ set by EU and international law – is essential if autonomy is to remain anchored in the rule of law.

Second, international law is itself co-determined. In shaping and exercising its autonomy, Europe – or any other jurisdiction – cannot unilaterally define what international law means and expect others to follow. But, where necessary, we can advocate for reforms that reflect new global realities. The key point is that our interpretations must be part of a global conversation.

Engaging with other perspectives is a necessary part of building a truly multilateral order – even one that gives countries more space to pursue ‘sovereign’ economic policies.

International rule of law, cooperation and central bank independence

Now, since we are a central bank, we have to mention central bank independence! But bringing independence to the table is more than a central banker’s reflex. I believe that central bank independence perfectly illustrates the model of autonomy I have been outlining.

Autonomy does not mean unbound power. Independent courts, specialised agencies, a free press – these all belong to the infrastructure of constitutional democracy as the essential checks and balances of public authority. And so do independent central banks.

Independence is, at its core, a rule-of-law guarantee. By committing to independence in law, countries around the world secure credibility for their monetary policy. And as we have seen on several occasions, that credibility

ultimately affords greater autonomy to central banks – allowing, for example, policy tools to be adopted during crises without de-anchoring inflation expectations¹.

In Europe, the EU Treaty explicitly protects the ECB and national central banks from political instructions. Beyond the EU, the IMF promotes central bank independence, sometimes making it an explicit component of financial programmes. Independence thus becomes not only a domestic legal rule, but also a feature of the international financial rule of law – a condition for trust among states, markets and institutions.

And this trust is also the basis of cooperation between central banks themselves. Central banks work together on the assumption that each one of them remains mandate-driven and protected from undue political interference.

Of course, independence does not mean immunity from accountability. The rule of law demands transparency, responsibility and clear mandates. In Europe, the Treaties provide mechanisms to ensure that independence goes hand in hand with accountability.

Conclusion

European autonomy means acting decisively and collectively on the world stage to uphold our values and interests. Multilateralism means doing so in concert with others, under shared rules and through trusted institutions.

Far from being opposed, the two reinforce one another. Back in 1989, at another critical juncture, Jacques Delors called for Europe to be *“powerful enough to command respect and to promote our values of freedom and solidarity.”*²

The rule of law is not the enemy of autonomy; it is its foundation. The backbone of autonomy in a civilised world is the rule of law. Consider the ECB: its independence, grounded in treaty law, gives Europe and its currency credibility and strength.

More broadly, the EU can pursue its policy choices effectively precisely because they are framed by legal commitments that others recognise and respect.

The success of European autonomy should not be judged by how much Europe can do alone, but by how much and how well it can build and sustain the multilateral order. If the EU can stand on its own feet – technologically, militarily and economically – it will be a stronger partner. And its commitment to law and cooperation will enhance its legitimacy and impact.

Let us remember that our laws are bridges, not walls. Their purpose is not to isolate, but to bind member states together internally and bind Europe to the wider world externally. The challenge before us is to remain bold yet collaborative, independent yet interdependent. And if we see it like this, the challenge may serve as an opportunity for Europe to grow stronger and more united. ■

Christine Lagarde is President of the European Central Bank

Endnotes

1. For a discussion on the interaction between instrument effectiveness and credibility see Nakamura, E, Riblier, V and Steinsson, J (2025), [Beyond the Taylor Rule](#), Federal Reserve Bank of Kansas City, August.
2. “Soyons assez puissants pour nous faire respecter et pour promouvoir nos valeurs de liberté et de solidarité.” See Delors, J (1989), [“Speech at the opening session of the 40th academic year of the College of Europe”](#), Bruges, 17 October.

This article is based on a [dinner speech](#) delivered at the 2025 ECB Legal Conference ‘Building Europe’s Autonomy: Law, Institutions, Cooperation’ in Frankfurt, Germany, 1 September 2025.

Strategic autonomy for Europe requires growth

The US willingness to weaponise trade makes clear that transatlantic economic relations have become entirely transactional. Luis Garicano argues that Europe must respond to US tariffs with economic strength: faster productivity growth, cheaper energy, a genuine continental market, and tech leadership

The return of Donald Trump to the White House confronts Europe with an existential challenge. His administration's willingness to weaponise trade – treating even NAFTA partners as adversaries – makes clear that transatlantic economic relations have become entirely transactional.

The same is true for all the other aspects of the US–EU relationship, including the critical security dimension. Europe faces this challenge from a position of weakness, after two decades of relative decline.

Hence this shock demands a fundamental economic renewal. Without addressing the structural causes of this weakness, Europe cannot achieve the strategic autonomy it desperately seeks. The actions of the European institutions – the Commission, the Council and the Parliament – must respond to the Trump shock along three dimensions:

1. **Growth:** Europe's stagnation undermines the continent's ability to respond to external shocks. Europe must grow again.
2. **Trade:** the best response to the increasing world fragmentation and difficulty of trading outside the EU is to deepen the Single Market and eliminate the many remaining barriers to trade between member states.
3. **Defence:** while there is a role in defence for the EU and its institutions, the EU must concede that main action here must take place at a broader level.

The Trump shock meets European economic weakness

In May 2025, President Trump proposed a 50% tariff on EU imports. Whether this ends up being imposed or not, his administration's economic attack has arrived at Europe's most vulnerable moment.

As Draghi (2024) points out, the EU–US gap in GDP per capita widened from 15% in 2002 to 30% in 2023, and 70% of the shortfall reflects weaker European labour productivity. Italy's performance is an extreme example: its 2023 real GDP per head remained at 2000 levels¹.

This dismal performance has multiple origins, but four merit special attention: energy costs, innovation, regulation, and the Single Market. I discuss the first three in this section.

Europe has the talent, resources, and institutional framework to compete globally. Its universities produce excellent graduates, its companies hold leading positions in many industries, its legal framework provides stability and predictability

Energy

In 2024, EU firms faced industrial electricity prices 2.5 times higher than the US and natural gas prices five times higher (Heusaff 2024). While this gap partly reflects Europe's lack of natural resources and Russia's weaponisation of gas flows after the 2022 invasion of Ukraine, fundamental market design and regulatory choices exacerbate the problem.

The April 2025 Spanish blackout – when the country lost all electricity for hours – demonstrated how renewable integration without adequate grid stability can create catastrophic vulnerabilities (Garicano 2025b). The Europe-wide *Dunkelflaute* (the winter doldrums with no sun, no wind, and lots of heating demand) is likely to become a feature of the transition.

High and unpredictable energy costs have contributed to the loss of over 500,000 European manufacturing jobs since 2022, accelerating deindustrialisation in sectors that once formed Europe's industrial backbone. According to a [Financial Times article](#), German energy-intensive firms are producing 20% less than before the COVID-19 pandemic and corporate distress is at levels last seen during the height of the pandemic.

Europe must deal with its energy problem. Approving the 25,000 km of pending crossborder transmission lines would cut wholesale prices by double digits and harden the grid against blackouts. Moreover, Europe must adopt a much more pragmatic posture concerning nuclear energy and gas. Both will be necessary for stability.

Innovation

Europe's innovation deficit further weakens its position. Only four of the world's 50 largest tech companies are European. No firm founded in Europe in the past half-century has reached a €100 billion valuation. EU startups attract just 6% of global AI funding, versus 61% for the US (Draghi 2024). This innovation gap means Europe increasingly depends on foreign technology for its digital transformation, creating new vulnerabilities.

The response to this problem has two main axes. We must improve our innovation system, and we must facilitate creative destruction. I focus here on one useful solution to the innovation finance gap proposed by both Draghi and by Enrico Letta (Letta 2024): a single '28th regime' corporate statute covering venture financing, stock-option taxation, and insolvency would allow start-ups to scale across the continent.

Regulation and compliance

As Draghi (2024) documented, Europe's weakness is in part the result of the increasingly complex regulatory environment. These regulations, often well-intentioned, serve some potentially important purposes from privacy protection to environmental standards. But it is increasingly recognised that they impose large cumulative costs on EU companies and make market entry and exit, as well as firm growth, extremely hard.

The Corporate Sustainability Reporting Directive (CSRD) alone requires companies to track 1,052 data points, with compliance costs estimated at 12.5% of mid-cap firms' annual investment budgets. During 2019-2024, the EU passed approximately 13,000 Acts compared to 3,500 pieces of legislation at the US federal level.

This regulatory density, combined with national variations in implementation, creates a complex operating environment that particularly burdens smaller firms.

No one who has read the Draghi Report can have any doubt that Europe must significantly reduce its regulation. At a minimum, the Omnibus proposal now in Council would trim mandatory CSRD data points and defer low-materiality disclosures. But Europe must go much further. The entire regulatory apparatus must be examined and pruned – particularly to facilitate competition inside the Single Market, as I discuss next.

Europe's interconnected weaknesses – high energy costs, innovation deficits, and regulatory complexity – make it particularly vulnerable to Trump's economic coercion. Europe's response to the Trump shock must begin with economic renewal. Without internal economic strength, Europe cannot credibly pursue strategic autonomy or maintain its social model. But there is one more critical element to the response: the Single Market.

The trade shock and the Single Market crisis

The best response to the sudden increase in external barriers and the consequent external trade fragmentation would be to reduce internal barriers. Yet the EU's crowning achievement – the Single Market – is deeply flawed. The IMF calculates that hidden barriers within the EU are equal to a 45% tariff on goods and a 110% tariff on services, exceeding the Trump administration's most aggressive China tariffs.

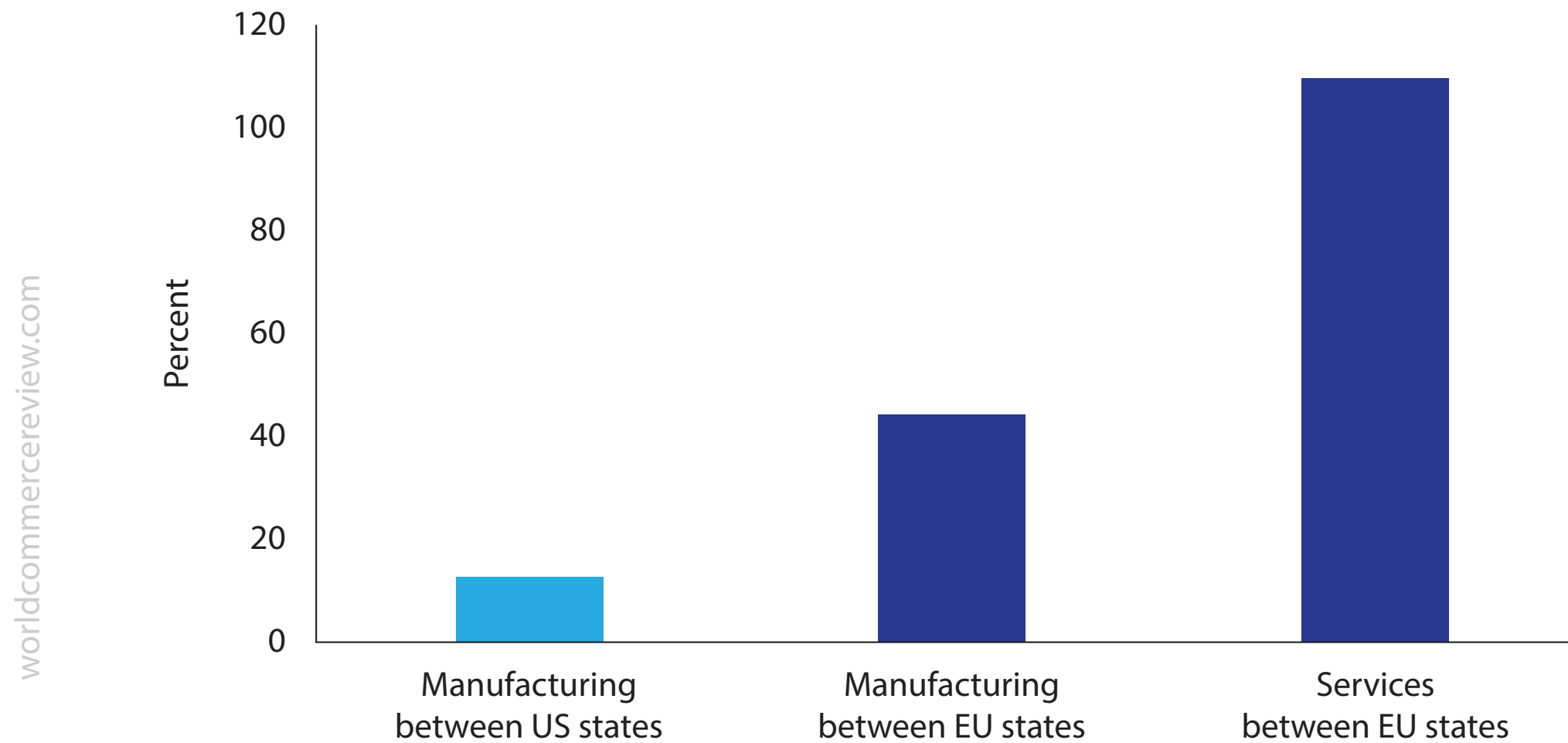
Also, according to the IMF, since the mid-1990s, trade costs for goods have dropped 16% for non-EU imports but only 11% for trade *within* the EU. Intra-EU trade intensity remains 50% lower than that between US states (IMF 2024). This means European companies often find it easier to expand in America than in neighbouring EU countries.

As a result, according to the IMF, the EU's internal services trade and its external services trade are roughly the same size as a share of the EU economy. In a true single market, internal trade should be much larger. In a world where scale is ever more vital (services include such scale-intensive business as AI, finance and IT), this fragmentation of the Single Market is very damaging.

The harmonisation trap

EU legislation frequently worsens rather than solves market fragmentation. New directives pile atop existing national rules rather than replacing them. Research on capital market regulation shows countries actually diverge more after EU harmonisation attempts (Ewens and Farre-Mensa 2020) – stronger regulatory countries maintain their standards while weaker ones add EU requirements without removing national ones.

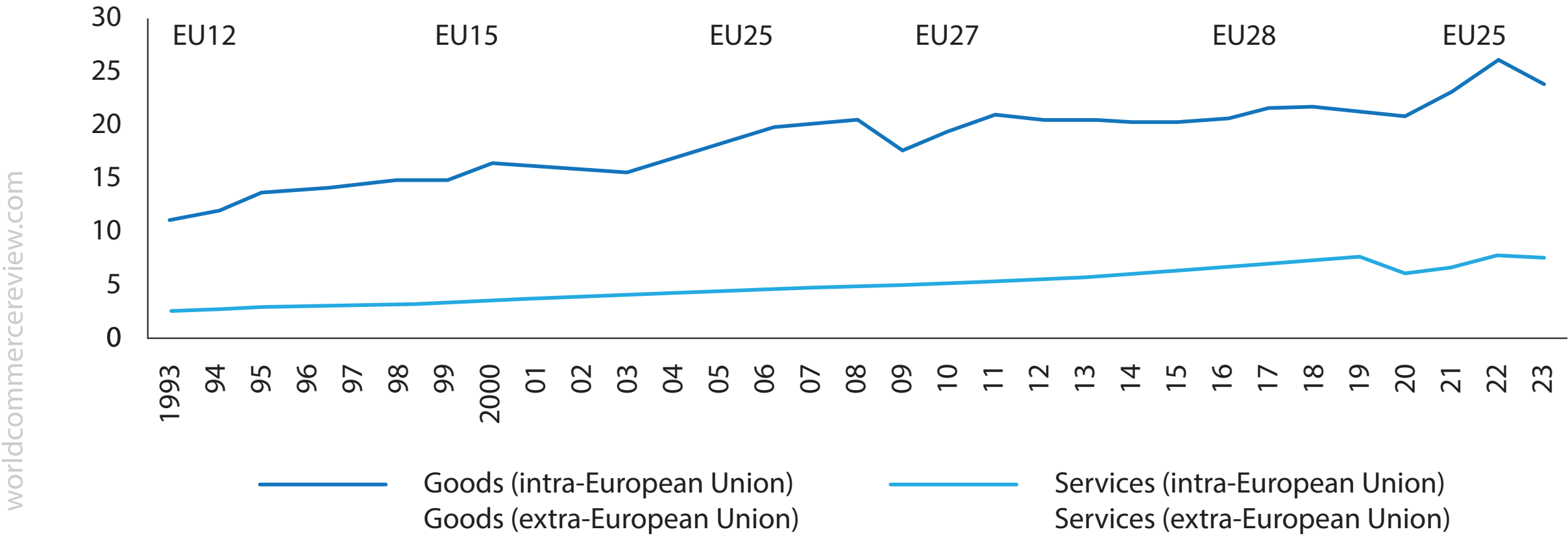
Figure 1. Barriers to EU internal trade: 2020 tariff equivalent



Source: IMF (2024).

Figure 2. Intra- and extra-EU trade in the European Union

Average of exports and imports as share of total EU GDP



Source: IMF (2004).

Banking illustrates this layering problem. The Single Supervisory Mechanism oversees banks, but national central banks impose additional capital and liquidity requirements. French banks operating in Belgium, for example, face French, Belgian, and European regulators simultaneously, eliminating crossborder synergies.

Data protection creates similar absurdities. Despite the General Data Protection Regulation (GDPR) being an EU regulation, Austria banned Google Analytics while neighbouring countries permit it. Italian authorities threatened US data transfers that remain legal elsewhere. Publishers operating EU-wide must maintain separate systems for different countries.

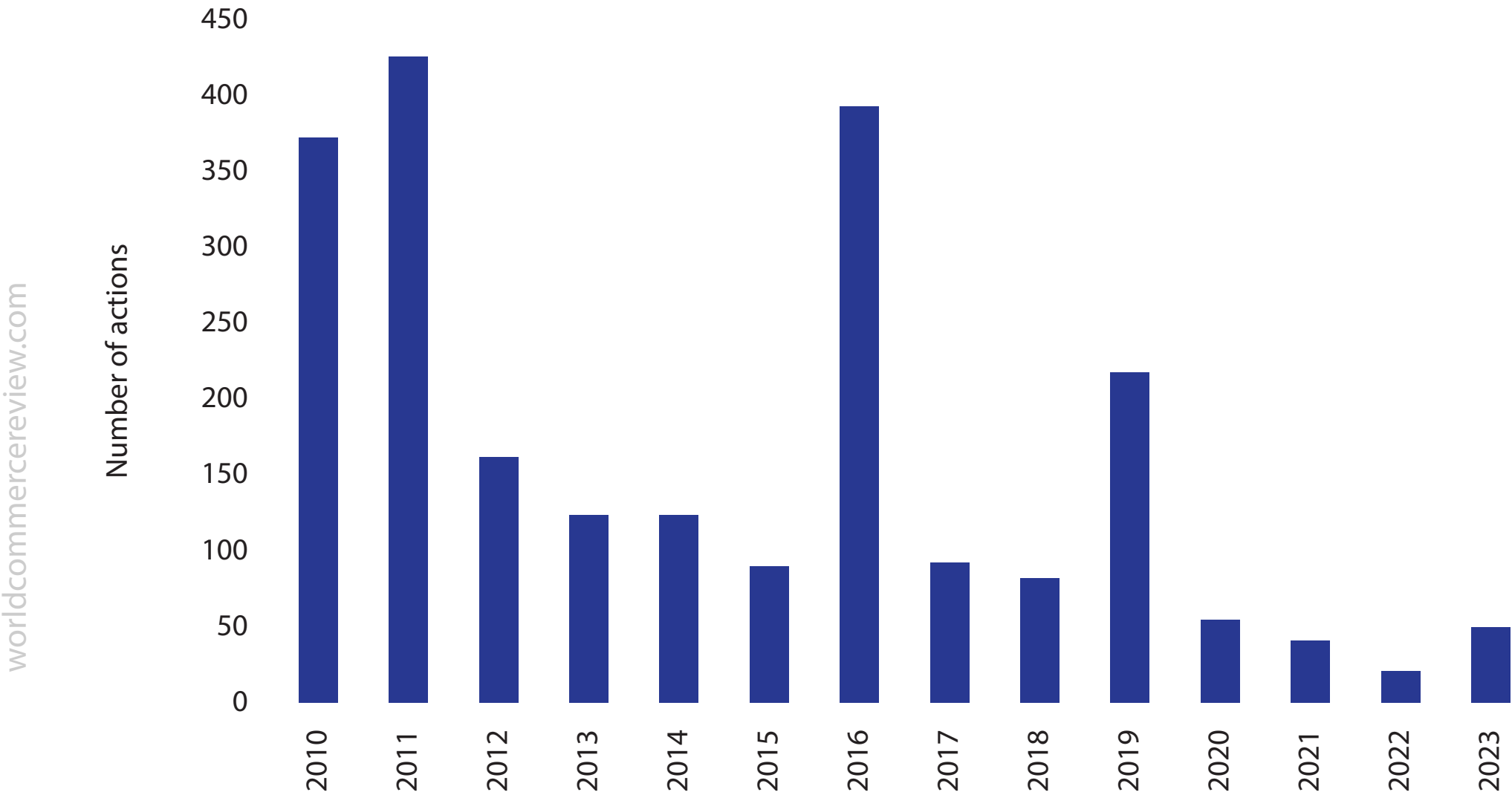
Professional mobility remains constrained despite decades of EU directives. Portuguese engineers with EU-recognised qualifications face lengthy German equivalency checks. Architects and other professionals navigate regional requirements within single member states. Small firms often abandon crossborder expansion rather than fight bureaucratic battles.

Enforcement collapse

The European Commission has abandoned its treaty duty to police the Single Market. Infringement cases dropped to 658 in December 2024, down 21% since 2020. New cases fell to 173 yearly, one-quarter the volume from a decade ago. At the same time, case duration stretched to 46 months, up 31% since 2019.

This decline reflects the Commission's evolution. Styling itself as 'geopolitical' (von der Leyen 2019), it seeks influence in defence, housing, and foreign policy while neglecting core obligations. Confronting member states over market violations undermines the political cooperation needed for these expanded ambitions.

Figure 3. Total infringement actions of the European Commission, by year



Source: European Commission Single Market Scoreboard.

Without enforcement, the Single Market erodes. Small companies in particular cannot afford legal battles against national authorities claiming health or safety exceptions. The original mutual recognition principle – that products legal in one member state should circulate everywhere – has become meaningless without credible enforcement.

Europe must restore mutual recognition as the default rule and dramatically increase enforcement actions. Products and services legal anywhere in the EU should face no additional barriers elsewhere unless governments prove concrete risks. The Commission must choose between political expansion and its constitutional duty to maintain Europe's economic foundation.

Defence and strategic autonomy: finding the right division of labour

As with trade, the Trump administration has made clear that its approach to defence is transactional. This shock demands European strategic autonomy, including in defence. The question this raises is how to organise this effort most effectively.

Arguments for greater EU involvement in defence rest on solid economic logic made in *The Economic Consequences of the Second Trump Administration: A Preliminary Assessment*, for instance, in the chapter by Armin Steinbach, Guntram Wolff, and Jeromin Zettelmeyer and in the chapter by Ethan Ilzetzki.

Defence procurement shows significant economies of scale, and defence R&D generates substantial spillovers to civilian technology. The current fragmentation – Europe operates 12 different main battle tanks compared with America's one – creates inefficiencies that weaken collective defence while raising costs. Coordinated procurement could deliver better capabilities at lower cost.

However, effective European defence faces structural challenges that EU institutions cannot easily overcome. First, the EU is a diverse bloc with very different security and defence postures among its members. It includes traditionally neutral states (such as Ireland, Austria, and Malta) that have not been in NATO or any other military alliance.

Member states also hold varied threat perceptions and foreign policy leanings, sometimes influenced by historical or economic ties that can complicate unified action, particularly concerning large powers like Russia. With respect to this crucial player, the EU members' attitudes run the gamut from slavish submission (Hungary) to bold defiance (Poland and Estonia).

Foreign policy and defence decisions typically require unanimity – a high bar that often leads to slow or lowest common denominator outcomes, ill-suited to the pace of geopolitical events.

Second, a successful defence posture requires including NATO and non-EU actors. Key European security actors, including the UK (a major military power), Norway (critical for North Atlantic security), and Turkey (a large NATO ally in a strategic region), are outside the EU. Canada, another G7 nation, is also a vital NATO partner currently with one foot outside of the US defence umbrella. An EU-centric defence policy risks duplicating efforts and alienating these crucial allies.

Third, the EU treaties offer a limited basis for a common defence policy in the traditional sense. While initiatives like the European Defence Fund, the Permanent Structured Cooperation (PESCO), and the European Peace Facility represent important steps in bolstering defence industrial cooperation and supporting partners, they do not equate to a centralised EU defence command or foreign policy execution power vested in the Commission.

A more effective approach to European security involves 'coalitions of the willing' within NATO or through ad-hoc groupings. Guntram Wolff, Armin Steinbach, and Jeromin Zettelmayer (2025) have recently proposed a groundbreaking European Defence Mechanism (EDM) that exemplifies this approach (Wolff *et al* 2025). Their proposal envisions an intergovernmental institution open to all European democracies – both EU and non-EU members – where participants would pool resources to collectively procure defence equipment and services.

The EDM would issue bonds to finance joint defence procurement and common defence assets, with members paying for their shares of jointly procured defence goods when delivered.

The proposal addresses both fiscal and operational realities. It provides a framework to integrate national and EU defence policy through flexible interpretation of fiscal rules, collective arms procurement, and centralised investments. By allowing non-EU states like the UK, Norway, and potentially Switzerland to participate, it acknowledges that European security transcends EU membership.

The key insight is that European security requires flexible geometries. The EU can contribute significantly through defence industrial policy, research coordination, and single market benefits for defence firms. The European Defence Fund and PESCO represent important steps. But operational defence coordination must include all European security stakeholders, not just EU members. Forcing defence into EU structures risks excluding key allies and creating inefficient parallel organisations.

Conclusion: economic power or strategic irrelevance

Trump's return makes European strategic autonomy not just desirable but necessary. Yet, autonomy without economic strength is an illusion. A Europe that cannot compete economically cannot defend its interests or values globally. The mathematics are simple: declining GDP and innovation ability equals strategic irrelevance.

The Trump administration's tariffs target weakness. Europe can answer only with economic strength: faster productivity growth, cheaper energy, a genuine continental market, and tech leadership. Every hidden barrier, every reporting burden, and every fragmented defence project hands leverage to Washington. Completing the tasks above would add at least 8% to EU GDP within five years and narrow the strategic gap with the United States.

Europe has the talent, resources, and institutional framework to compete globally. Its universities produce excellent graduates, its companies hold leading positions in many industries, its legal framework provides stability and predictability. What it lacks is the political will to dismantle internal barriers and create the conditions for growth. Given the external pressures Europe now faces, it is, truly, now or never. ■

Luis Garicano is a Senior Non-Resident Fellow at Bruegel and Professor of Public Policy at the London School of Economics and Political Science

Endnote

1. Source: “Italy – GDP per capita (constant prices)”, OECD Data.

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Geopolitical shifts and their economic impacts on Europe

The rules-based international system has fundamentally altered. André Sapir, Jacob Funk Kirkegaard and Jeromin Zettelmeyer examine the short-term risks, medium-term scenarios and policy choices and discuss how Europe can hold its own in a multipolar world

Executive summary

Over the last decade, Europe has suffered from the decay of the post-war international order, economic coercion from both China and the United States, and aggression from Russia. This contribution puts these changes into a historical context, examines their short-term consequences, develops scenarios for 2030-2035 and uses these to draw out the policy implications for the next one to five years.

The short-term output impact of tariff and policy uncertainty since the beginning of the second Trump Presidency is expected to be moderate. However, Europe faces very high risks. Plausible short-term dangers include: a collapse of the US bond market; escalation of Russian military aggression against Ukraine or the European Union directly; a fiscal crisis triggered by a populist election victory in a high-debt euro area member; or a trade shock triggered by increasing tensions between the US and China and/or hostile Chinese actions in East Asia.

We develop three benchmark scenarios for the world in 2035, all of which involve continued US-China rivalry and greater multipolarity than in the past:

1. A further retreat from, or dismantling of, international cooperation, with continuing protectionism in the US and minimal global public goods.
2. A three-bloc world involving China- and US-led blocs alongside a non-aligned set of countries, with the provision of international public goods within, and partially between blocs.
3. A new multilateral order, with international cooperation over the provision of global public goods.

Actual outcomes could consist of combinations of these scenarios or variants of them. Scenario 1 would be least desirable for the EU, most countries individually and countries collectively, while scenario 3 would be most desirable. In scenario 2, Europe's decision to align with the US or to choose non-alignment would depend on whether the US acts in a benevolent or coercive manner.

Short-to medium term policy must both prepare Europe for adverse future scenarios and contribute to greater international stability and cooperation. This requires policies that increase Europe's strategic autonomy from the two superpowers, both for its protection and to increase its bargaining power

Short to medium term policy must both prepare Europe for adverse future scenarios and contribute to greater international stability and cooperation. This requires policies that increase Europe's strategic autonomy from the two superpowers, both for its protection and to increase its bargaining power.

The policy focus should include much greater defence, tech and financial autonomy from the US, a far more resilient and integrated energy system, secure access to critical minerals and a fiscal framework that gives greater flexibility to low-risk countries.

Internationally, Europe should defend and promote the reform of the rules-based international order by forming coalitions with other countries from the Global North and some from the Global South. The two priority areas should be trade policy and climate policy.



1 Introduction

Geopolitical tension and uncertainty are staples of history, even in a period of relative international order and prosperity, as Europe and most of the world have enjoyed since the end of the Second World War. But the rise in tensions over the last decade, and particularly since Russia's invasion of Ukraine in 2022 and the return of President Trump to the White House, seems different from anything that European and other advanced democracies have experienced since the late 1940s. Unlike previous geopolitical episodes, the international order itself is now being challenged.

And unlike the 1971 collapse of the Bretton Woods system, which was also a major challenge to the existing order, today's shift is not a reaction to the economic unsustainability of the previous regime. Rather, it is the manifestation of deeper trends, including the rise of China, the failure of democratic transition in Russia and increasing polarisation in many Western democracies. It is polarisation that has led to a drastic political and policy change in the United States, with profound consequences for the postwar system.

We argue both that the world is at the beginning of a new era that will challenge the foundations of European prosperity, and that the future is wide open and Europe may be able to shape it. We develop three scenarios to give a sense of both threats and opportunities.

In terms of threats, policies that enhance European strategic autonomy must be emphasised to a much greater degree than in the past. But Europe must not just create more autonomy for itself – it should also put it to the best possible use for the global rules-based order.

The remainder of the paper is divided into three parts. Section 2 recalls the main phases in the evolution of the international economic order since 1945, describes the current geopolitical state of affairs and summarises the

short-term economic effects on Europe of recent US policy shifts. Section 3 presents three geopolitical scenarios that will confront Europe in 2030-2035. Section 4 describes Europe's policy choices in relation to these scenarios. The paper ends with some conclusions.

2 The geopolitical state of affairs and its economic effects on Europe

2.1 The evolution of the multilateral system, 1945-2008

The postwar economic order, with the International Monetary Fund, the World Bank and the General Agreement on Tariffs and Trade (GATT) as the three central institutions, was created between 1944 and 1947 by the winners of the Second World War to foster postwar economic cooperation and to prevent a return to the economic nationalism of the 1930s. But what was intended as a new global economic order did not become truly global until the collapse of the Soviet Union in 1990.

2.1.1 The Cold War period

During the Cold War, running from 1947 to 1989, the world was divided into two spheres, east and west, which were political rivals with minimal economic relations between them. Countries in both spheres belonged to the global political institutions created after the Second World War under the leadership of the US, the United Nations and its specialised agencies. But only those in the western sphere – and two countries that later founded the non-aligned movement, India and Yugoslavia – joined the new economic institutions¹.

Most developing countries, which were previously colonies of western countries, became and remained non-aligned after independence, maintaining a degree of political distance from the two spheres, while gradually joining the GATT, IMF and World Bank.

During this period, the world was bipolar, with two superpowers: the US as 'leader of the free world' and the Soviet Union as the main country in the communist camp, though increasingly in competition with China. The western camp lived in a 'liberal international order' in which crucial international public goods in trade, finance and defence were provided by the United States acting as its 'benevolent hegemon'.

Multilateralism mostly prevailed within the western sphere, but not when it clashed with US interest, as with the 'Nixon shock' in August 1971, when the US president ended the Bretton Woods system of fixed but adjustable exchange rates by taking the dollar off the gold standard, and introduced a 10 percent tariff surcharge on all dutiable imports².

The import surcharge was meant to put pressure on the main US partners to revalue their currencies against the dollar, which they did under the December 1971 Smithsonian Agreement of December 1971, in the hope of preserving the Bretton Woods system. This hope was dashed in 1973, after the US further devalued the dollar, forcing major currencies to float against the greenback and each other.

Another instance of US unilateralism during this period was Section 301 of the 1974 US Trade Act, which allows the US administration to unilaterally (ie. without recourse to the GATT dispute settlement procedure) address 'unfair foreign practices' through investigations, negotiations and, if necessary, the imposition of tariffs or other trade restrictions. Section 301 is the only US statute that permits the US administration to adopt unilateral trade sanctions on economic grounds. Two other statutes – Section 232 of the 1962 Trade Expansion Act and the International Emergency Economic Powers Act (IEEPA) of 1977 – also permit the US administration to unilaterally impose trade sanctions on certain countries, but on national security grounds.

2.1.2 The rise and fall of hyper-globalisation, 1990-2008

With the 1989 collapse of the Berlin Wall and the end of the Soviet Union in 1991, liberal democracy appeared to have “*triumphed as the final form of human government*” (Fukuyama 1992). In geopolitical terms, this meant that all countries could now join the liberal international order.

In 1992, Russia joined the IMF and the World Bank. The next year, it applied to join the GATT but had to wait until 2012 to become member of its successor, the World Trade Organisation (WTO), created in 1995. The People’s Republic of China had already joined the IMF and the World Bank in 1980, and the WTO in 2001.

With China and Russia taking major steps to liberalise their economies, it looked as if Fukuyama’s “*end of history*” (Fukuyama 1992) was approaching, not only in an ideological sense but also geopolitically. Economic liberalisation in the former eastern sphere, in India and other large developing countries, together with the rapid introduction of information technologies created ‘One World’ with opportunities for more people in more places to compete, connect and collaborate more than ever.

This ushered in a period of truly global trade and investment integration – often referred to as ‘hyper-globalisation’ – dominated by purely economic incentives and global value chains (GVCs), with little or no geopolitical constraints (see, for instance, Antras 2020).

This period has been described as the unipolar world, with the United States commonly viewed as the sole superpower. It worked fairly well for nearly two decades. The US continued to act as a ‘benevolent hegemon’ and the liberal international order thrived, with democracy spreading around the world, the creation of the WTO as the lynchpin of the rules-based multilateral system, and hyper-globalisation delivering rapid economic growth to old and mostly new parts of the world.

However, according to geopolitical realists such as Mearsheimer (2019), the liberal international order was bound to fail because it contained the seeds of its own destruction. First, the spread of western-style democracy produced a nationalist backlash in some countries, including China and Russia.

Second, hyper-globalisation produced faster growth but also contributed to greater income inequality and financial instability, both of which contributed to a populist backlash in advanced countries, especially the US, after the Great Financial Crisis.

Third, hyper-globalisation was particularly helpful in promoting faster growth in China and other export-oriented developing countries. The *“rise of China...along with the revival of Russian power ... brought the unipolar era to a close”* (Mearsheimer 2019, p. 8).

The decline of the liberal international order and the ‘return of history’ ushered in the third and current phase in the post-Second World War international system. As anticipated by Kagan (2008 p. 4), *“The end of the Cold War did not bring the end of history, but rather a return to a historical norm: competition among great powers.”*

2.2 The return of Great Power competition and economic nationalism in the United States

Analysts disagree on how to describe the new era. Kagan’s ‘return to great power competition’ is one way. Others refer to it as the ‘post-post-Cold War era’³, as an ‘era of fragmentation’ (for instance, Clavijo 2024) or simply as a ‘multipolar era’ replacing the previous unipolar period⁴.

The problem with these labels is that they underplay what (in addition to the rise of China) has emerged as a defining feature of the last decade: the gradual withdrawal of the US from its role as ‘benevolent hegemon’. This shift accelerated with President Trump’s push to blatantly violate post-Second World War rules and norms, including

with his 'reciprocal' tariffs (which are in fact unilateral rather than reciprocal and violate the cornerstone of the GATT/WTO regime, which forbids countries from discriminating between their trading partners).

Trump has also launched assaults against international law, democratic norms and institutions. One way to describe the present United States is as a 'coercive hegemon', though the term 'hegemon' itself does not fit well with the new multipolar age. In fact, the contradiction between the two – multipolarity and hegemony – describes well the current geopolitical situation, which is in a state of flux.

Though the US is not the hegemon it was during the unipolar post-Cold War period, or even the bipolar Cold War era, it retains exceptional features that set it aside from other major powers including China and the European Union.

It is easy to minimise the role of the US in world trade by noting that it accounts for less than 15 percent of global trade in goods and services (excluding intra-EU trade), and that therefore the rest of the world can and should continue to organise itself according to WTO norms and rules, which the US is now disregarding. But the US has demonstrated that it can coerce many of its trading partners, including the EU, to accept bad deals.

Typically, such deals involve accepting unilateral US tariff hikes and also opening up domestic markets and committing to buy products preferentially from the US (against the interests of trading partners and against WTO rules) as the price for keeping US tariffs lower than threatened by President Trump, and, above all, for retaining aspects of US security protection.

This continuing US power derives from its superiority in four areas: economy, finance, technology and military. China is the only country that partly rivals the US in all of these areas, except finance. While the EU has strengths in some of these areas, it is clearly dominated by the US, and increasingly China.

The US remains the largest economy (26 percent of world GDP in 2024 at market exchange rates), which partly explains why it is also the world's largest importer of goods. Also, of course, the US now specialises mainly in the production of services, and therefore tends to export services and import goods – the opposite of China, the world's second largest economy (on par with the EU, both accounting for 17 percent to 18 percent of world GDP at market rates), which specialises in the production of goods and therefore tends to export goods and import services.

Although the US is increasingly challenged by China for the top place in the GDP league (and has already been displaced by China when the comparison is made using purchasing power parity exchange rates), it remains unparalleled in finance. The US accounts for roughly 50 percent to 60 percent (depending on the exact year) of global equity market capitalisation, and 40 percent of bond market capitalisation, far ahead of the EU and China.

The US dollar continues to occupy a dominant position, accounting for 60 percent of international reserve holdings in currencies, 45 percent of global trade invoicing and 90 percent of foreign exchange transactions, again far ahead of the euro and renminbi.

In technology, although the US share of global research and development spending has been declining for decades, the US retains overall leadership. China is making rapid progress and has overtaken the US in some critical areas. As Draghi (2024) noted, Europe also has major technological capabilities, but is weak in digital technologies, such as artificial intelligence, the internet of things and quantum computing.

US technological leadership rests on the strength of its private sector, which benefits from a strong innovation ecosystem that includes top universities able to attract student and faculty talent from all over the world and easy access to venture capital.

For instance, in 2023, the US had twice as many active unicorns (startup companies valued at over \$1 billion) as the EU and China combined. However, the policies of the Trump administration on research and universities threaten to deliver a blow to the US innovation ecosystem and weaken its technological leadership.

In the military field, US dominance comes partly from the fact that it has accounted for roughly 40 percent of global military expenditures for several decades, far more than its share of global GDP. This has allowed the US to finance the research, development and purchase of sophisticated weaponry, to maintain military bases and troops in every region of the world, and to lead alliances such as NATO, making it the 'policeman of the world', even if this role is increasingly contested, especially in Asia by China.

According to Carlough *et al* (2025), the US maintains 31 permanent bases and has access to 19 additional sites in Europe (the EU plus Norway, Turkey and the United Kingdom). Carlough *et al* (2025), citing official sources, also report that, in early 2025, the US had nearly 84,000 US service members in Europe, down from over 100,000 in 2022, after the full invasion of Ukraine by Russia.

All this sums up to an international system in flux and disorder. In trade, the WTO has been greatly weakened by the willingness of the US – the world's largest importer of goods – to openly violate international rules, which have become partly outdated in any case because the role of the state in China, the world's largest exporter of goods, is incompatible with the spirit (but not the letter) of the liberal economic order that the WTO represents.

But, so far, the rules-based multilateral system has held up. Apart from the US, other WTO members have continued to play by the rules, with one major exception, with many, including the EU, granting preferential access to (some) imports from the US, as part of the deals they have struck with President Trump to avoid the imposition of higher reciprocal tariffs.

In money and finance, where there has been no formal international system since the end of the Bretton Woods system in 1973, there is nonetheless a global order. One element is the role of the US dollar in international payments and as a store of value. Some Trump administration policies, such as the promotion of dollar-based stablecoins, could further enhance this role⁵.

Others, such as the administration's lack of concern about fiscal sustainability, and words and actions that undermine the independence of institutions such as the Federal Reserve and the Bureau of Labor Statistics, could undermine the dollar's international role (see section 2.3.2).

The other element in maintaining global order has been international organisations including the IMF, World Bank, Bank for International Settlements (BIS) and the Financial Stability Board (FSB), which have played important roles in coordinating international efforts to maintain financial stability or restore it during crises.

Although the Trump administration announced that it would review US membership of the IMF, World Bank and other international organisations, Treasury Secretary Scott Bessent has stated that the role of the US is rather to *"push them to accomplish their important mandates"* and focus on their *"core mission"*⁶.

The EU has played a constructive role by setting up the euro and ensuring its stability, but the absence of a *"genuine Economic and Monetary Union"*, as advocated more than a decade ago by Van Rompuy (2012), limits its ability to play a bigger international role.

Finally, in the area of international security, the fragile world order has been greatly damaged by Russia's full invasion of Ukraine in 2022. This is rightly viewed as a painful wake-up call and turning point by Europeans, especially in the context of President Trump's questioning of NATO, though for some others (including China and

India), war in Ukraine has been no more damaging to the world order than the 2003 invasion of Iraq by the United States (with the support of the United Kingdom, Australia, Poland and others), which was also not authorised by the UN Security Council.

Meanwhile, in the Middle East, conflict has raged again since 2023, and Taiwan faces continuous threat of an invasion or a severe blockade by China. In all these theatres, the role of the US as 'global policeman' has receded, and no other power has filled its place. The EU, which is struggling with its own security, is not a candidate – except in Ukraine.

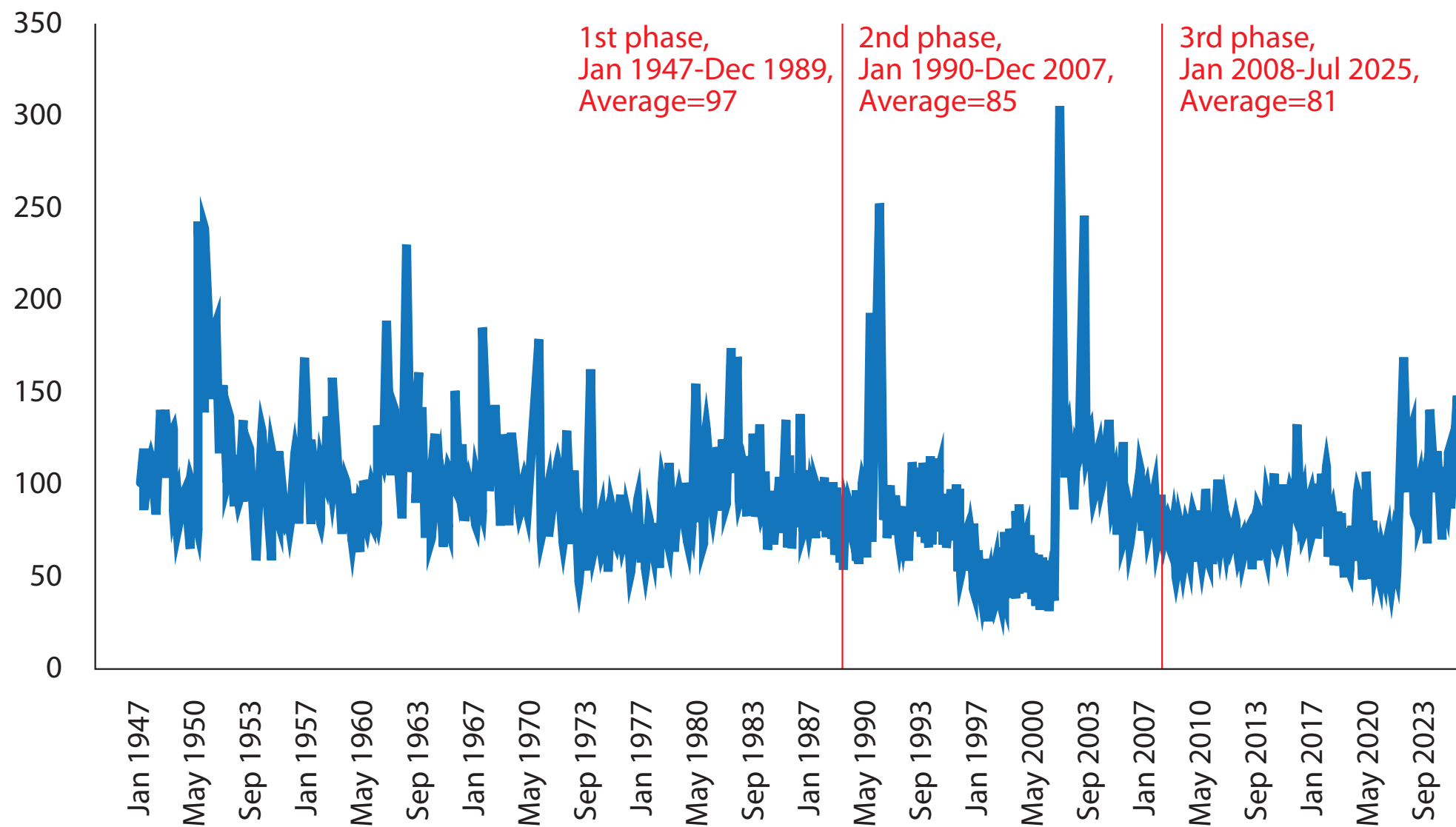
One way to compare the new era of armed conflict and economic nationalism with earlier periods is through indices designed to quantify geopolitical risks and policy uncertainty. The global Geopolitical Risk Index (GPR), which focuses mainly on military risk, is currently slightly below its level during the post-Cold War period, despite the Russia-Ukraine war and the latest episode of conflict in the Middle East (Figure 1)⁷.

By contrast, the global Economic Policy Uncertainty Index (EPU) and Trade Policy Uncertainty Index (TPU) have moved up since 2017, reaching their highest ever level immediately after so-called 'liberation day' (1 April 2025), when President Trump announced the imposition of 'reciprocal' US tariffs on imports from trading partners (Figures 2 and 3).

2.3 Short-term economic effects on Europe

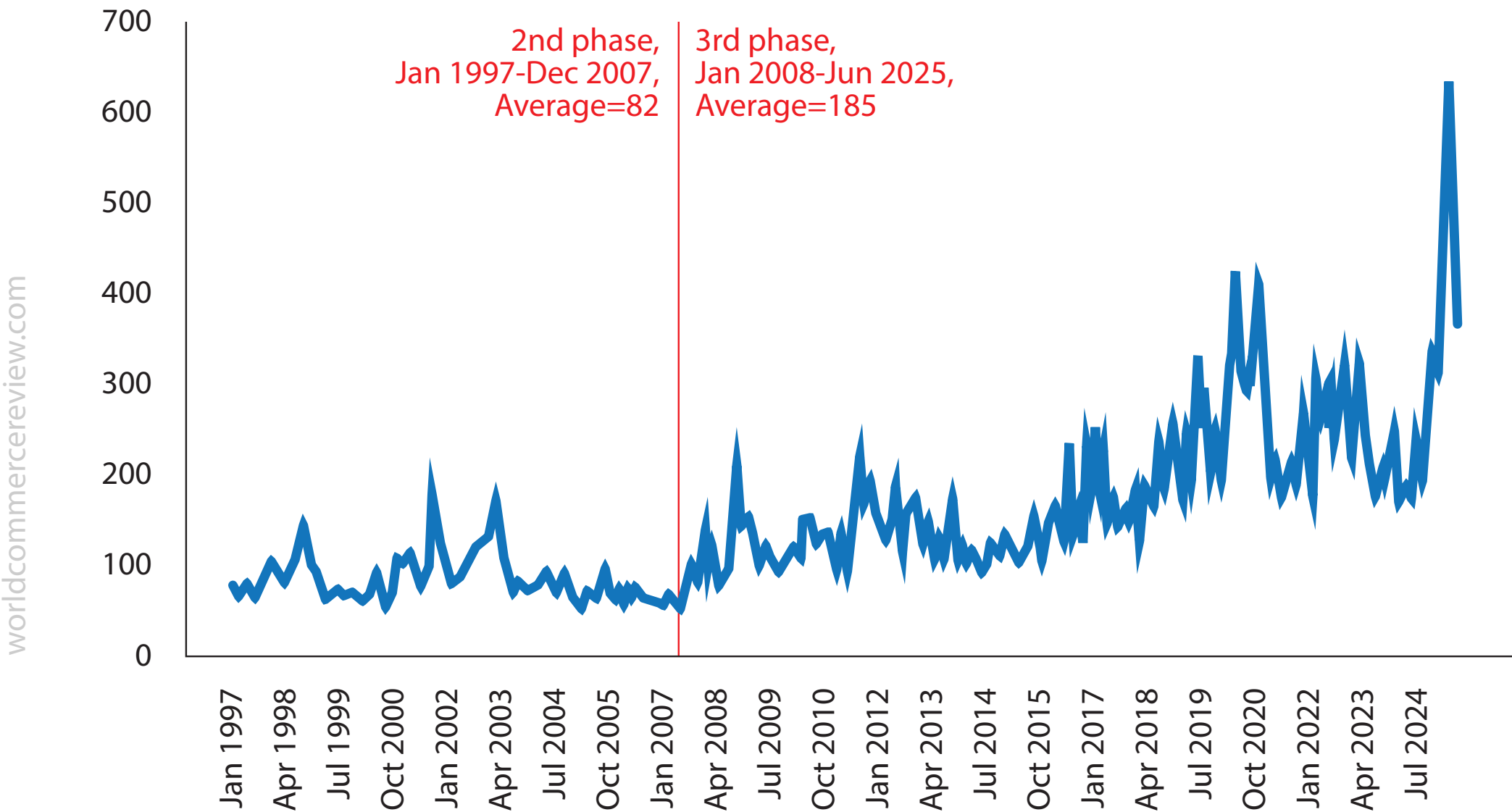
The acceleration of the shifts described in the last section in President Trump's second term is at time of writing affecting the European economy through three main channels: a sharp rise in US tariffs, policy uncertainty and fiscal policy. These impact the EU directly and indirectly, via their impact on the United States (which will remain the EU's largest trading partner in the foreseeable future, tariffs notwithstanding). Monetary policy on both sides

Figure 1. Geopolitical risk index, 1 Jan 1947 to 1 Jul 2025, average by geopolitical phase



Source: Bruegel based on Caldara and Iacoviello (2022). Data downloaded from <https://www.matteoiacoviello.com/gpr.htm>.

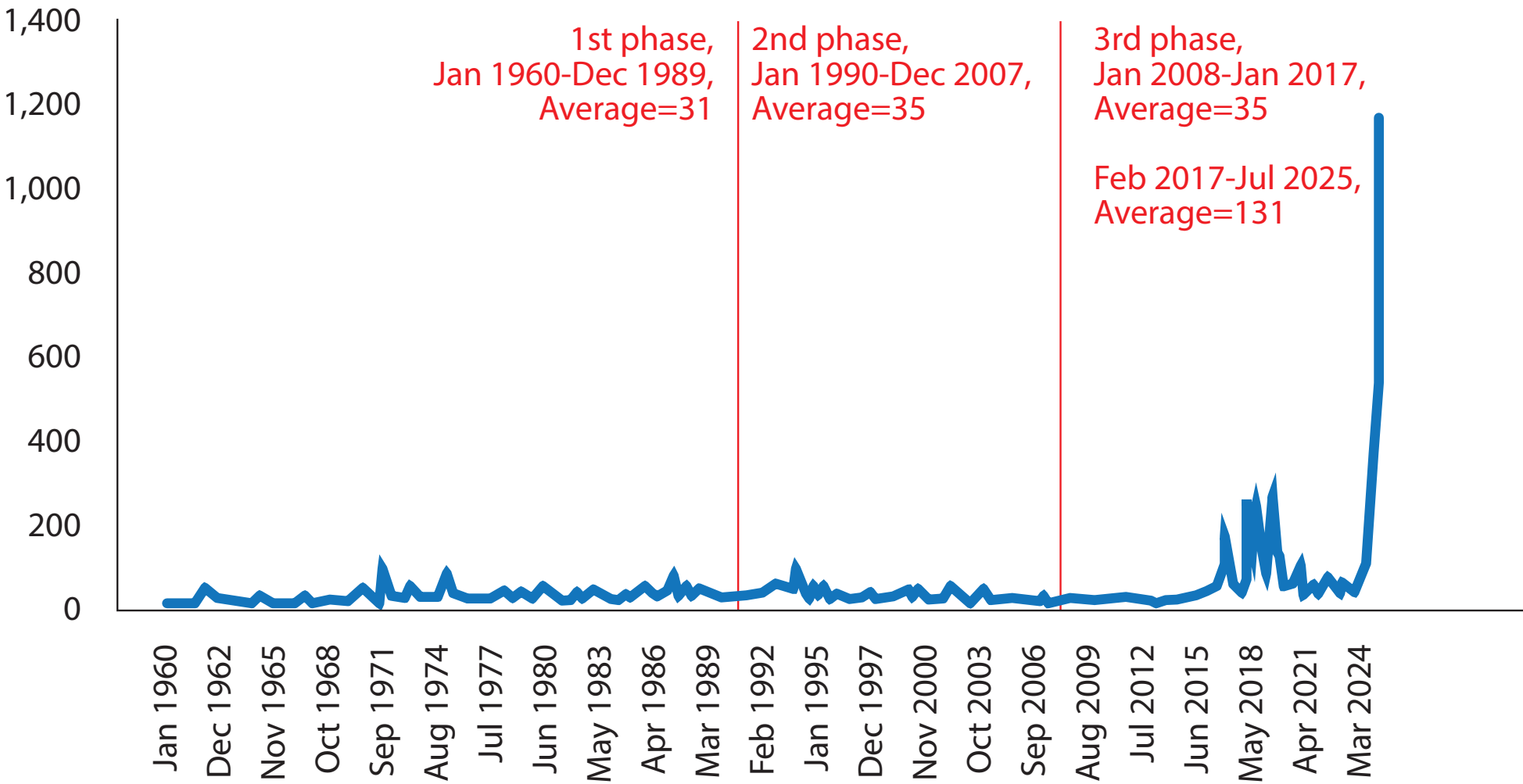
Figure 2. Economic policy uncertainty index, Jan 1997 to Jun 2025, average by geopolitical phase



Source: Bruegel based on Davis (2016). Data downloaded from https://www.policyuncertainty.com/global_monthly.html.

Figure 3. Trade policy uncertainty index, Jan 1960 to Jul 2025, avg. by geopolitical phase

worldcommercereview.com



Source: Bruegel based on Caldara et al (2020). Data downloaded from <https://www.matteoiacoviello.com/tpu.htm>.

of the Atlantic is seeking to modulate the impact of these policy shocks. In addition to baseline effects, there are substantial downside risks.

2.3.1 Baseline effects

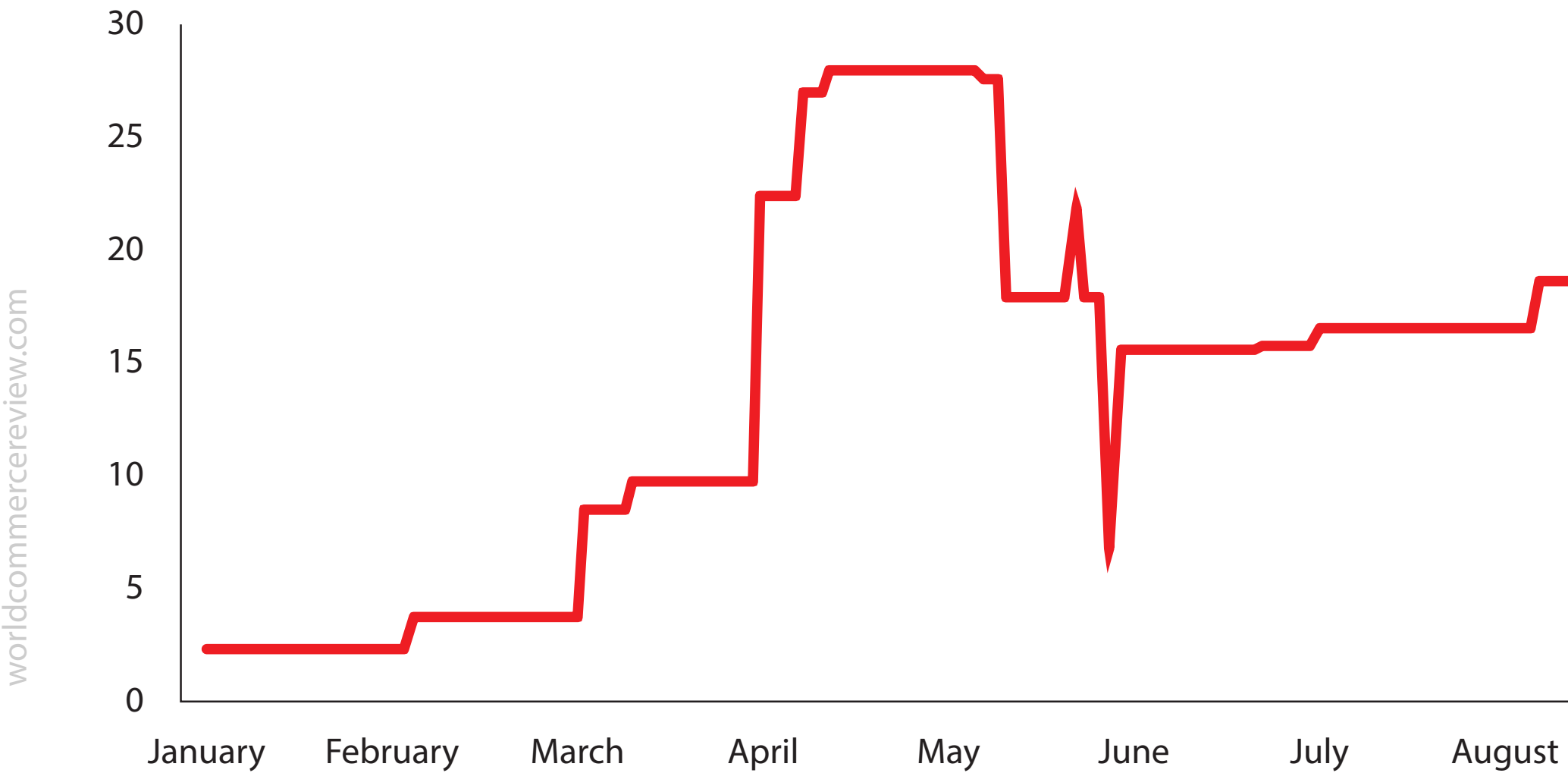
Tariffs. US effective import tariffs have gone from 2.4 percent at the end of 2024 to almost 19 percent in mid-August 2025 (Figure 4). Imports from the EU now face a baseline tariff of 15 percent, with some products (steel and aluminium, copper and cars) facing higher tariffs at the time of writing, and a yet-to-be defined set of 'strategic products', to which lower or zero tariffs will apply⁸.

Estimates of the 2025 and 2026 GDP impact of these tariffs on the US are larger than the impacts on the EU, ranging from -0.35 percent to -0.6 percent of GDP (relative to the preexisting baseline), while the impact on the EU is estimated at -0.1 percent to -0.35 percent of GDP (see Annex Table 1). While the US economy is suffering a generalised negative supply shock via import prices, the EU is suffering a negative demand shock that affects about 20 percent of its goods exports (worth 3 percent of EU GDP in 2024)⁹.

Furthermore, the 15 percent levy is at the low end of the range of reciprocal tariffs the US has imposed on most other major exporters, implying that it may offer the EU a gain in market share relative to other exporters, which may compensate for some of the losses relative to US producers.

Policy uncertainty. While some of recent rise in policy uncertainty (Figures 2 and 3) is transitory (as the policy regime emerging from the stop-and-go announcements of the US administration becomes clearer), some may be permanent, as erosion of the rules-based order and independent institutions in the US creates more room for executive discretion.

Figure 4. United States average effective tariff rate



Source: Bruegel based on The Budget Lab (2025).

Notwithstanding the recovery in the US stock market after declines when the US tariff hikes were announced on 1 April, there is evidence that policy uncertainty has dampened investment in the US. Greater volatility and weaker growth in the US hurts the EU through the export channel and might strengthen investment in the EU in relative terms.

Fiscal policy. While the Trump administration's so-called One Big Beautiful Bill Act (OBBBA), signed into law on 4 July 2025, is estimated to be roughly neutral over the next ten years compared to an extension of current US fiscal policy (which was and remains on an unsustainable path)¹⁰, it is expansionary in the short term because the spending cuts envisaged in the bill are backloaded. According to IMF estimates, the OBBBA will raise the US deficit by about 1.5 percent of GDP in 2026.

Fiscal policy in the EU has been affected mainly through the impact of policy shifts on defence spending. In March, the European Commission (2025b) announced that EU members during 2025-2028 would be allowed to debt-finance an increase in defence spending by up to an additional 1.5 percent of GDP per year relative to 2021 levels, if they request the national escape clause (NEC) under the EU fiscal rules.

By end-April 2025, 16 EU countries had made such requests¹¹. According to the European Commission (2025c), based on "*credibly announced and sufficiently detailed measures*", additional defence expenditures announced by 30 April 2025 will amount to 0.1 percent of EU GDP in 2025.

The June NATO summit triggered further announcements for 2026 and beyond, while the German medium-term fiscal-structural plan, published in July, envisages an increase in the country's fiscal balance by about half a percent of GDP relative to the European Commission's baseline for both 2025 and 2026. On this basis, the combination of higher defence spending and additional fiscal expansion in Germany could add fiscal stimulus in the order of 0.2 percent to 0.4 percent of EU GDP during 2025-2026.

Importantly, this stimulus is set against a baseline that would otherwise be contractionary, as many EU countries had begun their adjustments under fiscal rules enacted in 2024, leading to net neutral or slightly expansionary fiscal stances in 2025 and 2026.

Monetary policy. The combination of higher tariffs and policy uncertainty has created a difficult task for the Federal Reserve, which needs to manage a negative supply shock in an environment of high demand uncertainty. With US inflation likely to be above target, it has opted to leave the federal funds rate unchanged at 4.25 percent to 4.5 percent since December 2024.

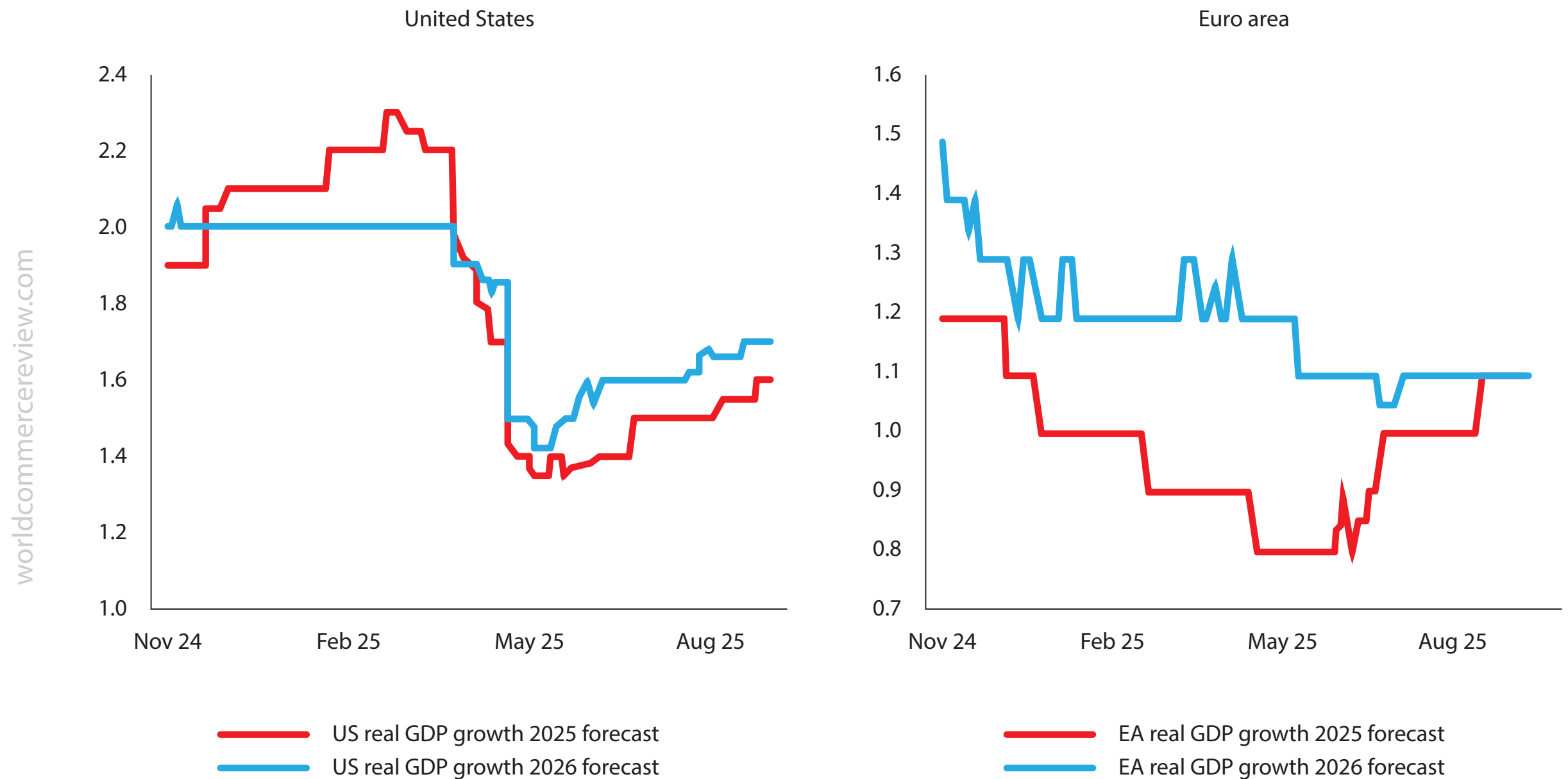
In contrast, the European Central Bank's task has been comparatively simple: with euro area inflation declining below 2 percent and slowing external demand, because of higher US tariffs and appreciation of the euro-dollar exchange rate, it has lowered its deposit interest rate. However, markets view a Federal Reserve interest rate cut in September as likely and expect a further cut by the end of 2025 and two cuts by mid-2026.

In contrast, markets are currently pricing in no further cuts from the ECB this year and are unsure about a cut in the first half of 2026¹². The joint impact of policy shocks and policy uncertainty is reflected in short-term output expectations.

Figure 5 shows the evolution of median forecasts of private sector economists surveyed by Bloomberg for both the US (panel a) and the euro area (panel b). The purple lines show forecasts for 2025 real GDP growth; the light blue lines show forecasts for 2026. Dates on the x-axes indicate the time of the forecasts.

Since Trump's second inauguration in January until early September 2025, the 2025 median growth forecast for the US has dropped by 0.50 percentage points, from 2.1 percent to about 1.6 percent, while the euro area median forecast dropped by just 0.1 percentage points, from 1.2 percent to 1.1 percent.

Figure 5. US and euro area short-term forecasts of annual real GDP growth (percent)



Note: Latest observation 04/09/2025.

Source: Bruegel based on Bloomberg Economist Survey (median response).

In the interim, forecasts for 2025 have undergone large swings, particularly in the US, where exuberance in the first months of the new administration was followed by a large drop in output expectations in April, when the extent of Trump's tariff hikes became clearer, and eventually a modest recovery. US output expectations for 2026 have gone through a similar cycle, albeit of smaller amplitude (Figure 5, left panel).

For the euro area, the 2025 forecast decline in the first half of 2025 has been more gradual than in the US, while the June-August recovery was steeper, likely reflecting a combination of monetary and fiscal policy easing, and the trade agreement with the US at the end of July.

At time of writing, forecasters expect modestly higher US growth in 2026 than in 2025, perhaps reflecting expected fiscal stimulus and monetary easing. Euro area output in 2026 is expected to be unchanged from 2025.

2.3.2 Risks

While expected EU and US economic performance for both 2025 and 2026 is sub-par, baseline forecasts remain relatively benign – far from a recession in either the US or the euro area. Nevertheless, it is easy to imagine far worse outcomes, even in the relatively short term (2025-2027). We focus on four.

A collapse of the US bond market, triggered by one or several of the following: (1) a sense that the US deficit is out of control, as political majorities in the US make fiscal adjustment impossible in the foreseeable future; (2) a sharp rise in inflation expectations; (3) a loss of faith in the quality of US economic data, particularly inflation and labour market data, triggered by Trump's assault on institutions.

An escalation of Russian military actions against Ukraine or the EU directly. This could take several forms: significant further loss of territory in Ukraine, leading to a new refugee wave; an acceleration of Russia's hybrid campaign

against the EU, targeting EU government institutions, critical infrastructure and other economic assets; or even a direct Russian military attack on one or several EU countries.

In the case of a direct military attack, the defence of Europe would become existential, testing NATO and EU unity. Russian military or hybrid gains short of a direct attack on the EU, however, may hurt the EU particularly through their political and economic knock-on effects.

These include nationalist populist backlash in the EU – hurting mainstream parties and eroding the consensus around additional assistance to Ukraine – and sharp drops in EU consumer and investment confidence, depressing output, increasing fiscal stress and possibly prompting a return of the fiscal-banking ‘doom loop’ in some EU countries.

A fiscal crisis in the euro area triggered by a populist election victory in a high-debt member state. With the government of the country in question unable or unwilling in this scenario to undertake fiscal adjustment in response to a loss in market confidence, EU crisis mechanisms may fail to work. The resulting debt crisis would throw the euro area into turmoil and raise questions about the sustainability of the common currency, as it did during 2010-2012.

A trade shock triggered by increasing tensions between the US and China and/or hostile Chinese actions in East Asia. Global supply chains could be disrupted either by an interruption of shipping linked to hostilities in East Asia, or by export bans on all critical minerals to any nation deemed to take ‘hostile economic actions’ against China.

All EU countries would be included in China’s immediate export ban. The EU would be faced with a prolonged economic downturn from the de facto end of freedom of navigation in the high seas in a vital part of the world and the severance of important global sea lanes, and would be denied access to critical minerals crucial to its industrial economy.

These shocks could be amplified in two ways. First, crisis scenarios may overlap (for example, policy paralysis arising from a populist victory and the priority of repelling Russian aggression). Second, several countries could be pushed to the fiscal and social breaking point.

The accumulation of crises since 2008 has left profound economic, political and social marks on the EU, US and other advanced countries. One measure of this is the level of public debt. In 2007, at the end of the post-Cold War period, debt-to-GDP ratios stood between 60 percent and 65 percent on average for the EU and euro area, with substantial differences between countries. The US ratio was similar.

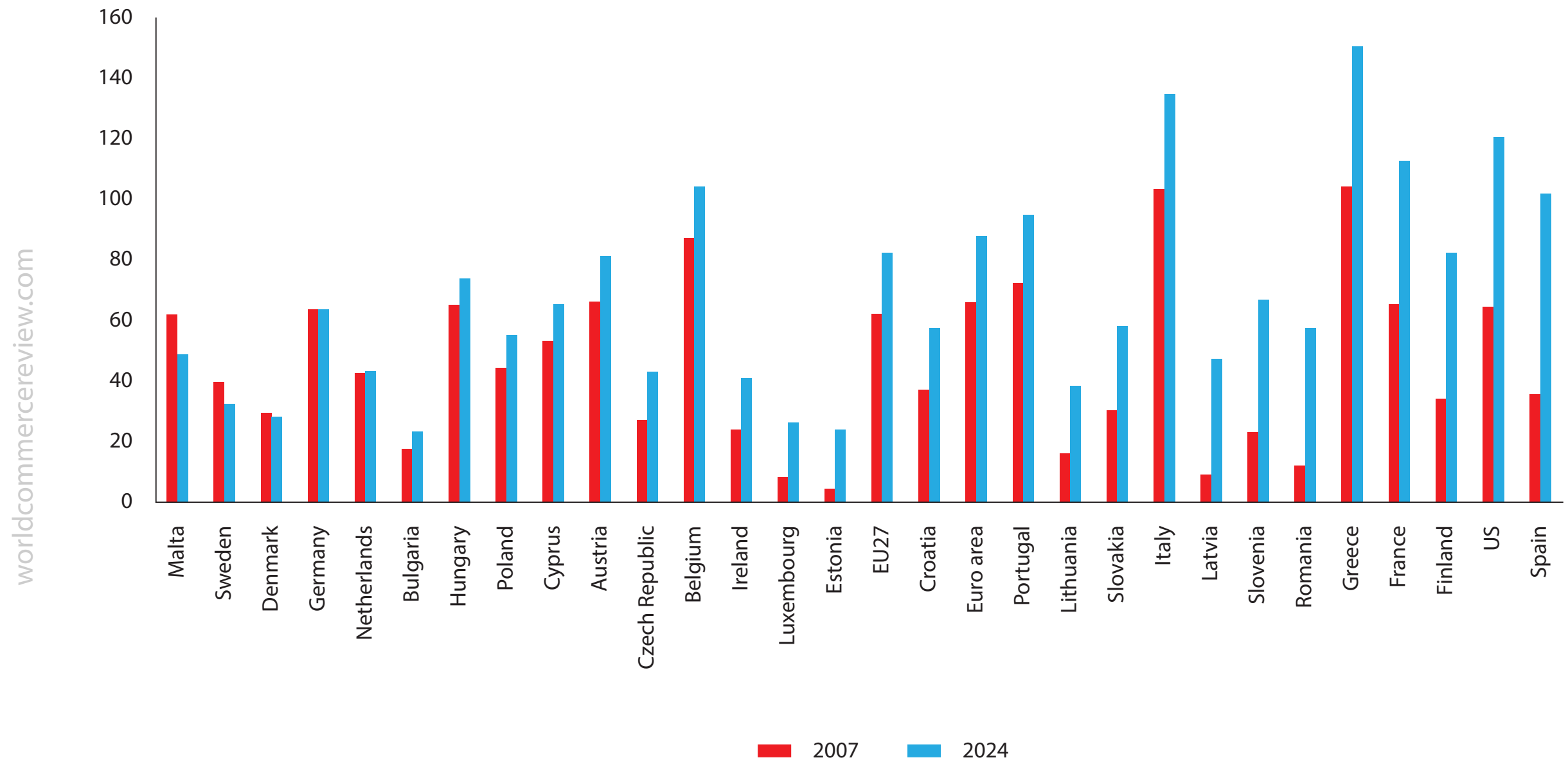
By 2024, debt-to-GDP ratios had increased by more than 20 points for the EU/euro area, with a big increase in the dispersion between countries. In countries including Denmark, Germany and the Netherlands, the debt ratio remained around or well below 60 percent, while it increased by around 50 percent of GDP or more in Finland, France, Spain and the US (Figure 6).

According to Darvas *et al* (forthcoming), stabilisation of the debt ratio over the long term will require fiscal adjustment of about 6 percent of GDP in the US, 5 percent of GDP in France and about 3 percent to 4 percent of GDP in Italy, Spain and Belgium. Although they have much lower debt ratios, several central and eastern European countries are also under high pressure to adjust over the medium term on account of very high deficits.

Add to this the additional cost of defence in the face of the new geopolitical reality, plus the costs of ageing populations and climate change (mitigation and adaptation), and it becomes clear that public finances are in a very difficult place in many EU countries and the US.

We assess the policy implications in section 4, after examining three geopolitical scenarios for the period 2030-2035 in section 3.

Figure 6. Debt-to-GDP ratio in 2007 and 2024 (percent)



Notes: Solid black line indicates a debt-to-GDP ratio of 100 percent. Countries are ranked in increasing order of the difference between the debt ratio in 2024 and 2007.
Source: Bruegel based on IMF (WEO).

3 Three geopolitical scenarios for the coming decade

This section discusses three contrasting geopolitical scenarios for 2030-2035 that share two common features: the world will be more multipolar than today, with no country willing or able to play the role of global hegemon providing overall insurance to the system; and the US-China geopolitical rivalry will persist. Multipolarity will increase because the number of major powers will rise. By 2030-2035, there will be a dozen major powers falling into three tiers:

- **Superpowers:** China and the US. There is much speculation among analysts and policymakers about the economic, military and technological trajectories of the two countries over the next five to ten years, and whether the US will retain its lead in some or all of these areas or be overtaken by China¹³. But there is consensus that in this timeframe, China and the US will remain the world's only superpowers.
- **Other (potential) great powers:** Russia, the EU and India. Besides China and the US, only Russia currently qualifies as a great power, mainly (or even only) because of its large nuclear arsenal. But as Mearsheimer (2019) has argued, Russia *"will be by far the weakest of the three great powers for the foreseeable future, unless either the US or Chinese economy encounters major long-term problems."*

Although it has plenty of economic and soft power, the EU is not currently a great power because it lacks military capability. However, European re-armament is speeding up and in the next five to ten years, EU countries will have substantial military capacity (Burilkov *et al* 2025), especially if reinforced by partnerships with countries including the UK, Canada, Norway and Ukraine.

Another candidate for great power status is India, the world's most populous country and already one of the five largest in terms of GDP, with the fastest growing economy among the top five. India has also a rapidly

growing military footprint. Its 2025 defence budget was the third largest in the world, after the US and China, not counting the EU as bloc.

- **Middle/regional powers:** in Asia (Indonesia, Japan), Africa (Nigeria, South Africa), the Middle East (Turkey, Saudi Arabia) and South America (Brazil). All these seven countries (except Nigeria) belong to the G20 and are already regional powers. Brazil, Saudi Arabia and South Africa also belong to the BRICS, as do China, India and Russia.

The three scenarios we discuss differ with respect to two variables: the degree of intensity in the US-China geopolitical rivalry; and the capacity of other major powers and smaller countries to organise rules-based international cooperation and institutions.

Note that the scenarios are not designed as a typical triad comprising a 'central' or 'base case' scenario, which represents the most likely outcome based on current information, plus upside and downside scenarios that explore more optimistic and pessimistic outcomes. Instead, they are meant to be organising principles that help describe possible states of the world in 2030-2035. Actual outcomes could well consist of weighted combinations of two of these scenarios (or even all three), and of variants within scenarios.

3.1 Scenario 1: collapse of international cooperation

Scenario 1 is defined as a 'bad' (collectively inefficient) non-cooperative equilibrium across the three tiers of powers. By 2030-2035, there are only loose and opportunistic alliances between countries, and a bare minimum of international cooperation. The global public goods created after the Second World War (UN, IMF, World Bank, WTO) have lost relevance or ceased to exist, mainly because of the intense geopolitical competition between the US and China, with neither willing or able to provide or promote international public goods, and both acting coercively towards other countries.

The US continues to maintain substantial tariffs, even if they have not led to the desired results (US reindustrialisation and enhanced economic security), mainly because they raise substantial revenue for the US government, which needs it to help finance its large debt.

The only global public good that continues to be provided in this scenario might be some degree of control of nuclear proliferation, the area with the biggest potential negative global externality. Another area with a very large potential negative global externality, climate change, is one of the victims of the collapse of the international order, propelled by a doom loop involving domestic and international conflict.

Major powers with low social cohesion, high public debts and high levels of support for populist politicians oppose international cooperation and institutions. Meanwhile, nationalist and populist policies reduce economic growth and the ability of countries to deal with the economic consequences of ageing and climate change (Funke *et al* 2023), which further increases domestic discontent and international conflicts.

Scenario 1 closely relates to the 'Kindleberger trap', a term coined by Joseph Nye to warn – a few weeks before the start of the first Trump presidency – of the risk of a situation in which neither the declining superpower, the US, nor the ascending one, China, is able or willing to assume the role of 'benevolent hegemon'¹⁴.

Since Kindleberger (1973), it has been widely agreed that such a role must be played by one of the great powers to sustain a liberal international order, as the US did for the Western sphere during the Cold War period or globally during the much shorter period of hyper-globalisation¹⁵. Scenario 1 lacks any such hegemon.

3.2 Scenario 2: back to a world of blocs

The defining feature of scenario 2 is that the world splits into three groups: a US-led bloc, a China-led bloc and a

non-aligned set of countries. This scenario has two variants, depending on the degree of interdependence between the US and China blocs¹⁶:

In the decoupling variant, the US-China geopolitical rivalry is intense, and after more than a decade of economic (trade, finance, technology) and political fragmentation, the two blocs are detached from one another, perhaps not as much as was the case between the western and eastern blocs during the Cold War, but far more than is the case in 2025¹⁷.

In the derisking variant, the US-China geopolitical competition is somewhat less intense, and the two blocs remain fairly interdependent, managing the risks of such interdependence with *“intelligent economic security policy”*¹⁸. This is in line with what President Biden’s National Security Advisor, Jake Sullivan (2023), advocated with his *“small yard, high fence”* policy: selective decoupling in areas where national security is at stake.

The first variant is easier to understand. It amounts to a new Cold War, with little relationship between the US-led and China-led blocs, except for security issues handled by the two superpowers. The second variant is probably more realistic, though harder to grasp.

In particular, it is not clear what the exact perimeter of the ‘small yard’ would be, nor whether it would be possible to really keep it ‘small’. After all, what constitutes ‘national security’ or even ‘economic security’ is highly subjective. In addition, imports and supplier relationships that pose a risk to economic security are very hard to pinpoint empirically (Pisani-Ferry *et al* 2024).

In both variants, global cooperation would likely be more extensive than in scenario 1. In particular, the two blocs may agree to cooperate not only on nuclear proliferation, but also on climate change. Global economic institutions including the IMF, World Bank and the WTO would retain meaningful roles.

In the decoupling variant, however, these roles would be much reduced, even compared to their already diminished levels in 2024, ie. before the de-facto US exit from the WTO in 2025. In particular, trade governance would probably revert to the pre-WTO days, when GATT members enjoyed more 'policy space' (meaning they could be more protectionist) and there was no Appellate Body to adjudicate disputes, resolution of which was left to diplomats and politicians rather than judges.

This governance structure would include most current WTO members, but might not include the US, unless by 2030-2035 it has re-embraced some form of rules-based trade, particularly the most-favoured-nation (MFN) non-discrimination principle that is enshrined in Article I of the GATT and is one of its cornerstones.

With China and its state capitalist practices now impacting the US-led bloc relatively little, the countries of this bloc may decide to retain WTO-like governance among themselves, including by reinstating the Appellate Body dismantled by US actions during the Obama and first Trump administrations because of rulings related to trade with China¹⁹.

In the de-risking variant, the two blocs should in principle be ready to cooperate more closely than in the decoupling variant, and economic institutions including the IMF, World Bank and the WTO should retain greater roles, with some redefinitions to meet demands from the Global South, which would presumably remain non-aligned with the two blocs.

In terms of membership of the two blocs, it is fair to assume that countries that are likely to remain security-dependent on the US for geographical reasons, such as South Korea or Japan, will be part of the US bloc. It is less clear with which bloc the EU, India and Russia – the three actual or potential 'great powers' – would align.

In view of the EU's lopsided trade deal with the US administration²⁰, it might seem obvious that the EU has chosen, or felt that it had to choose, the US bloc. However, this was in 2025. By 2030-2035, the EU may have gained sufficient strategic autonomy to be able to make real choices, especially if European military capacities have been strengthened.

In view of India's history since independence in 1947, during which it stayed non-aligned with both the US and the Soviet Union and later Russia, India is unlikely to align itself with the US. However, an opportunistic alliance with America to counter its Chinese neighbour is likely to remain part of its strategy.

Finally, Russia's position is by no means obvious. It has a solid alliance with China, which has been strengthened by the war in Ukraine. However, Russia has gradually become the junior partner in its relationship with China and may seek to reestablish a more balanced relationship by strengthening links with Europe and America.

A crucial factor in the decision of the EU to align itself with, or perhaps behind, the US, or to become non-aligned, will be US behaviour. Will it return to its role of relatively benevolent hegemon, or will it continue to behave as a 'coercive hegemon', as it did by imposing a 15 percent reciprocal tariff on the EU and demanding from the EU concessions for not imposing higher tariffs, which has been described as humiliating?²¹

In the former case, the EU would likely continue to align with the US, though it would seek a better arrangement than it enjoys currently. In the latter case, it would be difficult for the EU to belong to the US-led bloc, pushing it toward the non-aligned.

3.3 Scenario 3: multilateralism reinvented

In scenario 3, the two superpowers, although remaining rivals in some areas, agree to cooperate to provide global

public goods in all areas that have potential negative externalities, including nuclear proliferation, climate change, trade and finance, because they have discovered – perhaps after having passed painfully through scenarios 1 and 2 – that not tackling common problems through common efforts and institutions has a high cost, not only for others but also for themselves.

In this idealistic scenario, a new international order would be established. This would involve reforming multilateral global institutions including the UN, the IMF, World Bank and WTO to guarantee a greater role for the Global South, which remained largely non-aligned in scenario 2, and to respond better to their development goals, while ensuring international security and dealing with global warming.

This new order would not depend on the ability or willingness of a superpower to provide global public goods. Instead, the new international order would be managed by a new grouping composed of China, the United States, Brazil, the EU, India, the African Union and maybe one or two more countries. In its most idealistic variant, this new grouping would take over from China, France, Russia, the UK and US as the new permanent members of the UN Security Council.

A less idealistic, though still ambitious, variant of this scenario would assume that the US-China rivalry will preclude the participation of the two superpowers in the reinvention of the multilateral rules-based order, at least initially.

In this variant, a coalition of countries, involving the EU, the UK, Norway, Canada and a small group of like-minded countries from the Global North (including Japan and Korea) and the Global South, would take the initiative, hoping that the US will join them at a later stage. China, however, may already be part of the coalition for some issues (such as climate change) though not for others (such as trade), as we discuss in section 4.

Table 1 summarises the geopolitical situation and the degree of world integration in each of the three scenarios for 2030-2035 (and beyond) and compares them to the conditions that prevailed during the three phases from 1945 to the present.

From the perspective of informing EU policy, the scenario analysis offers two main takeaways. First, the three scenarios can be ranked in terms of their welfare implications for the EU and the world collectively. Scenario 1 would be least desirable for the EU, most individual countries and countries collectively, because international cooperation on global public goods would be largely absent, armed conflict would likely be frequent, and protectionism would become the norm.

Scenario 2 (multipolarity with strong elements of bipolarity and some multilateralism within each of the two blocs) would be better because it would entail some international rules (strong ones inside the blocs and weaker ones between them) and greater capacity to deal with global issues than scenario 1.

Finally, scenario 3 (multipolarity with multilateralism) would be the most desirable.

Second, the probability of realisation of any of these three scenarios mostly depends on the two superpowers. But the other major powers, including the EU, will also be influential. The EU and its allies may also be able to shape which variant of a scenario becomes reality. As already indicated at the beginning of section 3, all three scenarios have two features in common: continued US-China rivalry for at least a decade, and multipolarity.

In such a setting, the EU may be able to take steps, with other partners, to push the world in the direction of scenario 3; or it may be able to shape scenario 2 by strengthening international institutions and/or by choosing whether to align with the US or be non-aligned in areas other than security (on which Europe will want to preserve NATO).

Table 1. Geopolitical situation and degree of world integration, by period

Period	Geopolitical situation			Degree of world integration
	World	Europe		
Past and present				
1947-1989	ColdWar	Bipolar	US vassal, by necessity	Low, but high for the West
1990-2007	US hegemony	Unipolar	US vassl, by necessity	Hyper-globalisation
2008-today	Great power competition	Multipolar	‘Vassalisation malheureuse’	Increasing fragmentation
Future				
2030-2035	Scenario 1	Multipolar	Autonomous	More fragmentation and disorder than in 2025
2030-2035	Scenario 2	Multipolar		
	With decoupling		Autonomous or US vassal	More fragmentation but more order than in 2025
	With de-risking		Autonomous or US vassal	Relative fragmentation and order, like in 2024
2030-2035	Scenario 3	Multipolar	Autonomous	High, with new international order

Source: Bruegel.

4 Policy choices for Europe

The discussion in section 3 implies that EU policy and institutional choices must serve two purposes: to influence the world in the direction of greater stability and international cooperation – that is, scenario 3, or the more benign variants of scenario 2 – and to optimally adapt to whichever scenario or scenario combination arises.

This appears to create a dilemma. However hard the EU may try to preserve or restore a cooperative international order, it may fail. If it does, it would then need a different set of institutions and policies than it would need in the case of success. Scenario 3 may justify policy choices that have the same flavour as in the period of hyper-globalisation: low levels of military spending, high levels international specialisation.

In some variants, the US might regain its status as a reliable ally, implying that depending on the US in areas such as defence, technology or digital infrastructure would have a low cost. In contrast, in one variant of scenario 2 and in scenario 1, the EU might be essentially on its own, forcing much higher levels of self-reliance. Military spending would be high, and the argument for much deeper military integration in the EU, including a common army, would be far stronger.

As it turns out, however, identifying the right policies is much simpler than this confusing array of state-contingent possibilities suggests, for two reasons.

First, many policies choices do not involve a trade-off between security and efficiency. These include all reforms that encourage innovation and deepen the single market²². Such reforms are not just good for growth, but help the economy weather shocks, including those resulting from economic coercion.

A deeper single market allows the flexible reallocation of services and goods production in the face of external shocks, while deeper and more unified capital markets reduce both financial fragility and dependence on US capital markets.

Second, Europe's policymakers are not called on to make policy choices for 2035. They are called upon to make choices for the next one to five years, both in light of how these choices will impact Europe during this period, and how they will influence Europe's future.

Seen in this light, a dominant strategy emerges. Apart from pursuing policies that are good for both growth and resilience – which should be done anyway – Europe should make policy choices that reduce its dependence on the two superpowers and increase its security more broadly.

This would protect it against attempts by the superpowers to exploit this dependency, and it would increase Europe's bargaining power, both to deter bad behaviour – such as arbitrary imposition of tariffs by the US, export embargos by China or aggression by Russia – and to preserve or rebuild cooperative international arrangements.

Such policies are good both in the world as it is currently and is likely to remain in the medium term – a world in which the US is no longer a friendly hegemon. Such policies would also nudge the world in a better direction.

In the remainder of this section, we develop a short-to medium term policy agenda that meets these criteria and covers two areas: EU domestic and international policies.

4.1 The domestic policy agenda

4.1.1 Defence autonomy

An essential element of strategic autonomy is to strengthen the EU's ability (and that of its European neighbours,

including Ukraine) to defend itself without help from the United States. The EU and its European allies also have a strong interest in preserving NATO: the North Atlantic alliance has been, and continues to be, a cornerstone of its security. This requires a strategy that satisfies both objectives: preservation of NATO, and much greater defence autonomy from the US.

Over the past year, the EU has started to move in this direction, by accelerating national rearmament, and through modest steps that help members shoulder the financial burden of rearmament and that encourage joint procurement, including SAFE, a €150 billion lending instrument²³, and the use of the 'national escape clause' (NEC) to accommodate higher defence spending under EU fiscal rules²⁴. But these steps do not go nearly far enough. Europe needs to go much further, in two respects.

First, it must create a single market for defence equipment. This should include non-EU allies including the UK, Norway, Ukraine and potentially Canada, Switzerland and Turkey. Because such a market will be resisted by national defence-industrial interests, its creation requires a legal commitment device, analogous to EU legislation prohibiting national preferences in procurement and promoting competition within the EU.

In addition to prohibiting discrimination in procurement against companies inside the single market, such legislation should designate areas and modalities for joint procurement and lay the basis for standardisation of defence products. Europe-wide competition, greater standardisation and joint procurement (where possible) are essential to raise the scale of European defence production, reducing unit costs and ensuring the interoperability of equipment.

Unfortunately, creating such legislation through EU regulations or directives is impossible because Article 346 of the Treaty on the Functioning of the EU (TFEU) exempts national security related industry from single-market commitments.

Hence, the legal framework for creating a single European defence market requires an intergovernmental treaty, with an institutional mechanism to enforce it. One advantage of taking this route is that it would allow non-EU countries to join on an equal footing, and it would not require all EU countries to join.

Second, Europe must jointly develop and own common defence assets to reduce its dependence on US-provided strategic enablers such as satellite-based intelligence, surveillance and communication infrastructure, strategic airlift (heavy transport aircraft and aerial refuelling systems), military mobility and air defence systems.

While NATO functions well, these can complement US-provided assets and contribute to fairer burden-sharing within the alliance. And if the US were to lose interest, Europe would have an alternative.

Assets of this type must be jointly planned and funded to ensure fair burden-sharing and good incentives. This could be done through a new intergovernmental organisation created by EU NATO members and their European allies (Wolff *et al* 2025; Zettelmeyer *et al* 2025a).

Or it could be done through existing, EU-based institutions and arrangements, with the EU providing funding through dedicated debt issuance financed by service payments by the countries that benefit from the common defence assets (Steinbach *et al* 2025), and planning and technical expertise through Permanent Structured Cooperation (PESCO) and the European Defence Agency.

In either case, operational control would need to be delegated to national or joint control-and-command systems that have the military capacity to run them.

4.1.2 Tech autonomy and AI

Defence autonomy is closely related to technological and, especially today, AI-related autonomy. On this, the EU (and other countries) faces both hardware and software challenges.

In the 2030-2035 timeframe, reunification of Taiwan with China cannot be ruled out, creating a risk that the entire world's supply of state-of-the-art 2 nanometre (or less) chips, important for AI development, will be in Chinese hands. Medium-term EU technological and AI sovereignty may rest on having such a plant not just outside Taiwan, but inside the EU or in a geographically close and politically reliable trading partner. Appropriate EU measures to sway key firm-level decisions towards meeting this goal will be necessary.

On the software side, US firms have an entrenched dominance over global digital services platforms outside the Chinese market. To successfully dislodge current technology incumbents and secure EU technological autonomy in these areas, entirely new technologies are likely to be required.

EU policies must therefore remain focused on facilitating such disruptive innovation through 'moonshot missions', rather than on supporting EU-based substitutes for existing services offered by US domiciled entities. This will include focusing on several policy areas, with careful consideration given to the probable impact of AI on future technology trends and on broader society.

AI is a powerfully disruptive general-purpose technology (Bresnahan and Trajtenberg 1995; Ding 2021), characterised by a wide and pervasive applicability across many economic sectors, and with the potential for continuing technical improvements and synergies with other innovations. This means skills for the promotion of AI adoption throughout the EU economy will be crucial.

This requires focusing on a wide section of the workforce, rather than just the limited segment needed to pioneer its development. Designing and training innovative AI applications at thousands of large EU firms and SMEs requires a workforce with access to practically focused AI skills, with course certifications recognised across the EU, AI based life-long learning modules and AI courses available at tertiary, professional degree and vocational training educational institutions.

Accelerating adoption by European businesses of AI assisted workflows, task solving and product development further requires flexible labour market regulation and workplace conditions that will facilitate profitable firm-level AI adoption.

AI will meanwhile continue to generate fake online identities and misinformation, frequently promoted by platform-owning intermediaries through algorithms designed to maximise their revenues. It will therefore become, and likely already is, a conduit for destabilisation and hybrid warfare.

To counter this, the EU, with private-sector identity-verification service providers in a public-private partnership to ensure cost and technology standards, should implement a common digital identity and authentication standard.

This should include a common digital EU identity platform to serve as a gateway via which Europeans will access a wide variety of public and private online services.

Working in tandem with current provisions in the Digital Markets Act (Regulation (EU) 2022/1925), the promotion of verifiable human-generated content in the EU will weaken the digital platform network effects currently fuelling the dominance of US-based entities. This will help promote European content providers and reduce the influence of robotised digital information created outside the EU.

4.1.3 Financial autonomy

European citizens, banks and firms depend heavily on the US through several financial channels. These include the payments system (the only EU-wide retail payment service providers are American companies; EU-based competing services are typically nationally based) and dependence on US Treasury Bonds as a store of value and as collateral.

In the current state of US politics, as well as in scenario 1 and some variants of scenario 2, this is a significant problem. A coercive US could threaten to order its companies to disrupt EU payments to gain leverage, impose taxes on capital outflows or even threaten to restructure US Treasury Bonds held by specific institutional holders along the lines described by Miran (2024).

The introduction of the (retail) digital euro is an important step to guard against the first risk but is not sufficient, for two reasons. First, holdings of digital euros are expected to be tightly capped to a few thousand euros. Furthermore, the digital euro will not be usable for payments outside the euro area.

While the digital euro could prove useful to consumers and for safeguarding retail payments inside the euro area, it will not reduce the dependence of EU companies on US-based payment technologies. While private European solutions are emerging²⁵, it is unclear how reliable they will become, particularly if the providers may themselves be dependent on US technology.

Second, the expected growth of dollar-based stablecoins implies that EU dependence on the US dollar both for payments and as a store of value may be about to become a lot bigger. The US administration is promoting dollar-based stablecoins, backed by US Treasuries, for fiscal reasons. Unless there are EU-based alternatives, US stablecoins might become the payments technology of choice for EU companies, particularly for international transactions.

The EU could respond in two ways. One approach would be for the EU (including the European Central Bank) to actively support the creation of euro-based stablecoins, while ensuring their safety²⁶. This could be done by promoting the harmonisation and standardisation of euro stablecoins, and by mitigating systemic risk, including by giving stablecoin issuers direct access to ECB liquidity support.

Second, the EU could maintain the current strategy on stablecoins, which is to provide a regulatory framework but otherwise leave the market to itself. But if this is the choice, the ECB should also provide a digital currency that can compete with stablecoins in providing free and fast payments and settlement services, both wholesale and retail. This would go far beyond the digital euro as currently planned²⁷.

In either case, the ECB should accelerate its work on improving wholesale digital payments infrastructure, an area in which it has started a pilot project (Appia)²⁸. This could be made interoperable with stablecoins, making euro stablecoin transactions faster and more secure and improving the attractiveness of regulated relative to unregulated stablecoins. And the EU needs to accelerate work on capital market union (rebranded the Savings and Investment Union), enabling the emergence of low-cost, diversified investment instruments available to all savers and investors (EU and non-EU).

4.1.4 Energy systems

Europe's reliance on imported energy has proven a strategic vulnerability. Europe's strategy of building a largely electrified energy system powered by domestic resources (European Commission 2024) is the right path to decarbonise and to end dependence on imported fossil fuels. But if the necessary investments, which are substantial, are planned and financed country-by-country, Europe risks locking in avoidably high energy costs.

A predictable, European rules-based market framework, embedded in coordinated long-term system planning, can significantly reduce investor risk and the cost of capital, prevent wasteful duplication and deliver a more efficient geographic and technological mix of generation, storage and demand.

Beyond immediate savings in dispatch and investment, a large and predictable market fosters scale economies, competition and innovation, reducing costs over time (Zachmann *et al* 2024). Equally, a consistent framework enhances resilience by turning Europe's scale and diversity into cost-effective mutual insurance.

The current system is still far from a single market in which price differences point to underlying economic cost differences. The biggest successes in the last two decades have been the common carbon market and the coupling of electricity wholesale markets, which has substantially reduced inefficiencies in dispatch across borders (eg. when the wind is blowing strongly in one country, production from gas-fired power plants in another country can be reduced).

But currently, the system remains characterised by poorly coordinated national electricity system development planning, unaligned national remuneration mechanisms for investments in generation, opaque stacking of national policy-driven pricing-components, leading to idiosyncratic final electricity prices for individual consumers, and insufficient crossborder transmission and its inefficient usage.

An ambitious strategy to put the EU on track to a resilient and affordable integrated electricity system should include:

- Establishment of an EU energy information administration that would providing reliable, relevant and usable data on the current and planned state of the energy system, underpinning informed policy discussions.

- Introduction of real coordination of national system planning, including an independent top-down view serving as a benchmark.
- A European fund to catalyse more crossborder transmission.
- Progress towards a single borderless dispatch market, in which only physical constraints would justify price differences.
- A means of ensuring that capacity remuneration mechanisms are organised, at least at regional level (Holmberg *et al* 2025).

Making this work will require long-term trust, discipline to resist domestic vested interests and a willingness to pool elements of sovereignty. It will only succeed with a credible commitment at the highest political level.

4.1.5 Secure access to critical minerals

China successfully weaponised its critical minerals export-control regime and established trade escalation dominance over the US in retaliation against Donald Trump's tariffs²⁹. While the EU is neither in a geopolitical rivalry nor a trade war with China, EU firms were affected by China's export controls on critical minerals.

The urgency of securing EU access to critical minerals in the face of China's continuing global dominance, especially of refining and processing of critical minerals, has risen since the European Critical Raw Materials Act (CRMA, Regulation (EU) 2024/1252) entered into force in May 2024. New policy measures must now be added. Domestic measures should include further incentivising and mandating critical raw materials recycling.

The recently updated EU battery material recovery targets³⁰, applying 2031 target values of 95 percent for cobalt, copper, lead and nickel³¹, should serve as inspiration for all identified critical materials. Target values must be updated frequently to track progress in best commercially available recycling practices.

For rare earths that are used in such small quantities that recycling may not be cost efficient, mandatory minimum stockpiles should be established. EU governments could choose to do this at national or EU level by simply buying and stockpiling the raw materials deemed sufficiently important, or they can incentivise businesses to do it via tax benefits or prescribed firm-level inventory levels.

Significant expansion of public funding for basic materials research at EU public and private institutions, pursuing 'innovative substitution' to make new and cheaper but equally efficient materials available to replace critical raw materials currently sourced from China.

However, the EU should not push for domestic production targets for critical mineral extraction and processing that are costly to implement. It should rely instead on trade with trusted partners (see section 4.2).

4.1.6 A risk-based reform of the EU fiscal framework

The 2024 reform of the EU fiscal framework was a big step in the right direction. It rightly requires high-debt, high-fiscal-risk countries to cut their deficits quickly. But it also suffers from two major flaws.

The costs associated with these flaws, insofar as they guide national fiscal policies in the EU in the wrong direction, were perhaps manageable before the acceleration the geopolitical challenges the EU has faced since the start of the second Trump administration. But they have now been shown to be prohibitive, including in most of the scenarios discussed in section 3.

The first flaw, which was apparent even before the system became fully final (Darvas *et al* 2023) was that EU-endorsed investment spending was not favoured sufficiently relative to other spending. While debt sustainability must remain the primary objective of fiscal rules, there should be no quantitative limits on a debt-financed investment boost within a pre-agreed period (say, seven years), provided that: (1) the criteria of high-quality public investment defined in the current fiscal framework are complied with, and (2) debt remains sustainable at the end of the period.

The latter will generally require adjustment in the non-investment budget while the investment programme is being carried out. However, the adjustment needed to pay for even a large investment programme – provided it is temporary – is limited (Annex 1 of Darvas *et al* 2024).

The second flaw has become obvious only more recently. It is that the rules impose the same standard of fiscal adjustment – to put debt on a declining path with high probability within four to seven years – regardless of whether fiscal risks are high or low. The only exception is for countries with debt below 60 percent of GDP, which do not need to put their debt on a declining path as long as it is projected to stay below 60 percent in the medium term.

The consequence is heavy constraints on the fiscal policies of both countries with debts below but close to 60 percent of GDP, and close to but above 60 percent of GDP, even when those countries could afford an extended period of increasing debt without meaningful fiscal risks (because their debt remains relatively low and the adjustment required to stabilise the debt would remain manageable).

There may be several reasons why no-one worried about this feature of the new rules. First, it relates directly to Article 126 TFEU in conjunction with Treaty Protocol 12, which defines government deficits as excessive if debt is above the 60 percent of GDP reference value unless it *“approaches the reference value at a satisfactory pace.”*

Second, the countries that would benefit from greater flexibility without creating fiscal risks – including Germany and potentially the Netherlands – felt that they did not need it. In Germany, a national fiscal rule imposed even tougher constraints than the EU rule. This situation has now changed.

As a result, the EU rules are imposing constraints on German policy and potentially the policies of other countries close to the 60 percent of GDP threshold that are tighter than is good for these countries or for the EU collectively (Zettelmeyer *et al* 2025b).

A solution that gives more fiscal space to low-risk countries could take one of two forms (Steinbach and Zettelmeyer 2025; Pench 2025):

First, define much longer adjustment horizons for countries with debt above but near 60 percent of GDP and low fiscal risks. The latter could be identified using a sovereign risk assessment methodology (such as the IMF's sovereign risk and debt sustainability framework, or using elements of the current EU methodology), perhaps supported by market indicators, including risk premia.

Alternatively, increase the debt reference value outlined in Treaty Protocol 12 from 60 percent to 90 percent. This would not require Treaty change, but it would require unanimity in the Council.

4.2 The international policy agenda

To enhance its strategic autonomy, making significant progress on domestic policy should be an absolute priority for the EU during the next five to ten years. Simultaneously, the EU should develop its international agenda. We focus on two areas: trade and climate.

4.2.1 Trade policy

EU trade policy should have two objectives. First, it should promote trade, thereby contributing to growth and enhanced strategic autonomy. Second, this autonomy should be used to promote a rules-based international trade order that favours gains from trade.

On the first objective, the EU needs to further extend its large network of regional and bilateral trade agreements (already currently covering 74 countries and 44 percent of EU trade)³² to enhance its economic security, including in critical raw materials.

Here, the EU's strategic emphasis should be on agreements with the Global South, which is already pivotal in many areas and can only increase in importance in the future given its growth prospects. By 2030, the Global South (defined here as the emerging and developing economies (EMDEs), minus China and Russia) is expected to account for 40 percent of global GDP at PPP, slightly more than the share of the west (defined here as the advanced economies) and double that of China (Table 2).

The EU has already free-trade agreements (FTAs) with important countries in the Global South, including Mexico, South Africa and Vietnam. It should rapidly ratify the FTA with Brazil (and its Mercosur partners) and conclude FTA negotiations with India and Indonesia³³, the three biggest players in the Global South.

The EU also has strategic partnerships on raw materials with 14 countries from the Global North (including Australia, Canada and Norway) and the Global South (including Argentina, Chile and Zambia), complementing existing or future FTAs. These partnerships should be welcomed but also given more resources.

On the second objective, the EU should seek to move the trading system towards our scenario 3, or at least the most benign version of scenario 2. This involves two priorities: ensuring that the EU and most economies continue

Table 2. The EU27 and the world: GDP at PPP (% of the world), 2000, 2025, and 2030

	2000	2025	2030	200-2030
EU27	21.7	14.1	13.0	-8.7
US	20.5	14.7	14.0	-6.5
Other advanced	16.0	10.5	9.6	-6.4
Total advanced	58.2	39.4	36.6	-21.6
China	6.7	19.7	20.4	+13.7
India	4.0	8.5	10.0	+6.0
Other EMDEs	31.0	32.1	33.0	+2.0
Total EMDEs	41.7	60.6	63.4	+21.7
World	100.0	100.0	100.0	0.0
Memo item:				
Global South, w/t China & Russia	31.9	37.5	39.8	+7.9

Source: Bruegel based on IMF (WEO).

to adhere to existing WTO rules, despite the Trump administration's behaviour, and seeking effective reform of the WTO.

The EU must decide whether it is politically ready to take the lead and gather a 'coalition of the willing' to redesign international trade rules and institutions without US participation (at least initially). The US does not believe at the moment in a rules-based order, while China's economic system sits oddly with the practices of most other countries.

Sweden's National Board of Trade (Altenberg 2025) has proposed that the EU launch a rules-based trade coalition (RBTC) with like-minded partners, extending Commission President Ursula von der Leyen's June 2025 suggestion that the EU deepen its cooperation with the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)³⁴. According to President von der Leyen, acting together, the EU and the CPTPP countries would show to the world that free trade with a large number of countries is possible on a rules-based foundation.

Using two main criteria to select RBTC partners – like-mindedness at the WTO, and countries with which the EU already has or is in the process of signing an FTA – Altenberg (2025) came up with non-exclusive list of 56 potential coalition members: the 27 EU countries, 13 non-EU European countries (including Iceland, Norway, Switzerland and Ukraine), 11 CPTPP members (including the UK), and five others³⁵. Neither China nor the US are on the list of potential RBTC partners (Altenberg 2025).

The coalition would operate outside the WTO institutional framework, but its ultimate goal would be to strengthen the multilateral trading system and the WTO by reforming them. At the same time, the coalition should be ready to cooperate with countries interested in maintaining a rules-based framework. This could be done through open plurilateral agreements with different memberships. For instance, an agreement to cooperate on the trade and climate interface would need to include China, India, Indonesia, Brazil and South Africa (Garcia Bercero 2025).

This and other proposals based on the idea of coalitions of the willing are compatible with scenario 3.

4.2.2 International climate policy

For climate protection, there is no option other than multi- or plurilateralism, to even hope to keep to the goals of the Paris Agreement. Ideally, plurilateral efforts would need to involve the top five emitters – China, the US, the EU, India and Russia – which together account for roughly 60 percent of global emissions, with China responsible for half this figure.

In this area, a coalition of the willing, perhaps led by the EU but leaving out China, the US and Russia, will clearly not work. Assuming that the US and Russia are unwilling to participate at the moment, the coalition would need to include the EU, China and India, and perhaps some other large emitters such as Brazil and Japan.

This coalition would account for a little more than 50 percent of global emissions but would be rather unbalanced in terms of emissions between emerging economies (with China, India and Brazil accounting together for roughly 40 percent of global emissions) and advanced economies (with the EU and Japan accounting together for only 10 percent of global emissions).

What kind of foreign economic policy should the EU put in place to reduce its emissions and promote similar reductions in China and the Global South?

The EU has already decided to implement a carbon border adjustment mechanism (CBAM), which will complement its emissions trading system (ETS) by levelling the playing field for European producers subject to the ETS and encouraging climate action beyond EU borders.

Although potentially very useful to reduce emissions in the EU and elsewhere, CBAM is resented by many emerging and developing economies, which view it as 'green protectionism' and unfair because it imposes the same carbon price on rich and poor countries, irrespective of their ability to pay and degree of responsibility for climate change.

Opposition from the Global South creates geopolitical difficulties for the EU because of the Global South's growing pivotal role in many issues, including climate.

Recognising that global climate outcomes will largely be determined in emerging and developing economies, since they account for two-thirds of current emissions (slightly above their share in global GDP at PPP), Pisani-Ferry *et al* (2025) proposed a climate strategy in line with the economic interests of both developing and advanced countries.

Central to this strategy is the formation of a climate coalition of advanced and emerging market countries committed to tiered carbon pricing based on income level, and underpinned by a common CBAM, which would replace the EU CBAM. This coalition would include China, the EU, India, Brazil, Japan and a few others.

This strategy would also include two other important blocks: formal agreements in which advanced economies and China provide climate financing to the Global South countries in exchange for their commitment to ambitious net zero targets, and green industrial partnerships between the EU, the UK, Norway and resource-rich countries in the Global South with high renewable-power potential, from which Europe would import energy-intensive intermediate products rather than expensive-to-ship green electricity (Pisani-Ferry *et al* 2025).

Like Pisani-Ferry *et al* (2025), we view the EU as pivotal to the formation of these climate coalitions by virtue of its long-established carbon market and regulatory credibility.

5 Conclusion

We derive three main conclusions from our analysis. First, the short-term economic impact in terms of GDP growth of the current geopolitical situation seems relatively modest. We suggest, however, that policymakers should not be complacent for two reasons:

1. It would be a grave mistake to take a short-term view of this new shock to the European economy, rather than consider it as part of a series of shocks that have affected Europe since the start of the Great Financial Crisis in 2008. Though not suggesting that shocks including the Great Financial Crisis, the COVID-19 pandemic and the war in Ukraine have a common cause, one must at least appreciate that these shocks have common economic and political impacts on European (and other advanced economy) countries, of which the increases in political fragmentation and debt levels are just two indicators.
2. Partly related to the previous caveat, there are a number of downside risks, stemming from the situation in the US and elsewhere, which could aggravate the situation in the next year or two, and even provoke a new financial crisis. Vigilance should be top of mind.

Our second main conclusion is that, besides short-term risks, recent geopolitical developments raise important medium- and longer-term risks for Europe. By placing such developments in a historical perspective and envisaging three scenarios for the period 2030-2035, we have sought to alert European policymakers to the huge and very challenging geopolitical shifts that Europe faces, and for which it is ill prepared.

If the EU wants to be a scenario-maker rather than simply a scenario-taker, as it is at the moment, our analysis of a range of scenarios points in the same direction: Europe must work to gain strategic autonomy in key areas including defence, technology, finance and critical raw materials.

Our third conclusion is that strategic autonomy should not be confused with self-reliance or protectionism. Europe is and needs to remain an open economy and society. It is also and needs to remain a rules-based society and the champion of a rules-based international order. The past order, born (like the EU itself) from the ashes of the Second World War, is now being challenged not only by China and Russia, but also by its founder, the United States.

Meanwhile, humanity faces global problems like never before because of increasing nuclear proliferation and more dramatic climate change, issues that require global governance. Because the US has relinquished its role of supporting the global system, and the other superpower, China, is not (yet) able to take over that role, it is incumbent on Europe to work with coalitions of the willing from the Global North and Global South to reinvent the multilateral order. The place to start this journey is with climate and trade. ■

André Sapir and Jacob Funk Kirkegaard are Senior Fellows, and Jeromin Zettelmeyer is the Director, all at Bruegel

Endnotes

1. Poland and Czechoslovakia joined the IMF and World Bank in 1945, prior to their absorption into the Soviet bloc, but withdrew in 1950 and 1954, respectively.
2. See Office of the Historian, [‘Nixon and the End of the Bretton Woods System, 1971–1973’](#).
3. Patricia M Kim, [‘China’s choices and the fate of the post-post-Cold War era’](#), Commentary, 8 March 2022, Brookings.
4. In an extensive study of geopolitical fragmentation, Fernandez-Villaverde et al (2024) found that it started during the 2007-2008 financial crisis, accelerated between 2017 and 2020 because of mounting trade and capital flow restrictions, and has surged to unprecedented levels since 2022, because of the war in Ukraine and the Middle East conflict. Focusing on trade, Carluccio et al (2025) found that the trend toward fragmentation started in 2018, with the US-China trade conflict.
5. Hannah Lang, [‘Trump signs stablecoin law as crypto industry aims for mainstream adoption’](#), Reuters, 19 July 2025.
6. See Secretary Bessent’s remarks at the [Institute for International Finance, 23 April 2025](#), and at the [International Monetary and Financial Committee of the IMF, 23 April 2025](#). In line with these remarks, the July 2025 Report to Congress from the Chairman of the National Advisory Council on International Monetary and Financial Policies (an US interagency body chaired by the secretary of the Treasury mandated to report on the activities of the IMF and MDBs on an annual basis) reiterated the importance of a US-led IMF (US Department of the Treasury, 2025).
7. The GPR index is by Caldara and Iacoviello (2022) and is regularly updated. Its historical version begins in January 1900.
8. According to the European Commission, “as of 1 August 2025, US tariffs on EU aircraft and aircraft parts, certain chemicals, certain drug generics or natural resources will go back to pre-January levels. This will provide immediate tariff relief for key EU industries, while the EU and US agreed to keep working to add more products to this list”. The precise composition of the list remains unclear. For aluminium, steel and copper, a 50 percent tariff continues to apply, but an EU communication claims that “the EU and the US will establish tariff rate quotas for EU exports at historic levels, cutting the current 50% tariffs”. See European Commission Questions & Answers of 29 July 2025, [‘EU-US trade deal explained’](#).

9. According to European Commission data, goods exports from the EU to the US amounted to €531.6 billion in 2024, which corresponds to 21 percent of total extra-EU goods exports, or 3 percent of EU GDP. See Eurostat news of 11 March 2025, [‘Trade in goods with the United States in 2024’](#).
10. Based on an overview provided by ING, which combines estimated effects of tariffs and the OBBBA by the Congressional Budget Office (CBO, 2025a; 2025b) over the next ten years (2025-2035). See James Knightly, Dmitry Dolgin and Padhraic Garvey, [‘How President Trump’s plans will impact the US deficit’](#).
11. Belgium, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, Germany, Greece, Hungary, Latvia, Lithuania, Poland, Portugal, Slovakia and Slovenia. In addition, 18 member states have applied for SAFE, a lending facility to support rearmament offered by the European Commission. See section 4.4.1.
12. Market expectations are based on Bloomberg’s ‘World Interest Rate Probabilities’, which calculates the likelihood of interest rate cuts at central bank meetings. The calculations are based on OIS rates, with data as of 4 September 2025.
13. See, for instance, Edward Luce, [‘Trump is the gift that keeps giving to China’](#), Financial Times, 5 August 2025.
14. Joseph S Nye Jr, [‘The Kindleberger trap’](#), Project Syndicate, 9 January 2017.
15. Followers of the realist school of geopolitics reject this idea and consider that the liberal global order was either a fantasy (Kagan, 2008) or doomed from the start (Mearsheimer, 2019).
16. Becko et al (2025) considered another variant. They assumed that there are two categories of countries in the world: China and the US, two large countries, which enjoy market power and set their import tariffs to improve their terms of trade; and small countries, which have no market power and set their tariffs at zero. The two large countries trade with each other and the small countries, to which the large countries offer free access if they accept political alignment with them. If they don’t, they are charged the optimal tariff that the large countries also apply to each other. Using a stylised model, they found that the US sets an optimal tariff of 12.4 percent when competing with China for allies, while China sets a tariff of 7.0 percent. In their model, China’s lower tariff reflects both its smaller economic size and a weaker preference for alignment.

17. Gopinath et al (2025) also assumed a situation in which the world splits in three groups: a US-aligned bloc, a China-aligned bloc and non-aligned countries. They found that this split will have less detrimental effects on trade than during the Cold War, because they assume that non-aligned countries will act as 'connectors' between the two geopolitical blocs, as they have been doing since trade fragmentation started around 2018.
18. Henry Farrell and Abraham Newman, *'The new economic security state: How de-risking will remake geopolitics'*, Foreign Affairs, 19 October 2023.
19. Wailin Wong, Adrian Ma, Julia Ritchey, Lilly Quiroz and Kate Concannon, *'Why there's no referee for the trade war'*, NPR, 19 March 2025.
20. Jorge Liboreiro and Peggy Corlin, *'Brussels defiant against persistent criticism of EU-US trade deal'*, Euronews, 3 September 2025.
21. See, for instance, Ellen Francis and Anthony Faiola, *'To avoid worst of Trump tariffs, E.U. accepted a lopsided deal'*, The Washington Post, 28 July 2025.
22. See, among others, Letta (2024), Demertzis et al (2024), Draghi (2024), the European Commission's (2025a) Competitiveness Compass and the IMF (2024; 2025).
23. See European Commission, *'SAFE'*.
24. See Council of the EU press release of 30 April 2025, *'Coordinated activation of the National Escape Clause'*.
25. For example, *Vero*, a new instant online payments system run by a consortium of EU-based banks.
26. Lorenzo Bini-Smaghi, *'No, la moneta digitale della Bce non è un'alternativa al modello Stablecoin'*, Il Foglio, 12 July 2025; Lucrezia Reichlin, *'Europe needs a Euro stablecoin'*, Project Syndicate, 2 September 2025.
27. See European Central Bank, *'Digital euro'*.
28. See European Central Bank press release of 1 July 2025, *'ECB commits to distributed ledger technology settlement plans with dual-track strategy'*.
29. Ayeshea Perera, *'Why China curbing rare earth exports is a blow to the US'*, BBC, 17 April 2025. Some US concessions have led China to reduce export controls on rare earths: Darlene Superville, Josh Boak, Paul Wiseman and Didi Tang, *'Trump says US gets rare earth minerals from China and tariffs on Chinese goods will total 55%'*, AP, 11 June 2025.

30. See European Commission News article, [‘Circular Economy: New rules to boost recycling efficiency and material recovery from waste batteries’](#).
31. Ditto.
32. See European Commission press release of 15 November 2023, [‘Value of EU trade deals surpasses €2 trillion’](#).
33. See Garcia Bercero and Sapir (2025) for a discussion of what the EU-India free-trade agreement should contain and why it should be concluded rapidly.
34. Gerardo Fortuna, [‘Let’s create a new World Trade Organization - Von der Leyen’](#), Euronews, 27 June 2025. The CPTPP is a free-trade agreement between twelve countries: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the UK and Vietnam.
35. Brazil is among these five countries, but India is not. Altenberg (2025) offered no explanation so one can only guess the reasoning. India was probably considered not sufficiently like-minded at the WTO, an issue also raised by Garcia Bercero and Sapir (2025), though they concluded that an ambitious EU-India FTA would be a tangible sign that India’s trade policy has evolved towards greater like-mindedness.

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Annex

Table 1. Estimated short-term impacts of US tariffs on GDP growth in the US and EU (annual)

Source	US impact	EA/EU impact	As of/assumptions
The Budget Lab (2025)	-05 pp (in 2025 and 2026)	-	As of/assumptions
Kiel Trade and Tariffs Monitor	-	-0.1 pp (EU) and -0.11 pp (EA) in real production	As of 28 July 2025
ECB scenario analysis	-	-0.35 pp in 2025 (-0.3 in 2026 and +0.1 in 2027).	As of 14 May 2025, baseline scenario
'The conversation'	-0.36 pp	-0.13 pp	As of 4 August 2025
Bloomberg tariff tracker	-0.62 pp	-	As of 7 August 2025
IW Köln (based on Oxford Economics)	-	-0.36 pp	Latest US-EU trade deal

Source: Bruegel based on *The Budget Lab* (2025); *Kiel Trade and Tariffs Monitor*; ECB (2025); Bloomberg, *'Tracking Every Trump Tariff and Its Economic Effect'*, 21 March 2025; Koley-Schaefer and Hüther (2025); *ECB Eurosystem staff macroeconomic projections for the euro area, Box 2*; Niven Winchester, *'Trump tariffs: early modelling shows most economies lose – the US more than many'*, *The Conversation*, 4 August 2025.

Booms and busts and the regulatory cycle

Periods of deregulatory zeal preceded all three of the most infamous financial meltdowns over the past century. Michael Barr sounds the alarm about the potential impact of Washington's push to massively deregulate America's financial sector

will discuss one of the most important resources that policymakers have: the lessons of history. In discharging my responsibilities at the Federal Reserve, I have been thinking a lot about history. Its study provides the opportunity to step out of the particular circumstances of today to inform our understanding of the core issues at the heart of financial regulation.

While we must be attentive to new and even unprecedented challenges, experience shows that understanding the lessons of history gives policymakers a great advantage. Many of the decisions we face today have, in some form, been confronted by previous generations of policymakers.

In these remarks I want to discuss a particular pattern in the history of the financial system, which is the relationship between regulatory weakening and the economic and financial cycle of booms and busts. My intent is not to re-hash well-examined facts or to go over past historical episodes chapter and verse. Rather, I aim to offer a perspective on this historical throughline that focuses on the regulatory cycle.

It's widely accepted that the economy and financial system experience cyclical booms and busts. Booms have historically been characterized by a multitude of good things. These can include fast economic growth, workers who had been sidelined entering the workforce and improving their lives, and financial innovations that often make credit or investments more readily available.

At the same time, some of the characteristics of a boom economy, such as rapid increases in credit and in financial market activity, as well as greater risk-taking and leverage, can sow the seeds of busts. In busts, economic activity and lending contract and asset prices decline. This can lead to rapid deleveraging and dislocation throughout the financial system, which worsen the downturn, causing job losses and business closures, homes lost and lives upended.

There are usually multiple causes that drive booms and make busts so terrible, some unique to each individual episode. But one factor that is common to many past cycles of boom and bust is weakening financial regulation. Weakening regulation often drives risk-taking and increases bank fragility during the boom, making the ensuing bust more painful. Indeed, economic research suggests that weaker regulation leads to more bank failures, setting the stage for worse recessions¹.

It is striking to see the pattern of regulatory weakening during a boom, including the failure of the regulatory environment to keep pace with the evolving financial sector, and how this weakening lays the foundation for a subsequent bust

Moreover, because the financial system evolves so rapidly, regulation must also continuously adjust. Much regulatory weakening occurs simply when regulators fail to keep pace, while at other times, there is a deliberate action to lower regulatory burden that ends up miscalculating the risk involved. Let me be clear here that, when I refer to regulatory weakening, I mean not only direct deregulatory actions by regulators or legislators, but also failure of the regulatory framework to keep up with changing circumstances.

In principle, financial regulation should incentivize banks to engage in responsible risk-taking and build up resources in good times, so that they can deal with times of financial stress and continue their vital role in the economy in bad times. The prosperity that accompanies a healthy economy should allow banks to invest in improved risk management and strong financial resources.

However, a healthy economy can also reduce the effectiveness of regulatory constraints on bank risk-taking. This can occur for a host of reasons, including behavioural biases, political pressure, market dynamics, and the tendency for innovation to move more quickly than regulators.

These dynamics can result in regulatory weakening during boom times. When actively pursued, this weakening often appears justified at the time and may be implemented by well-meaning policymakers who simply miscalculate the long-run effects of their actions.

My purpose in these remarks is to recount several boom-and-bust episodes in American history and identify some lessons that can guide policymakers entrusted with the responsibility of promoting a strong and stable banking system. This history demonstrates the connection between regulatory weakening and cycles of boom and bust.

I don't mean to suggest that more regulation is always better or that repealing and reforming regulations isn't sometimes appropriate to remove obsolete rules and relieve unnecessary burden. But, if we can at least agree that regulation should seek to limit devastating financial crises, then the history that I will describe offers some lessons for anyone thinking about regulatory policy.

There are, of course, lots of examples to choose from, both in the United States and abroad, but I'll focus on the Great Depression, the Savings and Loan (S&L) Crisis, and the Global Financial Crisis. I will then discuss some possible reasons that similar episodes could recur and conclude with some thoughts on the lessons we can learn.

The Great Depression

Let's start with the biggest and most widely studied bust in US history, the Great Depression. Scholars continue to debate its causes, which were multiple and complex. One compelling argument focuses on the failure of regulation to keep pace with the innovations of the Roaring Twenties.

As I said, I view such regulatory stagnation as a form of weakening. This weakened regulatory environment played a role in setting the stage for and then exacerbating the bust. Weakened regulation that had failed to keep up with the times left banks unable to weather shocks to the economy. The banking sector's collapse was a significant factor in making the Great Depression the most severe economic crisis that this country has ever experienced².

The Roaring Twenties expansion was powered by the post-war recovery and technological advances in transportation, manufacturing, and communications. Stock markets grew quickly to help finance this innovation, while residential and commercial real estate investment surged and swelling demand for consumer durables led in turn to increased demand for financing³.

As credit needs escalated, there was intensifying competition among banks; savings and loan institutions (S&Ls); and rapidly growing nonbank finance companies, trust companies, and other financial vehicles.

The 1920s were also characterized by high levels of financial speculation, both inside and outside the banking sector. Banks engaged in speculation through nonbank affiliates and supported speculation by lending. At the same time, many banks were relatively thinly capitalized and overly concentrated, especially given the lack of federal deposit insurance at the time.

In addition, many states had prohibitions on branching that prevented banks from diversifying their portfolios and inhibited local competition, keeping many struggling banks alive⁴. The stock market boomed, margin lending grew dramatically, and insider trading and market manipulation were rampant.

As the financialization of the economy increased, the regulatory framework failed to keep up. Outdated branching restrictions remained, failing to reflect the size and dynamism of the modern economy. Banks gained permission to engage in new activities, such as real estate lending and certain activities in the securities markets; however, capital requirements and other rules were not adjusted to reflect potential increased risks from these new activities⁵.

The cumulative effect of these events was a significantly weakened regulatory environment and a substantial buildup in risk, without a commensurate increase in resources to allow the sector to withstand the risks posed.

Looking back, we know that, when the economic shock hit, the banking system magnified that shock. The boom of the Roaring Twenties started to go bust in 1929, when the fast growth of the past decade turned to contraction, followed by a series of financial and banking crises.

In all, approximately 9,000 of the nation's 23,000 banks failed, resulting in major losses to depositors, given the lack of federal deposit insurance, and a significant contraction in credit that deepened and lengthened the economic downturn⁶. Notably, banks in states that had more robust regulatory frameworks—for example, those that applied higher capital requirements—had lower rates of failure⁷.

In response to the financial collapse in the Great Depression, Congress adopted reforms aimed at addressing risks that had driven those panics. Among these steps, Congress established the Federal Deposit Insurance Corporation and federal deposit insurance to reduce the risk of bank runs and protect retail depositors.

Congress increased regulatory oversight of banks and separated commercial and investment banking. Congress also enacted strong securities laws and created the Securities and Exchange Commission (SEC). Overall, these steps helped stabilize the financial sector and ushered in a long period of quiescence in banking.

The Savings & Loan Crisis

My second example today is the S&L crisis of the 1980s and early 1990s, which did substantial harm to millions of Americans and the financial system and was extremely expensive to resolve. In this episode, in contrast to the Great Depression, affirmative deregulation led to excessive risk-taking by S&Ls, as well as banks, during a boom period.

As circumstances soured, revealing weaknesses, Congress attempted to bolster the S&L sector by loosening the regulatory framework further. This failed to resolve the underlying stress and instead further fuelled the buildup in risk-taking, worsening the losses in the subsequent bust.

Let me first set the stage. The years leading up to the S&L crisis were characterized by dramatic growth in business credit, in the course of the economic expansion that began in 1982. At the beginning of this period, the S&L sector primarily served the residential real estate market because of restrictions on S&L activities.

These restrictions eased over the 1980s, allowing S&Ls to get significantly larger and engage in new kinds of lending; however, these changes were not accompanied by sufficient regulatory enhancements to account for increased risks. This expansion in S&L activity also presented new competition with commercial banks, which had themselves built up significant risks as they expanded into new activities⁸.

At the same time, both S&Ls and banks were increasingly under pressure due to both high inflation and high interest rates, which disrupted their funding models⁹. Competition for customer funds increased dramatically, especially because of the rise of money market mutual funds, which had grown rapidly.

When Congress removed outdated deposit rate caps to allow banks and S&Ls to more effectively compete for funds, it did so without implementing adequate safeguards against these institutions taking on excessive risk. This led many S&Ls to engage in increasingly risky projects to compensate for escalating funding costs. Banks also increased their deposit rates and took on more risk.

As vulnerabilities at S&Ls became evident, Congress, federal regulators, and the states attempted to bolster both sectors with the hope of allowing them to outgrow those weaknesses. For instance, Congress and the states reduced restrictions on S&Ls' ability to invest in commercial and consumer loans¹⁰. These changes contributed to the boom in commercial real estate lending, which became a key source of vulnerability.

In addition, Congress and the Federal Home Loan Bank Board, the federal S&L regulator at the time, weakened capital requirements and the enforcement of those requirements for the S&L sector¹¹. This allowed institutions to become weaker and poorly capitalized entities to stay afloat, leaving S&Ls as a whole badly positioned to weather adverse conditions.

The bust, when it came, was severe. S&L losses continued to mount throughout the 1980s. Many banks also experienced severe stress. These difficulties were amplified by an eventual decline in real estate values and problems in the agricultural and energy sectors. In 1980, there were just under 4,000 S&Ls. By 1989, that number had fallen to below 3,000, with over 500 of the remaining institutions insolvent as judged by book value. And over 1,600 banks failed between 1980 and 1994.

Regulatory weakening had propped up tottering institutions, allowing zombie institutions to persist, accumulating much greater losses than they otherwise would have. The process of cleaning up the sector began in earnest in the late 1980s and continued into the mid-1990s, with a final cost of \$160 billion, roughly 5 percent of gross domestic product at the time¹². And the cost of resolving insured banks that failed during this period was \$36 billion¹³.

Congress implemented significant reforms in response to the S&L crisis, including stricter capital and accounting requirements, limits on insured depository institutions' investment powers, and expansions of regulators' enforcement authority. These changes paved the way for stability in the banking sector for some time.

The Global Financial Crisis

I'll turn now to my final example, the Global Financial Crisis, which had devastating effects for the millions of people who lost their livelihoods, their homes, and their businesses.

In the decade leading up to the crisis, America experienced rapid credit growth and a housing boom. There was optimism about the benefits of financial innovation, such as securitization of home loans, and belief in the power of market discipline as a form of self-regulation. Home prices and mortgage debt accelerated in tandem, driven by a mutually reinforcing cycle of optimism, with home prices roughly doubling between 1997 and 2006, and even larger increases in mortgage debt¹⁴.

Amid this boom, lending standards dropped, driven by investor demand for mortgage-backed securities, which were increasingly opaque and risky in their design but still highly rated by the rating agencies. There was substantial growth in the over-the-counter (OTC) derivatives market, including new forms of credit derivatives. Money market funds boomed, becoming increasingly linked to the off-balance sheet business of banks¹⁵. These developments led to the emergence of large, short-funded, and interconnected financial entities—both banks and nonbanks.

The regulatory environment failed to keep up with these changes in activity and the increasing complexity of financial institutions and markets, and regulatory weakening heightened vulnerabilities. The Gramm-Leach-Bliley Act, enacted in 1999, permitted the creation of financial holding companies that could engage in the full range of financial activities; however, the act did not put in place a regulatory framework commensurate with the full range of financial risks and permitted nonbank firms such as investment banks and insurance conglomerates to compete with banks wholly outside its framework. The Commodity Futures Modernization Act of 2000 exempted OTC derivatives transactions from virtually all regulation and oversight by the Commodity Futures Trading Commission and SEC.

In the lead-up to the crisis, regulators cut oversight further. A striking image from the time featured the head of one financial regulatory agency wielding a chainsaw to demonstrate his commitment to slashing regulations¹⁶.

The competitive landscape and regulatory lacuna led to a race to the bottom in standards for underwriting and issuing mortgage loans and securities, and transactions became increasingly funded by opaque and unstable short-term wholesale funding. Consumers were left unprotected as the subprime crisis grew.

In addition, the largest investment banks, which were overseen by the SEC, increased their leverage with heavy reliance on short-term funding, leaving them increasingly vulnerable to any losses. These are just a few examples of

the widespread failures in financial regulation and supervision that occurred in both the banking and nonbanking sectors in the lead-up to the crisis.

The resulting recession and financial crisis saw the deepest and longest contraction in economic activity since the second world war, the collapse of large financial institutions, significant government support to keep the financial system afloat, and a prolonged period of slow growth.

In response to this crisis, Congress passed the Dodd-Frank Act, a reform package that, among other things, strengthened bank capital, addressed off-balance sheet exposures, and provided for stress testing. Consumer protections were strengthened, and a new Consumer Financial Protection Bureau was established. Supervisors ramped up forward-looking supervision.

In addition, banking regulators adopted capital and liquidity reforms, which substantially improved the resiliency of the banking sector. Studying the role that regulatory weakening played in the crisis provides a powerful reminder of the importance of preserving these regulatory gains.

Lessons for policymakers

Reviewing these three examples together, it is striking to see the pattern of regulatory weakening during a boom, including the failure of the regulatory environment to keep pace with the evolving financial sector, and how this weakening lays the foundation for a subsequent bust. Why do we continue to see these cycles?

Some reasons are psychological, others political. Humans have short memories, especially for experiences we might like to forget. The further we get from a crisis, the more its causes fade from memory and the less likely a recurrence seems. We become more likely to view regulations as unduly burdensome and place less value on the protection

they offer from downside risk. The financial sector itself lobbies hard to weaken regulation, which is often effective when the last crisis seems far away.

Credit cycles, financial innovation, and the evolving needs of the economy are also significant contributors. As the economy changes, so do financing needs. This makes it harder to recognize when things are running too hot.

In addition, regulators are understandably cautious about restraining innovations that have societal benefits, which may hinder their ability to reduce associated risks. Longstanding regulations can be subject to regulatory arbitrage, making them less effective as activities migrate outside the regulated system. These dynamics make the financial sector unstable, feeding the boom-and-bust cycle. How can we do better?

The first lesson is to approach the financial system with a through-the-cycle perspective and avoid thinking 'this time is different'. In each of the booms I have covered, there was a heady confidence that market discipline would control risk-taking, that downside risks were so implausible as not to merit attention, and that easing regulation was justified. With such confidence, insufficient thought was given to how regulatory weakening might create new vulnerabilities.

A bit of humility would have helped. While it is true that regulation must evolve with the economy and financial system, we need to recognize that relaxing rules can create vulnerabilities. Changes in the markets themselves can also weaken the effectiveness of regulations.

The second lesson is that policymakers should resist the pressure to loosen regulations or to refrain from imposing regulation on new activities during the boom times. With past economic downturns in the rearview mirror, regulations start to be seen as a limitation on growth, rather than necessary protection against vulnerabilities.

As became evident in past episodes, vigilant supervision and prudent rules on risk-taking are important to prevent future crises. While there is a trade-off, it is important to have appropriate protections in place to reduce the risks and costs of the resulting busts.

Third, regulation cannot be static. If regulation fails to keep up with evolution of the financial sector, it can create new risks or hinder growth.

To conclude, an important lesson we can draw from US financial crises is the role that ill-advised weakening of the bank regulatory framework played in those crises. It is well within our ability, and is our duty as regulators, to learn from these episodes to avoid making the same mistakes. In doing so, we can help to ensure that the financial system is prepared to weather downturns and continue to serve households and businesses. ■

Michael S Barr is Vice Chair for Supervision at the Federal Reserve

Endnotes

1. For example, see Paul H Kupiec and Carlos D Ramirez (2013), "Bank Failures and the Cost of Systemic Risk: Evidence from 1900 to 1930," *Journal of Financial Intermediation*, vol. 22 (3), pp. 285–307; and Kris James Mitchener (2005), "Bank Supervision, Regulation, and Instability during the Great Depression," *The Journal of Economic History*, vol. 65 (1), pp. 152–85.
2. Ben Bernanke (1983), "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression," *American Economic Review*, vol. 73 (3), pp. 257–76.
3. See Arthur E Wilmarth Jr (2003), "Does Financial Liberalization Increase the Likelihood of a Systemic Banking Crisis? Evidence from the Past Three Decades and the Great Depression," in Benton E Gup, ed, *Too Big to Fail: Policies and Practices in Government Bailouts* (Santa Barbara: Greenwood Publishing Group), pp. 77–105; and Barry Eichengreen and Kris Mitchener (2003), ["The Great Depression as a Credit Boom Gone Wrong \(PDF\)"](#), BIS Working Papers No. 137 (Basel, Switzerland: Bank for International Settlements, September).
4. National banks received authorization to engage in branching, subject to state law, in 1927 but interstate branching remained prohibited.
5. Before 1900, national banks were prohibited from underwriting, dealing, or investing in securities. However, federal authorities loosened these restrictions by allowing national banks to establish bond departments that could underwrite, sell, and invest in debt securities. Although restrictions on dealing in stock remained, national banks were able to circumvent these restrictions by organizing affiliates that engaged in the full range of activities with regard to both stocks and bonds. Federal regulatory authorities did not interfere with these affiliate activities. Scholars continue to debate the extent to which this underwriting activity was risky for the banks. See Wilmarth Jr, "Does Financial Liberalization Increase the Likelihood of a Systemic Banking Crisis?" (see note 4); and Eugene Nelson White (1986), "Before the Glass-Steagall Act: An Analysis of the Investment Banking Activities of National Banks," *Explorations in Economic History*, vol. 23 (1), pp. 33–55.

6. See Federal Reserve History (2013), [“Bank Holiday of 1933,”](#) webpage; Board of Governors of the Federal Reserve System (1934), 20th Annual Report, 1933 (Washington: Board of Governors); and Social Security Administration (n.d.), [“Social Security History,”](#) webpage; and David C Wheelock (n.d.), [“The Great Depression: An Overview \(PDF\),”](#) Federal Reserve Education.
7. See Mitchener, “Bank Supervision, Regulation, and Instability” (see note 2).
8. Federal regulators, as well as many state legislatures and state banking authorities, expanded the scope of permissible activities for banks during this period.
9. For example, S&Ls made long-term, fixed rate residential mortgage loans, funded with short-term retail liabilities. As rates increased, S&Ls’ existing mortgage portfolios decreased in value, because of their fixed rates. At the same time, S&Ls were forced to pay higher rates on their liabilities. This situation threatened their continued viability.
10. Many states simultaneously relaxed their own activities restrictions for state charters to allow for real estate investment.
11. For instance, the Federal Home Loan Bank Board reduced net worth requirements for federally insured S&Ls to allow troubled S&Ls to avoid closure and hopefully recover once interest rates declined.
12. This figure refers to the cost of resolving S&Ls that failed during the crisis. See Alane Moysich (1997), [“The Savings and Loan Crisis and Its Relationship to Banking \(PDF\),”](#) in History of the Eighties--Lessons for the Future, vol. 1: An Examination of the Banking Crises of the 1980s and Early 1990s (Washington: Federal Deposit Insurance Corporation), pp. 167–88; and US Bureau of Economic Analysis (2025), Gross Domestic Product, via FRED, Federal Reserve Bank of St Louis, June 26 (accessed July 15, 2025, 1982:Q4 used as gross domestic product reference point).
13. This figure reflects costs associated with bank failures from 1980 through 1994.
14. See Federal Housing Finance Agency (2025), [All-Transactions House Price Index for the United States](#), via FRED, Federal Reserve Bank of St Louis, May 27 (accessed July 15, 2025); and Board of Governors of the Federal Reserve System (2019), [Mortgage Debt Outstanding, All holders](#), via FRED, Federal Reserve Bank of St Louis, December 12 (accessed July 15, 2025).

15. For example, many banks created asset-backed commercial paper (ABCP) programs as conduits that allowed them to fund bank assets without bringing them on balance sheet, thereby avoiding regulatory capital treatment. However, this approach created significant risks because the primary holders of ABCP were money market mutual funds, which are ultra-sensitive to payment delays and themselves subject to run risk. Money market funds also similarly funded other parts of banks' balance sheets in the lead-up to the crisis. In addition, other private cash-like instruments, such as auction rate securities, repurchase agreements based on ABCP, and other short-term debt instruments that were treated like money created new vulnerabilities as they grew and subsequently collapsed.

16. Binyamin Appelbaum and Ellen Nakashima (2008), "Banking Regulator Played Advocate over Enforcer," Washington Post, November 23.

The views expressed here are my own and are not necessarily those of my colleagues. This article is based on a [speech](#) delivered at The Brookings Institution, Washington, DC, July 2025.



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The 21st century hazardous job

In the age of AI, we may need to start thinking differently about hazardous jobs. Ben Wray discusses the growing evidence of mental ill-health in content moderation and the need to protect the rights of click workers

Are hazardous jobs a thing of the past in Europe? In the age of artificial intelligence, we may need to start thinking differently about what such a job looks like, focusing less on the lungs or the heart and more on the mind. There is a rapidly expanding industry in Europe in which there is growing evidence that mental ill-health is a systemic problem for workers. That industry is content moderation. And a network of workers, researchers and politicians are catching on and fighting back.

"There are surely some content moderators that haven't suffered mental health problems connected to the job, but I haven't met them," says sociologist and computer scientist Milagros Miceli, who has studied the content moderation industry for the past six years. *"I have no doubt that content moderation, like coal mining, is a hazardous job."*

Coal mining, known for the proliferation of 'black lung disease', is a classic example of a hazardous job, but there are only approximately 200,000 coal miners left in the whole of the European Union. There are plenty of other jobs which come with dangers, but few where 'risk to your health' are still written on the job description.

Content moderation may, however, qualify as the new exception. Just as exposure to silica dust caused lung diseases in miners, endless toxic and disturbing content is a threat to the mental health of those employed to engage with it on a daily basis.

Content moderators are essentially the security guards of social media. They are tasked by platforms like Facebook and Tik-Tok to remove content that breaches their guidelines. The posts that they filter out include hate speech, violent, graphic and pornographic content (including child sexual exploitation), content from proscribed organisations such as terror groups, bullying and harassment, and suicide and self-harm.

The content that reaches the screens of content moderators has either been flagged by a user or identified by an AI system as a potential candidate for removal. A big part of what content moderators are doing is labelling the content they see on their screen in order to train the AI to become more proficient in identifying harmful content.

It's only a matter of time before the content moderator industry is brought out of the shadows and into the light. At that point, platforms like Meta and TikTok will have to answer for why they can have hundreds of pages of guidelines to ensure the safety of their users, but none concerning the safety of their content moderators

Chris Gray is the first former content moderator to take Meta to court in Europe. He worked in Dublin for CPL, an outsourcing firm for Meta, from 2017 to 2018. It was only years after he was fired that Gray began to come to terms with how the job had affected him. *"I met a journalist who wanted the human-interest angle, she was pushing me to talk about disturbing content,"* he recounts. *"I hadn't spoken to anyone about that. I didn't speak to my wife about it. The NDA [non-disclosure agreement] had been hammered into me: 'Don't ever talk about the work.'"*

"As I started to tell her, I had a complete meltdown, I just lost control of myself completely. I sat in a coffee shop with tears streaming down my face. The journalist insisted I go to a doctor, and it started from there." Gray was diagnosed with PTSD and in 2019 he took a claim against CPL and Meta to the Irish High Court, alleging psychological injuries from repeated exposure to extremely disturbing content. The case is still pending.

In the United States, a similar case involving Meta content moderators was settled out of court, with the workers receiving damages of up to 50,000 US dollars per person. Gray has not been offered an out-of-court settlement yet, and says he wouldn't agree to one if he was. *'As part of the US settlement, they had to accept that no one was harmed to get the pay-out. That's no good to me.*

"Content moderation is like where the tobacco industry was in the 1960s. Everyone knows it's harmful but it hasn't been proven yet and there's a huge vested interest in maintaining the fiction that it isn't an issue. I want it to be proven by a court of law that this job is harmful to workers' health. Once we've established that it's harmful, we can start the conversation about how to mitigate the risk."

Bound to secrecy

While the work of content moderators is for the big social media platforms, they are hired almost exclusively through outsourcing firms, companies which are typically called 'BPOs' ('business processing outsourcing'). A veil of secrecy surrounds this industry.

No major platform has been willing to say how many content moderators are hired on their behalf by these firms or even provide a list of the BPOs they work with, but there is little doubt that this is a big and rapidly growing sector: there were three million posts flagged for removal every day on Facebook alone in 2021.

Some content moderation work can be offshored, with the Philippines in particular a major global centre for content moderation. However, Antonio Casilli, an expert in 'click work' (which content moderation is one sub-section of), says that the platforms cannot avoid employing content moderators within the EU.

"Sometimes content moderation has to happen in Europe for legal reasons, because they are managing content and data that is subject to GDPR [the EU General Data Protection Regulation]. Also, there are linguistic reasons. You can't find people in Africa, for instance, who speak specific languages, like Lithuanian or Swedish. Some things can't be outsourced to lower-income countries."

According to Casilli, the European content moderator industry has become highly concentrated in recent years, with a few big firms buying out rivals and dominating the sector. Teleperformance, Appen and Telus are three of the biggest players. These BPOs organise the industry in a call centre-style office environment where surveillance of workers is intensive and secrecy is a top priority.

"Their contracts are extremely strict on non-disclosure agreements, they are really NDAs disguised as work contracts," explains Casilli. "In these contracts, not much is said about the rights that workers have. Basically there is a lot of emphasis on secrecy and confidentiality. And they do not mention the specific health risks that are associated with this work."

Another typical feature of the content moderator industry is that the workers are migrants. Casilli is one of the authors of *Who Trains the Data for European Artificial Intelligence?*, a new study by the EnCOre Initiative on click workers (including content moderators), commissioned by The Left Group in the European Parliament. The researchers held focus groups with content moderators working at BPO firms Telus and Accenture in Germany (in Berlin and Essen) and at an anonymised BPO firm in Portugal.

At the Portuguese site every worker they spoke to, was a migrant: from Russia, Poland, India and Turkey. At the German sites, most of the workers were migrants, including many from Asia and Africa. *"They are contractually blackmailed because their work status is often linked to their visa,"* explains Casilli. *"So if they stop working for these companies, or if they whistle-blow, they face the risk of deportation."*

From the BPOs to the NDAs to the migrant visas, the big social media platforms are protected from accountability for the working conditions of their content moderators by layers of deniability, secrecy and marginalisation. But behind these walls of opacity there exist real people with real stories, and some of them are determined to be heard, despite the barriers they face in speaking out.

Mental health concerns: 'a little overdramatic'?

Just like Chris Gray, Ayda Eyvazzade, an Iranian former content moderator in Berlin, is also in no doubt about the harms of the job. *"I experienced some really traumatising moments,"* she tells HesaMag. *"I remember watching a child being exploited sexually, and that image has stayed in my mind. You feel yourself very alone and solitary when doing that work; very hopeless and insecure. The quality of my sleep was really damaged. I would see the images in my nightmares. I would wake up more tired than when I went to sleep."*

Eyvazzade was sacked in November 2023 after working for an outsourcing firm for almost five years (which she does not wish to name due to the NDA she signed). She says that the combination of human and digital surveillance intensifies the pressures of the job. The content moderators have KPIs ('key performance indicators') which they have to meet, and time away from the computer due to the distress of the images and videos that they have witnessed count as 'unproductive' time.

"If something you see is really difficult then you can leave your desk, but at that moment you have to remember to put on your computer that you are on 'wellbeing,'" explains Eyvazzade. "But if the supervisors think you are using 'wellbeing' more than you should, they will intervene. They would say: 'Your 'production' time is a bit lower than expected, you have been on 'wellbeing' a lot.' So you are pressured to increase your time on 'production' by decreasing your 'wellbeing.'"

After a content moderator in Telus' Essen office committed suicide, the company changed its policy so that workers could have unlimited 'wellbeing' time. However, Milagros Miceli, who has conducted research with content moderators in Essen, says that the pressure to watch a lot of content in a short space of time still exists.

"The content moderators have the right to wellness breaks, but the KPIs that you need to achieve, you won't achieve them if you take too many breaks," she explains. "KPIs are always the most important disciplining factor for workers managed via algorithmic management."

The EnCOre Initiative study, which Miceli is also a co-author of, found 'incidents in which workers have fainted, suffered from burnout, experienced psychotic episodes, and, tragically, in at least one instance, committed suicide'. None of this will be news to Meta founder and CEO Mark Zuckerberg.

In a leaked audio recording of a meeting in 2019 he was told by staff that many content moderators were suffering from PTSD. The CEO responded by saying that *“some of the reports, I think, are a little overdramatic.”*

Miceli, who has spoken to hundreds of content moderators, believes the exact opposite. *“The problems are much worse than people think,”* she says. *“I’ve heard a man say his wife has left him because he cannot perform sexually after reviewing paedophilia content. All of these workers have real conditions, certified by real psychiatrists.”*

The BPOs say they provide in-house counsellors, but both Gray and Eyvazzade said that most of the counsellors they spoke to were under-qualified. Miceli agrees. *“Quite a lot of the in-house counsellors are not certified therapists. Also, a lot of workers have the suspicion that counsellors inform managers about what they are told from the workers.”* She thinks Ver.Di (*Vereinte Dienstleistungsgewerkschaft* – United Services Union) could have been more assertive in challenging the company, including through the courts.

Miceli also believes that if unions are going to grow in this sector, they need to be better prepared to confront the secrecy and intimidation that dominates content moderation work. *“Definitely part of the issue is unions struggling to adapt to new times and struggling to relate to the migrant workers who are leading the organising in these new digitised spaces,”* she says.

The delicate balance between user safety and worker safety

If unions have work to do in this area, surely regulators should also be taking a close look. The 2022 EU Digital Services Act (DSA) significantly increased the burden on platforms to police content, leading to the content moderator industry burgeoning in Europe, but the DSA paid no attention to the safety of content moderators themselves.

“The Digital Services Act has increased the amount of moderation but it has also increased the centralisation of moderators,” Casilli says. “The market is becoming bigger and bigger but with fewer actors.”

In May, the European Commission announced a new investigation into Meta over potential breaches of DSA in relation to the safety of children using Instagram and Facebook. A senior Commission official has also questioned how X can be meeting its DSA obligations while hiring significantly fewer content moderators than Meta and TikTok. But the more that platforms hire content moderators to cope with the political pressure from the EU, the more workers will be placed at risk – a tricky balance that needs to be addressed.

“It’s totally about what is politically important,” content moderator Chris Gray says of the regulatory debate in Europe. “Everyone who has kids cares about their kids not being exposed to horrible stuff on social media, but how many of those parents care that there’s a bunch of people in a room somewhere that has to look at this stuff over and over again to stop your kid seeing it?”

The content moderator Works Council at Telus in Essen has made a number of proposals to improve working conditions: increased vacation time to alleviate mental stress, access to professional mental health support without fear of reporting to management, fair compensation, recognition of their work as a skilled profession, and recognition that this is a hazardous job through the application of appropriate mitigation measures.

In the German Bundestag (federal parliament), a summit for content moderators was held in 2023 at which the content moderators presented a manifesto and one of the workers from the Essen Works Council gave testimony. But in a clear sign that the BPOs have little appetite to change, this worker was subsequently suspended by Telus for breaching his NDA. The Bundestag has yet to act on the recommendations of the content moderators.

Leila Chaibi, Member of the European Parliament who leads The Left Group's work on AI and work, says the EnCOre Initiative study highlights the need for European regulatory action in this area. *"This report should be a wake-up call to the EU decision-makers to act to protect the rights of click workers, and address their specific needs,"* she tells HesaMag.

Despite the secrecy of the platforms and BPOs, it's only a matter of time before the content moderator industry is brought out of the shadows and into the light. At that point, platforms like Meta and TikTok will have to answer for why they can have hundreds of pages of guidelines to ensure the safety of their users, but none concerning the safety of their content moderators. ■

Ben Wray is a Freelance Journalist and Researcher

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The future of the multilateral economic system

Andrew Bailey reflects on developments in the global economy and emphasises the important role a reformed multilateral economic system plays. He also discusses opportunities for innovation in the UK's payments infrastructure

I am going to use my time to tackle two subjects. I'm probably breaking a rule of good speech making because the connection between the two is slender – I'm not going to overdo the connection. They are both topical and highly relevant, that's my justification.

The first is big picture – the world economic situation and the need to refocus and restore multilateral institutions. The second concerns payments here in the UK.

To say that the state of the global economy and the impact of tariff announcements is in the news and significant is an understatement. The shifts we have witnessed – and continue to witness – mark a generational change in the system of trade amongst nations. They are by no means the first such shifts, even if they are the most sudden and fundamental in the post-war era.

Recent events have exposed fault lines in the multilateral system of relations between nations, including in the global trading system, and a perceived failure to deal with what are seen as persistent global imbalances.

What do I mean by the multilateral system? It's the economic assessment and governance that comes from two areas. First are the multilateral institutions – the IMF, World Bank, OECD and WTO, and – to recognise a personal interest as I Chair it – the Financial Stability Board. The second area is the multi-country decision-making bodies that reinforce these institutions – with the G20 and G7 being important here, as the source of co-ordination and consensus building in a number of key areas including trade.

It has become fashionable to look at the multilateral sphere and to ask why does it matter? Quite simply, it is about the pursuit of economic growth and stability through co-operation. These objectives matter a lot – they facilitate the benefits of openness through trade and capital flows. If the multilateral system works as intended, it need not

be a winner takes all process, instead helping us to expand the pie rather than simply divide it up. But nor can the multilateral system produce discernibly unfair outcomes. These would not be sustainable.

As I mentioned, the current charge against the system is that it has allowed the build-up of persistent imbalances between countries. Moreover, these imbalances are considered, by those who make the charge, to be unsustainable. There is as you will appreciate a lot of judgement around what is persistent and what is unsustainable, and views will differ quite markedly on these points. The answer is not that any old imbalance is problematic.

I think it helps to remember that the key challenge we all face is to increase growth in the world economy: to grow the pie to support living standards for the people we serve, all of the time. It is as simple as that

Imbalances are an inherent part of the system. In the short term they reflect differences in national productivity and income. In the longer term, they reflect the fact that countries are at different stages of economic development, with some catching up and others relatively slowing compared to the later developers.

However, persistent imbalances are associated with misallocated resources and can motivate responses which can weigh on global growth. Over time, imbalances can also lead to financial stress.

If the global economic system is working efficiently, over time we should expect these imbalances to self-correct back to levels that are warranted by the longer-term fundamentals of the countries involved. You may ask, what are these fundamentals?

An important one is that part of the world has populations that are on average ageing, and will continue to do so, and part does not. This will influence imbalances. Ageing tends to change the pattern of savings behaviour, and external current accounts are equal to saving minus investment in an economy.

When we talk about persistent excessive imbalances, we are looking for evidence that self-correction is not happening in a timely, orderly and symmetric manner. If so why, and what conclusions do we draw from that? A key part of my argument is that this part of the analysis and conclusion drawing must be done at the multilateral level. If it is only done at the national level, we will get less good policymaking.

Let me illustrate this with two contemporary, and I think obvious, cases: China and the USA. Between them, they account for almost 40% of the world's current account imbalances, so it's an obvious place to look. I will start with China.

China's current account surplus is at present 2.3% of national GDP and 0.4% of global GDP according to IMF data. It appears that the surplus primarily reflects the weakness of domestic consumption in China, which in turn reflects an investment and export-led growth strategy and weaker social safety nets domestically.

Normally, as households' accumulated precautionary savings rise and productive investment opportunities decline, the national savings rate would fall. However, as Chinese incomes have increased, the self-correction mechanism has been weaker because the domestic incentives to save have remained strong.

Let me turn to the US. The US current account deficit is at present 3.9% of national GDP and 1% of global GDP. At the macroeconomic level it appears to reflect strong private consumption and a large fiscal deficit. Why has the self-correction mechanism not operated in the US? I think there are two reasons, which are both important.

The first is what on the face of it looks like a success story, namely that the US has had stronger productivity and economic growth in recent times, reflecting particularly the success of its technology sector, and has thus maintained its industrial leadership in key growth sectors. The consequence of this is that domestic wealth has risen and foreign capital has flowed into the US allowing it to run a larger external deficit, thus reducing the downward pressure on domestic demand.

The second reason is that people outside the US have been willing to take on its obligations – ie. buy its assets. The auto-correction element points to limits to the willingness to take on these obligations consistent with prospects for national income. But these limits tend to be higher – ie. less constraining – in the case of the world's leading reserve currency, and this is what we see happening.

I am not going to talk about reserve currency status, beyond underlining that this illustrates the benefits in economic terms. It's what Valéry Giscard d'Estaing famously described as the "exorbitant privilege."

There may therefore be good reasons why the self-correction mechanisms on external imbalances are not working particularly powerfully. Indeed, I would note that today's imbalances are not especially large by historical standards.

Before suggesting some changes to multilateral processes, I want to draw out a number of key points from what I have just said. First, the underlying drivers of imbalances are domestic macroeconomic policies. Trade policies and industrial policies can, and have, reinforced or at times frustrated the macroeconomic picture, so they are highly relevant. But I think they must be seen within the context of this macroeconomic picture, and this is exactly how I interpret the Articles of the IMF, as agreed at Bretton Woods.

Second, it follows from this that – and I say this in the spirit of constructive challenge and engagement, the best sense of multilateralism – the US does need to explain how it can regard its internal imbalance as sustainable and its external imbalance as not so, and how it envisages the internal balance responding to an adjustment of the external balance flowing from tariffs taking effect. And China needs to explain how it will tackle its persistently weak domestic consumption.

Third, the adjustment process is challenging. There are times when it has had to happen, but those have not been easy. Why is this the case? Deficit countries have historically faced far more pressure to correct excess current account balances than surplus countries. This typically takes the form of financial market pressure.

This financial market pressure point is relevant notwithstanding the reserve currency argument that I made, simply because it is very hard to judge the limits of sustainability. We have seen market disturbance this year. We have to be highly alert to financial stability risks – something that I can assure you we are following closely.

Surplus countries do not face the same financing pressure. The pressure to adjust, as we are seeing, can come more through threats of tariffs and trade barriers. But increasing tariffs creates the risk of fragmenting the world economy, and thereby reducing activity.

We can go back to Adam Smith and his contemporaries for the insight that trade expands activity by enabling specialisation, knowledge and technology sharing and productivity growth. There is therefore a common interest globally in tackling excess imbalances before dangerous levels of trade restrictions come into play, and before we face the prospect of difficult adjustment with macroeconomic volatility and financial instability.

This is where the multilateral system comes into play. While the IMF is not in possession of policy levers directly to address global imbalances, it has a crucial role in facilitating globally beneficial adjustment through its surveillance. The IMF plays a central role in casting a rigorous and independent eye over the economic and financial systems of individual countries, and the world as a whole, providing timely warnings of where problems are being stored up for the future and giving its members sound advice on how to mitigate risks.

IMF assessments can forcefully highlight the dangers of unaddressed excess imbalances for both surplus and deficit countries, and provide scenarios that illustrate the benefits of globally desirable paths for gradual and symmetric adjustment.

With the support of its membership, the WTO can help to reduce tensions around imbalances by rebuilding confidence in a rules-based trading system, including around the issue of non-market policies, and particularly where these may be exacerbating excess imbalances. In other words, the WTO can help to achieve agreement amongst its members on the global rules of the road and how they are adhered to.

I am going to set out four proposals, which are deliberately modest and therefore a starting point for reform. There could be more ambitious reforms, but in my judgement we have to start by getting the foundations repaired. My four proposals are:

1. The IMF should strengthen its assessment of the implications of excess imbalances, including greater focus on spillovers, and greater depth of trade analysis.
2. The IMF advice that comes out of this assessment should have greater prominence and more 'bite', for instance by increasing the emphasis on imbalances in Article IV reports.
3. The IMF should collaborate with the WTO, combining its macroeconomic expertise with the WTO's insights into the most challenging aspects of trade discussions to provide more nuanced assessments of the global trading system, and to enhance the traction of its messaging on industrial policies.
4. The IMF should be creative in deploying its convening power to help coordinate members around a set of mutually-agreed policies which mitigate risks associated with excess imbalances. There is merit here in reflecting on the lessons from the 2006 Multilateral Consultation exercise, and what could work better in future.

I don't underestimate the challenges here. I agree with Secretary Bessent that getting the basics right matters, and this is where the focus needs to be. Bringing industrial policies and subsidies into a macroeconomic framework is not straightforward. But it is fair to ask the question, and I think the IMF can answer it, and in doing so build on good work being done, for instance, by the OECD in this field.

Similarly, capturing the nature and extent of international spillovers and externalities from domestic policies is not easy, but it lies at the heart of what we must seek to do here.

Another important element of this approach must be to assess the potential for, and consequences of, imbalances unwinding sharply with implications for global financial stability. At the FSB, I look forward to working with the IMF on financial surveillance and particularly on developing system-wide approaches to testing and monitoring such as we did at the Bank last year with the System Wide Exploratory Scenario.

To do this, multilateral institutions and processes must have traction. Ruthless truth telling doesn't win popularity contests, and there is a risk of organ rejection. We must allow and encourage the international institutions to be assertive and consistent in calling out unsustainable situations and practices. This is critical for the reputation and legitimacy of the institutions.

I think history points to the fact that Westphalian States do not naturally embrace strong multilateral institutions and advice that will not always be welcome, unless they are in crisis. How to reconcile an open world economy with national interests is a very old issue. The rules of the process have to be accepted and the imposition of rules by one player, however dominant, isn't a recipe for sustained stability.

I think it helps to remember that the key challenge we all face is to increase growth in the world economy: to grow the pie to support living standards for the people we serve, all of the time. It is as simple as that.

The second part of my remarks is brief. It's about payments here in the UK. There are real opportunities to harness the potential of digital technology for retail payments both domestic and crossborder. It offers an opportunity to

lower transaction costs, to reduce fraud, and to improve the functionality of payments – on this, it could make a real difference in reducing the scourge of late payments. I am sure there will be more ideas on benefits.

In the last few months at the Bank we have successfully introduced the new Real Time Gross Settlement (RTGS) platform, which underpins settlement of wholesale and retail payments in this country. This change offers great opportunities for innovation across the landscape of payments. A big congratulations to my colleague Victoria Cleland and everyone involved in doing this. There is more to do.

So, we will take forward work in collaboration with the authorities and industry to design and deliver the next generation of UK retail payments infrastructure. This must be a priority, both to replace ageing infrastructure and as part of promoting growth in the UK.

This means a system of retail digital payments that keys off each of our bank accounts. There is a lot of debate globally at the moment on the future of payments – both domestic and cross-border. Today, most payments are made from bank accounts in what we call commercial bank money. This arrangement ties payments directly to the creation of credit in the economy.

There is an urgent need for innovation now in the area of payments, and the opportunity is there, no doubt about that. There may well be a role for stablecoins going forward, but I don't see them as a substitute for commercial bank money.

Moreover, our job will be to ensure that those stablecoins that purport to be money are safe. Perhaps there may also be a role for retail central bank digital currency, but I remain to be convinced why the natural next step is to create a new form of money rather than put digital technology into retail payments and bank accounts.

This is an important step forward and one that I am excited about. We have an opportunity to show real leadership here, building on our world leading new RTGS. We have some big challenges on the world stage, and some optimism and excitement here on payments. ■

Andrew Bailey is the Governor of the Bank of England

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Weathering the storm



It's a time of profound change – technological, geopolitical, environmental. Sarah Breeden shares some real world examples of how risks to price and financial stability from climate change are emerging now, and how they might grow going forward

Introduction

It's a time of profound change – technological, geopolitical, environmental. I plan to explore the theme of our changing climate and the role of the Bank of England in delivering stability through that.

I am also honoured to speak to the commercial property sector, which is undoubtedly a hugely important sector of the United Kingdom's economy. It provides the physical space for businesses to operate, innovate and generate jobs. It attracts significant amounts of foreign capital as it does so. And it directly employs over 1 million people.

But it is also a sector that has over the years seen significant cycles of boom and bust and contributed to many financial stability challenges, both in the United Kingdom and overseas (including in the US even very recently). Understanding the challenges facing the sector is a critical part of our financial stability mission, and we are hugely grateful to the industry for the open and constructive engagement that you all provide.

Central to that engagement is the Bank's commercial property forum (CPF). Such engagement has been crucial as recent years have not been quiet. Just in the last five years, the CPF has helped us to navigate the financial stability risks from a global pandemic and the transition to a higher interest rate environment, all against a backdrop of rising global uncertainty.

Today, the sector continues to face headwinds. The latest Bayes UK CRE lending *Report* shows that almost 70% of all outstanding debt (around £100 billion in total) is due for repayment by 2027. Around 10% of debt matured in 2024 with a small minority in default and the rest restructured or extended. Refinancing pressures will likely be felt more acutely in sectors such as office and retail given the post-pandemic shift to more remote working and the continuing shift from physical to online shopping. The transition to higher rates is far from over.

But reassuringly, compared to before the financial crisis, bank lending standards have been much more conservative, and our stress tests show that the UK banking system is resilient to very large falls in CRE prices. Other players matter too, of course.

Non-bank participation in the UK CRE sector has grown rapidly since the global financial crisis, adding welcome diversification to the supply of funding. But here I am mindful of vulnerabilities in the non-bank sector – most notably liquidity mismatches, leverage and valuation opacity – and the potential for increased risks that they bring ([FSB 2025](#)).

The risks posed by a changing climate matter for individual firms' safety and soundness, the resilience of the financial system as a whole and, through their impact on the macroeconomy, the outlook for inflation

But I do not wish to focus on those vulnerabilities. Instead, I want to focus on the challenges of a changing climate. That matters for the Bank of England given our statutory responsibilities for monetary and financial stability. And it matters for you too, as the commercial real estate sector has both a key role to play in helping navigate the climate transition and a set of risks to manage as we do so. These risks from a changing climate are not hypothetical or somewhere far off in the distance.

Last year was the warmest year on record, with annual average global temperatures exceeding 1.5°C above pre-industrial levels. The IPCC estimates that average global temperatures are now more than one degree higher than pre-industrial levels. They are set to rise at 0.2°C per decade, given past and ongoing greenhouse gas emissions¹.

And as average temperatures rise, so too does the risk of passing through 'tipping points' as ice sheets collapse and weather patterns change, causing large, accelerating and potentially irreversible impacts².

The rise in temperatures has already increased the frequency and intensity of extreme weather events both abroad and at home. In the UK, intense storm rainfall, like that seen in 2023-24 is now expected to occur once in every five years (compared to once in every 50 under a pre-industrial climate). Under a 2°C pathway, that rises to once in every three years.

The risks posed by this changing climate matter for individual firms' safety and soundness, the resilience of the financial system as a whole and, through their impact on the macroeconomy, the outlook for inflation.

These are real risks that could materialise, and in some cases already are materialising, within the time horizons that the Monetary Policy Committee (MPC), Financial Policy Committee (FPC) and Prudential Regulation Committee (PRC) care about.

Indeed, when I first started work on climate change at the Bank almost ten years ago, my challenge was to explain how it might be relevant to the core mandate of a central bank. I think the examples I'll cover demonstrate clearly how that case has now been made.

Price stability

Let me begin by looking at how the physical effects of climate change impact inflation, starting with food. Severe weather events – droughts, floods and extreme temperatures – can significantly impact global agricultural prices. Those events have been occurring with increasing frequency and intensity in recent years.

Historical experience suggests that severe weather events can generate price increases of over 30% in global agricultural commodity prices ([de Winne and Peersman 2021](#)). As an economy that imports a high proportion of its food – around 40% – UK inflation is highly susceptible to such changes. Another study by [Peersman \(2022\)](#) showed that for a 1% unanticipated increase in globally traded food prices, euro area headline inflation rose by 0.1%. Our own work at the Bank of England shows broadly comparable results for the UK.

UK food prices are also affected by extreme weather events that take place at home. As we saw in 2023, excessive rainfall can have significant impacts on the supply of domestic agricultural products³. Beyond food production, weather events, such as extreme heat, also disrupt infrastructure, such as transport, that are critical to food supply chains⁴.

The impact of severe weather events on inflation extends beyond the food sector. A Bank of England study using county-level data for England over the years 1998-2021, shows that flooding impacts output and prices across sectors – including those that feed into core inflation ([Ficarra and Mari 2025](#)). It finds that the impacts differ across sectors, with some presenting as a demand shock and some as a supply shock.

What matters for monetary policy is the impact of such events on aggregate inflation. While most studies find negative impacts on GDP from extreme physical events, the estimated impact on aggregate inflation is less clearcut.

As set out in work by the Network for Greening the Financial System (NGFS), severe weather events impact the economy through demand, supply, and financial channels, with the aggregate inflationary impact depending, in theory, on whether the demand or supply effects of the event dominate⁵. That is uncertain⁶.

But as my colleague James Talbot has highlighted, there is a growing body of literature to suggest that supply effects dominate, meaning these events increasingly represent a trade-off inducing shock for monetary policy makers to deal with ([Talbot 2025](#)).

These impacts are likely to increase over time as temperatures rise further and shocks become more frequent and severe. In a study for the ECB, [Kotz et al \(2023\)](#) show that without adaptation measures, global food price inflation might increase by 1-3pp by 2035, increasing pressures on headline inflation by between 0.3-1.2 pp.

They provide evidence that upward pressure from warmer temperatures on inflation is larger in warmer months and warmer countries, suggesting that the effects associated with climate change may be more pronounced as average temperatures rise.

More broadly, the emerging literature between climate change and inflation suggests a non-linear relationship ([NGFS 2024](#)). The possible existence of 'tipping points' adds to the importance of this work. In addition to considering these impacts on inflation from the physical effects of climate change, we need also to consider transition effects.

The UK government has for some time been implementing policies to transition to a less carbon-intensive economy, consistent with its commitment to reach net zero emissions by 2050. By reducing the physical effects of climate change, these actions will likely reduce the trade-offs monetary policy makers face in the long term. But they can have an impact on inflation in the shorter term. Indeed, I first discussed the role of carbon pricing in explaining some of the large rise and fall in inflation over 2021-23 in a [speech](#) I gave in January.

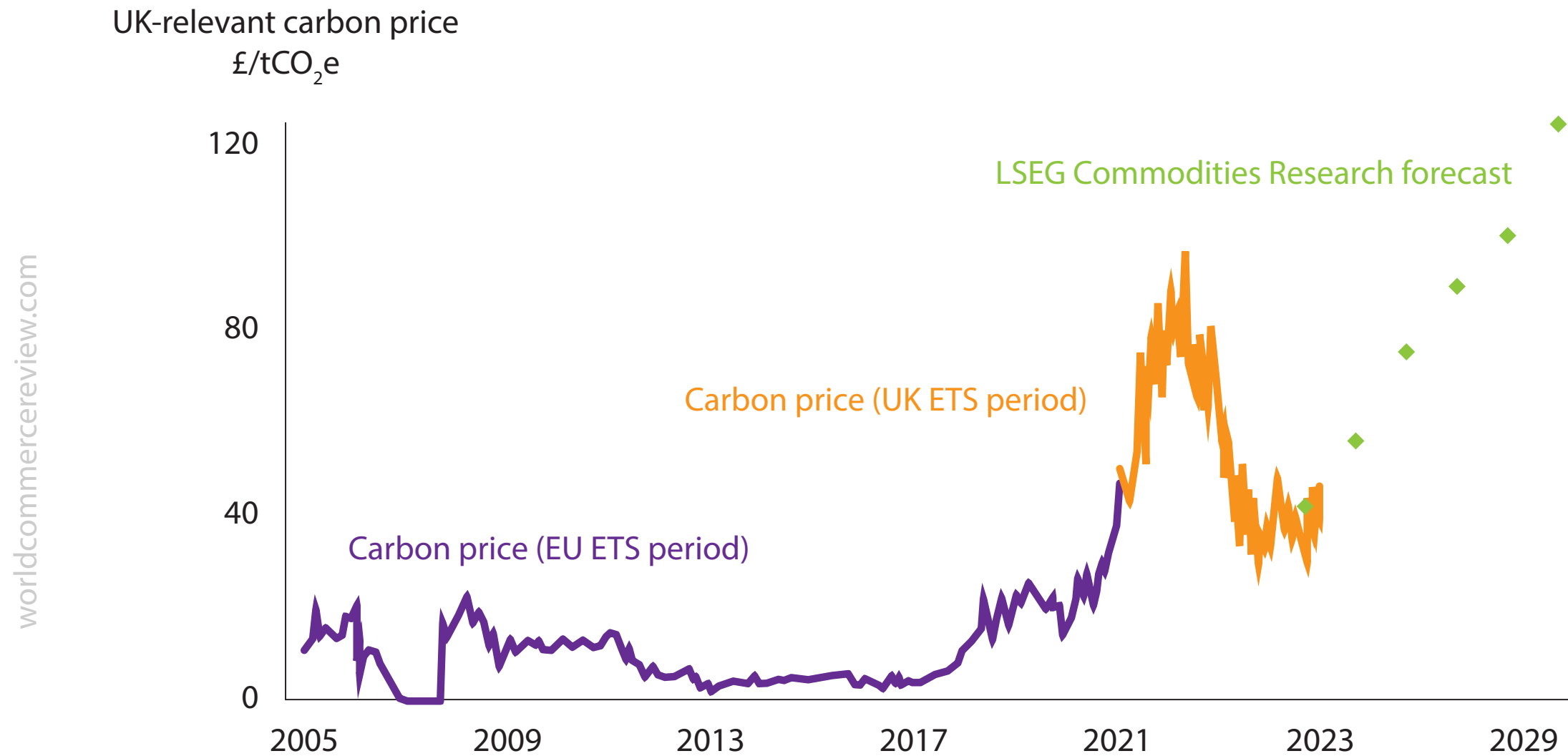
At its peak in October 2022, headline inflation reached 11.1% ([ONS 2022](#)), around 40% of which can be attributed directly to rising energy prices, especially gas and electricity. Russia's invasion of Ukraine and the resulting disruptions to gas supply – a classic 'gas supply shock' – forms the prevailing narrative for the initial rise in inflation ([Alessandri and Gazzani 2025](#)).

But while the invasion was undoubtedly the most significant single driver, carbon prices also rose rapidly during this period. By the summer of 2022, the UK Emissions Trading Scheme (ETS) carbon price had roughly doubled relative to the previous year (Chart 1), in part reflecting several policy announcements that effectively tightened the (future) supply of carbon allowances in both the UK and EU⁷. The rise in wholesale gas prices will have also contributed to the increase in carbon prices ([Shin and Mari 2025](#)).

We estimate that around 1 percentage point of both the increase and subsequent fall in headline inflation over the 2021-23 period is likely to have originated from these changes to carbon policy (Chart 2, RHS). That reminds us that changes in carbon policies can have both inflationary and disinflationary impacts. Indeed, looking over a longer horizon, changes in carbon policies have both pushed up and down on prices, albeit at much smaller magnitudes than in recent years (Chart 2, LHS).

The energy sector plays an important role in the transmission of carbon policy shocks to inflation ([Copeland et al 2025](#)). Our estimates suggest that multiple energy-related commodity prices – including carbon allowances, crude

Chart 1. Carbon emissions allowance prices in the United Kingdom

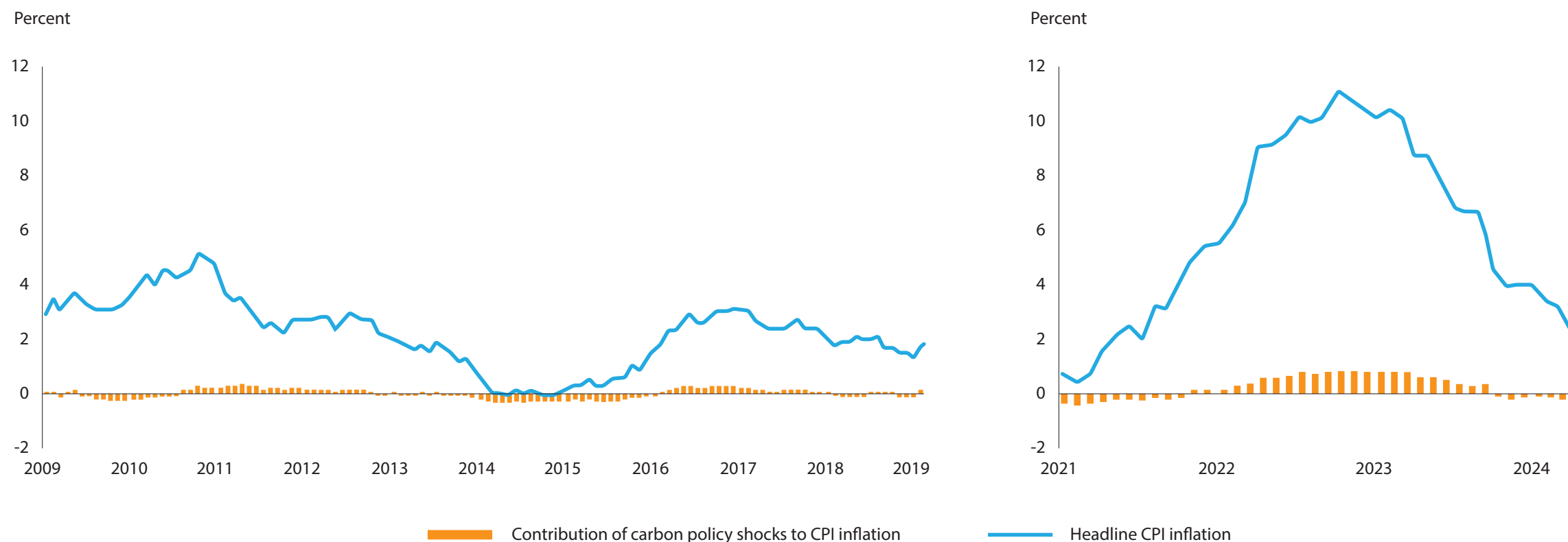


Notes: The chart depicts the daily UK-relevant carbon price ie. the EU ETS carbon price from 2005-2020, and the UK ETS carbon price from 2021-24. The EU ETS price has been converted from EUR to GBP. The London Stock Exchange Group (LSEG) UKA forecast (green dots) is in normal terms (adjusted for 2% inflation).
Sources: Bank calculations. Data from LSEG and LSEG Commodities Research.

Chart 2. Historical decomposition of past contribution of carbon policy shocks to developments in UK headline inflation

Low carbon price period
EU ETS Phases 2-3, 2009-2020

High carbon price period
UK ETS Phase 1, 2021-2024



Notes: The figure reports the historical contribution of the identified UK-relevant policy shock to UK headline inflation as estimated by the VAR model in Copeland et al (2025). To provide conservative estimates, the left-hand side chart is estimated using a 'low carbon price' sample period (June 2008 to December 2020) whereas the right-hand side chart is estimated using the full sample, which includes the 'higher carbon price' period (June 2008 to April 2024).

Source: Bank staff analysis based on [Copeland et al \(2025\)](#).

oil, and natural gas prices – increase in response to a shock. These rising costs are passed on to the energy prices faced by households and firms. And, via supply chains, energy intensive firms also pass these through to non-energy prices.

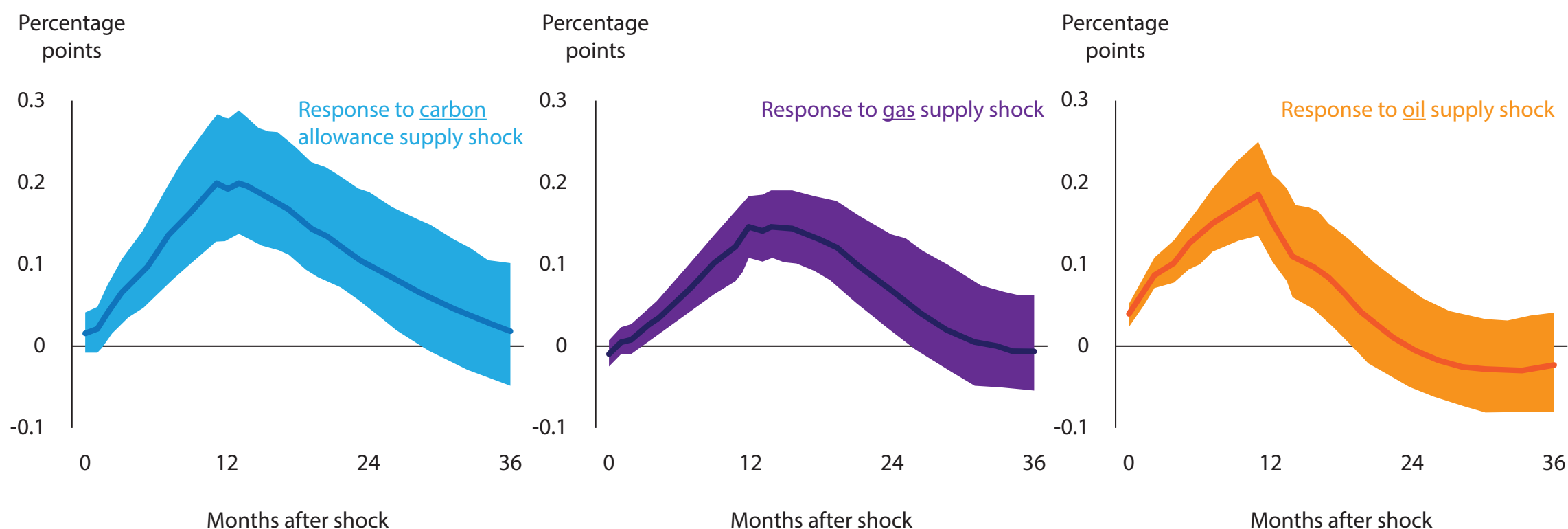
The source of an energy price shock matters for monetary policy. We have estimated that a 1pp rise in energy price inflation originating from a shock in the carbon market has a roughly 25% larger impact on headline inflation relative to an equivalent shock arising in the gas market. It is also several months more persistent than if it had originated in the oil market (Chart 3).

Oil and gas prices have historically been, and are likely to remain, the primary drivers of energy prices: it takes an unusually large carbon supply shock to generate a 1pp rise in energy price inflation⁸. But carbon shocks are likely to grow in frequency and size over coming years, as carbon pricing schemes become more stringent, sectoral coverage widens, and as carbon prices are expected to rise (diamonds on Chart 1). It is however also likely that the drive to decarbonise, particularly in the power sector, will reduce the aggregate impact of carbon price shocks over the longer term.

Understanding how these physical and transition risks transmit to inflation will be especially important for monetary policy makers. That's because, as these examples show, climate shocks have a significant effect on energy and food prices. These items are bought regularly and have particular salience for households, meaning they have outsized effects on inflation expectations ([Bonciani et al 2024](#)) and so potentially wage and price setting behaviour. In addition, in a world where these shocks become larger, more frequent and more persistent, the risks of these second-round effects become even greater.

Indeed, as my colleague James Talbot recently set out ([Talbot 2025](#)), these shocks sound rather similar to the shocks monetary policy makers have faced in recent years – large, unpredictable, but persistent supply shocks in areas of

Chart 3. Impulse response functions of UK headline inflation to carbon allowances, gas and oil supply shocks scaled to increase energy inflation by 1 percentage point at peak



Notes: Impulse responses to the identified UK-relevant carbon policy shock, and the natural gas and oil supply shocks identified by [Alessandri and Gazzani \(2025\)](#) and [Känzig \(2021\)](#). Responses are normalised to increase energy CPI inflation by 1 percentage point at peak. Estimation sample: June 2008 to April 2024 for the carbon and oil shocks, and to December 2023 for gas shock (owing to the shock [series](#) length). Note: our UK-specific reconstruction of Alessandri and Gazzani's gas shocks (which takes the UK NBP natural gas price change around event days) enables estimation over the full sample and yields similar results. The solid line represents the median draw. The shaded areas are the 80 percent credible intervals. For comparability across shocks, these are standardised to increase energy price inflation by 1 percentage point (at peak), which is a common scaling choice in the literature for ease of interpretation (see, for example, [Känzig \(2025\)](#) and [Ortubai et al \(2025\)](#)). It is worth noting, however, that this scaling choice means we are considering a particularly large shock in the carbon market: roughly 15 times bigger than a 'typical' (1 standard deviation) shock over the sample period. Source: [Copeland et al \(2025\)](#).

salience for households. So monetary policymakers will need to understand the economic impact of these climate shocks and be ready to react as needed, if we are to keep inflation expectations anchored and inflation low.

With climate change already influencing the economy, a better understanding of how monetary policy might need to respond to climate shocks matters for investors too, including those in CRE. Building our collective understanding of what is happening and the appropriate policy response is not an easy task. But it is one we must rise to.

Financial stability

Climate change also matters for financial stability. Back in 2022 our [Climate Exploratory Scenario](#) explored the financial risks posed by climate change for the largest UK banks and insurers.

The exercise concluded that climate change creates risks to households and businesses globally, and so for the financial system. It showed that if banks and insurers did not respond effectively, climate risks could cause a persistent, material drag on their profitability. Loss projections varied across participant type and climate scenario, but amounted to hundreds of billions of pounds.

And losses would be significantly higher in a scenario with a late or disorderly transition and higher still in a scenario with no further policy action and so higher, and still rising, physical risks. Individual firms, and the financial system overall, would be much less resilient.

In that context, I'd like to hone in on two specific examples where climate risks becoming more proximate could directly impact financial stability. The first relates to a question that I – and other Bank colleagues – have raised of a possible 'climate Minsky moment', where the crystallisation of climate risk triggers broad asset repricing, perhaps similar to the impacts on asset prices we saw during COVID 19 or the start of the war in Ukraine⁹.

The impact on repricing of any 'trigger climate event' would of course depend on the source of the shock, how well climate risks are priced before it, the speed of any repricing, and if vulnerabilities in market-based finance further amplify it.

Analysis of these risks has to be global. The UK has already made much progress in its transition to net zero. It has also experienced fewer extreme weather events than other parts of the world. But as a small, open economy with a large financial centre, the UK is exposed to crossborder spillovers in global financial markets, and the global operations of large UK companies and UK-based Non-Bank Financial Institutions (NBFIs) mean they are of course vulnerable to climate developments overseas.

On pricing, there is evidence that climate risk is starting to be priced in assets such as corporate and sovereign bonds. But our analysis suggests that current prices neither fully account for the transition risks we could see as part of the transition, nor the physical risks we could see in its absence¹⁰.

In this context, markets over time or in response to a significant climate event begin to place more weight on scenarios where climate risks result in a broad-based macro shock, characterised by inflationary shocks, sharp changes in interest rates, and increased risk premia. And that would of course mean that they re-evaluate upwards their pricing of climate risk today.

The speed of repricing is crucial for understanding financial stability impacts. Rapid repricing could occur if markets start pricing in severe physical climate risks or a disorderly transition, perhaps following acute physical disasters. Even gradual repricing could result in short bouts of rapid price movements.

This repricing could affect a wide range of assets. Scenario analysis undertaken by Bank staff suggests that a portfolio of long-duration G7 sovereign bonds could lose 10-20% of its value given interest rate risk and increasing

risk premia (depending on the scenario)¹¹. Corporate credit spreads could widen, making the repricing of corporate asset classes even more significant.

Large UK NBFIs, which are more exposed to market risks like these than banks, might not be resilient to such a shock. The first-order repricing shock is of a similar size to the shock in last year's SWES¹². Larger declines in sovereign bond prices could lead to uncertain behavioural responses by NBFIs, such as forced selling in excess of that observed in that exercise.

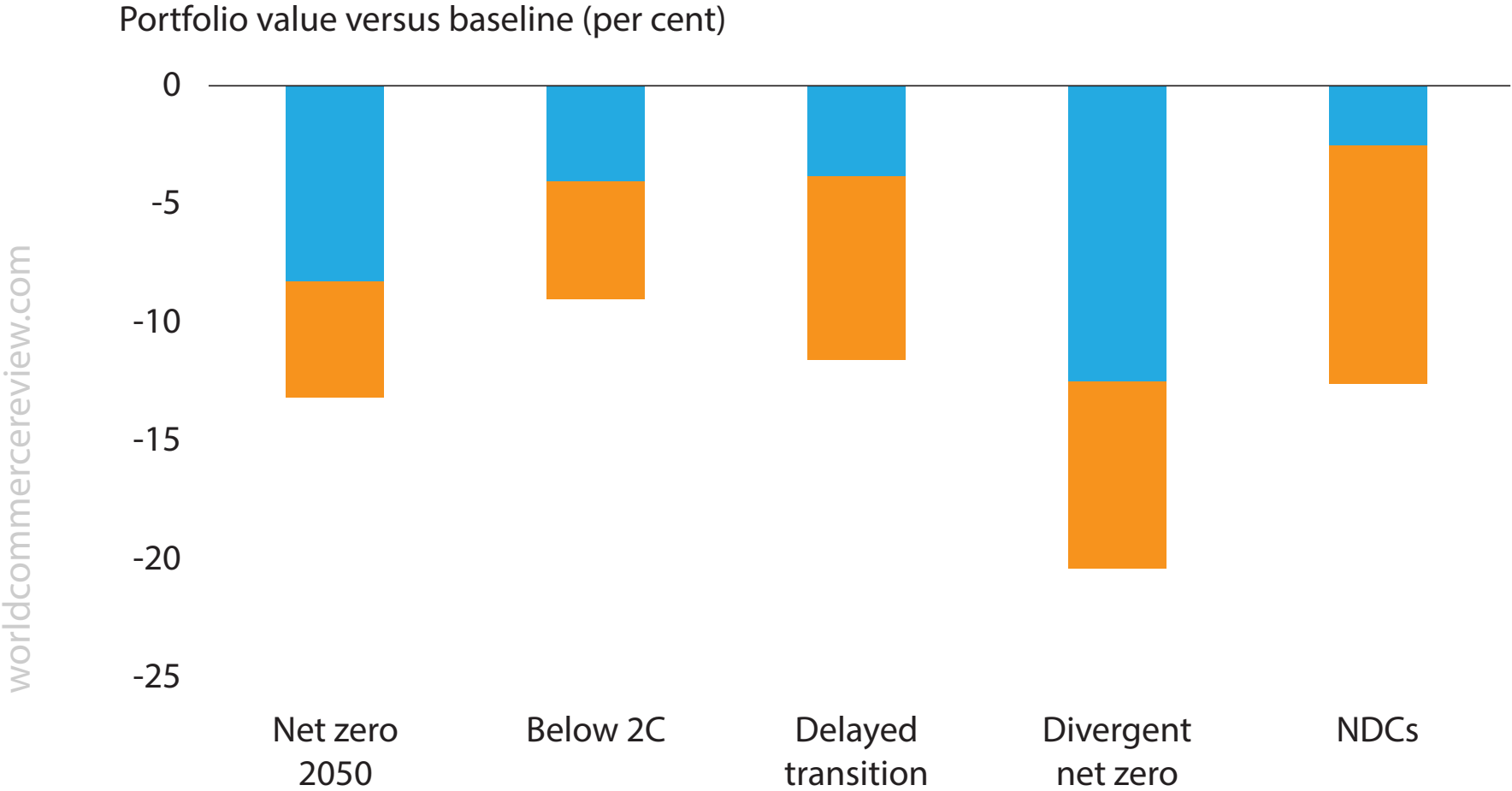
These risks, and the tools to assess them, are evolving rapidly. It's important to take them seriously and fully understand the broader impacts, including potential behavioural responses. Following this work, we have a better understanding of how climate risks might impact financial markets. But there is more for us and for market participants to do. And to that end, we are further clarifying our expectations for banks and insurers through our recently published [consultation paper](#).

Let me pause briefly on commercial property since assets here might also be vulnerable to sudden repricing. We are already seeing evidence of a 'green premium' being paid for more sustainable office space¹³. That suggests that some climate risks are already priced in.

However, a sharp reassessment of physical risks or the likelihood of a sharp and disorderly transition, may lead properties that are more exposed to severe weather events or that do not live up to sustainability standards to face a heavier discount. So there is work to do here too.

Climate risks becoming more proximate can also impact financial stability through the withdrawal or a higher cost of insurance. As flood risks intensify, insurers may withdraw coverage or increase price. This is already happening in the US, where policy non-renewals correlate with regional climate risks¹⁴.

Chart 4. Climate re-pricing of a long-duration G7 sovereign bond portfolio



Source: [Measuring climate-related financial risks using scenario analysis \(Holden et al 2024\)](#).

Prospective homebuyers in flood prone areas might anticipate reduced insurance availability and higher premia, demanding discounts to house prices to compensate. Our November 2024 [Financial Stability Report](#) found that in the most pessimistic climate scenarios, the 1% of properties most exposed to increases in flood risk could lose around 20% of their value.

And the potential fall in house prices for the 10% most exposed areas would be, on average, 6.5 times larger than in areas with a median level of risk¹⁵.

Mortgage lenders' exposures are sensitive to house prices. A price fall would increase the loss given default on a property. If more properties were uninsured, potential losses faced by lenders in the event of flooding would also increase. We could see mortgage prisoners, where existing mortgage holders are unable to refinance their homes. Our CBES analysis found that in our late and no action scenarios mortgage losses faced by banks are around four times larger than in our early action scenario.

Changing insurance availability can also impact commercial real estate. It is estimated that 10% of commercial properties are in flood plains and the impact of flooding on affected businesses can be severe ([Crampton et al 2025](#)). The need for businesses to self-insure could also put downward pressure on their investment expenditure.

In the UK we have Flood Re for residential properties – a joint reinsurance initiative between the Government and the insurance industry. This limits the short-term financial impact of flooding on households, as around 90% of residential properties are insured. But commercial properties are not covered. And as physical climate-related risks increase over the long term, and the Flood Re scheme ends, financial stability risks could develop. What happens as we approach the end of Flood Re matters a lot.

These examples highlight how some of the risks to the financial system are becoming more proximate. Since the Bank first started its thinking on how climate change matters for the financial system we are in a much better place – managing climate risks is becoming increasingly embedded in our analysis and our actions, and our increased understanding of a host of risks has led us to feel better prepared.

However, there is much more for us and market participants to do to minimise both the likelihood of climate risks materialising and their impact if they do.

Conclusion

So where does this leave us? In 2019 I gave a speech titled *Avoiding the storm*. As I have hopefully highlighted for you this evening, the storm, or at least the beginnings of it, is already upon us. And so it is vital for us now to work out how to ‘weather it’.

What does that mean for the real estate sector? Climate risks are real and tangible, and as they become more imminent, property valuations may change rapidly. Real estate owners and lenders could face significant risks, particularly if insurance protection becomes unavailable.

To manage these risks and support the transition to net zero, investment for adaptation and mitigation is crucial. Under current Government plans, all commercial property will need an EPC rating of B or above by 2030. 83% of commercial buildings in major cities currently fall below that standard¹⁶. The cost of transition will be substantial and require significant financing. Without the necessary funding, we risk stranded or ‘zombie’ properties.

As the central bank, our role is to provide the right macroeconomic and financial environment for this investment. That means two things: ensuring price stability and maintaining a strong and resilient financial system. And we

need to do that in the face of physical and transition shocks. These are the most important actions we can take to ensure a stable foundation for economic growth. Our doing that will support us all in weathering the storm. ■

Sarah Breeden is Deputy Governor, Financial Stability, at the Bank of England

Endnotes

1. IPCC — [Intergovernmental Panel on Climate Change](#).
2. [Global Warming of 1.5°C, IPCC \(2020\)](#).
3. [Climate change: Supporting farmers and growers - House of Lords Library](#).
4. [Impact of Climate Change on the UK Food System](#) | Published in FSA Research and Evidence.
5. [Acute physical impacts from climate change and monetary policy \(2024\)](#), NGFS Technical Document.
6. In [Ficarra and Mari \(2025\)](#), a one standard deviation increase in the number of UK floods was found to reduce regional output by 1% and raise regional inflation by 0.5% at the two-year horizon. However, the aggregate economy-wide impact can differ significantly depending on the sectoral composition and position in the supply chain of the area affected by flooding. [Li \(2024\)](#) applies the same identification approach across countries and finds that flooding has a much larger inflationary effect in developing economies relative to advanced ones, because of the larger supply shock it triggers.
7. In 2021, the EU transitioned from Phase 3 to Phase 4 of the EU ETS. The UK left and established the UK ETS, which started in Phase 1. Both ETSs have scheduled a reduction in the supply of carbon permits, a decreasing share of permits being given out for free, and an expansion of sectoral coverage over the period 2021 to 2030.
8. For comparability across shocks, our estimates in Chart 3 are standardised to increase energy price inflation by 1 percentage point (at peak), which is a common scaling choice in the literature for ease of interpretation (see, for example, [Känzig \(2025\)](#) and [Ortubai et al \(2025\)](#)). It is worth noting, however, that this scaling choice means we are considering a particularly large shock in the carbon market: roughly 15 times bigger than a ‘typical’ (1 standard deviation) shock over the sample period. The oil and gas price shocks needed to increase energy price inflation by 1 percentage point (at peak) are 5 times and 3 times bigger than a ‘typical’ (1 standard deviation) shock over the sample period, respectively.
9. [Avoiding the storm: Climate change and the financial system](#) - speech by Sarah Breeden | Bank of England and [From hot air to cold hard facts](#) - speech by Andrew Hauser | Bank of England.
10. [Financial Stability Report - November 2024](#) | Bank of England.
11. [Measuring climate-related financial risks using scenario analysis](#) | Bank of England.

12. [System-wide exploratory scenario](#) | Bank of England.
13. [Sustainability and Value](#) | [Capital Markets: Central London Offices Research](#) | 2023 | JLL Research.
14. [Chairman Press](#) | [Chairman's Newsroom](#) | [Chairman](#) | US Senate Committee on The Budget.
15. Evidence is emerging that higher insurance premia are already affecting home prices in parts of the US, see for example Eastman, Evan and Kim, Kyeonghee and Zhou, Tingyu, *Homeowners Insurance and Housing Prices* (June 03, 2024). Available at [SSRN: Homeowners Insurance and Housing Prices](#).
16. [British Property Federation](#).

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Reconciling the EU's goals with those of the Global South

Clean industrialisation is a political and economic priority for the EU. Ben McWilliams, Simone Tagliapietra and Jeromin Zettelmeyer argue that importing energy-intensive goods would be more efficient for EU clean industry goals than importing clean energy itself

Executive summary

Clean industrialisation is a political and economic priority for the European Union. For it to work, affordable clean energy is needed. However, producing this energy in Europe is constrained by limited renewable energy endowments (sunshine and wind) and land availability, while the transportation costs for imported clean energy (in the form of electricity or hydrogen) are much higher than for fossil fuels.

An alternative way to fuel Europe's clean industrial sector would be to import energy-intensive primary tradeable products such as ammonia, methanol and reduced iron. We estimate that more than ten percent of total future EU clean energy demand will be met by such products.

Public policy in Europe should aim to facilitate trade in energy-intensive intermediate inputs, which are cheaper to import than energy directly. Imports of these inputs could boost the competitiveness of downstream stages in the energy-intensive value chain (such as steel production). By lowering overall energy demand and thus electricity prices, such imports would also raise EU competitiveness more broadly.

In many cases, they would replace imports of less energy-intensive commodities such as iron ore, therefore not adding to Europe's overall import dependency. The direct economic impact in terms of jobs and value added that would be offshored is not substantial.

The international benefit of such a strategy would be that it would embed third countries – especially emerging and developing economies – into clean industrial value chains. Stable European demand can help such countries develop export-driven, clean industrial strategies. Politically, this could be an important incentive that could offset the EU's carbon border adjustment mechanism.

Governments should therefore not use taxpayer money to fight the relocation of energy-intensive and tradeable primary products, beyond some minimum threshold that is desirable for economic security and innovation reasons. Meanwhile, ongoing negotiations with third countries to establish Clean Trade and Investment Partnerships should put trade in energy-intensive clean products at the core of new international clean supply chains.

The EU wants to expand green manufacturing and retain heavy industry in decarbonised form – exactly the growth model successfully pursued by China in the last decade

1 Introduction

Can the growth strategies of the European Union and developing countries be made consistent with each other and with decarbonisation? On the face of it, the answer appears to be no.

The European Union wants to boost production from green energy-intensive industries and increase domestic manufacturing of clean technologies needed for the energy transition to 40 percent of consumption by 2030¹. The European Commission's February 2025 Clean Industrial Deal (European Commission 2025a), building on Draghi (2024), seeks to reconcile decarbonisation and industrial strength by *"lowering energy prices, creating high quality jobs and the right conditions for companies to thrive."*² An accompanying Affordable Energy Action Plan (European Commission 2025b) seeks to ensure cheap green energy for European manufacturing industries³.

But expanding green manufacturing and retaining or expanding heavy industry in decarbonised form is exactly the growth model successfully pursued by China in the last decade. Many developing countries want to emulate this, including India, which wishes to raise its share of manufacturing in value added (Sen 2025).

This disconnect poses a significant problem, for two reasons. First, growth strategies that seek to promote the same set of green industrial jobs tend to result in subsidy races and/or trade conflict. This is already happening with the Trump administration's tariff wars, which are motivated by the desire to reshore industrial jobs.

While the EU has taken more measured steps – by, for example, imposing countervailing duties on Chinese electric vehicles and putting in place a carbon border adjustment mechanism, both of which are arguably consistent with World Trade Organization rules – even these are viewed as protectionist by China and by countries such as India (Sen 2025).

Second, inconsistent national industrial development plans imply that proposed strategies for international decarbonisation may be politically unfeasible. For example, a major expansion of international climate finance, funded by a coalition of advanced countries can be shown to be in the economic interests of the coalition, as measured by the coalition's share of the avoided global social cost of carbon (Bolton *et al* 2024; Bolton and Kleinnijenhuis 2025). But fiscal transfers in support of green growth in the South will hardly be politically feasible if viewed as threatening the industrial growth ambitions in the financier countries.

A reverse problem arises in Deese's (2024) proposal for a "*Clean Energy Marshall Plan*" in which advanced countries would offer massive financial support for emissions reduction in the South, in exchange for raw materials to support green industrialisation in the North. This brand of global decarbonisation is likely to be rejected by developing countries that wish to reduce dependency and raise their manufacturing shares.

This chapter argues that European and developing-country industrialisation ambitions can nevertheless be made consistent, for a simple reason: Europe is energy poor, leading to high energy costs. While costs may fall as zero-emission energy sources are expanded, energy in Europe will remain expensive relative to other regions, particularly developing countries with much richer endowments of wind, hydro and solar energy. Green energy trade will not equalise these energy cost differences because electricity and hydrogen are expensive to transport.

This suggests an international division of labour in which the South specialises in green production of energy-intensive intermediate inputs, such as ammonia and reduced iron ore, while the EU imports these inputs as a cheaper alternative to direct energy imports. While the EU will have lost the value added and jobs associated with these inputs, these amount to only a small fraction of overall industrial value added – and the resulting reduction in energy demand in Europe will help make the rest of industrial production competitive.

The remainder of this chapter proceeds as follows. In section 2, we identify a green industrialisation strategy that maximises EU competitiveness, focusing on the question of how Europe can overcome its relative energy shortage at least cost. In section 3, we explain how this strategy can be made consistent with the (green) industrialisation ambitions of the Global South. Finally, in section 4, we discuss EU policies – domestically, and with respect to international trade and investment partnerships – that would implement the strategy.

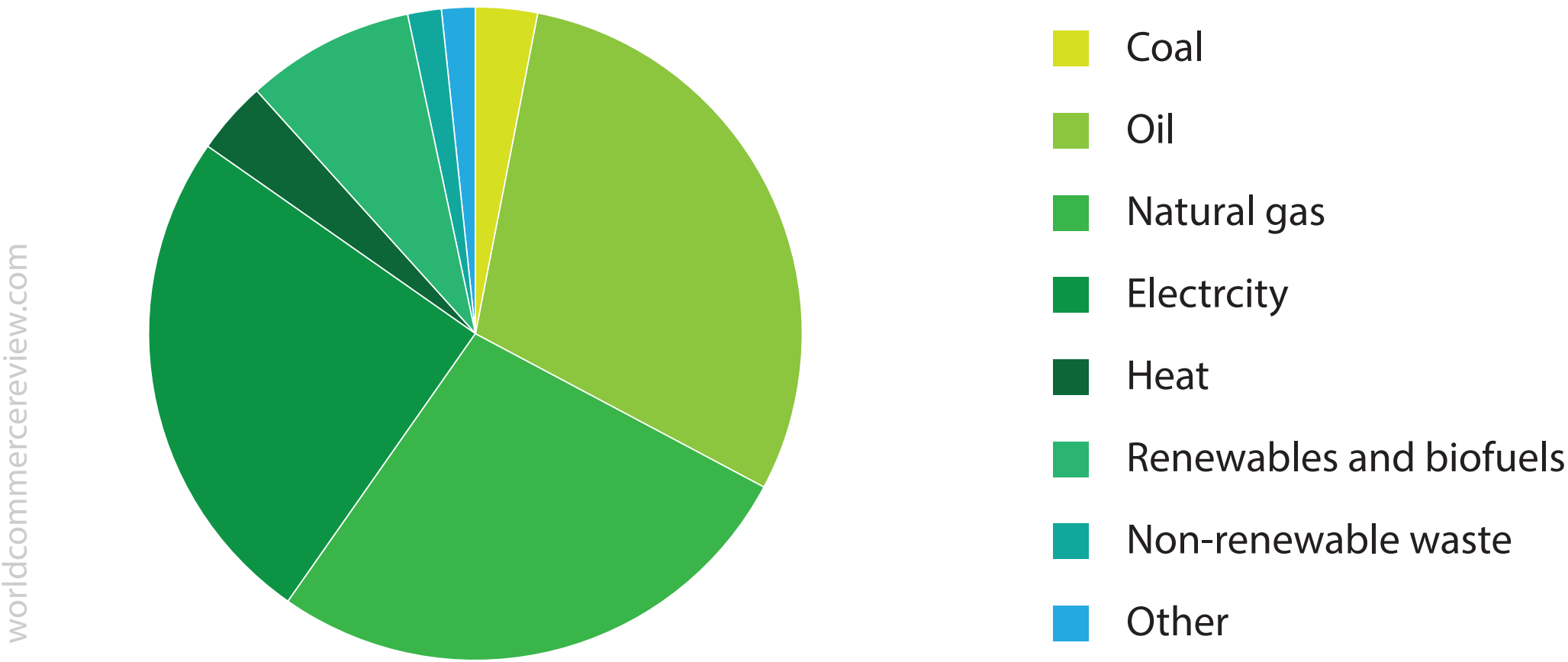
2 Green industrialisation in the European Union

Two-thirds of the energy products consumed by European industry come from oil products, natural gas and coal (Figure 1)⁴. There is little extraction of fossil fuels in Europe, so almost all of these energy products are imported. Green European industrialisation involves substituting these imports for new industrial processes powered by green energy. Europe's future industrial competitiveness will depend on the price of this green energy.

We define green energy as electricity produced without burning fossil fuels, and chemical fuels derived from electricity (such as hydrogen). In principle, the EU has three ways to meet its demand for green energy: domestic production, direct imports (in the form of electricity or green hydrogen), and imports of green energy embedded in highly energy-intensive tradeable inputs, such as ammonia and direct reduced iron ore (DRI).

Industrial strategies in Europe rely on these three approaches to varying degrees. The European Commission's strategy, including the Clean Industrial Deal, is focused mostly on domestic production, particularly after the 2022 Russian invasion of Ukraine and the ensuing energy crisis illustrated the dangers of dependence on imported energy sources. Modelling from the European Commission (2024) on achieving climate neutrality in 2050 sees negligible volumes of direct electricity imports and overall energy import dependency falling dramatically.

Figure 1. Industrial demand for energy commodities, EU 2023



Source: Bruegel based on Eurostat.

However, non-electricity energy imports would continue to play a role at EU level, particularly for energy value chains involving hydrogen, a focus of the EU's 2020 hydrogen strategy (European Commission 2020). At the level of EU member states, hydrogen imports play a disproportionate role in Germany, where the government hydrogen strategy foresees hydrogen imports accounting for 50 percent to 70 percent of total domestic hydrogen demand.

The idea that it might make sense to import energy in the form of intermediate products has received less political attention – perhaps because it requires accepting the principle that Europe might need to offshore at least some energy-intensive production traditionally done in Europe.

However, the energy price hikes of 2022 have already prompted the offshoring of some particularly energy-intensive intermediate products, such as ammonia. Furthermore, both Germany's hydrogen strategy and the EU's RePowerEU (issued after Russia's invasion of Ukraine to wean the EU off Russian energy imports) plan include hydrogen derivatives (such as ammonia) in hydrogen imports (BMWK 2023; European Commission 2022).

In the rest of this section, we argue that if European industry is to maintain or regain its competitiveness, imports of energy-intensive intermediate inputs will need to play a much greater role than currently recognised. Sections 2.1 and 2.2 make the prima-facie efficiency case. Relative to other world regions, Europe's clean energy endowments are poor and thus some degree of energy imports is efficient. Intermediate products are much cheaper to import than energy directly.

Sections 2.3 and 2.4 evaluate the economic costs and benefits for European industry of off-shoring energy-intensive production stages. Costs include the direct loss of value added and potential adverse spillovers on the rest of the economy. Benefits would include lower input costs, boosting the competitiveness of the energy-intensive

production stages that would remain in Europe, and lower industrial energy demand and hence energy prices, benefiting all European energy consumers – including industrial customers.

Finally, section 2.5 briefly evaluates the potential effects on economic security. These depend on the counterfactual (whether the alternative to increased offshoring of intermediate inputs is greater reliance on domestic energy or higher direct energy imports), and on how offshoring is managed.

2.1 Europe's green energy endowments are relatively poor

The EU needs much more green energy. In 2023, the bloc produced 1,810 TWh of clean electricity⁵. Modelling by the European Commission (2024) suggested that 6,300 TWh to 7,000 TWh of clean electricity will be required by 2050 to reach net zero. This implies annual growth in clean electricity of 165 TWh compared to annual growth of 17 TWh since 2020.

Meeting these green energy requirements is challenging because domestic production faces constraints. Land availability for new construction is limited, and voters sometimes push back against construction near to their homes. While 51 percent of Germany is potentially suitable for wind deployment, just 9 percent remains after regulatory, environmental and technical constraints are accounted for (McKinsey 2022).

The distribution of renewable energy endowments (mountains for hydroelectricity, solar irradiation and high and consistent wind speeds) further limits regional green energy potential. Regions with good renewable energy endowments are often located far from industrial demand centres. The continental electricity system needs major investment and political impetus in order to move green energy around efficiently (Heussaff and Zachmann 2025).

Europe's solar PV potential is particularly poor – except for the Mediterranean countries. Figure 2 shows 'practical' solar PV potential, a measure that reflects both theoretical solar PV potential (determined by climatic variables such

as solar irradiance and air temperature) and land availability, excluding land with physical or technical constraints, such as built-up environment or rugged terrain (ESMAP 2020).

While nuclear energy can play an increasingly important role in supporting electrification in Europe – particularly by providing much-needed low-carbon dispatchable power to complement the variability of renewables – it remains a relatively costly way of compensating for the continent’s limited renewable energy endowment. The levelised cost of electricity for new nuclear in advanced economies remains significantly above that of solar and wind.

Nuclear projects are capital intensive and subject to long permitting procedures and, very often, significant construction delays. Political and societal resistance to nuclear energy in several European countries further limits its deployment potential. Advanced nuclear reactors – including small modular reactors – promise to overcome these barriers, but it is unclear whether this promise will be delivered, as development of the technology is still at an early stage.

Attempting to meet all the EU’s clean energy needs domestically would thus result in higher energy costs than in other regions and is unlikely to be desirable either politically or economically (Neumann *et al* 2024). The EU faces a ‘make or buy’ decision: how much green energy to produce domestically and how much to import (Scholten *et al* 2016). Regional differences in the social acceptance of land use and the possibility for spatial arbitrage imply that some green energy imports are efficient and likely (Schmidt *et al* 2019).

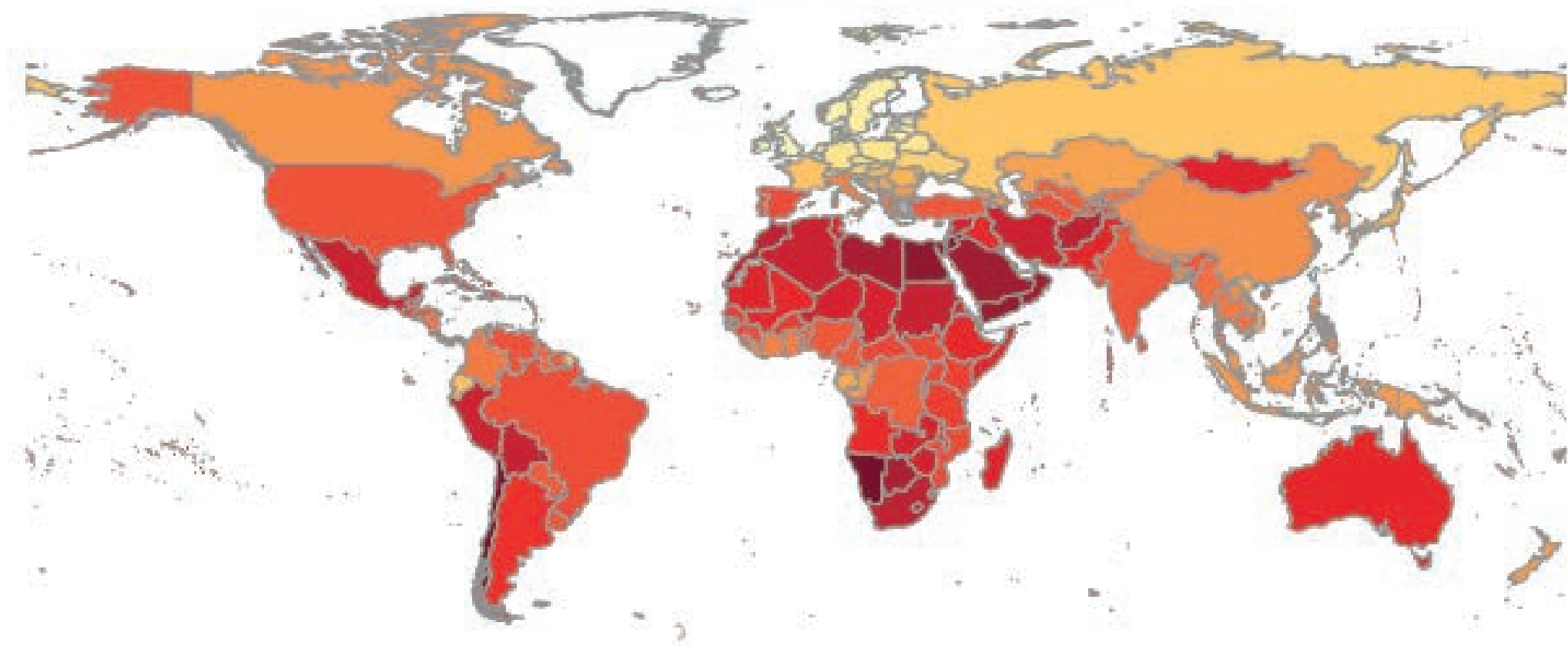
2.2 Importing energy-intensive inputs is cheaper than importing energy directly

It is substantially more expensive to transport electricity and hydrogen than oil and gas (Saadi *et al* 2018; DeSantis *et al* 2021). Transportation costs are sufficiently high to make imports of green hydrogen from North Africa or Chile (where production is far cheaper than in Europe) economically unattractive (Galimova *et al* 2023; McWilliams and Zachmann 2021).

Figure 2. Average practical solar PV potential (kWh/kW)

Least potential Greatest potential

worldcommercereview.com



*Note: we plot the variable average practical potential (PVOUT Level 1) from the dataset.
Source: Bruegel based on ESMAP (2020).*

Figure 3 shows estimates of the costs of transporting one unit of energy via different clean and fossil-energy carriers. Liquid fuels are more expensive to transport because of fixed liquefaction and regasification costs, which dominate overall costs. We compare these fossil and green energy costs to the implied costs of transporting green energy contained within reduced iron⁶. The implied cost is higher than for gas and oil via pipeline, but cheaper than green alternatives.

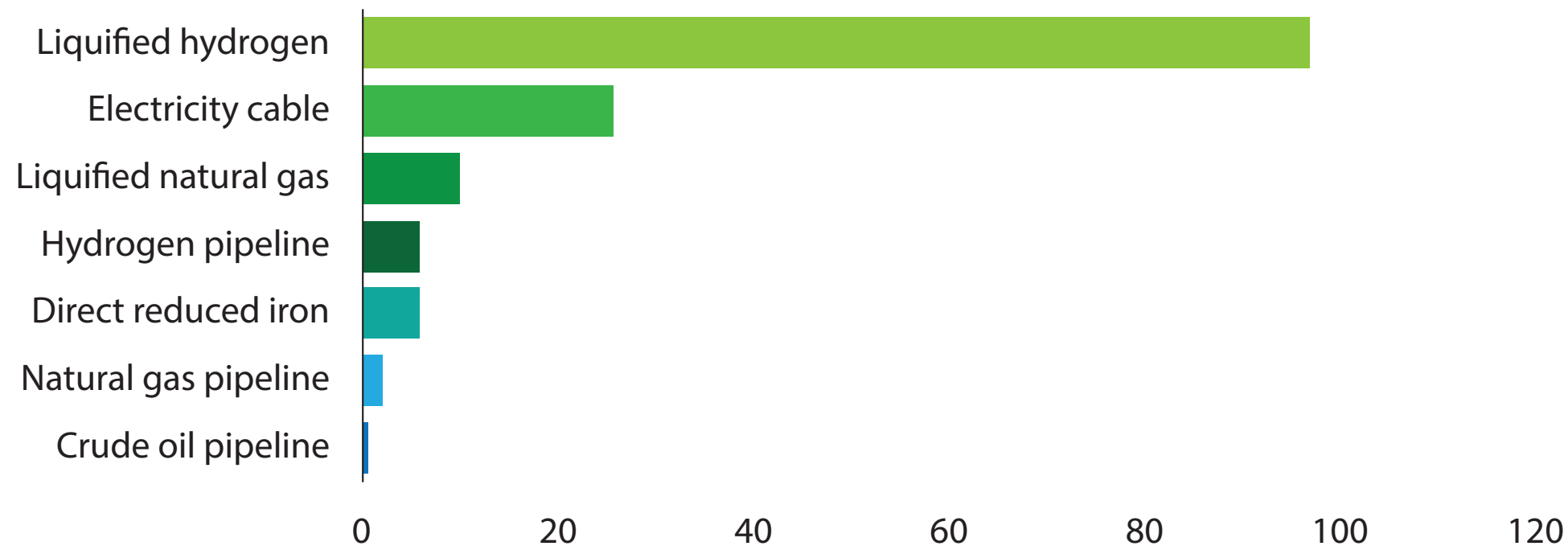
Therefore, the future global green energy system will likely be characterised by far less direct energy trade than currently. The present reality in Europe does little to dispel this notion. Only a small share of electricity is imported, while plans for hydrogen pipelines are long delayed.

Meanwhile, the uneven distribution of green energy endowments will create economic pressure for industrial relocation and trade in both final goods and intermediate inputs. This pressure will be particularly strong for commodities or products for which energy costs are a large share of total production costs (Samadi *et al* 2023).

Examples include ammonia and methanol (inputs into long value chains including fertilisers, synthetic fuels, olefins, resins and other high-value chemicals), and reduced iron, which can be transported by sea, much like iron ore is today, and accounts for approximately 70 percent to 80 percent of the energy consumption across the green primary steel value chain (Box 1).

At the same time, there is little relocation pressure beyond intermediate products because the energy demand for production of semi-finished products, such as flat steel products or plastic pellets, is low and transport costs are not reduced further compared to transporting intermediate products.

Figure 3. Stylised costs of transporting one MWh of energy over 1000km (\$)



Note: amortised costs of transporting one unit of energy (a MWh) in different forms through pipelines (crude oil and natural gas) and electricity through a high voltage direct current line from DeSantis et al (2021), and for hydrogen through a pipeline from Guidehouse (2022). For the transport of liquid fuels we use a set of assumptions on the costs of liquefaction, freight rates and regasification at destination terminals, based on Al-Breiki and Bicer (2020), Johnston et al (2022), Connelly et al (2019), ACER (2024); Gaffney Cline (2024) and FTI Consulting (2024).

Source: Bruegel.

Box 1. Implications of energy cost differentials for trade in intermediate inputs

Steel offers a clear example of the potential for trade in green intermediate products. Traditional production of primary steel involves burning iron ore using coking coal, both of which are imported by European steelmakers. A potentially economically attractive decarbonisation pathway for the production of green steel is to instead reduce iron ore using hydrogen.

Reduced iron can then be transported by sea, much like iron ore today. Producing reduced iron would account for up to 80 percent of the energy consumption across the green primary steel value chain (Vogl *et al* 2018; Alikulov *et al* 2024). European steelmakers who want to green their production must thus choose between importing reduced iron or importing iron ore and importing or producing hydrogen.

Taking a global perspective, Bilici *et al* (2024) showed that increasing trade in green reduced iron could reduce global production costs for steel by 2.2 percent to 3.9 percent. Gielen *et al* (2020) found it would be efficient for Australia to shift from exporting iron ore to green reduced iron. This could reduce global emissions while maintaining steel production in countries that currently process iron ore into steel, including Japan, South Korea and China.

For Germany, Egerer *et al* (2023a) evaluated the three sectors with the highest projected hydrogen demand: green iron for steelmaking, ammonia production and conversion into urea, and methanol production and processing into ethylene. For each value chain they assessed full domestic production,

hydrogen imports to feed domestic value chains, imports of intermediate products for further processing, and imports of final products.

They found that energy costs will impact future green value chains and that relocation of some productive capacity to countries with excellent renewable energy conditions is likely. The effects are most striking for urea and ethylene, for which full German domestic production and hydrogen imports would be uncompetitive internationally – 15 percent to 25 percent more expensive than production abroad. Only by importing intermediate products does final urea and ethylene production in Germany become internationally competitive.

Verpoort *et al* (2024) performed a similar analysis and arrived at similar conclusions. Importantly, they found that trading intermediate products (reduced iron, ammonia and methanol) would eliminate “*almost all relocation savings*” because the energy demand for producing semi-finished products is relatively low.

Green steel value chains are only just emerging and hence empirical evidence on relocations is lacking. However, ArcelorMittal has expressed interest in importing reduced iron to its European plants⁷. A survey of managers at the world’s 50 largest steel and chemical companies found renewable energy potential to be the most important factor influencing locational investment decisions (Eicke and Quitzow 2025).

2.3 Economic costs for the EU

Offshoring of the most energy-intensive intermediate inputs could negatively impact industrial activity in the EU though the loss of some industrial jobs and value added, and via spillover effects that reduce output in the rest of industry. However, these effects are likely small.

Direct impact on value added and employment

The relocation of green energy-intensive manufacturing would not have major direct effects on the European economy. High energy consumption occurs at early stages of value chains, where wages and value added are relatively small. For context, just eight industrial processes account for over half of German industrial energy demand, while providing 5 percent of wages, 6 percent of value added and 7 percent of exports (Figure 4).

'Cascading' deindustrialisation?

'Cascading effects' could spill over onto later value-chain stages. This could happen if many industrial processes see the benefits of being located near to intermediate product output, both for supply chain efficiencies and agglomeration benefits. Whether this happens depends on the interplay of unit transport costs and the economic inefficiencies associated with different value chain stages being dispersed.

If transport costs for a set of tradeable energy-intensive products are low compared to agglomeration advantages, factors including skilled labour availability and proximity to demand play more important roles in the locational decisions of any later or associated value chain stages. This is the case for most current industrial processes, which locate largely independently of fossil-fuel or mineral reserves.

For steel, the costs of transporting direct reduced iron are similar to the costs for transporting iron ore (Bilici *et al* 2024), suggesting there will not be major pressure for other iron and steelmaking processes to locate alongside DRI production. Germany's steel industry in the twentieth century grew close to locally sourced coal and iron.

As domestic coal production and iron ore extraction were phased out in favour of imports, locations have remained resilient (Egerer *et al* 2023a). For the chemical sector, ammonia – produced from natural gas – is already a widely traded intermediate product (Egerer *et al* 2023b).

A more explicit evaluation of the output spillovers of reducing or relocating energy-intensive production can be performed by taking the 2022 energy crisis as a natural experiment. Russia's full-scale invasion of Ukraine and the associated gas export cut-off led to soaring prices in the EU and a reduction in output from energy-intensive industrial processes. The eight most energy-intensive industries saw output drop by one-fifth (Figure 5).

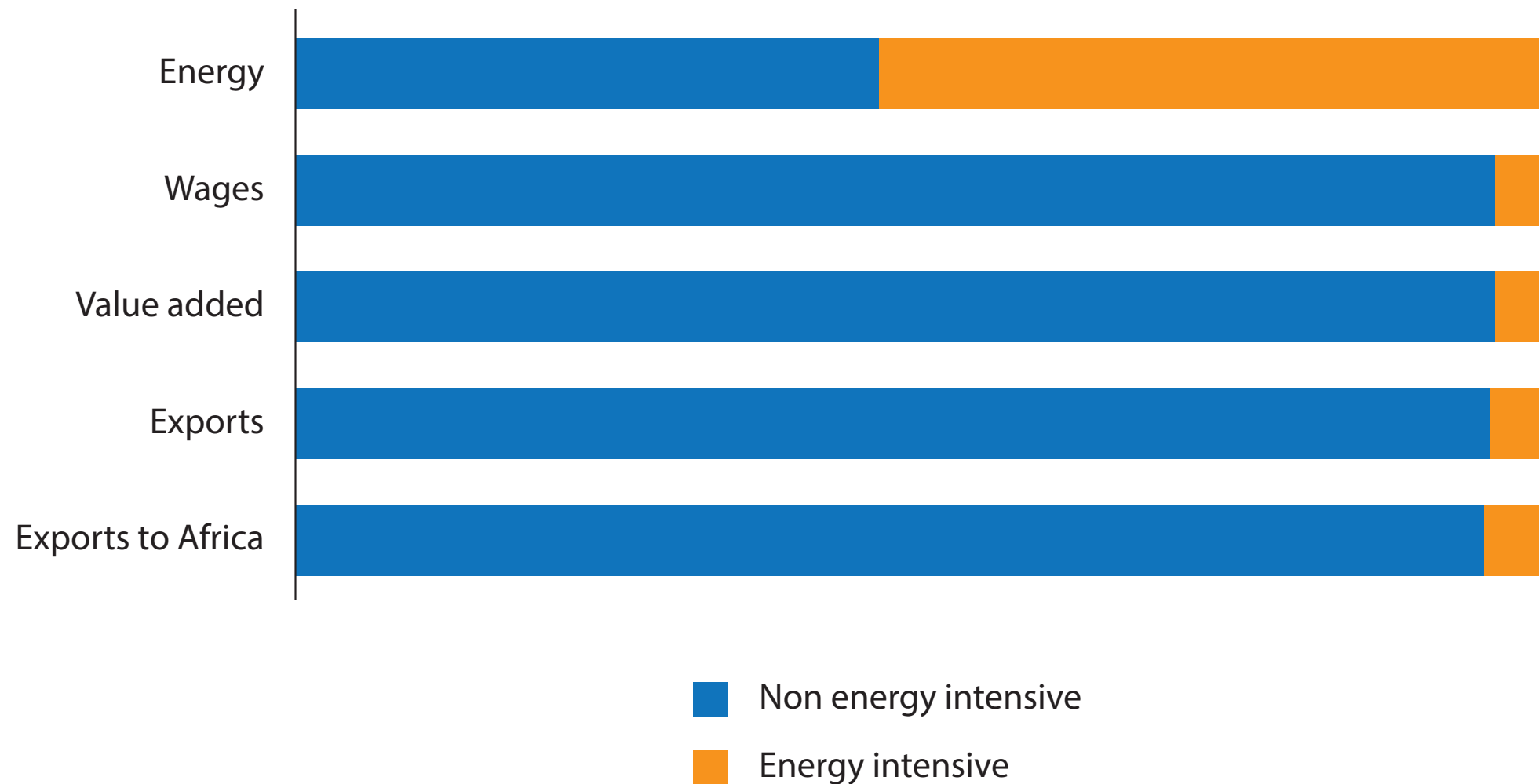
At the onset of the crisis, the aggregate economic impacts on the German economy were the subject of much debate. Estimates for the GDP impact from a full Russian gas cut-off varied wildly from a 2 percent to 12 percent loss (Moll 2024). Larger negative estimates were driven by the assumption that a reduction in output from one area of the economy would have substantial knock-on effects on other processes.

Fortunately, this did not happen. While production from energy-intensive industries fell by one-fifth, output from the rest remained broadly flat, despite inflationary pressures, geopolitical tensions and a large drop in European demand for automobiles (Figure 5).

Part of the reason is that firms shifted into higher value-added products and used fewer intermediate products. This led to a decoupling of industrial output (which fell) and manufacturing value-added in Germany, which remained steady (Fletcher *et al* 2024). Firms also increased imports of intermediate products (Fontagné *et al* 2023).

These imports helped replace outputs from domestic energy-intensive processes, which in turn helped maintain the production of final products (Chiacchio *et al* 2023). For fertiliser production in Germany, Stiewe *et al* (2022) found that growth in imports replaced domestic production of ammonia, keeping fertiliser production steady.

Figure 4. Distribution between intensive and non-energy-intensive industrial activities in Germany



Note: data is at the granularity of up to four-digit industry (WZ) code. An energy-intensity indicator is calculated using energy consumption and turnover by industry. The eight most energy-intensive industry codes are assigned to the 'energy intensive' category. These are 2351 (manufacture of cement); 241 (basic iron and steel and ferro-alloys); 2011 (industrial gases); 2015 (fertilisers and nitrogen compounds); 2014 (other organic basic chemicals); 2311 (flat glass); 2352 (lime and paperboard); 2362 (paper and paperboard).

Source: Bruegel based on DeStatis.

2.4 Economic benefits for the EU

The economic benefits of increased imports of energy-intensive intermediate goods can also be thought of in terms of direct and spillover effects:

- **Direct benefits to EU downstream industries.** The relocation abroad of early-value-chain stages can have positive economic effects by lowering input costs for downstream industries in the importing country. This argument applies both to the downstream stages of energy-intensive production and to associated services. For example, the international division of solar PV value chains has facilitated a boom in solar service jobs in Europe and the United States⁸.
- **Spillover benefits for other industrial sectors and consumers.** Bas and Strauss-Kahn (2014) investigated firm-level imports into France from 1996 to 2005, finding that imported inputs raised productivity and exports. New imported inputs have been shown to facilitate the introduction of new products in the EU (Colantone and Crinò 2011). In relation to imported energy-intensive products, the likely channel for beneficial spillovers will be electricity price cuts for other industrial consumers and for households, boosting competitiveness and making energy more affordable.

The magnitude of both effects will depend on the volume of energy embodied in imported intermediate inputs and its effect on prices. A rough estimate (see the appendix) suggests that imports of direct reduced iron, ammonia and methanol could reduce EU electricity demand by more than 500 TWh. This is more than one-quarter of today's green electricity production in the EU, and around one-tenth of 2050 projected demand. Trade in other products that undergo energy-intensive processes, such as polysilicon, refined minerals and aluminium, would increase the savings.

It is also conceivable that air and sea transportation will be decarbonised by the use of synthetic hydrocarbons: chemical fuels that replicate mineral fuels such as kerosene but are produced using electricity to combine hydrogen with captured carbon dioxide. Synthetic hydrocarbons might be considered a form of intermediate product, potentially adding another large chunk of tradeable embedded energy.

EU imports of green energy embedded in basic intermediate products could thus potentially reduce future green energy demand by substantially more than 10 percent. The extent to which prices would be impacted would depend on price elasticities of supply and demand. For context, the European energy crisis of 2022 saw the loss of about 20 percent of natural gas supply, though impacts were dramatically exaggerated by the immediate and unexpected nature of the shock, which would not be the case for a longer-term structural reduction.

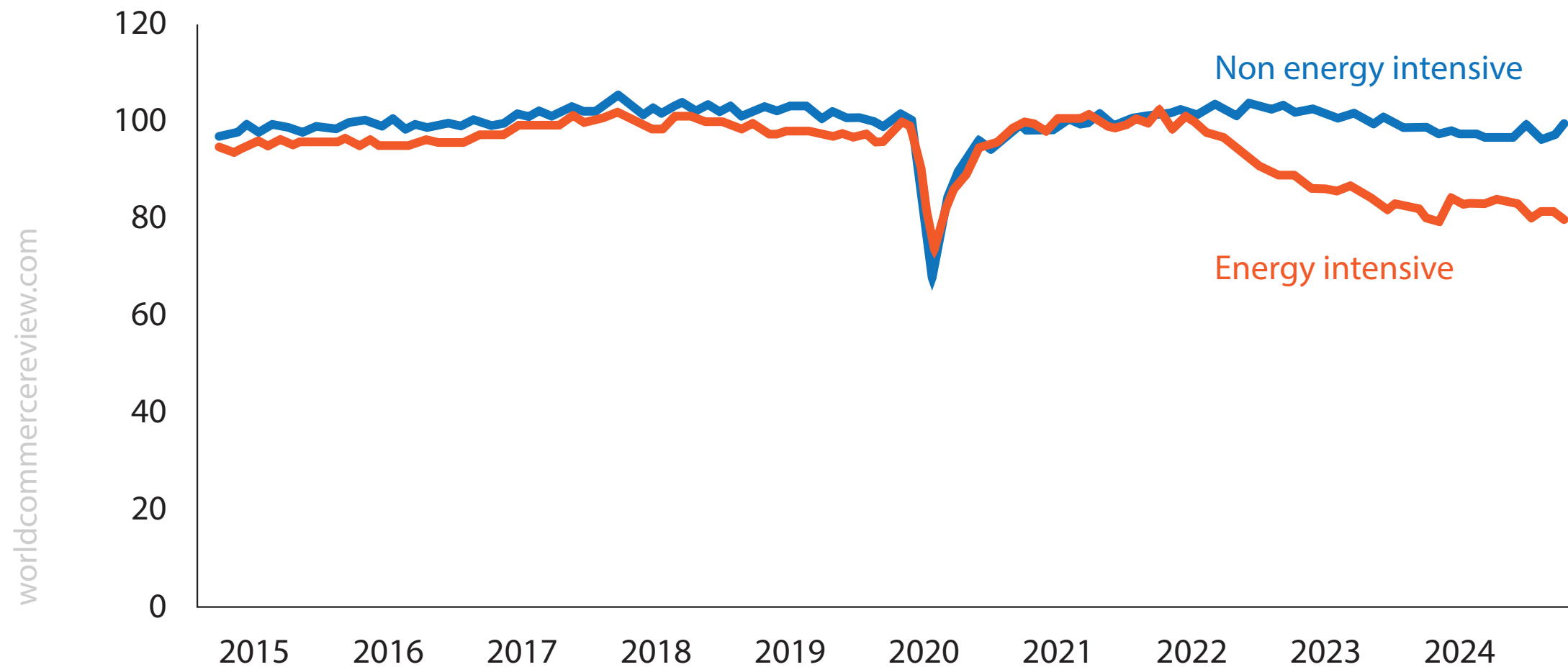
Importantly, maintaining some energy-intensive green energy demand in the EU can have a positive system effect to the extent that it is flexible and can load-shift to follow swings in supply. Large point sources of electricity demand, which can quickly ramp their consumption up and down, can act almost as batteries – consuming when there is too much green energy in the grid and turning off when it is scarce. Therefore, maintaining some production of energy-intensive goods in Europe likely to be efficient (Neumann *et al* 2024).

2.5 Economic security

De-risking the European economy is a priority concern for policymakers, reinforced by ongoing impacts from the Russian gas cut-off. Sustainable green industrialisation requires de-risking of external economic relationships while maintaining most benefits of trade.

Developing new import relationships will expose European countries and companies to international supply-side risks. Natural disasters or political changes could disrupt trade routes and harm production. There is thus a partial trade-off between minimising economic security risks and achieving least-cost decarbonisation.

Figure 5. Indexed EU industrial output, energy-intensive and non-energy-intensive sectors



Note: data from DeStatis is used to assign energy intensity values to industrial processes at the three-digit NACE level by comparing turnover and energy consumption (as in Figure 3). The set of most energy-intensive industrial processes is then mapped to Eurostat industrial output data to define the 'energy intensive' and 'non-energy-intensive' lines.
Source: Bruegel based on DeStatis and Eurostat.

However, importing more green intermediate products would be less risky than Europe's current dependence on fossil fuels. To the extent that they help reduce fossil-fuel imports, imports of green intermediate products can even be security enhancing. Dependence on an imported industrial product is not comparable to dependence on an energy source. A disruption to trade in green intermediate products would affect industrial output, but not household heating or motorists.

Green intermediate products could be sourced from a wide pool of suppliers. The constraints to becoming a supplier are much less restrictive than for the export of fossil fuels, as abundant renewable energy sources (and mineral deposits) are present in many countries (Figure 2). Stockpiling could mitigate risks further. Therefore, while there is a trade-off, it can be offset by best practices that exploit the economic efficiencies of trade while minimising risks (section 4).

3 The view from outside: consistency with the industrialisation of the Global South

3.1 Economic benefits for the Global South

European firms currently import fossil fuels and raw minerals from the Global South, with few imports of intermediate products. This does not create significant value added in exporting countries. With weak institutions in exporting countries, it can also lead to the 'resource curse' of policymakers seeking to maximise their shares of rents associated with resource exports, rather than creating good business environments.

An EU shift to more imports of energy-intensive inputs would be much more attractive economically for the Global South. It would see fresh economic activity move to the Global South and diversification away from raw mineral and energy exports toward intermediate products – as happened in South Korea in the 1970s, for example. Many Global South countries have good renewable energy and critical mineral endowments (Figure 6).

Exports of intermediate products will create jobs and value added. For instance, exporting green reduced iron can raise local employment by 16 percent per tonne of DRI produced in Global South countries compared to exporting the equivalent volumes of green hydrogen and iron ore separately (Agora Industry 2024).

Meanwhile, countries in the Global North would retain more than 90 percent of existing jobs in the steel value chain, and the final production cost of steel would be reduced by 16 percent. Caiafa *et al* (2025) investigated the Brazilian state of Ceará, from where liquid hydrogen or green steel might be exported to the Netherlands. Performing the additional step of green steel production in Ceará could increase local value added (+3 percent), incomes (up to 23 percent) and employment (up to 35 percent) (Caiafa *et al* 2025).

The desire to onshore additional value chain steps is a clearly stated policy goal for countries of the Global South. Chile is generally considered to have avoided the natural resource curse and been able to translate large resources of copper and lithium into economic growth through industrialisation strategies (Gutierrez *et al* 2022).

The Indonesian government plans an integrated battery value chain in order to leverage upstream domestic nickel resources that were previously exported⁹. Meanwhile, the Democratic Republic of Congo has reviewed agreements with Chinese mining firms that were deemed exploitive and now seeks partnerships with other investors¹⁰.

Closer to Europe, plans for green-iron production are materialising in North Africa – in Mauritania, for example, where green iron will be produced alongside green hydrogen (Karkare and Medinilla 2024). ArcelorMittal is exploring green hydrogen, iron and steel production in Mauritania¹¹. In Egypt, Italian group Danieli has submitted a proposal to the government to build a green-steel plant to exports to the EU¹², while the German SMS group plans a 2.5 million tonnes green-iron facility in the Suez Canal Economic Zone, investing \$1.06 billion (Karkare and Medinilla, 2024).

3.2 Global climate benefits

An EU green industrialisation strategy that only stimulates the production of enough green energy for domestic consumption is neither sufficient nor desirable. Establishing early value chains abroad is important for global green industrialisation. Large emission reductions can be driven by countries that specialise in line with their environmental comparative advantages. Modelling the impacts of a carbon tax, Le Moigne *et al* (2024) found that just over one-third of global emissions reductions could come from trade-enabled reallocation.

The creation of early green industrial value chains abroad can develop green knowhow and reduce the costs of developing full green value chains abroad. For example, the availability of cheap green iron is the crucial determinant of cost-effective green steel production, and the construction of a first green iron plant (perhaps for export) can reduce the costs of constructing a second (perhaps for domestic consumption).

Green industrial transformation in Europe and green industrialisation in the developing countries can reinforce each other. Huge growth in green industrial product manufacturing is needed, and critical for meeting global climate targets. The EU accounts for less than 10 percent of global industrial emissions and much future industrialisation will occur in the Global South¹³.

In particular, developing countries lack scrap steel and are forecast to become increasingly dependent on the production of crude steel (Watari *et al* 2023), which will be emissions-intensive unless the greening of this production takes place, supported by integration in global value chains. While controversial from an economic-security standpoint, the global climate benefits of China leading in the energy-intensive production of solar panels and batteries from the early 2000s have been enormous.

4 Implications for EU economic policy

To reconcile its clean industrialisation objectives with those of the Global South in a cost efficient and politically viable manner, the EU needs to adapt its domestic and foreign economic policies.

4.1 Domestic economic policy: smarter industrial policy for energy-intensive sectors

One of the toughest industrial policy questions facing Europe is how to handle energy-intensive industries (EIs). Should Europe do whatever it takes to retain them all – for reasons spanning from jobs to economic security? Should they be retained on condition that they decarbonise in line with European Green Deal targets?

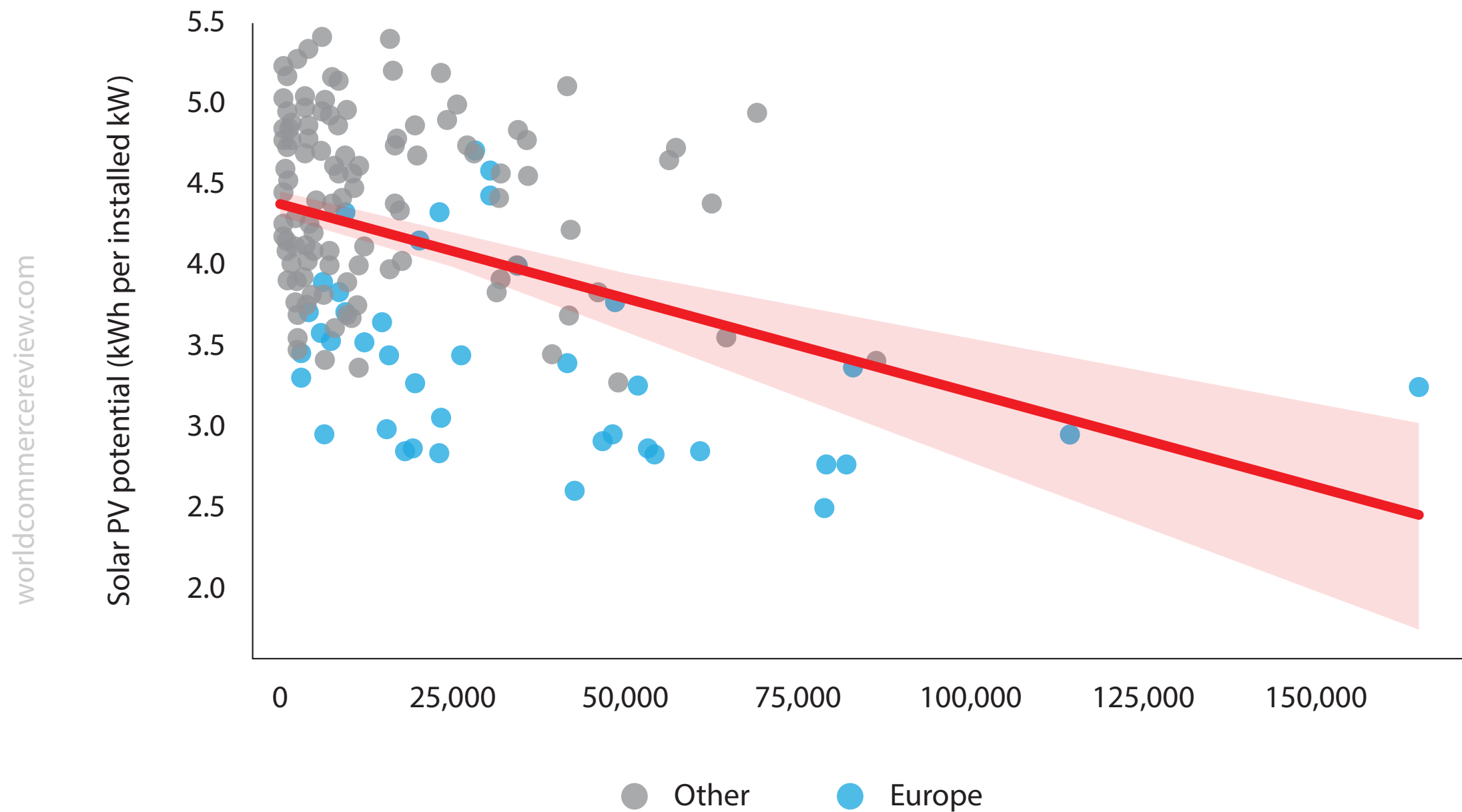
Or should a more selective approach be taken that offers public support only to those EIs and/or energy-intensive production stages that both embark on a green transformation and are likely to remain competitive, even if energy prices remain higher in Europe than elsewhere?

European governments, with the tolerance of EU state aid rules, have so far largely opted for the first option: subsidising EIs unconditionally. Energy subsidies are the clearest illustration. On average across Europe, EIs pay 50 percent less per unit of electricity consumed than households, and in many countries the gap is even larger (Heussaff *et al* 2025).

Such differences arise because EIs can sometimes access better rates from suppliers because of their scale, but also because they often pay lower network costs than households and frequently don't pay certain cost components, such as the costs of public support for new renewable projects.

The second option – maximum effort to retain EIs provided they decarbonise – was advocated by Draghi (2024), who called for EIs to be given preferential access to special low-cost electricity generation portfolios, publicly procured liquified natural gas and further electricity network tariff rebates.

Figure 6. Practical solar PV potential vs GDP per capita



Note: see Figure 2 for solar PV potential (average practical potential, PVOUT Level 1).

Source: Bruegel based on ESMAP (2020).

To prevent single market fragmentation triggered by national subsidies, and to ensure efficient distribution of activities across the EU in line with comparative advantage, Draghi (2024) also called for a prominent EU-level component in decarbonisation funding for EIs, similar to the EU Innovation Fund's 'Hydrogen Bank,' and including reformed and expanded Important Projects of Common European Interest (IPCEIs)¹⁴.

The EU Clean Industrial Deal plan (European Commission, 2025a) adopted a version of Draghi's recommendations. It proposes substantial EU-level instruments to fund EI decarbonisation, starting with a €100 billion EU Industrial Decarbonisation Bank to be created alongside the Innovation Fund.

But it also proposes a friendlier approach to national state aid than Draghi (2024), calling for a new Clean Industrial State Aid Framework that would facilitate national support for EIs and clean-tech manufacturing, replacing the Temporary Crisis and Transition Framework – Commission criteria for approving state aid *“to foster support measures in sectors which are key for the transition to a net zero”*, adopted in March 2023 in response to clean-tech subsidies in the United States¹⁵.

The second option would be far better than the first. Unlike the first option, it is consistent with Europe's net zero goals. But it remains problematic from the point of view of European competitiveness and from a global perspective.

From a European perspective, the approaches of Draghi (2024) and the Clean Industrial Deal create a distributional problem that could reduce growth and competitiveness. Subsidising electricity consumed by EIs implies higher costs for other electricity consumers and possibly taxpayers. For example, reducing electricity prices for EIs to 2019 levels by shifting system costs among consumers would increase household electricity prices by about 15 percent (Heussaff *et al* 2025).

Likewise, removing value-added tax from electricity consumed by EIs would create significant shortfall in national budgets, as tax revenues from VAT on electricity amount to tens of billions of euros each year in the EU. Preferential treatment of one category of energy consumer thus inevitably raises issues of fairness and efficiency.

It makes no sense for Europe to provide scarce energy at a discount to sectors that provide less value added per unit of energy, rather than allowing less energy-intensive sectors with higher growth potential to flourish.

From a global perspective, the approach is problematic because it ignores the potential for greater gains from global trade and comparative advantage in a decarbonised global economy. Subsidising European EIs encourages the continuation of high-cost production in Europe, instead of allowing market forces to direct energy-intensive manufacturing to those regions that, thanks to their renewable energy endowments, are best suited for such production.

This raises the global cost of decarbonisation. It may also undermine international climate cooperation if developing countries with ample renewable energy endowments become frustrated with the unwillingness of advanced countries to integrate them into green supply chains.

Europe should be more selective when supporting EIs. Industrial subsidies should depend on two main criteria: the greening of EIs – an essential step to ensure their long-term international competitiveness in a decarbonising global economy – and the efficiency of production in Europe post-abatement, conditional on realistic assumptions about European energy costs.

The latter hinges on two sub-criteria: i) energy intensity: how much energy the decarbonised process still requires, and whether this aligns with Europe's future green energy availability and cost; and ii) cost-effectiveness in a global

context: whether similar emissions reductions could be achieved more efficiently by supporting abatement in the Global South, where decarbonisation costs may be lower.

To apply this approach, two main channels through which EIs are currently subsidised should be distinguished:

1. Allocation of free allowances under the EU emissions trading system (ETS). From 2026 to 2034 approximately 2.8 billion ETS allowances will be allocated for free – a financial envelope of some €200 billion at current prices. As the point of free allowances is to prevent carbon leakage (relocation of carbon-intensive industry beyond the reaches of the ETS) before the EU carbon border adjustment mechanism (CBAM) enters fully into force, it is fine to allocate them only based on emission reductions, ignoring the energy-intensity of production.
2. Second, direct subsidisation of capital expenditure or production, including energy subsidies. In these cases, it is not acceptable to make subsidies conditional only on abatement. In addition, no subsidies should be provided to highly energy-intensive stages that it would be more efficient to offshore (with the exception of a minimum capacity that might be justified on security grounds).

This approach would allow Europe to maximise the impact of public funds, support industries for which competitive green production is viable and contribute cost-effectively to global decarbonisation.

4.2 Foreign economic policy: supporting green industrialisation in the Global South

To support both global decarbonisation and the competitiveness of European production, selective domestic subsidies need to be complemented by a strong foreign economic policy that supports the development of manufacturing capabilities for energy-intensive intermediate products in Global South countries that are rich in

both raw materials and renewable energy endowments, and integrates these products into Europe's green supply chains.

The European Commission has proposed Clean Trade and Investment Partnerships (CTIPs; European Commission 2025a, section 6.1). While detail and a framework are lacking at time of writing (some detail has been offered on the first CTIP being prepared with South Africa), this initiative is potentially important.

Through CTIPs, the EU could engage with third countries more coherently than currently. The EU already runs several initiatives in parallel – including Energy Partnerships, Green Partnerships, Critical Raw Materials Strategic Partnerships and the Global Gateway – but these are often in silos. This prevents an integrated approach covering the whole green product supply chain and makes EU climate and industrial diplomacy less efficient.

To be credible, CTIPs should be structured not only as trade diplomacy platforms, but as practical toolkits including both supply- and demand-side instruments to mobilise private-sector investment in green value chains.

On the supply side, blended finance instruments should be deployed, including those already available through the Global Gateway, new resources under the next EU budget (2028-2034) and from the European Investment Bank. This will reduce investment risk and crowd-in private capital.

Technical cooperation on setting and harmonising green standards is also required, particularly for emerging sectors such as green steel, green cement and green chemicals, for which early alignment can shape global norms. Support for local green industrial ecosystems is essential. This could take the form of joint industrial clusters, similar to efforts in Namibia, where European and local firms collaborate to build integrated, low-carbon value chains¹⁶.

Replicating and scaling-up such initiatives elsewhere – especially in countries rich in renewable energy and critical raw materials – would help embed industrial value creation locally, promote technology transfer and ensure that green value chains deliver inclusive growth and environmental benefits.

On the demand side, the credibility and success of CTIPs will depend on Europe's ability to offer stable and attractive long-term market signals. Guaranteed offtake agreements for the intermediate green products produced in the Global South under CTIPs should be supported, for instance by allowing them to qualify under sustainability and resilience criteria¹⁷ in the EU Net-Zero Industry Act (Regulation (EU) 2024/1735). Expanding the geographical scope of such criteria to include CTIP partner countries could greatly enhance the cost-efficiency and the effectiveness of the measure.

The EU could also promote joint offtake pools or demand-aggregation platforms, similar to H2Global, a German scheme to support investment in renewable hydrogen production in non-EU countries, which will be then imported and sold in the EU. The H2Global scheme works as a double auction model, with the German government providing a subsidy to the most competitive bids for exporting green hydrogen (or derivatives such as ammonia) into Germany.

A broader range of green projects in third countries could also be fostered under the EU Innovation Fund – as is being done for hydrogen. By supporting green intermediate products outside the EU and linking them to guaranteed demand in Europe, such mechanisms would help anchor investment decisions in partner countries and deepen industrial cooperation along clean value chains.

By integrating these demand-side tools, CTIPs can help bridge the commercialisation gap, making green industrialisation projects in partner countries bankable and scalable, while reinforcing the EU's own industrial resilience and climate leadership. ■

Ben McWilliams is an Affiliate Fellow, Simone Tagliapietra a Senior Fellow, and Jeromin Zettelmeyer is Director, all at Bruegel

Appendix: a rough estimate of European intermediate product green energy demand

We estimate the green energy demand required to produce three intermediate products in Europe: direct reduced iron as an input to the steel value chain, and ammonia and methanol as intermediate products for chemicals value chains (see for example Egerer *et al* 2023a).

We start with current demand for each product in the EU and estimate the volume of green energy that would be required to produce a similar volume of green products. For steel and ammonia, we assume constant demand; for methanol we assume an increase in demand because there is significant potential for methanol to replace some current hydrocarbon uses.

In 2023, the EU produced 126 million tonnes of crude steel (Eurofer 2024), via two production routes: blast oxygen furnaces and electric arc furnaces. An electric arc furnace consumes electricity and overall emissions can largely be removed through the use of green electricity. Therefore, steel decarbonisation through hydrogen aims to replace supply from blast oxygen furnaces.

We calculate the hydrogen required to provide enough direct reduced iron to replace current EU blast oxygen furnace production of 70 million tonnes of steel annually (Eurofer 2024).

Producing one tonne of direct reduced iron requires 60 kilogrammes of hydrogen (Egerer *et al* 2023a). One kilo of hydrogen is equivalent to 33 kWh energy. Therefore, the required hydrogen energy demand to produce 70 million tonnes of direct reduced iron is 140 TWh.

For ammonia, EU demand is 19 million tonnes with 17 million tonnes produced domestically, and net imports of 2 million tonnes (Kneebone and Piebalgs, 2023). We calculate the hydrogen required to replace all this demand domestically. The requirement to produce one tonne of ammonia is estimated at 197 kilos of hydrogen, or approximately 6,500 kWh of hydrogen energy. Total demand is therefore estimated at 125 TWh.

Current EU demand for methanol is a little under 10 million tonnes. Renewable methanol demand could replace conventional fossil methanol demand, but potentially also certain hydrocarbon uses – synthetic hydrocarbons can be produced using methanol as a base.

Methanol demand in the EU might therefore grow to 18 million tonnes by 2030 (Kneebone and Piebalgs, 2023). Producing one tonne of methanol requires 210 kilos of hydrogen (Egerer *et al* 2023a), equivalent to 7,000 kWh hydrogen energy. This implies total demand of 125 TWh of hydrogen.

For the EU to produce sufficient quantities of the three intermediate products, 390 TWh of hydrogen may therefore be required in total. There is considerable uncertainty about future demand and technologies and so this number is only illustrative of the potential. Producing this hydrogen domestically would require a little over 550 TWh of green electricity production, assuming an electrolyser operating at 70 percent efficiency.

Endnotes

1. In the EU Net-Zero Industry Act (Regulation (EU) 2024/1735).
2. See European Commission, '[Clean Industrial Deal](#)', undated.
3. See '[Affordable Energy](#)'.
4. 2,000 TWh out of a total 3,300 TWh demand across energy and non-energy uses.
5. Bruegel calculations based on the [Ember electricity dashboard](#).
6. We assume freight rates are the same as for moving iron ore, as in Bilici (2024). At a freight rate of \$10 per tonne, the implied energy transfer cost per 1 MWh is \$5.90.
7. Rachel Parkes, '[Green hydrogen is too expensive to use in our EU steel mills, even though we've secured billions in subsidies](#)', Hydrogen Insight, 21 February 2024.
8. See the [Bruegel European Clean Tech Tracker](#).
9. Isabelle Huber, '[Indonesia's Battery Industrial Strategy](#)', Commentary, 4 February 2022, CSIS.
10. Pasha Magid, '[Congo courts Saudi mining investors to help curb China dominance](#)', Reuters, 14 January 2025.
11. See ArcelorMittal press release of 25 May 2022, '[ArcelorMittal signs MoU with SNIM to evaluate the opportunity to jointly develop a pelletisation plant and DRI production plant in Mauritania](#)'.
12. Anna Vassileva, '[Egyptian govt weighs Danieli Group's plan for green steel complex](#)', Renewables Now, 29 February 2024.
13. The industry sector in 2022 globally was responsible for 9.0 Gt CO₂ emissions; see IEA, '[Industry](#)', undated; total emissions from manufacturing in the EU were 0.7 Gt in 2023 (Eurostat).
14. The Hydrogen Bank is a European financing initiative that supports clean hydrogen projects selected through competitive auctions. Consortia of hydrogen suppliers and off-takers bid for a subsidy necessary for their project to be realised. IPCEIs are cross-border projects through which European governments provide financial support to consortia in research, development and infrastructure for critical technologies such as microelectronics, batteries and hydrogen.
15. See European Commission, '[Temporary Crisis and Transition Framework](#)'.

16. In November 2022, Namibia and the EU signed a memorandum of understanding for a strategic partnership in sustainable raw materials value chains and renewable hydrogen, with the goal of mobilising €1 billion in investment from the EU, EU countries and European financial institutions. See European Commission press release of 24 October 2023, '[Global Gateway: EU and Namibia agree on next steps of strategic partnership on sustainable raw materials and green hydrogen](#)'.

17. These require public authorities to take into account non-price criteria for certain net zero technologies in procurement processes and in auctions for the deployment of renewable energy.

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Building coalitions for climate transition

The planet's future depends increasingly on emerging and developing economies. Jean Pisani-Ferry, Beatrice Weder di Mauro and Jeromin Zettelmeyer argue that a four-pillar strategy could align key climate and economic goals into global trade

Executive summary

Global climate and biodiversity outcomes will largely be determined in emerging and developing economies (EMDEs). We propose a four-pillar strategy to support climate and nature preservation in line with the economic interests of both developing and advanced countries.

This would move beyond voluntary pledges to embed climate and nature objectives into the structures of trade, finance and industrial policy, creating a self-reinforcing system of cooperation and reducing the net costs of the green transition.

Under Pillar 1, a coalition of advanced and developing countries would link tiered carbon pricing with a common carbon border adjustment mechanism (CBAM). Pillar 2 would create a climate-finance coalition to decarbonise the power sectors of developing countries. Pillar 3 would involve partnerships to develop clean energy-intensive industrial production stages in developing economies with rich renewables endowments; these would feed into the supply chains of the European Union and other energy-importing advanced economies. Pillar 4 would redesign markets to create scalable and credible mechanisms to fund carbon removals. Technology-based removals can be incentivised through the introduction of clean-up certificates into the EU emissions trading system, while nature-based removals would require improved market design centred on a new asset class: nature shares.

The four pillars reinforce each other. A multi-country CBAM and carbon pricing coalition (Pillar 1) would reduce the cost of financing power sector decarbonisation (Pillar 2). Linking EMDE membership of the CBAM and carbon-pricing coalition to financial support for the decarbonisation of power sectors would also make it more attractive for EMDEs to adopt carbon prices. Decarbonisation of power sectors (Pillar 2) would be a precondition for developing clean, highly energy-intensive industry in renewables-rich EMDEs (Pillar 3).

The Pillar 1 coalition should include the EU, China and as many other countries as possible. Advanced countries and China could underpin the Pillar 2 financier coalition. Pillar 3 would involve the EU and potentially other energy-poor advanced countries, along with EMDEs that are richly endowed with renewables. Pillar 4 would include the main custodians of the planet's natural capital. Enabling these coalitions will require EU leadership.

The EU and its climate finance coalition partners should offer conditional fiscal support to all developing countries (except China and oil and gas producers) that are willing to commit to net zero consistent decarbonisation of their power sectors

1 Introduction

The planet's future depends increasingly on emerging and developing economies. Advanced economies continue to matter because of their higher per-capita emissions, their shares of global trade and finance, and their influence through research, technology and diplomacy; but their share in global greenhouse gas emissions is shrinking.

Success in stopping global warming and halting biodiversity loss hinges on whether countries such as India, Indonesia, Brazil and South Africa adopt low-carbon, nature-positive development paths, and if they do so quickly. The same applies to China, which is both the world's top emitter of CO₂ and the country at the forefront of the green industrial revolution.

Geopolitical fragmentation, shifting priorities and a hostile United States administration are slowing the transition to a more sustainable economic model in line with the landmark Paris Climate Agreement of 2015. With climate and nature degradation accelerating, governments that understand the importance of climate and nature actions – still in the majority – are faced with hard questions.

Recent international discussions on climate change mitigation and the preservation of biodiversity have centred on ambitious targets and the closing of funding gaps. These remain important topics for negotiation but are no longer sufficient. Instead, a broader approach is required to connect mitigation with adaptation and the preservation of nature.

This calls for deeper cooperation among countries with common interests in trade, clean energy and nature. Recognising that this group will for now not include the US, we propose coalitions of the willing for climate, biodiversity, trade and finance – wherever mutual interests can still align.

The European Union will need to play a special role in the creation of these coalitions. Because of its strong consensus around climate science, an ambitious decarbonisation agenda and a functioning, expanding emissions trading system that has delivered high carbon prices, it has both the credibility and the responsibility to lead, engaging emerging markets and developing economies (EMDEs) and building financing alliances with other advanced countries.

2 The case for action

In a darkening geopolitical landscape, the pace of technological innovation is a bright spot. Renewable energy and other green technologies have rapidly gained cost competitiveness and scale. Most new renewable power is now cheaper than fossil fuel alternatives. The IEA (2024), IRENA (2024) and Lazard (2024), among others¹, have shown that the levelised cost of electricity (LCOE) of unsubsidised solar and wind is often lower than that of fossil fuel-based electricity generation, especially when considering new power plant construction.

Solar photovoltaic (PV) costs have plummeted to roughly \$0.04 per kWh, making solar power more than 50 percent cheaper than generation from fossil fuels or nuclear plants (IRENA, 2024). Even accounting for network and backup costs, this is major progress that is bound to affect the energy pecking order.

This dramatic cost decline, alongside improvements in wind turbines and battery technology, means clean technologies offer better economic returns than coal or gas. In dollar terms, investment in renewables now outpaces fossil electricity investment by ten to one, with more investment in solar than in all other power sources combined.

Year-on-year global growth in electricity generation from solar PV was double the growth from all fossil fuels combined in 2024². Other green technologies are also scaling quickly. Meanwhile, electric vehicle sales have risen from 3 million units in 2020 to 17 million units in 2024 (IEA, 2025).

But despite these developments, investment in new coal-fired power plants continues, particularly in China, which approved 106 gigawatts of new coal power capacity in 2022 alone – four times the amount approved in 2021³. Reasons for this include concerns about supply security, local support for coal and the high upfront cost of investment in renewables that many countries find difficult to finance.

Unless retired early, these coal plants will remain in operation for decades, locking in emissions far beyond 2030. Meanwhile, the global vehicle fleet remains overwhelmingly dependent on fossil fuels: in 2024, more than 95 percent of vehicles in circulation still had internal combustion engines⁴.

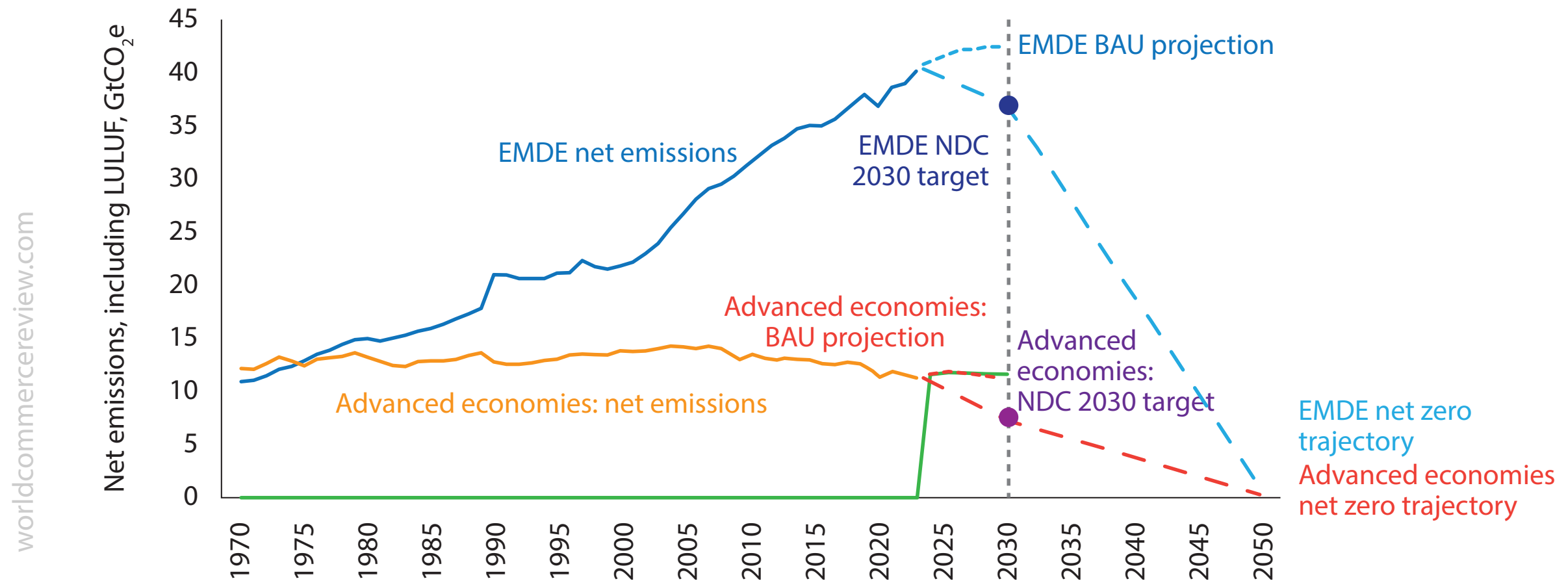
Consequently, climate policies and trajectories are far off the path needed to reach emissions targets compatible with the Paris Agreement's objective of limiting global warming to 1.5 degrees Celsius above pre-industrial levels. Continuing with today's policies is projected to lead to about 2.7°C of warming by 2100⁵.

Moreover, aggregate projections mask stark differences between advanced and developing economies. Emissions in most advanced economies have already peaked and steady declines have begun. In contrast, emissions in many EMDEs are still rising, driven by economic and population growth and continued heavy reliance on coal, oil and gas.

As of 2023, EMDEs (including China) accounted for roughly two-thirds of global emissions. Their share is expected to grow further as they contribute the bulk of new emissions. Advanced economies account for a shrinking portion of annual emissions (for example, the EU and United Kingdom together now contribute only about 8 percent of global emissions).

Reaching global net zero emissions by 2050 requires a sharp break with the current emissions trend in EMDEs (Figure 1). Limiting global warming to 1.5°C would require an even more radical break, consistent with reaching global net zero emissions by the mid-to-late 2030s rather than 2050⁶.

Figure 1. Historical emissions, 1970-2023, and requirements for reaching net zero in 2050



Note: several countries, including China and India, have set less ambitious targets. * EMDEs includes China. The 2050 projection is given for EMDEs as a whole and not separately for China. BAU = business as usual; NDC = Nationally Determined Contribution; LULUCF = land use, land-use change and forestry.

Source: Grabbe et al (2025).

EMDEs are also custodians of much of the planet's natural capital, so that collective climate outcomes are intertwined with how those countries manage nature and biodiversity. Many of the world's critical carbon sinks and biodiversity hotspots (including tropical forests and wetlands) are located in developing regions across Latin America, Africa and Asia.

These ecosystems bolster climate resilience by absorbing CO₂ and providing a buffer against extreme weather. Conversely, their destruction would accelerate climate change and undermine adaptation efforts. Nature-based solutions, such as reforestation and ecosystem restoration, could provide 20 percent to 30 percent of the emissions reductions needed to limit warming to 1.5°C (chapter 7 in IPCC, 2022).

However, continued deforestation or ecosystem collapse (for instance, of the Amazon rainforest) would release vast amounts of carbon and destabilise regional climates. Climate change and biodiversity loss are mutually reinforcing: climate change is now a leading driver of biodiversity loss, and in turn the erosion of biodiversity undermines natural carbon sinks and ecosystem resilience. It follows that preserving nature – alongside cutting emissions – is essential for climate stability and nature sustainability.

The costs of the green transition and of restoring/protecting nature in emerging economies are often disproportionately high relative to their GDPs and fiscal capacities. Our best guess estimates of the investments needed are far above current investment levels in EMDEs (excluding China).

In practice, annual clean-energy investment in developing regions would need to more than quadruple from 2022 levels by 2030. This would be unprecedented. It reflects the reality that many EMDE economies are both carbon-intensive (hence requiring more investment to decarbonise) and growing rapidly (hence needing more energy infrastructure overall).

Financing these investments is challenging because of the high cost of capital in EMDEs. Capital for clean energy projects is considerably more expensive in developing markets, reflecting higher macroeconomic risks, regulatory and political uncertainty, and less developed financial systems (Berglof *et al* 2025; Fornaro *et al* 2025; Sen, 2025).

For example, in 2021 the real cost of capital for a utility-scale solar PV project was about 3 percent in Europe and the US, but roughly 7 percent in India and Mexico, over 9 percent in Brazil and as high as 10 percent to 15 percent in sub-Saharan African countries (IEA, 2023). This steep disparity in financing costs greatly inflates the levelised cost of renewable energy in emerging economies, often offsetting their natural advantages, such as abundant solar irradiation.

International climate finance is supposed to help bridge this gap, but it remains insufficient. Support has fallen short against lofty pledges. In late 2024, advanced countries agreed in principle (the 'Baku commitment') to provide about \$300 billion per year in climate finance for developing nations, but the flows in 2022 were around \$100 billion.

The gaps in nature conservation are equally mind-boggling. To reverse biodiversity decline, the Kunming-Montreal Global Biodiversity Framework (2025) calls for a financing gap of about \$700 billion per year to be closed. Of this, \$500 billion per year should come from phasing out harmful subsidies, reflecting the fact that, at present, nature conservation spending is vastly overshadowed by expenditures that harm nature.

One of the main problems with the widely cited finance gap estimates is that they are rarely accompanied by credible strategies to close them. Instead, these figures are often presented as arguments to mobilise funding, particularly from the private sector or through blended finance mechanisms.

However, as the disparity between estimated needs and actual flows increases, the effectiveness of gap estimates as mobilisation tools diminishes. Rather than galvanising action, they risk fostering resignation – or worse, a new form of denial, whereby the evidence from climate science may no longer be questioned but the policies needed to combat climate change will.

In wealthier countries, particularly those in temperate climate zones, this can lead to a quiet acceptance of failure and a shift in focus to adaptation, the implicit message being that the battle has been lost.

In addition, global collective action to combat climate change faces several new problems:

- A disjointed approach to address highly connected issues: although the containment of global warming and the preservation of nature are linked in multiple ways, they are mostly tackled separately.
- The fraying of multilateralism: the previous remedy to the shortcomings of a disjointed approach would have been to embrace a more holistic strategy, yet nationalism and geopolitical tensions hamper the search for encompassing solutions.
- A lack of adequate incentives: developing countries (for their mitigation efforts) and advanced countries (for their contributions to the financing of these efforts) both face collective action problems, but incentives are not adequately aligned.

To address these problems, a robust and realistic architecture is needed. In the current geopolitical context, such an architecture must be flexible, recognising that a requirement for agreement by consensus will hold the transition back and will give too much say to those that are dragging their feet.

Coalitions of countries that are ready to move more quickly offer the best way forward, and are more likely to align incentives. We propose a redesign based on four pillars:

- Pillar 1: A tiered carbon pricing coalition with a common carbon border adjustment mechanism (CBAM);
- Pillar 2: A scaling-up of climate finance, conditional on effective decarbonisation commitments;
- Pillar 3: Green industrial partnerships between advanced and developing countries;
- Pillar 4: An effective market architecture for large-scale carbon removal and nature restoration, to complement public funding.

3 A four-pillar strategy

3.1 Pillar 1: a plurilateral carbon pricing coalition with a common CBAM

The 2015 Paris Agreement achieved near-universal participation, with 196 countries agreeing to commit to climate action. This broad involvement was unprecedented, particularly compared to earlier agreements such as the Kyoto Protocol, in which not all developed nations participated (Guérin and Tubiana, 2025).

Unlike previous top-down approaches, Paris allowed countries to determine their own climate commitments, making it politically feasible for many countries to join and offer pledges according to their capabilities. EMDEs could present both unconditional and conditional targets, explicitly linking goals to financial support from rich countries.

Subsequent climate summits have also introduced systematic transparency measures, requiring regular progress reports on emissions reductions, with peer review and pressure.

Ten years on, the Paris Agreement pledges formulated by countries (their Nationally Determined Contributions, or NDCs) make it possible to assess if they add up to the level of effort required to halt global warming (they do not). However, there is no binding enforcement mechanism to ensure that countries meet their commitments.

The Paris Agreement cannot adequately address the free-rider problem associated with emissions: the benefits of emissions reductions are global, but the costs are borne by each country.

The second withdrawal of the United States from the Paris Agreement, in January 2025 at the direction of the re-elected President Trump, was a significant setback. But it is also a strategic opportunity for other nations to strengthen international climate cooperation.

The absence of the US from global climate negotiations could enable the European Union and other major global economies such as China, Brazil and India to agree ambitious and coherent international climate strategies, without needing to accommodate constraints created by US domestic politics and preferences. At the same time, it is important that any agreement should be open to future US participation.

Scaling-up effective climate action requires a stronger link between climate policies and trade⁷. We propose, building on Clausing *et al* (2025), that international collaboration take the form of an open and inclusive 'climate coalition'. Membership obligations would include:

1. Adoption of a tiered carbon pricing mechanism; and
2. Adoption of a common carbon border adjustment mechanism (and no carbon border adjustment within the coalition).

The EU decision to introduce a carbon border adjustment mechanism (CBAM) would be an incentive for countries to join the club of climate-ambitious countries. They would gain CBAM exemption, along with possible additional incentives involving technology transfer, climate finance, technical assistance, and clean energy trade liberalisation.

Club members would commit to enforce domestic carbon pricing through taxation or equivalent emissions trading systems. They would also adopt CBAMs that impose tariffs equivalent to their domestic carbon prices on imports from non-member nations. This would reduce carbon leakage and maintain competitive fairness.

Importantly, Clausing *et al* (2025) propose that participation be structured through a tiered carbon pricing system, such as that proposed by the International Monetary Fund (Parry *et al* 2021). For example, lower-income countries could implement lower carbon price floors (eg. €25 per tonne), middle-income countries would be requested to adopt a higher, but still moderate level (eg. €50 per tonne) and higher-income economies would have higher rates (at least €75 per tonne), with prices adjusted regularly for inflation. Other variations, including differentiation between lower and upper middle-income countries, could also be considered.

This differentiated approach aligns with the principle of common but differentiated responsibilities, a cornerstone of previous global climate agreements, and addresses equity concerns by mitigating potential economic impacts on developing nations.

The differentiated schedule should serve as a transitional measure, with carbon tax rates increasing as countries achieve higher levels of income. This expectation of carbon price convergence should reduce incentives for carbon-intensive industries to relocate to jurisdictions with lower carbon prices. Both the levels of the tiers and the pace of convergence would be subject to negotiation (Clausing *et al* 2025).

The coalition would initially focus on the carbon-intensive goods included in the EU CBAM: aluminium, iron and steel, cement, fertilisers and hydrogen production. These industries comprise a significant share of global carbon emissions (about 20 percent), including both direct emissions and the emissions from the electricity used in their production.

But the CBAM could be enlarged if similar measures are adopted by other countries, for example in East Asia, and be broadened if other goods end up being added to the intermediate products of the initial list.

The size and economic value of the market created by the club will determine the incentives to join. The economic value would determine the club's ability to internalise the climate benefits of collective mitigation efforts.

This proposed climate club would complement the United Nations Framework Convention on Climate Change Conference of the Parties (COP) process by deepening collaboration among coalition members – primarily because it relies on reciprocity and meaningful incentives rather than voluntary commitments and peer pressure.

Countries would gain economic benefits from participation and the reciprocal structure would incentivise sustained participation and climate action, while addressing carbon leakage and competitiveness concerns.

A viable coalition should quickly expand from the EU and its main suppliers to other large countries, including China, Korea, Japan, India, South Africa and Brazil. These countries are, of course, at very different stages of development, and their respective incentives will need to be calibrated carefully.

In addition to a tiered schedule for carbon pricing, the design should include commitments to technology transfer and financial support for green transitions in lower-income countries. In light of concerns about industrial

overcapacity in sectors such as steel, it may also require an agreement to limit or eliminate subsidies. The EU would need to play a leading role in establishing this framework.

3.2 Pillar 2: Scaled-up climate finance conditional on effective decarbonisation commitments

The current commitments of advanced countries to finance EMDE decarbonisation are insufficient and are not matched by developing country commitments to decarbonise. Therefore, the implicit contract between North and South can (and in many instances does) result in an unproductive exchange of false promises: advanced countries pretend they will finance decarbonisation in the South, while developing countries pretend that they will decarbonise.

A way out of this conundrum would be to form 'climate finance coalitions' involving subsets of advanced countries willing to fund decarbonisation in the South and subsets of developing countries willing to decarbonise their economies if given access to funding on reasonable terms (Bolton and Kleinnijenhuis, 2025).

This mutual commitment would be in the self-interest of all participating countries: all would gain from the avoidance of physical, health and economic damage thanks to lower emissions in EMDEs, while economic benefits would be roughly in proportion to countries' GDP.

As a result, fiscal support for the decarbonisation of EMDEs (except China) would be in the economic interest of advanced countries and China, even if EMDEs do not contribute (Bolton and Kleinnijenhuis, 2025).

The cost of funding developing country decarbonisation as a share of the GDP of the financier coalition would depend on the size of that coalition. A coalition of all advanced countries and China would pay less than 0.2 percent of GDP annually for EMDE power-sector decarbonisation consistent with the Paris 1.5°C objective.

For a funding coalition that excludes the US but includes China, the EU, Canada, Japan, South Korea and some additional smaller industrial partners, the fiscal burden would be about 0.2 percent of GDP. If China is also excluded from the financier coalition, the cost would rise to 0.3 percent of GDP/year.

The greater the economic damage from climate change, the smaller the critical mass of participants would need to be for coalition financing to be profitable. But even if global economic damage (the social cost of carbon) were relatively low (\$190/tCO₂, as assumed by Rennert *et al* 2022), a financier coalition consisting of the EU and advanced countries except the US would benefit economically from financing the decarbonisation of most of the largest developing country power sector emitters.

If the US or China were to join, the coalition would find it in its interest to finance the decarbonisation of almost all developing country emitters. If the assumed damages are significantly higher, as argued by Bilal and Känzig (2025), large entities including the EU, China (and the US) would find it profitable to embark on decarbonisation support alone, even if not joined by other partners.

Under the Paris Agreement, all signatories must offer new NDCs at COP30 in Brazil in November 2025. With the next versions not due until 2030, this set of NDCs represents the last chance to put emissions on a net-zero consistent path.

The EU and its climate finance coalition partners should offer conditional fiscal support to all developing countries (except China and oil and gas producers) that are willing to commit to net zero consistent decarbonisation of their power sectors. While only accounting for about 40 percent of developing countries' emissions, power sector decarbonisation is a necessary step for the decarbonisation of industry and transport.

3.3 Pillar 3: Green industrial partnerships between the EU and developing countries

Europe currently imports most of its oil and gas at relatively high cost. The continent's transition to clean energy will end its dependency on imported fossil fuels, but not its relative energy scarcity (McWilliams *et al* 2025). Europe is not well-endowed in green energy.

Limited land availability and a relatively poor solar potential (except in Southern Europe) imply that the cost of producing electricity will be higher than in countries on the other side of the Mediterranean, in the Middle East or in Africa.

Nuclear power can help, but not to the point of eliminating Europe's structural cost disadvantage, as nuclear is relatively expensive compared to renewables once the possibility of electricity storage is factored in.

As a result, Europe will remain an energy importer in the medium and possibly long terms. However, transporting electricity is much more costly than transporting fossil fuels, even taking into account the possibility of producing hydrogen and transporting it by sea or through pipelines.

In contrast, energy-intensive intermediate products in the value chains of the chemical and steel industries, such as ammonia, fertilisers, methanol and reduced iron, can be easily and cost-effectively transported by sea.

For this reason, the green transition is bound to transform the international division of labour along value chains. Developing country exporters of primary products such as iron ore are likely to move down the value chain and export processed products, such as direct reduced iron, instead of raw commodities.

Consequently, some upstream segments of European energy-intensive industries (Ells) would move South. This restructuring of global value chains would be economically efficient and would help the industrialisation of the South.

To the extent that energy-intensive intermediate inputs, such as ammonia or direct reduced iron, are produced with green electricity or green hydrogen, it would also lead to significant greenhouse gases emission reductions.

This leaves two important questions unanswered:

1. How to ensure that the migration of energy-intensive production supports Europe's own green industrialisation goals and, more broadly, its efforts to improve its competitiveness and its economic security; and
2. How to ensure that it results in global emissions reductions, rather than simply carbon leakage from the EU to the Global South.

McWilliams *et al* (2025) seek to answer both questions. On the first, they argue that the direct value added and employment loss of the relocation of energy-intensive intermediate products to the South would be modest. In Germany, Ells account for most industrial energy demand but only 5 percent of manufacturing wages and 6 percent of the value added. The upstream segments of those industries represent a fraction of those numbers.

At the same time, relocating these production stages should not only boost the competitiveness of downstream Ell segments, but also industrial competitiveness more broadly, by reducing energy costs. Substituting domestic production of ammonia, methanol and reduced iron by imports could reduce EU electricity demand by around one-quarter of today's green electricity production in the EU, and around one-tenth of 2050 projected demand

(McWilliams *et al* 2025). The ensuing impact on EU energy prices would benefit industrial consumers, households and the public purse.

The policy implications are two-fold. First, while subsidies to modernise and protect European heavy industry can be justified both by the green transition and by the need to retain potentially competitive industry in a context of possible Chinese overcapacity, public money should both be conditional on abatement efforts and go to less-energy-intensive downstream industries, rather than highly energy-intensive intermediate products.

This requires a revamping of the EU Clean Industrial Deal, which does not presently discriminate between production stages that should remain in the EU in the long term and those that need not.

Second, EU industrial policy must be linked to trade, investment and climate policies that embed low-cost energy intensive production in developing countries into EU value chains. The two pillars of EU climate policy discussed above – an EU-led carbon pricing and CBAM coalition, and an EU-led coalition to fund decarbonisation of power sectors in developing countries – are critical in this regard.

In addition, Clean Trade and Investment Partnerships, as announced by the European Commission (Jütten, 2025), would need to be set up to both improve market access to the EU and transfer technology to those developing countries that have the potential to be reliable suppliers of green-energy-intensive intermediate products.

Conceptually, the same reasoning could apply to the decarbonisation of other advanced countries. We have presented it for Europe because it is where the policy question arises.

3.4 Pillar 4: Effective markets for carbon removal and nature restoration

It is almost certain that the world will overshoot climate targets. This makes investment in negative emissions essential. Limiting global warming to below 1.5°C does not rely only on the containment of emissions, but also on large-scale deployment of carbon dioxide removal (CDR) technologies of all kinds. Some models project gross CDR volumes of 10 to 20 GtCO₂ per year by the second half of the twenty-first century, equivalent to one-quarter to one-half of today's global emissions (Hoegh-Guldberg *et al* 2018).

Negative emissions can be achieved through natural sequestration, which relies on photosynthesis and ecosystem processes (eg. afforestation, soil carbon, carbon stored in coastal and marine ecosystems), and technological solutions that extract CO₂ from the atmosphere, such as direct air capture and storage (DACS), which does not yet exist at scale.

This pillar proposes two market innovations:

1. A market mechanism for negative emissions: integrating clean-up certificates into compliance markets (starting with the EU emissions trading system, ETS) for carbon removals that are reliably permanent; and
2. Credible markets for long-term nature-based carbon capture that also value the broader ecosystem services and co-benefits of nature restoration – not just the carbon.

The goal is to prepare for a future in which net-negative emissions will be necessary in the second half of the century, to compensate for temperature overshoot and restore a safer climate trajectory.

3.4.1 A market mechanism for negative emissions: clean-up certificates

Following Edenhofer *et al* (2025), we propose a new market-based instrument in the form of clean-up certificates, designed to embed CDR into the EU ETS and make the financing of net-negative emissions feasible at scale. The certificates would offer firms a legal right to emit beyond their allowances today, in exchange for an obligation to remove the equivalent amount of CO₂ from the atmosphere in the future. This creates a form of carbon debt, explicitly linked to future removals.

The EU ETS is approaching a structural turning point. Under current rules, the last allowances for energy and industrial sectors will be auctioned around 2039. Yet some residual emissions – particularly in hard-to-abate sectors such as cement – will remain too costly or infeasible to eliminate. Without a mechanism to offset these emissions, carbon prices could spike in the 2040s, undermining the predictability and effectiveness of the EU ETS.

Moreover, firms are already making forward-looking investment decisions and are banking certificates. Introducing clean-up certificates now would enable regulated entities to anticipate future compliance costs, while generating demand and finance for removals today.

The institutional redesign would involve two steps:

1. Issuance of clean-up certificates: these certificates would authorise emissions today but create a carbon debt obligation to remove the equivalent CO₂ in the future.
2. Creation of a European Carbon Central Bank (ECCB), which would oversee the issuance, verification and enforcement of carbon debt contracts. It would act as a regulatory and financial anchor, ensuring transparency, risk management and intertemporal consistency in carbon markets.

Clean-up certificates introduce intertemporal flexibility into emissions trading – analogous to allowing not just banking but also borrowing. Firms can emit now and remove later if they expect future innovations to lower CDR costs. However, if they are pessimistic about future CDR potential, they will avoid incurring carbon debt and prefer immediate abatement.

Time-inconsistency is obviously a major concern. Without safeguards, firms might bet on an excessively high pace of technological progress, become overindebted and end up defaulting on their carbon debt. To prevent such outcomes, Edenhofer *et al* (2025) propose to grant the European Commission the option of intervening in the market by limiting the amount of clean-up certificates.

In addition, reducing the issuance of conventional allowances would increase overall ambition levels as a result of the overall cost reductions from introducing clean-up certificates. To insure against corporate bankruptcy, Edenhofer *et al* (2025) propose that firms issuing carbon debt post collateral in the form of security deposits at the ECCB.

If the firm delivers the expected certified removals, the deposit is released. If it defaults, the ECCB retains the funds and uses them to procure equivalent removals elsewhere.

The EU ETS should thus evolve from a pure mitigation instrument into a tool that manages the entire carbon cycle. Over the longer run, negative emissions from nature-based removals could be integrated, potentially as a separate category of clean-up certificate. The potential for such removals is particularly high in EMDEs and in low-income countries, which also host significant biodiversity.

However, two conditions must be met: nature-based removals must be additional and permanent. Achieving this requires a fundamental redesign of nature markets, which we address next.

3.4.2 A market for natural provision of negative emissions and nature restoration

Cantillon *et al* (2025) propose a novel design for nature markets to scale up carbon removals and nature restoration in the Global South. The aim would be to overcome the high transaction costs, low credibility and short-termism that characterise the current voluntary carbon markets. The proposed mechanism would address these design flaws through four innovations:

1. Jurisdictional scale: projects would be defined at regional or provincial level rather than small-scale private projects. This scale would reduce leakage, improve monitoring and enhance additionality by aligning with regulatory boundaries. Jurisdictions would compete to attract capital.
2. Equity-based instruments: instead of issuing credits, jurisdictions would sell shares in a portfolio of nature-based projects. These shares would entitle holders to receive 'dividends' in the form of measured carbon and biodiversity benefits (eg. a quantity of avoided CO₂, increase in biodiversity). Dividends would be released prudently over time, with buffers to account for ecological risk. This would allow for permanent claims without assuming permanence in ecological systems.
3. Primary market as a crowdfunding mechanism: jurisdictions would list projects with detailed descriptions and minimum funding thresholds. Investors would allocate capital across proposals. Prices would form endogenously, with projects that attract excess demand seeing rising share prices, while underfunded projects would be delisted. This competitive mechanism would incentivise jurisdictions to improve project quality and additionality.

4. Public market governance: to ensure integrity and reduce fragmentation, the market infrastructure – project vetting, registry management – would be publicly governed. This structure should reduce certification costs and resolve conflicts of interest inherent in today's privately run systems.

The proposed share-based model would address the main shortcomings of credit markets by realigning incentives and embedding long-term commitment. Unlike credit buyers, shareholders would internalise ecological risk, fostering better stewardship and accounting for the impermanence of natural systems. Jurisdictional project scope and competitive pricing would enhance additionality and minimise leakage.

By pricing a bundle of project attributes, the model would generate implicit values for biodiversity alongside carbon. Centralised governance and larger project scale would reduce transaction costs, while the secondary market would ensure liquidity. Overall, the approach should shift the market from transactional offsetting to long-term ecological investment.

To scale up, the market would require reliable demand. Rather than relying solely on offsets, a boost to demand could come from mandating institutional investors to align the carbon footprints of their portfolios with the Paris-aligned trajectories (and to do the same with their biodiversity footprints when such standards are established) and authorise them to use nature shares (on top of any other asset reshuffling) to meet this goal.

A major advantage of acting at the level of funds, rather than the underlying companies, is that it would not release these companies from any existing or upcoming obligations to decarbonise and reduce their biodiversity impacts.

While the model is well suited for provision projects, conservation is harder to finance because it delivers no flow of carbon and no added biodiversity dividends. The benefits of conservation are in the preservation of stocks of

carbon and biodiversity. Cantillon *et al* (2025) discuss different ways to address this: 1) conservation projects could be integrated into the mechanism, which would facilitate private funding but complicate the design, or 2) it would require a separate funding mechanism, as proposed for the Amazon (see Box 1). In addition, nature-harming subsidies should be eliminated.

4 Robust governance

A common thread throughout this *Policy Brief* is the need to define templates for new, variable-geometry patterns of collective action that will offer alternatives to the severely damaged post-war order and help tackle global commons without resorting to traditional global governance solutions.

For eight decades, the management of global commons has relied on a more-or-less stable template of almost all countries signing up to multilateral treaties, the implementation of which rested on global institutions. For example, international trade was governed by the multilateral General Agreement on Tariffs Trade rules, guided by the 166-member World Trade Organisation.

Similarly, rules for international capital flows and exchange rate policies were enshrined in the Articles of Agreement of the IMF (191 members), which is also in charge of enforcing them. The same has applied to many other fields, including climate action (195 signatories) and the protection of biodiversity (also 195 signatories).

Those agreements and institutions remain in place, but new patterns of international cooperation have developed:

- Participation in global governance arrangements increasingly departs from the principle that sovereign states have exclusive control over their territory and their citizens and, accordingly, no right to interfere in another sovereign state's affairs, except through international agreements, while private and subnational

Box 1: reforestation and conservation of the Amazon

The Amazon rainforest is crucial for both capturing carbon and preserving biodiversity. Assunção and Scheinkman (2025) explore two complementary approaches to finance tropical forest protection in the Amazon: (1) reforestation of previously deforested areas, and (2) conservation of standing forests.

Reforestation – especially through natural regeneration – is shown to be a low-cost and high-impact carbon-removal strategy. In the Brazilian Amazon, approximately 50 million hectares of currently deforested land could capture up to 23 gigatonnes (Gt) of CO₂ over the next three decades. Assuming international payments of \$25/tonne of CO₂, this reforestation could generate \$572 billion in gross transfers. After adjusting for land-use change costs, lost cattle production and discounting, the net benefit to Brazil is estimated at \$282 billion in present value over 30 years, while delivering 18 Gt in net carbon capture, and avoiding 16 Gt of currently foreseen emissions.

This reforestation strategy would be notably cost-efficient: the effective cost per tonne of carbon is just \$13.25, significantly lower than most engineered carbon capture and storage (CCS) technologies currently supported in high-income countries. This reflects the low agricultural productivity (mainly extensive cattle ranching) of much

of the deforested land in the Amazon. The policy simulation assumes that payments are tied to net carbon capture, meaning countries would be rewarded only for increasing carbon stocks (eg. through reforestation) rather than for maintaining existing ones.

In contrast to reforestation, conserving standing forests focuses on preventing future emissions and biodiversity loss. Tropical Forest Forever Facility (TFFF), a Brazilian initiative, proposes annual payments of \$4 per hectare of standing forest, but only for countries with annual deforestation rates below 0.5 percent. Penalties apply for any new deforestation. The TFFF is designed to reward countries such as Guyana, Suriname and French Guiana, which have high forest cover but limited restoration potential and where deforestation rates are low. Because these countries have little scope for additional net carbon capture, TFFF offers a way to include them in results-based finance by compensating them for protecting high-integrity forests.

Simulated payments under TFFF vary across countries. For example, in a 'zero-deforestation' scenario, Brazil would receive \$28.7 billion via TFFF, compared to \$282 billion from reforestation payments. Guyana and Suriname, with minimal deforestation, would benefit primarily from TFFF, and Colombia and Peru would receive intermediate levels from both mechanisms.

actors can only intervene in the affairs of others through their national governments. However, the Paris Agreement relies to a great extent on non-state actors such as subnational entities (regions and cities) (Guérin and Tubiana, 2025). Many subnational governments have adopted targets and implemented policies that exceed the national ambition. Moreover, civil society, business associations and major private corporations all play a role in the climate governance process.

- Beyond the climate field, ways have been found to ensure the effectiveness of cooperation without relying on mandatory global rules. For example, international cooperation on banking regulation takes place within the framework of the Basel Committee on Banking Supervision, but standards set by this committee are not legally binding on financial institutions or national supervisors. Each country remains free to legislate on financial safety matters, though knowing that the Basel Committee regularly assesses national regulatory frameworks and publishes its findings. This mechanism has so far proved effective in ensuring global financial oversight and improving financial stability.
- Specialised public agencies, such as central banks and regulatory authorities, have developed new forms of cooperation that do not directly involve national governments but rest on the similarity of the mandates of institutions to put in place effective arrangements. A particularly telling example is that of competition authorities, which have found a tacit understanding on their respective scope of extraterritoriality and have accordingly developed new modes of cooperation⁸.

Patterns of effective international cooperation have therefore become much more diverse, and further innovations can be proposed. Examples include the suggestion by Guérin and Tubiana (2025) to give formal status to the involvement of subnational actors by involving them in periodic climate change mitigation assessments; the proposal by Cantillon *et al* (2025) that subnational jurisdictions issue shares that depend for their value on nature

preservation performance in their territory; and the plan by Edenhofer *et al* (2025) to entrust a carbon central bank with the mandate of overseeing the market for carbon removals.

Since President Trump took office on 20 January 2025, however, his administration has repeatedly expressed hostility towards the prevailing global governance regime, even going so far as to call it “*a weapon being used against us*”⁹. The US has withdrawn from the World Health Organisation and the Paris Agreement and is actively undermining other multilateral institutions by flouting their principles – in particular the WTO. The US administration is also pushing for a reversal of what it describes as the ‘mission creep’ of the Bretton Woods institutions into fields such as climate action, for which the US administration claims they have no mandate¹⁰.

In the context of accelerating deterioration of climate and nature, waiting until the US resumes its participation in global governance arrangements would imply accepting irreversible damage, and likely catastrophe. Against this backdrop, there is growing interest in new forms of international cooperation, such as coalitions of the willing (Blanchard and Pisani-Ferry, 2025), which seek to preserve cooperation among countries that want to safeguard global commons. Such coalitions are also necessary to develop new collective action schemes among subsets of players.

Making coalitions of the willing feasible and effective requires two distinct, but related, problems to be solved. The first is how to address the free riding problem inherent to action in fields such as climate and biodiversity, where the rationale for cooperation is to ensure proper governance of the commons. The second is how to prevent leakage resulting from the transfer of footloose industries and activities to jurisdictions with less stringent regulatory or taxation frameworks (which would compound the free rider problem).

The solution to these problems is partly political, but it also rests partly on the design of the coalition. To get a coalition off the ground requires cooperation by a critical mass of countries that have internal governance

mechanisms (such as members of the European Union) or are sufficiently politically aligned and economically integrated to punish free riding. Once critical mass has been achieved, coalitions must minimise leakage by creating incentives for other countries to join.

The four pillars of climate action detailed in section 3 imply a 'variable geometry' of intersecting coalitions within the universal membership of the UNFCCC and the UN Convention on Biodiversity. From broadest to narrowest, they are as follows:

1. The potentially widest is the climate coalition corresponding to Pillar 1 of the previous section, members of which would adopt carbon pricing differentiated by the level of development and establish a common CBAM of the type being implemented by the European Union (Clausing *et al* 2025). Membership should include all countries that have adopted or consider adopting carbon pricing, including China.
2. Next comes a climate finance alliance of advanced industrial countries, plus China, to promote the decarbonisation of the power sectors of as many developing countries as possible (Pillar 2). This coalition could be linked to the architecture of the Paris Agreement by offering sufficient financial support to fund the phase-in of a renewable energy pipeline to all countries that are willing to commit to: (1) net zero consistent power sector transformation in their 2025 conditional NDCs; (2) milestones for the phase out of fossil-fuel power sources; and (3) a governance structure to identify and monitor renewables projects and the early closing of fossil fuel power assets.
3. Green industrial partnerships (Pillar 3) would at a minimum require participation by the EU and a set of developing trade partners endowed with large renewable energy potential. But this coalition should welcome the entry of additional advanced energy importers of steel, chemical and other energy-intensive industries, such as Japan, South Korea, and the UK, and their main developing trade partners. The partnership should be open to

both advanced and developing countries, and could significantly overlap with other coalitions. But there will be differences, at least initially. While it is essential that China belongs to the plurilateral CBAM (point 1 above and Clausing *et al* 2025), and while it is desirable that it belongs to the climate finance coalition, climate finance could go ahead without it. More importantly, adopting a carbon price should not be a condition for advanced country financial support for power sector decarbonisation, but it would be a condition for membership of the plurilateral CBAM.

4. Creating nature finance at scale will require a coalition of countries that are custodians of the world's most biodiverse ecosystems (Pillar 4). Together, they would participate in a credible mechanism to support large-scale nature restoration and carbon removal by offering nature shares. To succeed, the issuance of these shares should be matched by stronger demand for them – ideally led by a group of advanced countries. The EU could play a pivotal role by fostering the decarbonisation of investment portfolios.

These four coalitions do not just intersect; they also interact and are mutually reinforcing. This is particularly true for the first three pillars:

- Membership of the plurilateral CBAM/carbon price coalition (Pillar 1) would create a price-based incentive to decarbonise the power sector that reduces the need for fiscal subsidies, thereby lowering the fiscal burden shouldered by the members of the financier coalition in supporting decarbonisation in the Global South (Pillar 2);
- Financial support for power sector decarbonisation (Pillar 2) and trade and investment partnerships between EMDEs and the EU (Pillar 3) could make membership of the CBAM/carbon price coalition (Pillar 1) more attractive for EMDEs;

- The decarbonisation of EMDE power sectors, envisaged in Pillar 2, is a pre-condition for the outsourcing of highly energy-intensive production stages to EMDEs with abundant renewables endowments, as envisaged in Pillar 3.

Because they will be mutually reinforcing, these coalitions should be initiated simultaneously and without delay. In this, the EU has a major role to play: because it will likely be part of all coalitions, it should outline a plan, propose a comprehensive agreement, seek alliances and work out the conditions for its international partners to take part. As the driving force of the Paris Agreement and a key sponsor of the Kunming-Montreal Global Biodiversity Framework, the EU has the legitimacy and the resources to promote such an initiative. ■

Jean Pisani-Ferry is a Senior Fellow at Bruegel, Beatrice Weder di Mauro is President of CEPR, and Jeromin Zettelmeyer is Director of Bruegel

Endnotes

1. See also Wood Mackenzie press release of 21 October 2024, [‘Global Competitiveness of Renewable LCOE Continues to Accelerate’](#).
2. Authors’ calculations based on the [Ember electricity dashboard](#).
3. Reuters, [‘China’s new coal plant approvals surge in 2022, highest since 2015 – research’](#), 27 February 2023.
4. Hannah Ritchie, [‘Tracking global data on electric vehicles’](#), Our World in Data, February 2025
5. Climate Action Tracker, [‘Emissions Pathways’](#), November 2024 update
6. According to the Potsdam Institute for Climate Impact Research’s ‘carbon clock’, the remaining 1.5°C-consistent carbon budget is just 173 gigatonnes (Gt) of CO₂ (about five times 2023 emissions), while the remaining 2°C-consistent carbon budget is 923 Gt. The cumulative emissions implied by the net zero scenario shown in Figure 1 are about 525 Gt of CO₂, consistent with a global temperature rise of about 1.7°C – a dangerously high level given the risk of climate tipping points even for a 1.5°C rise (Armstrong McKay et al 2022).
7. [G7 Leaders’ Statement](#) of 12 December 2022.
8. For a recent review of global governance arrangements, see Papaconstantinou and Pisani-Ferry (2024).
9. [‘Secretary-designate Marco Rubio, SFRC Confirmation Hearing Opening Remarks’](#), 15 January 2025.
10. US Department of the Treasury press release of 23 April 2025, [‘Treasury Secretary Scott Bessent Remarks before the Institute of International Finance’](#).

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This Policy Brief distils some of the main messages of the [Paris Report 2025](#), a joint initiative by Bruegel and CEPR (Pisani-Ferry et al 2025). This year's focus is on accelerating the energy transition and restoring nature in emerging and developing economies. We thank all Paris Report contributors, and Patrick Bolton, Kim Clausing, Ignacio Garcia Bercero, Heather Grabbe, Alissa Kleinnijenhuis, Matthias Kalkuhl, José Scheinkman and Simone Tagliapietra for comments on an earlier draft. This article is based on [Bruegel Policy Brief](#) Issue no17/25 | July 2025.



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The struggle against hesitation

The EU is engaged in a struggle for independence, values and democracy in a world shaped by the re-emergence of imperial ambitions. Simone Tagliapietra says Ursula von der Leyen is right to say Europe is in a 'fight' around competitiveness and values, but it may lack the right pugilistic attitude

European Commission President Ursula von der Leyen on 10 September 2025 gave her [fifth state of the union speech](#) to the European Parliament. Previously, she held out the promise of a 'geopolitical Commission', or a [stronger Europe in the world](#), though for much of her tenure, this idea has remained more theory than practice. This year's speech, however, shifted notably in tone: she asked if Europe has the stomach for a fight.

Von der Leyen portrayed Europe as engaged in an unprecedented struggle for independence, values and democracy in a world shaped by the re-emergence of imperial ambitions. She had strong words about the wars in Gaza and Ukraine, and on domestic front she gave particular attention to pressing issues for citizens, including the housing crisis and the rising cost of living.

She is right that Europe is in a fight. But to prevail, words must be rapidly matched by tangible instruments and a strong political will, at both national and European Union levels, to use them. This is far from the case today.

EU governments remain hesitant to embrace deeper integration, and the European Parliament is more polarised than ever, even within the majority that supports the President. Von der Leyen herself, despite the bold framing, still often falls back on the lowest common denominator among EU countries, rather than pressing for a more decisive EU strategy.

Nowhere is this tension clearer than on competitiveness. Von der Leyen is right to say that Europe's independence depends on its ability to compete, and that the continent must invest massively in digital and clean technologies. She is equally right to call for Europe to be faster, smarter and more European. Yet the record so far is thin.

The Clean Industrial Deal competitiveness and decarbonisation plan, proposed in February 2025, serves as a prime example of this. Conceived as means of fostering clean-tech investment and slashing energy costs, it largely

remains a concept. The Commission has produced compasses, communications and dialogues, but tangible impacts are so far minimal.

The notable exception has been the [revision of state-aid guidelines](#) to allow more national subsidies for clean-tech manufacturing and established, energy-intensive industries. But this can encourage fragmentation, risking subsidy races among member states without addressing structural weaknesses.

Europe's problem is not an absence of ideas. It is the gap between rhetoric and delivery

It is now time to push the Clean Industrial Deal into its implementation phase. An ideal place to start would be putting in place the promised [Industrial Decarbonisation Bank](#), fostering lead markets for clean innovative technologies with a smarter use of public procurement, and developing much-needed clean trade and investment partnerships with selected third countries. These initiatives should move forward as quickly as possible.

Specific announcements made by President von der Leyen during her speech, such as a €1.8 billion pledge to support battery production in the EU, fall short of being game changers. Chinese manufacturer CATL, in a [joint venture with Stellantis](#), is investing more than twice that sum in a single gigafactory in Spain. The collapse in late 2024 of [publicly-backed Northvolt](#), once Europe's flagship battery start-up, illustrates that money alone is not enough.

Structural weaknesses persist: reliance on foreign inputs, the challenges of scaling up production and fierce Asian competition. Von der Leyen failed to address them when she avoided a pressing question: how should Europe handle the wave of Chinese investment in its electric-vehicle and battery supply chains?

Her proposal to add 'made in Europe' criteria in public procurement also raises concerns. It has a protectionist flavour and sits uneasily with Europe's continued talk of open trade. More fundamentally, it risks turning the Clean Industrial Deal into an attempted reshoring exercise, rather than a strategic framework that to build on Europe's comparative advantages while keeping the doors open to global trade open.

The same ambivalence runs through her energy message. Von der Leyen declared that Europe is on the path to energy independence. But this jars with the EU-US energy deal, under which the EU has committed to around €700 billion up to 2028 in American liquified natural gas (LNG), oil and nuclear fuel purchases.

The US already accounts for 55% of EU LNG imports; replacing Russian LNG entirely with American supplies, instead of with a more diversified portfolio, would push that figure close to 70%. This is far from the concept of independence, or at least of supply diversification, and risks exacerbating structural weaknesses, not solving them.

Europe's problem is not an absence of ideas. It is the gap between rhetoric and delivery. The EU has shown it can act decisively in emergencies, as with COVID-19 vaccines and the energy crisis triggered by Russia's invasion of Ukraine. But in normal times, it hesitates. This is the true danger Europe must fight against. ■

Simone Tagliapietra is a Senior Fellow at Bruegel

This article is based on a [Bruegel First Glance](#).

The time is right



The EU and India both rank among the world's five largest economies. Ignacio García Bercero and André Sapir offer a broad perspective on the EU-India trade relationship and argue the time is right to make a European Union-India trade deal happen

Executive summary

Nearly 20 years have passed since the EU and India started negotiations on a bilateral trade and investment agreement. After seven years of intense negotiations, the process stalled in 2014, primarily because of the failure of the respective political leaders to make difficult choices.

Talks restarted in 2022 and now offer a reasonable chance of delivering a bilateral free trade agreement “*within the course of the year*”, as Indian Prime Minister Narendra Modi and European Commission President Ursula von der Leyen declared in February 2025.

The EU and India both rank among the world’s five largest economies in terms of GDP. Yet much separates the two economically. India’s GDP per capita is much lower than the EU’s, and its level of trade and investment protection is much higher than that of the EU or even its middle-income peers.

However, India has recently enjoyed faster growth than any other large economy, including China. The EU and India are also being brought closer by the global geopolitical situation and their common pursuit of strategic autonomy and economic security.

The two sides should learn the lessons from past failure and reach an ambitious agreement in areas that previously proved difficult, such as goods tariffs and services, and in new areas, such as climate protection, that could again derail the revived negotiation if not managed well.

A deal by the end of 2025 will have economic benefits and will also reinforce the broader economic and political links between the EU and India at a time when world affairs are under severe strain. An ambitious agreement could

also help reconstruct a rules-based global order for the new multipolar world. This is particularly important for the multilateral trade and climate regimes, where converging EU and Indian positions could have a major influence on the redesign of international institutions and rules.

The EU and India are also being brought closer by the global geopolitical situation and their common pursuit of strategic autonomy and economic security

1 Introduction

The relationship between the European Union and India has a long history. Bilateral ties were established in 1962 and reinforced with the signature of a Cooperation Agreement of 1994. Since 2004, the EU and India have worked together in a Strategic Partnership that entails political, economic, security and technological cooperation (European Commission 2004).

Part of this partnership was the start, in 2007, of negotiations on a broad-based bilateral trade and investment agreement¹. However, negotiations were suspended in 2014. The EU-India Strategic Partnership since then has been called ‘under-performing’ and ‘high on rhetoric and low on substance’².

Since the EU-India Summit of May 2021, the situation has changed substantially. Leaders from both sides agreed to resume negotiations on a comprehensive trade and investment agreement³. In 2022, the two partners established a bilateral Trade and Technology Council, a type of forum that, until then, the EU had only with the United States.

Then, in February 2025, the European Commissioners – the European Commission’s top officials – took the exceptional step of meeting the Indian Government in New Delhi, underscoring the importance of the EU-India relationship for both parties. The statement issued following this visit said the two sides would conclude their free trade agreement “*within the course of the year*” and develop a new strategic agenda for adoption by the next EU-India Summit⁴.

This new attitude needs to be understood in the context of the broader geopolitical situation and the danger it poses to the rules-based multilateral trading system.

On the EU side, the increased focus on India arises from a recognition of India’s potential to become a major economic power, its critical role in achieving net zero carbon objectives and the EU’s need to derisk its economic

relationships with China and a protectionist United States. Similar considerations played an important role in the conclusion in December 2024 of the EU-Mercosur free trade agreement, more than 20 years after the launch of the negotiations⁵.

Naturally, the agreement with Mercosur, which has a GDP nearly as large as India's, will be very present in the minds of EU negotiators, although they will have to keep in mind that India's per capita GDP is well below Mercosur's.

Meanwhile, the EU has already concluded comprehensive trade agreements with Singapore and Vietnam and is negotiating with several Association of Southeast Asian Nations (ASEAN) countries and looking into closer cooperation with Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) countries. EU-India trade negotiations should therefore be seen as part of a broader strategy of EU engagement with the Global South in general and the Indo-Pacific region in particular.

India's new attitude to the EU owes partly to the country's goal of derisking its economic relationship with China (Basu and García Herrero 2025). The same considerations influenced the conclusion in May 2025 of the India-United Kingdom free trade agreement, which will clearly serve as a benchmark for Indian negotiators, though the EU economy is far bigger than the UK's and the EU is likely to push in a number of areas for greater ambition than achieved in the India-UK deal.

This *Policy Brief* offers a broad perspective on the EU-India trade relationship (section 2) then discusses and makes recommendations on the bilateral FTA negotiations, which the two sides are committed to conclude by year-end (section 3). Section 4 discusses how the EU and India could build on successful bilateral FTA negotiations to help reinforce the multilateral trading system.

2 The EU-India trade relationship in perspective

In 2023, India's GDP (measured at current exchange rates) was the fifth largest in the world, regardless of whether one treats the EU as a single entity or not⁶. Its share of global GDP was 3.3 percent at current exchange rates and 7.9 percent at current purchasing power.

From 1992 to 2023, India's GDP grew at a remarkable average annual rate of 6.2 percent. Within the group of middle-income countries, whose ranks India joined in 2007 according to the World Bank, only China did better (8.9 percent). By contrast, Brazil, the third largest middle-income economy, grew much slower (2.4 percent average rate).

Admittedly, India's impressive performance owed partly to its faster population growth (1.6 percent per year for 1992-2023) compared to China (0.7 percent) and Brazil (1.1 percent), putting its GDP per capita growth achievement (4.6 percent for 1992-2023) well below China's (8.2 percent), though still impressive compared to other middle-income countries.

Since 2021, India has consistently grown faster than China (in GDP and GDP per capita terms), a situation that is likely to continue, partly because of India's lower income level. In 2023, India's GDP per head at purchasing power parity (PPP) reached \$10,000, a big improvement compared to the past but still considerably below China (\$25,000), Brazil (\$21,000) and obviously the EU (nearly \$60,000; Table 1).

India's rapid growth during the past three decades contrasts sharply with its performance during the previous three decades (1962-1990), when per-capita GDP grew at an average annual rate of barely 1.9 percent, far below China (6.0 percent) or even Brazil (2.9 percent). As universally recognized, the doubling of India's per-capita income growth in 1992-2013 compared to 1962-1990 owes to the Indian government's decision, in 1991, to liberalise the economy, both internally and externally, in response to a severe balance-of payments crisis.

Table 1. GDP and GDP per capita, EU and India, compared to Brazil and China, 2023

	GDP (\$ billions)		GDP per capita (\$)	
	Nominal ER	PPP ER	Nominal ER	PPP ER
EU	18,591	26,500	41,423	58,892
India	3,568	14,620	2,481	10,166
Brazil	2,174	4,457	10,295	21,107
China	17,795	34,660	12,614	24,569

Note: ER = exchange rate and PPP = purchasing power parity.

Source: Bruegel based on IMF data.

India's inward-looking policy after independence in 1947 resulted in its share of world merchandise exports falling from 2.1 percent in 1951 to a low of 0.4 percent in 1980 (Wolf 2004). After 1991, this share started to increase, at first modestly, reaching 0.7 percent in 2001. By 2023, India's share of global merchandise exports had reached 2.3 percent – ahead of Brazil, with a share of 1.8 percent, but far behind China, the world's largest exporter of goods, with a share of 17.9 percent.

India's export success has been far bigger in services, for which its share of global exports increased from 1.4 percent in 2001 to 5.3 percent in 2023, only slightly behind China (Table 2, columns (1) and (2)).

The differing Indian and Chinese trade performances in goods and services reflect two opposite economic strategies towards the manufacturing sector in the two Asian giants. China adopted an export-led industrial strategy, combining relatively low trade protection and favourable foreign direct investment (FDI), inviting multinational corporations with global value chain (GVC) linkages to the country, resulting in a high share of manufacturing value added in GDP.

Table 2. Selected trade indicators, EU and India, compared to Brazil and China, 2023

	(1)		(2)		(3)	(4)		(5)		(6)
	Shares of the global goods trade, %		Shares of the global services trade, %		Manuf. VA, % of GDP	Share of manuf. in goods trade, %		MFN tariffs, simple average for all products, %		RTAs, All/XXIV, numbers
	X	M	X	M		X	M	Bound	Applied	
EU	14.2	13.8	23.4	22.2	15.3	81.3	67.5	5.1	3.0	47/47
India	2.3	3.4	5.3	4.1	12.9	67.9	47.7	50.8	17.0	19/4
Brazil	1.8	1.3	0.7	1.4	13.3	25.0	75.9	31.4	11.2	9/1
China	17.9	13.1	6.0	9.3	26.2	93.5	58.1	10.0	7.5	20/18

Note: M = imports, RTAs are regional trade agreements, VA = value added, X = exports, and XXIV = GATT Article XXIV RTAs.

Source: Bruegel based on World Bank and WTO data.

A key ingredient of this strategy for China was joining the World Trade Organization (WTO) in 2001, which resulted in less trade protection and better access to foreign markets.

Meanwhile, although it substantially opened up the economy in the early 1990s, India has continued to follow its earlier domestic-led strategy, but in a less trade-distortive manner (thanks to greater foreign competition), resulting in a relatively low share of manufacturing in the economy.

The main ingredient of this more gradual strategy, compared to China, was the fact that India was already a member of the General Agreement on Tariffs and Trade (GATT) in 1991, when it decided to liberalise.

Therefore, its liberalisation was not a quid pro quo to obtain better access to foreign markets, especially advanced economies, which were already relatively open to Indian imports. India's liberalisation in 1991 was therefore far more gradual than China's liberalisation in 2001. Whereas the latter reduced both its most-favoured nation (MFN) bound and applied tariff rates drastically, the former only lowered its applied rates, keeping its bound rates at very high levels.

The result for India was domestic-led growth (like in Brazil) rather than export-led growth (like in China and other East Asian countries). This is also illustrated by the relatively low share of manufacturing in exports and imports in India compared to China⁷ (Table 2, columns (3)-(5)).

India's still has very high MFN bound rates (50.8 percent on average across all products) reflect the fact that the country never engaged in substantial reciprocal trade liberalisation within the multilateral framework of the GATT/WTO, insisting instead on its development status and 'special and differential treatment' to benefit from trade liberalisation by more advanced countries, without having to offer equivalent liberalisation. Most of India's

substantial tariff liberalisation since 1991 has been undertaken unilaterally, with MFN applied rates gradually reducing to an average of 13 percent by 2008.

The corollary of the unilateral nature of these tariff cuts is that they are ‘unbound’, implying that the country reserves the right to apply the higher bound rates when it wishes and without having to consult or compensate other WTO members.

India’s government used this possibility in 2018, when it increased the average applied tariff (which had remained below 14 percent for the previous 10 years) to 17.1 percent. Tariff protection then continued to increase, reaching more than 18 percent in 2021 and 2022, before returning to 17 percent in 2023.

This partial reversal in trade policy, which was accompanied by an increase in various non-tariff barriers (NTBs), has been criticised by Indian trade economists, such as Arvind Panagariya, who complained that India is *“deviating from the road of steady liberalization that we had adopted in 1991... and ha[s] now taken a U-turn to begin traveling in the reverse direction”*, adding that *“import protection as the path to global competitiveness is a non-starter”*⁸.

In the mid-2000s, India entered a new trade liberalisation phase, this time in response to increased competition from China, resulting from its entry into the WTO. For the past 25 years, India has sought to achieve reciprocal trade liberalisation by negotiating regional trade agreements (RTAs), including free trade agreements (FTAs), with a number of important trading partners.

The WTO website (consulted on 1 June 2025) lists 19 RTAs currently in force between India and individual countries or groupings, of which only four involve FTAs notified to the WTO under GATT Article XXIV, which allows the signing of FTAs provided that they meet certain conditions meant to ensure that third countries will not be negatively impacted⁹.

The other 15 FTAs were notified under the so-called 'enabling clause', which allows developing countries to craft FTAs with less-stringent conditions than those imposed by GATT Article XXIV. The greater flexibility afforded by the enabling clause, which can only be used if all the parties to an FTA are developing countries, essentially means that these agreements provide for less trade liberalisation than those notified under GATT Article XXIV (Table 2, column (6)).

India's first GATT Article XXIV FTA was signed with Singapore in 2005. During the next two years, India launched similar FTA negotiations with Korea and Japan. Agreements were signed with Korea in 2009 and Japan in 2011, consisting, like that with Singapore, of separate FTAs for goods and services. All of these FTAs were, however, quite shallow in terms of commitments, focusing mainly on tariffs.

In 2007, India agreed to launch more comprehensive negotiations with the EU. As we detail in the next section, these negotiations were suspended in 2014 and eventually restarted in 2022. After Brexit, the UK started its own negotiations with India, reaching a successful conclusion on 6 May 2025¹⁰.

India has also signed FTAs (covering goods and services trade) with Australia (2022) and the European Free Trade Association (EFTA 2024). India is not participating in the two mega regional trade agreements now operating in the Asia-Pacific region (the Regional Comprehensive Economic Partnership (RCEP) and the CPTPP) and is therefore much less-integrated into regional value chains than some of its competitors.

In 2024, the EU was India's largest trading partner, slightly ahead of the US and China. However, since (like China and the US) the EU does not have preferential access to the Indian market, which is protected by relatively high applied MFN tariffs, it has likely been hurt by trade diversion caused by the new Indian FTAs, especially those with Korea and Japan, whose producers compete with EU producers.

For the EU (and others without an FTA with India), such trade diversion has already translated into a loss of market share in favour of countries that have FTAs with India, such as in the case of automotive components with Korea and Japan¹¹.

For India, trade diversion is likely to generate higher costs for the economy, compared to a situation without discrimination between suppliers based on whether they enjoy preferential access to the Indian market or not. India may wish therefore to combine conclusion of reciprocal FTAs with a reduction in MFN tariffs in non-sensitive sectors.

There would also be a good argument for reducing policy uncertainty by bringing bound tariffs closer to applied MFN rates, but this would require multilateral negotiation. The upshot is that both the EU (and also other partners without an FTA with India) and India have an economic interest in concluding a bilateral FTA. This is precisely what the EU and India are now hoping to achieve in 2025.

From India's perspective, therefore, an FTA with the EU would not be the first with an advanced economy with much lower trade protection than India, since it already has FTAs with several advanced economies. But it would be an FTA with a far bigger economy than previously, and also with India's largest trade partner.

Likewise, from the EU's perspective, an FTA with India would not be the first with a middle-income economy with much higher trade protection than the EU, but it would be a deal with the second biggest middle-economy and one of its top ten trade partners.

3 The EU-India FTA negotiations

3.1 Twenty years of on-off talks

From the EU's perspective, the start of negotiations with India in 2007 was part of a first generation of comprehensive FTAs that also included Korea and ASEAN. The EU's goal was to open up the markets of highly protected emerging economies and tackle not only tariffs, but also services, procurement, regulatory issues and the interface between trade and sustainable development.

Negotiations with Korea were concluded rapidly, but talks with ASEAN soon stalled, and the EU decided to launch separate negotiations with Singapore and Vietnam, which were concluded respectively in 2018 and 2019.

From India's perspective, the EU was a good candidate to negotiate its first comprehensive FTA because of the expectation that the EU would be less demanding than the US on agriculture. Negotiations were preceded by a scoping exercise in which the EU and India agreed the key parameters for a comprehensive negotiation. This scoping also made clear that the EU was ready to respect India's sensitivities in relation to the elimination of many agriculture tariffs.

To what extent did negotiations fail in 2014 because of the EU insistence on a rigid comprehensive FTA template? The situation is complex. The EU was very conscious that the agreement with India could not follow the model of the agreement with Korea. It accepted from the beginning that tariff commitments would be asymmetrical and that on certain sensitive issues, such as patent protection, India could not be expected to change its domestic legislation.

The EU also signalled its readiness to sequence procurement negotiations, for which India was in the process of developing domestic legislation. Although the EU would have always insisted on the importance of a trade and

sustainable development chapter, it was conscious of India's political sensitivities and ready to explore a less-ambitious chapter than that included in the agreement with Korea.

At the same time, the EU was concerned that concluding negotiations at too low a level of ambition could create a poor precedent for negotiations with Vietnam, a country at a similar level of development to India, and for which the EU's objective was to establish a template that could be followed in bilateral negotiations with other ASEAN countries.

By October 2013, the EU and India had exchanged offers on tariffs and services, and efforts were focused on identifying the outlines of possible agreement for the market-access component of the FTA. By far the most politically sensitive topic was tariffs on car and car parts.

The EU had just gone through a difficult process of ratification of the FTA with Korea in the face of opposition from the EU car industry, which feared increased competition from Korean producers in the EU market. EU car producers wanted improved access to the Indian market, but this met strong opposition from the Indian industry, including Japanese and Korean firms that had recently invested in India – the FTAs concluded by their governments excluded the car sector.

Despite the entrenched positions of both sides, their respective tariff zones of possible agreement were eventually tantalisingly close, which raises the question of why it was not possible to bridge the difference at the end¹².

Here the issues of timing and political engagement came to the fore. By the time landing-zone negotiations started, the Indian elections were looming and prime minister Manmohan Singh was in a weak political position.

With the benefit of hindsight, it is clear that both sides should have started negotiations on an outline agreement earlier, and should have more regularly brought the state of FTA negotiations to the attention of their leaders. Clearly, negotiations between strategic partners require regular leadership involvement on both sides.

After the election of Prime Minister Narendra Modi in May 2014, the EU sought to establish whether negotiations could resume on the basis of the proposal shared in October 2013. But it soon became clear that the momentum had been lost, and India was now much more focused on increasing protection for the manufacturing sector.

At the EU-India summit on 8 May 2021, leaders agreed to relaunch the FTA¹³. Significant progress has been achieved during the past four years, but much remains to be done if the declared objective of reaching a conclusion before the end of the year, set in February 2025 at the New Delhi meeting, is to be met.

3.2 The US and Chinese shadows

The hoped-for EU-India FTA must be understood in the context of India-China and India-US relations.

Security tensions and an unbalanced trade relationship between India and China make it unlikely that the two Asian giants will strengthen their trade and economic relationship in the near future (Basu and García Herrero 2025). While India would have an interest in attracting more Chinese investment because of its job creation potential, it will need to balance this against economic security concerns and the limited prospects of narrowing a massive bilateral trade deficit.

India might wish to foster greater integration in Asian value chains, potentially by joining RCEP and CPTPP¹⁴. But such a step would be difficult because of the deficit with China, US pressure to derisk from China and the fact that joining the CPTPP requires acceptance of high standards in a number of regulatory areas, plus market-access negotiations with countries that may seek further opening of agriculture markets.

Meanwhile, India and the US announced on 13 February 2025 the start of negotiations on “*the first tranche of a mutually beneficial, multi-sector Bilateral Trade Agreement (BTA) by the fall of 2025*”¹⁵. For India, the immediate objective of these negotiations is to seek relief from the application of US ‘reciprocal’ and sectoral tariffs¹⁶.

It is not clear, however, how much the US is ready to offer in terms of relief from the across-the-board 10 percent import surcharge introduced by President Trump, or from sectoral tariffs on steel and aluminium, cars and potentially pharmaceuticals.

More fundamentally the US has no legal authority to offer India the elimination of MFN duties. India may therefore find it difficult to justify before public opinion an agreement that would reduce India’s tariff protections without equivalent concessions from the US.

Moreover, if India offers such concessions on a preferential basis, it will further undermine respect for non-discrimination, a central tenet of the WTO system. A better approach would be for India to reduce some of its very high tariffs on an MFN basis, even if the reduced tariffs remain unbound pending a broader multilateral negotiation.

3.3 Priorities

To meet an end-2025 deadline for agreement on an EU-India FTA, particular attention should be given to the following issues¹⁷:

Tariffs

At 17 percent, India’s average tariff is much higher than other Indo-Pacific countries that are competing to attract foreign investment – for example, Thailand (11.5 percent), Vietnam (9.6 percent) and Malaysia (5.6 percent) (Pradhan

2025). The EU already has a comprehensive FTA with Vietnam and is negotiating comprehensive agreements with Thailand and Malaysia.

To attract export-oriented investments, Indian tariffs should be comparable to those of other emerging markets in the region. Eliminating tariffs on intermediate products and capital goods will be critical for development of an export-oriented Indian industry.

At the same time, the EU should respond to India's request for asymmetric liberalisation and eliminate rapidly most of its industrial tariffs, so that the benefits of the FTA are visible for export-oriented Indian industries. Tariffs on passenger cars and car parts are likely to be again the most sensitive item. In light of the sensitivities of both sides, tariff commitments are not likely to be very ambitious in the agriculture sector.

Negotiations are apparently difficult on rules of origin. Here a possible approach would be to agree on rules of origin similar to those included in EU agreements with ASEAN countries, but to provide for cumulation with countries that have concluded FTAs with both the EU and India. This could also prepare the ground for a common protocol on rules of origin between the EU, CPTPP, EFTA and other Indo-Pacific countries (García Bercero 2025).

Standards and conformity assessment

India has developed a system of mandatory standards that require certification in the form of quality control orders (QCOs) following audits of manufacturing facilities. Most products subject to QCOs are not subject to mandatory third-party certification in Europe. Since QCOs are a major obstacle for marketing products in India, creative legal solutions should be explored. The issue is also a priority in negotiations between India and the US (Linscott 2025).

More broadly, both sides have an interest in including in the trade agreement chapters on technical barriers to trade and sanitary and phytosanitary standards that will establish the basis for closer regulatory cooperation.

European companies have indicated that the overall cost of doing business in India is a greater obstacle than tariffs, so the success of the EU-India trade and investment agreement will hinge on the reduction of regulatory obstacles. Similar demands are made by US business (Köhler-Suzuki 2023).

Services and digital trade

India has very few service commitments in its WTO General Agreement on Trade in Services (GATS) schedule. The EU-India FTA should therefore at least maintain the current level of openness. The EU would also need to consider asymmetry of commitments and explore creative solutions on the temporary provision of services by professionals, perhaps by also encouraging visa-related commitments at member-state level outside the FTA.

There appears to be a very significant scope for expanding crossborder digital trade, although it would be difficult to negotiate a digital chapter with a level of ambition similar to EU agreements with Japan, Singapore and Korea.

In particular India is unlikely to accept commitments on localisation requirements or on the non-application of duties on e-commerce. In case it is not possible to conclude an ambitious digital chapter, the EU may wish to privilege negotiations with the CPTPP countries and conclude an open plurilateral agreement with them that India may consider joining at a later stage.

In any event the EU and India could cooperate more on digital regulation, in particular on artificial intelligence, within the framework of their Trade and Technology Council.

Investment

The EU and India are negotiating a separate investment agreement, although the goal is not to conclude it this year together with the FTA. India has terminated its bilateral investment treaties with EU member states and is in

the process of developing a new template for investment agreements. This has negatively impacted on FDI flows (Köhler-Suzuki 2023).

No EU-level investment-protection agreement has yet entered into force with any third country because of the need for member-state ratification of any agreement that includes a procedure for investor-state adjudication. It may therefore be the right time for an innovative approach to investment negotiations.

The objective should be to create the conditions to facilitate more European investment and greater integration of Indian and EU value chains. This could be achieved through a combination of market-access commitments (both tariffs and investments) in the FTA, and investment facilitation and investment protection standards in the separate investment agreement¹⁸.

To avoid the difficulty of national ratification and EU unanimity rules, the investment protection agreement should only provide for state-to-state dispute settlement, since investor-state dispute settlement remains a national prerogative in the EU.

The EU and India could also agree a joint declaration stating India's readiness to negotiate bilateral investment treaties with interested EU countries. Such bilateral agreements would have to respect the protection standards in the EU-only agreement.

The EU-India investment agreement could also be an opportunity to implement the new EU concept of Clean Trade and Investment Partnerships (CTIPs) – frameworks for clean industrial collaboration with third countries on clean energy, critical raw materials, clean-tech trade and investment¹⁹.

Green industries, including energy-intensive industries, are particularly promising areas for European investment in India. The investment agreement could establish a structure for consultation with industry to identify investment opportunities and, where necessary, support this through financial derisking instruments. It would be important that any such investments benefit from the green industrial policies applied by India and the EU, in order to create lead markets.

Procurement

India's federal procurement laws apply 'made in India' preferences. In the absence of commitments by India to non-discriminatory treatment of EU suppliers, the EU may prefer to keep open the option of also discriminating against Indian suppliers.

A possibility would be for both sides to agree initially to non-discriminatory access to their respective public contracts for a limited number of sectors, subject to review after some years. These sectors could include those for which the EU, through the Clean Industrial Deal, intends to introduce 'buy European' requirements consistent with international commitments²⁰.

In the absence of FTA commitments, Indian companies may not be able to benefit from access to EU procurement in sectors supported by the CTIP under the investment agreement. As an incentive for India to offer meaningful national treatment commitments, the EU could also be ready to offer asymmetric procurement commitments.

Sustainable development

The inclusion of a trade and sustainable development (TSD) chapter has been a feature of all EU FTAs since the agreement with Korea. India appears now ready to include such a chapter in its FTAs, having done so in its agreements with EFTA and the UK.

It is clear though that the possibility of sanctions for breaching TSD commitments, and therefore a binding dispute settlement mechanism, would cross a red line for India. Another sensitive area is the inclusion of a formalised procedure to consult civil society on issues covered by the sustainable development chapter. The EU could explore whether a TSD chapter similar to that included in the EU-Mercosur agreement could also be applied with India.

It might be necessary, however, to give India more leeway. For instance, the EU could establish its own mechanism to consult civil society in relation to all the activities relating to the implementation of the FTA and to ensure full transparency of its proceedings.

India has raised a number of concerns about EU climate-related measures, most notably the carbon border adjustment mechanism (CBAM) and the EU Regulation on Deforestation-free Products (Regulation (EU) 2023/1115). India has asked to be exempted from CBAM, which the EU cannot do without compromising its environmental objectives and the need to comply with WTO non-discrimination rules.

The EU could however offer reinforced cooperation on the implementation of CBAM, either as part of the trade agreement or separately. It could also start discussions with countries that have already or are developing domestic carbon markets (as is the case for India), to develop a framework for cooperation on decarbonisation commitments.

The annex to the TSD chapter in the EU-Mercosur agreement includes a section on 'sustainability measures affecting trade', which commits its signatories to cooperate on the implementation of trade-related sustainability measures.

In particular, the annex includes specific commitments relating to the implementation of the EU Regulation on Deforestation-free Products. In relation to India, specific commitments could be included relating to CBAM implementation, including measures to reduce the administrative burden on SMEs, technical assistance to support

India in the development of its carbon pricing scheme, facilitation of accreditation and early consultation about future regulatory developments.

Together with the support for investment in energy-intensive industries, such as green steel intermediate products, this could go a long way towards alleviating Indian concerns. In the medium term, a climate coalition, could provide an alternative to the application of CBAM²¹.

In summary, the benefits of EU-India trade and investment agreements hinge on being able to provide the necessary incentives for the expansion of trade and investments for both parties. While this does not require an agreement as comprehensive as recent EU FTAs, the agreements should include a critical mass of issues that make India an attractive destination for European investment compared to other countries in the region.

The EU market-access offer should be sufficiently attractive and be accompanied with a genuine commitment to reinforce regulatory dialogue, in particular on green and digital regulation. The FTA could be concluded as planned by end-2025, and then more time given to develop an innovative investment agreement that includes specific green value chain investment projects.

In our view, the EU is better placed than China or even the US to offer India a transformative and balanced trade agreement. If combined with a new type of investment agreement, an FTA could increase export-oriented investment in India and boost its manufacturing sector.

The EU-India trade agreement should also be viewed as an important contribution to a more strategic geopolitical partnership between the two parties. This should allow for more honest engagement on major foreign policy challenges.

In particular, India and the EU have the potential to be leading players in restructuring the multipolar global order in relation to the global trading system (see section 4) and the climate regime. The EU and India could also work with other countries that have introduced domestic carbon prices, to agree on the decarbonisation of trade-intensive sectors, which could eventually provide an alternative to CBAM (Clausing *et al* 2025).

4 The EU, India and the multilateral trading system

The WTO is experiencing an existential crisis. Since the failure of the Doha Round negotiations in 2008, the WTO has ceased being a credible forum to negotiate market access or the updating of trade rules.

In his first term, President Trump put an end to binding dispute settlement. So far in his second term, Trump has ignored the two most basic principles of the GATT/WTO system: MFN and stability of tariff bindings.

Beyond their bilateral engagement, the EU and India should reflect on how to position themselves in view of the risk of the demise of the rule-based trading system and its replacement by power-based trade relations. While the EU and India are better placed to defend their interests than smaller players, their interests would be impacted negatively by the continuous erosion of the WTO and the emergence of a bipolar US-China trading regime based on managed trade and spheres of influence.

India's path to global competitiveness and development requires the critical factors behind China's successful development strategy: stable conditions and protection against arbitrary trade measures. Likewise, the EU will find it difficult to defend its central position in the global trading system in a world without rules.

The prospect of EU-India cooperation at the WTO, although sorely needed, is hindered by a legacy of misunderstandings and established 'doctrines' that no longer correspond to the current environment of

geoeconomic competition. A history of EU-India trade relations in the context of the WTO remains to be written, but three elements are worth highlighting:

1. The EU and India maintained a close level of strategic engagement during the Uruguay Round negotiations that led to the establishment of the WTO in 1995²². While India was a strong defender of developing-country interests, it also had a strategic interest in reinforcing disciplines on US unilateralism and was ready to consider how improved WTO rules could support the opening up of the Indian economy to more international competition.

2. A strategic gap between the EU and India emerged when defining the WTO agenda after its creation. While the EU became the main advocate of WTO expansion into new areas of rulemaking – investment, competition and trade and the environment – India insisted on the need to correct the ‘development deficit’ in WTO agreements and led the opposition to the inclusion of new issues into what eventually became the Doha Development Agenda (DDA).

With the benefit of hindsight, it is clear that the EU should have given much more thought to how to reconcile new rule-making activities with the challenges for developing countries in implementing Uruguay Round commitments. On the other hand, India’s strident opposition to bringing new issues to the WTO agenda has contributed to the partial demise of the WTO and risks condemning it to complete irrelevance.

3. Despite this strategic gap, the EU has maintained a fairly productive level of engagement with India. This was the case both during the DDA negotiations on agriculture and during the efforts to get India to lift its opposition to plurilateral agreements, such as the WTO agreement relating to services domestic regulation²³.

The question is whether this relatively high level of trust can be used to revisit long established positions and respond to the major strategic questions affecting the global trading system.

In view of India's reputation as a sceptic in WTO negotiations, it may seem paradoxical to suggest that the EU and India should engage in a more strategic dialogue on how to reposition the WTO in the new geoeconomic environment²⁴.

It is clear however that no major reform of the WTO is possible without the active participation of India and that the current crisis may also create conditions for new thinking that goes beyond both India's and the EU's longstanding positions. The focus should not be primarily on the issues currently on the WTO agenda, but rather on exploring the types of multilateral rules and institutional arrangements that would best serve the long-term interests of India and the EU.

The priority strategic question is how multilateral trade institutions should be adapted to a multipolar world. Is it still possible to imagine a rule-based institution such as the WTO, in which both the US and China participate? What changes to the WTO rules and institutional structure would be needed to engage the US, China and the broader WTO membership?

In the absence of engagement by the US and or China, what options are available for India and the EU? How can the stability that is critical for growth and development be maintained, and how can further fragmentation of global trade and marginalisation of vulnerable developing countries be avoided? What is the proper interface between the trade regime and the international monetary, development and climate regimes?

To encourage more systemic analysis of these questions, the EU and India could establish a reflection group of independent experts to present recommendations for discussion at the next EU-India Trade and Technology Council and Summit, currently scheduled to take place in India in 2026.

5 Conclusion

Nearly 20 years have elapsed since EU-India trade negotiations were first launched. While not quite as long as the EU-Mercosur negotiations, which started in 2000 and concluded in 2024, the EU-India talks are reaching a point where there is sufficient political involvement at leaders' level to strike a deal. Failure would be a huge economic and political setback for both sides, especially given the current state of the world.

Geopolitics is the reason why the EU-India relationship has become much more important for the two sides, and others, than it was 20 years ago, when it was upgraded to the level of Strategic Partnership but without much actual substance. The change obviously has much to do with the growing rivalry between China and the United States, encompassing economic, technological and geopolitical spheres, and their efforts to coerce each other and other countries.

In this new world, the EU and India share strategic autonomy and economic security goals with a *“shared interest in shaping a resilient multipolar global order that underpins peace and stability, economic growth and sustainable development”*²⁵.

An EU-India trade deal by the end of 2025 will have not only economic benefits but will also reinforce the broader economic and political links between the EU and India at a time when world affairs are under severe strain. An ambitious bilateral trade and investment agreement should serve to reinforce cooperation between the EU and India in the global context to help reconstruct a rules-based global order for the new multipolar world.

This is particularly important for the multilateral trade and climate regimes, where converging EU and Indian positions could have a major influence on the redesign of international institutions and rules. ■

Ignacio García Bercero is a Non-Resident Fellow and André Sapir a Senior Fellow at Bruegel

Endnotes

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3. See [Joint Statement, EU-India Leaders’ Meeting](#), 8 May 2021.
4. See [‘Leaders’ Statement following the visit of President of the European Commission Ursula von der Leyen and College of Commissioners to India, 27-28 February 2025’](#).
5. See European Commission statement of 6 December 2024, [‘Joint Statement by the Signatory State Parties of MERCOSUR – Argentina, Brazil, Paraguay and Uruguay – and the European Commission on the Conclusion of the Negotiations of the Partnership Agreement’](#).
6. India ranks only behind the US, the EU, China and Japan in one case and behind the US, China, Germany and Japan in the other. Measuring GDP at PPP, India ranks only behind China, the US and the EU in the former case and behind China and the US in the latter.
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10. See UK Department for Business and Trade press release of 6 May 2025, [‘UK concludes trade deal with India’](#).
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What a digital euro will bring

As the world continues its digital transformation, the ECB is moving toward the launch of the digital euro that offers a universal, secure payment method for everyday use. Piero Cipollone discusses how a digital euro would support Europe's strategic autonomy and monetary sovereignty

The ongoing shift in the way we pay is affecting the fundamental fabric of our economies. Whether we are consumers browsing digital marketplaces, entrepreneurs pursuing digital innovation, or decision-makers facing the digital transition, we are all involved in reshaping payments.

Payments are more than a means of settling transactions, they are the lifeblood of a modern economy. And in a digital world, our economies will only be as competitive, inclusive, autonomous and resilient as our payments are.

Slovenia has put the digital transformation at the heart of its economic strategy, aiming to place the country among the top five most digitalised economies in Europe by 2030¹. An innovative and striving digital payments ecosystem can play a key role in this journey.

As a central bank, our responsibility is to accompany and enable this transition. We must ensure that the shift to digital payments enhances accessibility and efficiency, without creating fragmentation or new dependencies².

Let me be clear upfront: this does not mean abandoning cash. Cash serves us well, providing a European means of payment that is accessible, accepted throughout the euro area and continuously available. People remain attached to cash for good reasons, and we are committed to continuing to provide it³. In fact, we will soon start preparations for a third series of euro banknotes which will bear a new design⁴.

But cash cannot be used for online payments, which represent a growing share of our day-to-day transactions. So we need to extend its benefits to the digital sphere. By introducing a digital euro we would aim to offer a digital equivalent of cash, which preserves Europeans' freedom to pay with sovereign money, is free for basic use, preserves privacy, fosters resilience and is accepted throughout the euro area, for any digital payment⁵.

In preparing for a digital euro, we are carrying out one of our core tasks as defined in the Treaty: providing a means of payment with legal tender status and issuing money as a public good⁶. Given this fundamental role, if we were the only player in payments that did not go digital, it would be fair to question whether we would be fulfilling our mandate. By preparing for a digital euro, we are simply adapting to evolving technologies and preferences⁷.

A digital euro would ensure that central bank money remains universally accessible for everyday transactions, not just in physical form, but also digitally. It would guarantee that citizens can pay anywhere in the euro area using a trusted, risk-free instrument issued by the Eurosystem

This is particularly important in a monetary union like the euro area⁸, where 25 years after the launch of the euro, we still lack a European solution that enables people to pay digitally throughout the euro area and for all types of payments. And it is especially relevant today, at a time when dependencies on non-European solutions could be weaponised⁹.

A digital euro would be a public-private cooperation, with European payment service providers playing a key role in its distribution. This would allow them to retain fees and data and would also enable banks to maintain client relationships. By contrast, these relationships could be threatened by payment solutions that seek to bypass banks, such as stablecoins which are currently dominated by non-bank and non-European issuers and mostly denominated in dollars.

Moreover, a digital euro would enable payment service providers to scale up and offer their solutions throughout the euro area by leveraging the digital euro's infrastructure and acceptance network. This would remedy the current state of digital payments, which is a case in point of the situation described by Mario Draghi, namely that the fragmentation of the European market along national lines prevents European firms from being competitive on a European level, let alone globally¹⁰.

In my remarks I will first explore the challenges presented by the current digital transition in payments. I will then explain how the digital euro offers opportunities to address them.

The shifting landscape for payments

Slovenia offers an appealing snapshot of the transformation which is under way in many European economies. Slovenians are still deeply attached to cash: in 2024 nearly two-thirds (64%) of payments at physical locations in

Slovenia were made in cash. Yet digitalisation has been advancing steadily, with the share of card payments at physical locations rising to 29% in 2024, up from 19% in 2016¹¹.

This development is not unique to Slovenia. Across the euro area, increasing digitalisation means that online shopping now accounts for over a third of day-to-day retail transactions, while cash payments have fallen to just 24% in value terms.

This shift underscores the importance for us as central banks to not only safeguard trust in money in physical form, but increasingly in digital form too. Our robust defence of cash stems directly from our mandate to issue money that Europeans can use and access throughout the euro area for their day-to-day transactions.

In fact, our work on the digital euro follows logically from our defence of cash. In a world where cash cannot be used for e-commerce transactions and where people also increasingly prefer to pay digitally at physical locations, we must provide a digital equivalent of cash. This will preserve the freedom of Europeans to pay, knowing that a digital euro will be accepted wherever they can opt to pay digitally.

And it will allow merchants to reconcile their customers' preference to pay digitally with the benefits of cash as a means of payment that protects them from excessive fees and network disruptions.

If we failed to act, we would not only be failing to fulfil our mandate, we would also risk the digital transformation reversing the progress we have made with euro cash. At present we have no sovereign and inclusive digital means of payment with legal tender status.

As a result, the growing use of digital payments risks entrenching our dependency on a small number of private non-European players, subjecting our money to the kindness of strangers. This dependency already results in higher fees for merchants and the transfer of taxpayers' money – in the form of lost seigniorage – outside of Europe.

So I would like to emphasise three major challenges posed by the ongoing transformation. The first is that the increased use of digital payments results in a growing reliance on non-European payment providers, which is cause for concern.

Two-thirds of card-based transactions in the euro area are processed by international schemes. Some 13 euro area countries are entirely dependent on non-European systems for payments. Slovenia is a case in point. Despite efforts to promote local schemes, the Slovenian payments ecosystem remains reliant on international card schemes, which dominate the market.

This dependency on non-European payment solutions means that decisions taken outside Europe could affect European consumers' ability to seamlessly conduct everyday digital transactions, hindering Europe's strategic autonomy.

The second challenge is the persistent fragmentation of the European payments market. Despite the clear benefits of integration, banks have not managed to unite the market. The lack of compelling commercial incentives, especially given the profitability and deep-rooted nature of national payment schemes, has discouraged investment in a pan-European solution. Additionally, coordination among banks, each with distinct interests, priorities and legacy investments, has proven difficult.

And even when the infrastructure and a European scheme are in place, like the TARGET instant payment settlement (TIPS) infrastructure and the SEPA Instant Credit Transfer scheme, we have not seen the emergence of pan-

European instant account-to-account payment solutions at the point of sale. European providers do not have the incentive or the capacity to invest in competitive, user-friendly front-end solutions across the euro area.

For example, Slovenia's instant payment scheme, Flik, offers a promising user experience across various payment situations. However, its reach remains limited because it is only available to customers of Slovenian banks, excluding non-residents and domestic users of foreign banks. Moreover, merchant acceptance of Flik does not yet match that of traditional card payments, partly because its customer base is still limited.

This reflects a vicious circle where limited acceptance discourages adoption and low adoption disincentivises acceptance by merchants. As well as reducing competition, this makes it impossible to scale up the solutions offered by payment service providers that are unable to massively invest in a European-wide acceptance network.

Instead, as the use of digital payments increases, we are left with a patchwork of domestic solutions that lack the reach and scale to compete effectively across the EU – and sometimes not even at the national level. In Slovenia, Karanta, a national scheme backed by the largest domestic bank, had a market share of just 0.20% in 2024.

This fragmentation is not just inefficient; it makes digital payments more expensive and less convenient than they could be, placing an unnecessary burden on both consumers and merchants. It is estimated that merchants across the euro area pay around €3 billion every year to process international debit cards.

The third challenge relates to the user experience offered by existing solutions. In Slovenia, for example, consumers are forced to use multiple apps, cards and platforms to make payments, resulting in a fragmented and often frustrating experience.

These issues are not specific to Slovenia. They reflect a wider European challenge: the lack of a European-wide acceptance network for an open digital payment infrastructure that matches the reality of our increasingly digital and interconnected economies.

A digital euro for everyday payments

In light of these challenges, we need to ensure that the benefits of digital payments are enjoyed by all, while at the same time safeguarding our sovereignty and the trust that underpins our single currency.

A digital euro would ensure that central bank money remains universally accessible for everyday transactions, not just in physical form, but also digitally. It would guarantee that citizens can pay anywhere in the euro area using a trusted, risk-free instrument issued by the Eurosystem.

This is consistent with the Eurosystem's mandate under the EU Treaties to issue the only means of payment that has legal tender status. A digital euro would be a modern expression of monetary sovereignty.

And let me say it again: the digital euro is not intended to replace cash. It would complement it. We recognise that people across the euro area, and especially in Slovenia, are strongly attached to cash. It remains a vital tool for inclusion, personal freedom and resilience. We are unwavering in our commitment to cash.

At the same time, our responsibility as a central bank is to ensure that, as payments become increasingly digital, citizens can continue to benefit from the trust and security that public money provides. In the long run, maintaining a direct link to a central bank-issued means of payment that is usable at the point of sale across all use cases may be essential in preserving trust in commercial bank money¹².

Moreover, without a public digital alternative, consumers and merchants would be increasingly dependent on the terms, prices, and data practices set by a few, mostly non-European, private actors. For instance, over the past few years the average net merchant service charges in the EU have nearly doubled, despite regulatory efforts to contain them.

Introducing a digital euro would provide an attractive alternative to foreign payment solutions and is the only way to ensure Europe's monetary sovereignty. It would guarantee that the euro can always be used for digital payments anywhere in the euro area, ensuring that Europeans retain the freedom to make transactions seamlessly and securely, independent of decisions taken outside the EU.

Moreover, the digital euro would address the persistent fragmentation that is hampering the retail payments market. The lack of incentives and coordination among European banks to develop a continent-wide solution for payments at the point of sale is understandable but hard to overcome, given the significant investments that are needed to challenge entrenched foreign providers, their acceptance network and their proprietary standards.

Instead, national payment solutions remain dependent on non-European firms to offer a comparable in-shop payment experience, as is the case for cross-border or tap-to-pay payments, for example.

So, just as the introduction of euro banknotes united Europe 23 years ago and brought tangible benefits to its citizens, the digital euro has the potential to create a truly integrated digital payments landscape that preserves the two-tier payment system and the healthy equilibrium between public and private money that has served us so well for so long¹³.

As central bank money, it would have legal tender status, meaning it would be accepted everywhere, instantly generating powerful network effects. Leveraging its open standards and acceptance network would give European payment providers the scale and certainty they need to innovate and expand.

This would also benefit banks who are currently losing fees and data to the dominant international payment solutions and could soon also lose deposits to stablecoins, which are dominated by non-European firms and are denominated in US dollars for 99% of their value.

For European payment service providers, establishing common standards through the digital euro would enable platforms such as Flik to extend their reach domestically and to operate across all euro area countries from the outset, just as easily as national schemes do within national borders. This would open up the market to fairer competition, forcing established players to adjust the costs they impose on merchants, particularly small and medium-sized enterprises. Consumers would ultimately benefit through lower prices.

We are designing the digital euro platform in such a way that it expands the range of possible conditional payments – think of automatic reimbursements in the event of train or flight delays, for example. This will increase choice and stimulate innovation, leading to a richer and more user-friendly experience for everyone.

The digital euro would rely on a new settlement ledger, intended to support advanced payment functionalities, including conditional payments. Our prototyping and experimentation have shown that such payments can be implemented by leveraging application programming interfaces – or APIs as they're known.

In recent months we have partnered with some 70 merchants, fintech companies, start-ups, banks and other payment service providers, including from Slovenia, to explore the potential of the digital euro to drive innovation. We will share our findings soon¹⁴.

The digital euro would offer a comprehensive and smooth user experience for consumers that covers all use cases: payments in shops, online and between individuals. It would provide integrated online and offline functionalities all while upholding the highest privacy standards. The offline functionality would offer cash-like privacy, with transaction details known only to the payer and the payee¹⁵. Such an all-in-one solution does not currently exist, and its introduction would mark a significant step forward for Europe.

Conclusion

Building an agile and robust digital payments ecosystem is essential for Europe's digital transformation. Ignoring this task risks further fragmentation and dependencies, resulting in a less convenient and more costly payment experience for consumers and merchants, including in Slovenia.

The digital euro offers a solution: a European public good that will complement cash, ensuring trust, sovereignty, and universal access to secure, cost-free payments across the euro area. It will empower people and businesses in Slovenia and beyond to transact easily and safely, online and offline, at home and across borders. And it will allow European private payment solutions to scale up and become more competitive.

Ultimately, the digital euro is more than a currency innovation – it is a public commitment to the future of Europe's digital economy. It embodies our shared values of openness, resilience and fairness, ensuring that as our economies evolve, no one is left behind and that Europe remains in control of its monetary destiny. ■

Piero Cipollone is a Member of the ECB's Executive Board

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Building trust and supporting innovation in the multi-moneyverse

Innovation in money and payments is happening at pace. Sarah Breeden sets out her vision for a 'multi-money' system where different forms of money including traditional and tokenised commercial bank deposits, stablecoins and central bank money are freely exchangeable

Introduction

It's a hugely exciting time to be following innovation in money and payments. Just as the introduction of electronic transfers, the development of the ATM, and the launch of instant retail payment systems unlocked fundamentally new ways of transferring money in increasingly cheaper, more convenient and faster ways, today new technology is heralding new ways of making payments.

As our lives become more interconnected, and more technology-driven – whether that's through the ubiquity of the internet, or the increased adoption of AI – money and payments need to keep up.

I want to set out the UK context for this innovation and change, setting out how our work across the authorities and industry fits together into a vision for an innovative, vibrant, 'multi-money' system.

That means a system characterised by choice across different forms of money and payment; with technology driving faster, cheaper, and more innovative payments for the benefit of business, households, and users of financial markets; and – critically – with the whole system underpinned by trust in money itself.

As central bankers, we can do three things to deliver this vision.

- First, we provide the necessary underlying infrastructure. That is vital given the important role of central bank money for settling the most critical payments in the economy.
- Second, we provide regulatory frameworks and supervise both financial market infrastructures, like payment systems, and banks as issuers of private money.

- And third, we can set an overall strategy to help enable the innovation which drives better outcomes for users of payments, greater efficiencies, new functionalities, and ultimately economic growth; whilst also ensuring that these benefits don't come at the cost of our wider public policy goals, such as monetary and financial stability.

Different jurisdictions are adopting different approaches as they respond to these innovations. I'll explain the UK's approach.

It is not our job to 'pick winners' when it comes to innovation. Rather, we need to support a thriving, dynamic, and competitive landscape with interoperability at its core

Providing infrastructure

To start with infrastructure, in April of this year, the Bank of England launched its new Real Time Gross Settlement service – RT2. As the most liquid, risk-free asset available, central bank money is the most appropriate settlement asset for the most systemic transactions in the financial system.

And so, as the financial system evolves, and new technologies drive innovation in trading and settlement, our payments infrastructure must keep pace to preserve the role of central bank money at the heart of the financial system – including in a tokenised world.

My colleague, Victoria Cleland, has [spoken](#) about RT2's capabilities, so I won't cover in detail. But suffice to say, RT2 is a state-of-the-art, world-leading wholesale payments system which gives the UK the platform to build the next generation of market infrastructure.

Already today, RT2 has functionality which can enable settlement in central bank money for assets traded and settled in other systems, including those traded 'on-chain' in programmable and distributed ledgers (DLT).

And next year we will launch our synchronisation lab that will allow central bank settlement to be fully integrated with transactions happening on other ledgers – again including programmable and distributed ones. I cannot emphasise enough how critically important this infrastructure is in supporting the next generation of trading and settlement in wholesale financial markets.

The design phase of our Digital Pound project has allowed us to explore the potential for central bank provision of retail infrastructure, by developing a blueprint for how a digital pound could work – considering, for example, how

to make sure digital money can be used even where connectivity isn't available. This blueprint, due to be published next year, will set out the key design elements necessary to support the Bank and HM Treasury in assessing the policy case for a digital pound.

Importantly, all this is not just theoretical work. The [Digital Pound Lab](#), launched in August, enables industry to work with us in some hands-on experimentation to test the capabilities of a digital pound and digital money more broadly. Whilst these aren't live transactions, the lab allows us to explore the role of central bank provided infrastructure in supporting private sector innovation and gives the private sector a place to innovate and experiment.

And finally in the wholesale space, along with the BIS Innovation Hub, our [DLT innovation challenge](#) is looking at whether wholesale central bank money can be transacted and settled on an external programmable ledger outside of the control of the central bank – furthering our understanding of the functionality and role of a wholesale central bank digital currency.

Designing regulatory frameworks

Central banks and regulators also have a role in regulating both issuers of money and the financial market infrastructure (FMIs) which provide the means for moving money and assets around the financial system.

Having the right regulatory frameworks in place is vital for innovation to thrive. Appropriate management of risk, and avoiding costly failures, will support broader adoption of new innovations. But designing those regulatory regimes in a world as fast-moving as the one we're currently in is challenging – we have to be, and we are, open to 'learning as we go'.

One practical way we are doing that is the Digital Securities Sandbox, an initiative launched with our colleagues at the FCA. The Digital Securities Sandbox is a regulated live environment, where we can learn from how tokenisation and DLT-based transactions take place in the real world. By initially limiting the scale of transactions we can do that learning safely, without putting financial stability at risk.

This approach ensures that our regulatory regimes keep pace with innovation, and the risks posed, taking a forward-looking approach to maintaining financial stability.

Tokenisation isn't just happening in securities. We need tokenisation of money too if we are to exploit the full benefits of 'on chain' settlement. Broadly that tokenised money could take three forms: a central bank issued digital currency (or an 'on chain' representation of central bank money); a tokenised commercial bank deposit; or a stablecoin.

The UK set out the necessary legislation for a regulatory regime for stablecoins in 2023. In parallel, the Bank and the FCA have been engaging with industry to develop the more detailed rules of that regime.

For our part, we've been engaging closely with industry and listening attentively to feedback on our 2023 proposals for a regulatory regime for systemic stablecoins. We'll be setting out some revised proposals for consultation later this year, including revised proposals that would allow systemic stablecoins to hold a portion of their backing assets in a subset of high-quality liquid assets (HQLA) such as short-dated government securities.

This change addresses feedback that our initial approach would not support the predominant business model amongst stablecoin issuers, which relies on income from backing assets, whilst continuing to ensure that

stablecoins that are widely used as money are safe. It also helps to smooth the 'cliff-edge' between the FCA's rules and the additional requirements we would place on systemic issuers. We look forward to engaging further with industry through the consultation process before finalising our regime.

It's not just business models that have developed since we first put out proposals for a regulatory framework for stablecoins. Whilst we initially focused on stablecoins being used for retail payments, new use cases are emerging as financial markets move on-chain.

My view is that central bank money must remain the settlement asset for systemically important markets to ensure we don't introduce unnecessary financial stability risks. After all, even well-regulated, fully backed private money has a degree of risk which is not the case for central bank money. That's why the launch of RT2 is so critically important to supporting safe innovation.

But central bank money isn't needed for all settlement now and it won't be needed for all settlement in the future. That's why there will be an important role in the financial system for privately issued money: both tokenised deposits and stablecoins.

Tokenised deposits could deliver the benefits of programmability and instantaneous settlement, using a product with which customers are already familiar, whilst also being packaged up with credit provision as per the traditional banking model. A steady and reliable supply of credit to the real economy is a key enabler of economic growth and is an area we will remain focused on as innovation in money progresses.

In the meantime, stablecoins, for a long time the preserve of crypto markets, are beginning to go 'mainstream'. Given they are an existing form of 'digitally native' money, their safe adoption could unlock faster, cheaper settlement for crossborder transactions as well as supporting trading of tokenised securities.

We want to explore these wholesale financial market use cases further in our Digital Securities Sandbox by exploring how stablecoins, as well as tokenised deposits, can be used as the 'cash leg' for settling securities issued in the sandbox.

Regardless of the exact form of digital money, our job as a central bank and prudential regulator is to make sure that the regulatory regimes for these new forms of private money ensure that businesses and households are able to enjoy the benefits of innovation whilst being able to continue to trust the money they use, at all times. That way we can innovate sustainably, without compromising financial stability.

Setting strategy: a vision for the UK payments landscape

With so much change going on across infrastructure and regulation, it is crucial that public authorities, including central banks, set clear strategy to guide investment and innovation.

In July 2025, the UK's Payments Vision Delivery Committee (PVDC), set up under HM Treasury's National Payments Vision, announced a new model to deliver the next generation of UK retail payments infrastructure.

This model embeds a more proactive role for the UK authorities in setting joint strategy in retail payments. It creates the new Retail Payments Infrastructure Board (RPIB), chaired by the Bank of England in its capacity as a systems operator, to translate that strategy into the next level of design. Industry will chair a delivery company, responsible for procuring and funding the next generation infrastructure.

Pay.UK, the Payment System Operator, will continue, as today, to do their vital job of running the systemically important interbank payment schemes through this period of change.

At the same time, HM Treasury also published its [Wholesale Financial Digital Markets Strategy](#), setting out how digitalisation and developments in DLT as well as other technology such as AI and quantum computing presents an opportunity to optimise, and ultimately transform financial markets.

Across its infrastructure provision and regulatory roles, the Bank will have a key role to play in supporting this strategy, for example through the issuance of the UK's Digital Gilt – DIGIT – using a platform in the Digital Securities Sandbox.

Later this year PVDC will publish its strategy and a Payments Forward Plan. It is not my intention to front-run those publications, but perhaps I can set out my own view on what all of these developments mean for payments and money in the UK.

My vision for the UK payments landscape is one of a 'multi-money' mixed ecosystem, where different forms of money play their own roles, maximising utility for UK businesses and households. But to maximise benefits as well as safeguard financial stability and trust in all forms of money, this system must be underpinned by interoperability.

That means that both the hard, technical infrastructure and the 'soft' infrastructure such as regulatory standards will need to be harmonised – or at least compatible – across different forms of money allowing them to be freely and frictionlessly exchanged at par.

This payments ecosystem would be resilient – as households and businesses could easily switch between different forms of money and payment, whether that's bank notes, traditional or tokenised commercial bank money, stablecoins, or a digital pound.

It would allow innovation to thrive in a competitive environment; avoiding the pitfalls of allowing 'walled gardens' to emerge, where the network effects which are inherent to successful payment systems over time deliver suboptimal outcomes for users such as high fees or a need to maintain multiple accounts, apps, or wallets.

And, as I [discussed](#) earlier this year, interoperability and harmonisation could lay the necessary groundwork for much needed improvements in crossborder payments.

Conclusion

As the central bank, it is not our job to 'pick winners' when it comes to innovation. Rather, we need to support a thriving, dynamic, and competitive landscape with interoperability at its core.

That interoperability underpins what central bankers describe as 'singleness' of money and therefore trust in money itself. Trust in money is our core concern – and we will be laser focused on ensuring that it is preserved, whilst also ensuring new technologies and innovations drive economic growth and better outcomes for the businesses and consumers who use payments every day. ■

Sarah Breeden is Deputy Governor, Financial Stability, at the Bank of England

I would like to thank Francine Robb for her assistance in drafting these remarks. I would also like to thank Andrew Bailey, David Bailey, Victoria Cleland, Dayo Forster and Nimra Mahmood for their helpful input and comments. This article is based on a [speech](#) given at the Bank of England and Warwick Business School Innovation in Money and Payments Conference, 3 September 2025.

Technological advancements in payments

The payment system is experiencing a technology-driven revolution. Christopher Waller outlines how the Fed is exploring the integration of emerging technologies such as tokens, smart contracts and AI into the payments system

It is an exciting time to work in payments. While I have always been interested in the topic, I would have never imagined decades ago that payments would generate this amount of enthusiasm, where now some of the coolest jobs in tech are working in this area.

The payment system is experiencing what I have called a 'technology-driven revolution', where the latest advances in computing power, data processing, and distributed networks have fuelled growth in innovative new payment services¹. This includes 24/7 instant payments, user-friendly digital wallets and mobile payment apps, and stablecoins and other digital assets. Alongside these new services sits enabling technology, such as artificial intelligence (AI), that has the potential to improve the precision and efficiency of the underlying payment products even further.

While there has been a lot of excitement, and admittedly sometimes hype, around the possibilities of these new technologies, there have also been some who have been fearful or sceptical of innovation in this space. But we only have to look to history to see that the evolution of the payment system has long been a story of technological advancement.

In any payment transaction, three things happen. First, an object is bought and paid for with another object. Second, there is a technology for conducting this transaction. Finally, there is a technology for recording the history of the transaction and ownership of the objects. For example, I can go to the grocery store and buy an apple and use a digital dollar in my checking account to pay for it. I tap my debit card on a card reader to conduct the transaction. Finally, the machine prints out a receipt, which is the record of the transaction.

The same process applies to the crypto world. I buy a meme coin and use a stablecoin as the means of payment. The transaction takes place using a smart contract. Finally, the transaction is recorded on a distributed ledger².

There is nothing scary about this just because it occurs in the decentralized finance or defi world—this is simply new technology to transfer objects and record transactions. There is nothing to be afraid of when thinking about using smart contracts, tokenization, or distributed ledgers in everyday transactions.

The technologies available today might be new, but leveraging innovative technology to build new payment services is not a new story. What I'd like to emphasize today is that the private and public sectors can both embrace innovation within their respective roles.

It is important to understand trends in payments technology so that we can continue to support private sector firms that leverage our infrastructures, as well as understand whether emerging technologies could provide opportunities to improve our existing platforms and services

First, I will recap how I generally approach these issues. I am a strong believer in the benefits of the free market. I hold the view that it is generally the private sector that can most reliably and efficiently allocate resources and take risks to explore the value of new technologies.

I also see firsthand the important role the Federal Reserve plays in fostering a payment and settlement system that is both safe and efficient. Such a system promotes a vibrant economy, since it allows for participation from a broad range of individuals and businesses without requiring them to invest heavily in bilateral arrangements³.

I would argue that broadly, there have been two models of payments innovation, which can be useful in characterizing the longer-term arc of payments evolution, as well as some recent developments. The first is private sector-driven innovation. As I have noted, this should be the default model.

The second approach is where public sector entities like the Fed build platforms that enable the private sector to offer services to their customers. This should be done only rarely, and in instances where there is a specific market need. Both models are important in the payments ecosystem, and I'll walk through some historical and recent examples.

Let's take the first model of private sector-led innovation and use payment cards as an example. Early cards were metal plates or cardboard, then they incorporated magnetic strips, then chips, and now I tap my phone to pay.

In the early days of consumer credit used for transactional purposes, privately operated card companies seized on the availability of new technology to support automated card authorizations and processing, continually upgrading over time, to build what are now global networks of interconnected banks that support the preferred payment method for consumers and many small businesses in the United States⁴.

Here, the private sector demonstrated its ability to effectively build a payment service that met the needs of consumers, all based on proprietary technology. Even still, card networks interact with the broader payments, clearing, and settlement ecosystem, benefitting from Fed-operated payment infrastructures for settlement of interbank obligations⁵.

Stablecoins are the latest example of private sector-led innovation in payments. The original use of stablecoins was to facilitate crypto trading. Cryptoasset prices can be volatile and as with any financial market, there is a need for traders to move out of relatively risky positions into safer ones with a stable asset price.

As the stablecoin market matured, firms found that the properties of stablecoins using distributed ledger technology—including 24/7 availability, fast transferability, and their freely circulating nature—could be attractive for other use cases as well.

That includes providing a means to access and hold US dollars, particularly in countries with high inflation or without easy or affordable access to dollar cash or banking services. In fact, I believe that stablecoins have the potential to maintain and extend the role of the dollar internationally. Stablecoins also have the potential to improve retail and crossborder payments.

I spoke about the maturing stablecoin market in February of this year, and, at the time, I noted the need for a regulatory regime for stablecoins in the US to provide regulatory clarity and reduce regulatory fragmentation for market participants⁶.

In July, the GENIUS Act became the first major cryptoasset legislation to become law. This was an important step for the payment stablecoin market and could help stablecoins reach their full potential. Stablecoins, like card

payments, are a private sector-driven innovation. And, like card payments, we see connections to the traditional payments, clearing, and settlement ecosystem. For example, many stablecoin arrangements use legacy payment services to fund and redeem stablecoin balances.

In addition to stablecoins, the use of AI in payments is an area where we are seeing significant private sector-led innovation. Here, AI is not serving as payments infrastructure but as an enabling technology that could bring considerable benefits to both private and public sector-operated payment services.

It may surprise some to learn that, within the financial sector, the payments industry has long been at the forefront of AI adoption. This is true for several major waves of AI technology. Since the early 1990s, payment firms have used machine learning for things like detecting fraud and money laundering, or predicting payment flows and trends⁷.

More recently, as large language models and generative AI have matured, payments innovators have used the technology to further enhance fraud detection and compliance systems and to make the cumbersome process of reconciling payments files more accurate and efficient.

Agentic AI systems, which operate autonomously by planning and executing multistep processes, appear to be the next wave of AI advancement. While agentic AI is still in its early days, payments innovators in the private sector are once again channelling the promise of this technology and rapidly building out various use cases.

Now, let's touch briefly on the second model of public sector innovation of payments infrastructures to support the private sector. Almost since its founding, the Federal Reserve has provided core clearing and settlement infrastructure to maintain the safety and efficiency of the payment system. The Fed has consistently upgraded the infrastructure over time using the latest available technology.

For example, in the early 20th century, interbank transfers were effected through telegraph wires—an early version of Fedwire—then through emerging forms of electronic payment messages. Now fast-forward to this century where we have interbank payment systems that process transactions in real time⁸.

Banks, payment services providers, and even fintechs have used the infrastructure provided by the Fed to build payment services that their customers demand. All of this is to demonstrate that the evolution of the payment system has long been a story of technological advancement.

Much of this evolution has been led by private sector innovators. Key components have been supported by the Federal Reserve, either providing core infrastructure as a payment system operator or in convening the industry around specific solutions like payment standards⁹.

These complementary roles have led to a US payment system that operates safely and efficiently and serves as a backbone for commerce in the US and globally. That is why it is important for the Federal Reserve to continue to embrace technological advancements to modernize its services and continue to support private sector innovation.

The Fed is also conducting technical research on the latest wave of innovations, including tokenization, smart contracts, and AI in payments. As a payment system operator, it is important to understand trends in payments technology so that we can continue to support private sector firms that leverage our infrastructures, as well as understand whether emerging technologies could provide opportunities to improve our existing platforms and services.

Finally, we engage with innovators to better understand new technologies and their potential to improve payments. In fact, it is my belief that the Federal Reserve could benefit from further engagement with innovators in

industry, particularly as there is increased convergence between the traditional financial sector and the digital asset ecosystem. We are working on ways to further that engagement, so stay tuned. ■

Christopher J Waller is a member of the Board of Governors of the Federal Reserve System

Endnotes

1. See Christopher J Waller, [“Reflections on Stablecoins and Payments Innovations,”](#) speech delivered via webcast at the 2021 Financial Stability Conference, co-hosted by the Federal Reserve Bank of Cleveland and the Office of Financial Research, Cleveland, OH, November 17, 2021.
2. See Christopher J Waller, [“Centralized and Decentralized Finance: Substitutes or Complements?”](#) speech delivered at the Vienna Macroeconomics Workshop, Institute of Advanced Studies, Vienna, Austria, October 18, 2024. Cryptoasset generally refers to any digital object traded using cryptographic techniques.
3. See Christopher J Waller, [“What Roles Should the Private Sector and the Federal Reserve Play in Payments?”](#) speech delivered at The Clearing House Annual Conference 2024, New York, NY, November 12, 2024.
4. Data from the 2024 Diary of Consumer Payment Choice survey show that more than three-quarters of US consumers prefer credit or debit cards for in-person payments. See Berhan Bayeh, Isaiah Nardone, Shaun O’Brien, and Hailey Phelps, [2025 Findings from the Diary of Consumer Payment Choice \(PDF\)](#) (Federal Reserve Financial Services, 2025).
5. See Susan Herbst-Murphy, [“Clearing and Settlement of Interbank Card Transactions \(PDF\),”](#) Payment Cards Center Discussion Paper (Federal Reserve Bank of Philadelphia, October 2013).
6. See Christopher J Waller, [“Reflections on a Maturing Stablecoin Market,”](#) speech delivered at A Very Stable Conference, San Francisco, CA, February 12, 2025. For the purposes of this speech, I will define stablecoins as a type of digital asset designed to maintain a stable value relative to a sovereign currency and backed at least one-to-one with safe and liquid assets.
7. For example, Visa began using neural networks for fraud detection as early as 1993. See Rajat Taneja, [“30 years of AI and counting,”](#) Visa Perspectives, September 14, 2023.
8. See Christopher J Waller, [“What Roles Should the Private Sector and the Federal Reserve Play in Payments?”](#) The Clearing House Annual Conference 2024, New York, New York, November 12, 2024.
9. See Christopher J Waller, [“Payments Innovation, Technical Standards, and the Federal Reserve’s Roles”](#) speech delivered at the Federal Reserve Bank of Minneapolis, Minneapolis, MN, May 17, 2024.

Thank you to Alex Sproveri and Kirstin Wells of the Federal Reserve Board for their assistance in preparing this text. The views expressed here are my own and not necessarily those of my colleagues on the Federal Reserve Board. This article is based on a [speech](#) delivered at the Wyoming Blockchain Symposium 2025, Teton Village, Wyoming, August 20, 2025.

How is innovation competition exacerbating global overcapacity?

The world is drifting toward a fragmented trade environment defined by subsidies, retaliation and industrial duplication. Jianwei Xu discusses how the world is moving into a period of entrenched manufacturing overcapacity, threatening deflation and stagnant growth

Over the past two decades, China has emerged as the world's manufacturing powerhouse. By offering goods at significantly lower prices than its competitors, China has captured a huge share of the global market. However, this flood of inexpensive goods has also led to a mismatch between production capacity and sustainable demand (García-Herrero 2025).

While volumes of solar panels, electronics and electric vehicles (EVs), for example, have continued to multiply, concerns over idle plants and unsold inventories have become increasingly acute (McWilliams *et al* 2024).

This supply/demand imbalance has already triggered trade tension between China and the United States, with US tariffs partly aimed at reining in what Washington views as unfairly subsidised overproduction (Meltzer and Pearson 2024).

Yet, China is far from alone in facing an overcapacity challenge. Data on capacity utilisation – the percentage of total manufacturing capacity actually in use – paints a sobering picture across advanced economies (Figure 1).

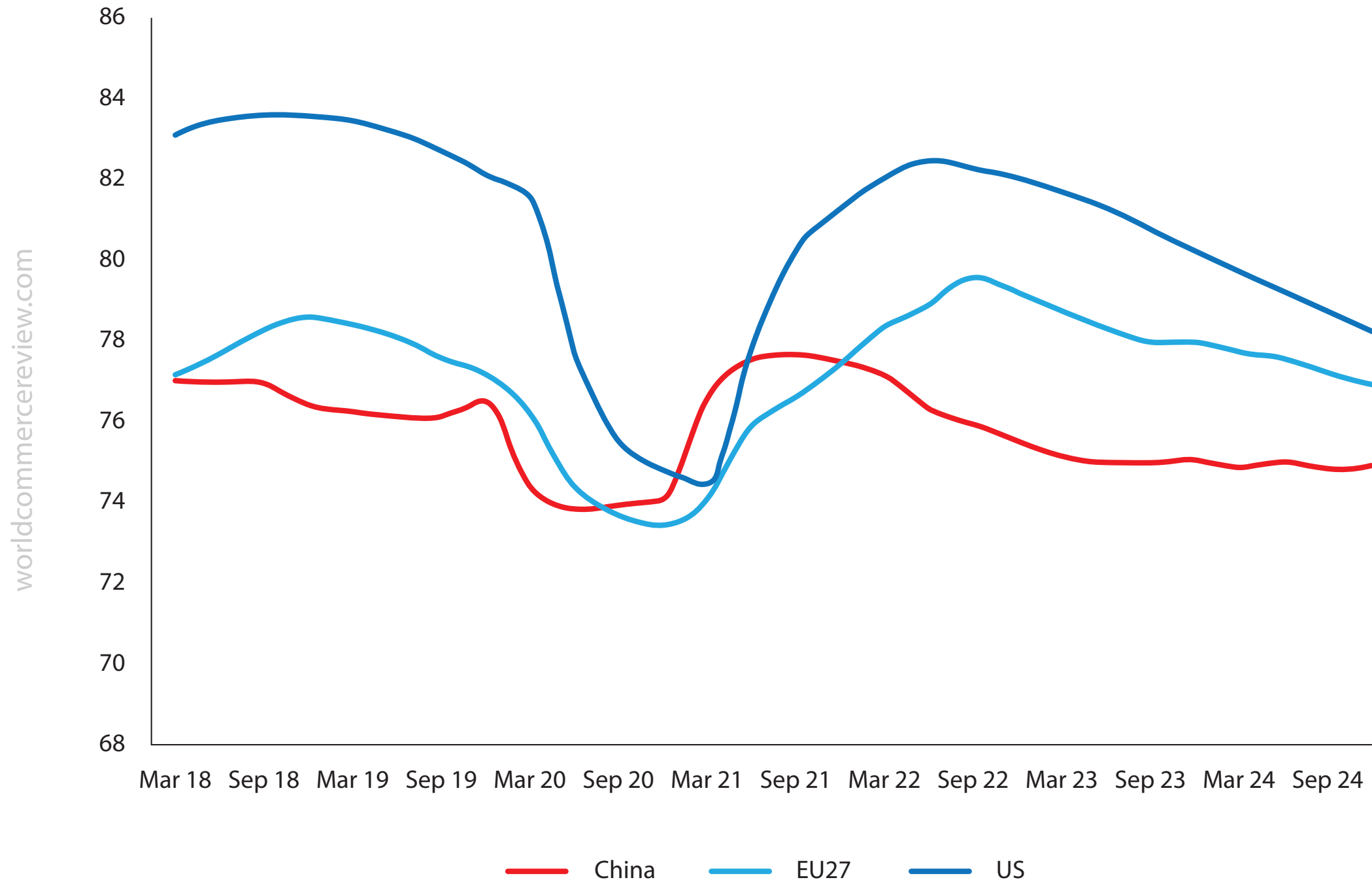
In the United States, utilisation rates slipped from a post-crisis peak of around 82 percent in 2018 to under 80 percent in 2024. While a two-percentage-point drop may appear modest, in an economy with trillions of dollars of manufacturing assets, such a decline represents a substantial volume of idle capacity.

The European Union, meanwhile, saw a sharper decline from 83 percent in 2018 to roughly 78 percent in 2024. Chinese capacity utilisation is even lower, hovering around 76 percent in late 2024. Thus, all of the three major economies have fallen well short of the 85 percent benchmark considered a threshold for tight conditions, indicating under-utilisation across the board¹.

China's long-standing, supply-driven industrial model, supported by extensive innovation and industrial policy measures, continues to expand manufacturing capacity in strategic sectors. While this has strengthened technological capabilities, the government has itself acknowledged the need to *"address the risks of overcapacity"* (State Council 2024).

All of the three major economies have fallen well short of the 85 percent benchmark considered a threshold for tight conditions, indicating under-utilisation across the board

Figure 1. Manufacturing capacity utilisation (%)



Note: four-quarter average. Data as of Q4 2024.
Source: Bruegel based on CEIC, FRED and Eurostat.

The effects have already spilled over onto advanced economies, particularly the EU. While part of the problem stems from Europe's own demand weakness, especially amid Germany's economic slowdown, China's export of excess capacity, most notably in solar panels, electronics and EVs, has further exacerbated the imbalance.

Strategic overcapacity in the innovation race

The overcapacity problem has become particularly acute as the global competition for technological supremacy, particularly in semiconductors and artificial intelligence, transforms innovation from a force for social welfare into an instrument of national security.

Governments worldwide have rolled out sweeping industrial policies to secure their edge: the US CHIPS and Science Act, the European Chips Act (Regulation (EU) 2023/1781) and China's national 'Big Fund' for semiconductor research and fabrication².

From an economic perspective, public support for innovation is not without justification. Innovation generates benefits such as knowledge spillovers and productivity gains, which markets often underprovide. To correct market failures, governments need to implement tools such as R&D subsidies, intellectual property protection and investments in education.

However, when innovation is perceived not only as an economic objective but also as a prerequisite for national security, governments are likely to offer subsidies that exceed the theoretically optimal level, both in size and scope, as they pursue strategic dominance rather than market efficiency.

This competitive escalation risks reinforcing global overcapacity, with each nation incentivised to expand technology supply faster and on a larger scale than demand can absorb. Millot and Rawdanowicz (2024) warned

that such industrial policies may trigger retaliatory measures that severely distort competition and lead to production overcapacity.

Government protection and 'zombie' capacity

However, innovation subsidies alone do not fully explain the widespread overcapacity, especially considering that direct subsidies have declined as economies have slowed. With mounting fiscal constraints and growing scrutiny over the effectiveness of public spending, policymakers are becoming more selective.

Resources are increasingly being directed toward sectors that align most clearly with national strategic goals, such as advanced semiconductors, aerospace and green technologies, while areas with less-defined long-term value are seeing diminished support.

For example, China's 14th Five Year Plan, covering 2021-2025, prioritises strategic emerging sectors including advanced semiconductors, aerospace, new energy vehicles and biotechnology, while reducing the emphasis on traditional heavy industries.

Similarly, as noted by Hornkohl and Pelekis (2025), EU state-aid rules have evolved into a deliberate coordination tool via instruments including the General Block Exemption Regulation (Regulation (EU) No 651/2014) and Important Projects of Common European Interest (IPCEIs)³, to channel support to EU-level priorities.

In China, for example, direct subsidies have been scaled back steadily across a wide range of industries, reflecting both evolving policy priorities and growing fiscal pressures. In traditional sectors such as steel, government support was significantly reduced after 2016, resulting in the shutdown of over 150 million tonnes of capacity, part of a broader effort to address long-standing inefficiencies and environmental concerns⁴.

More recently, even in more advanced and strategically favoured sectors such as EVs, subsidies have been gradually withdrawn as the government seeks to transition from broad-based stimulus to more targeted industrial upgrading (Figure 2).

However, this shift has done little to ease concerns about excess Chinese capacity. The overcapacity problem persists in high-tech industries such as electronics and communications, and also in traditional sectors such as textiles (Figure 3). In other words, even in sectors that receive limited official backing, other types of market distortion, extending beyond direct subsidies, continue to prop up uncompetitive firms.

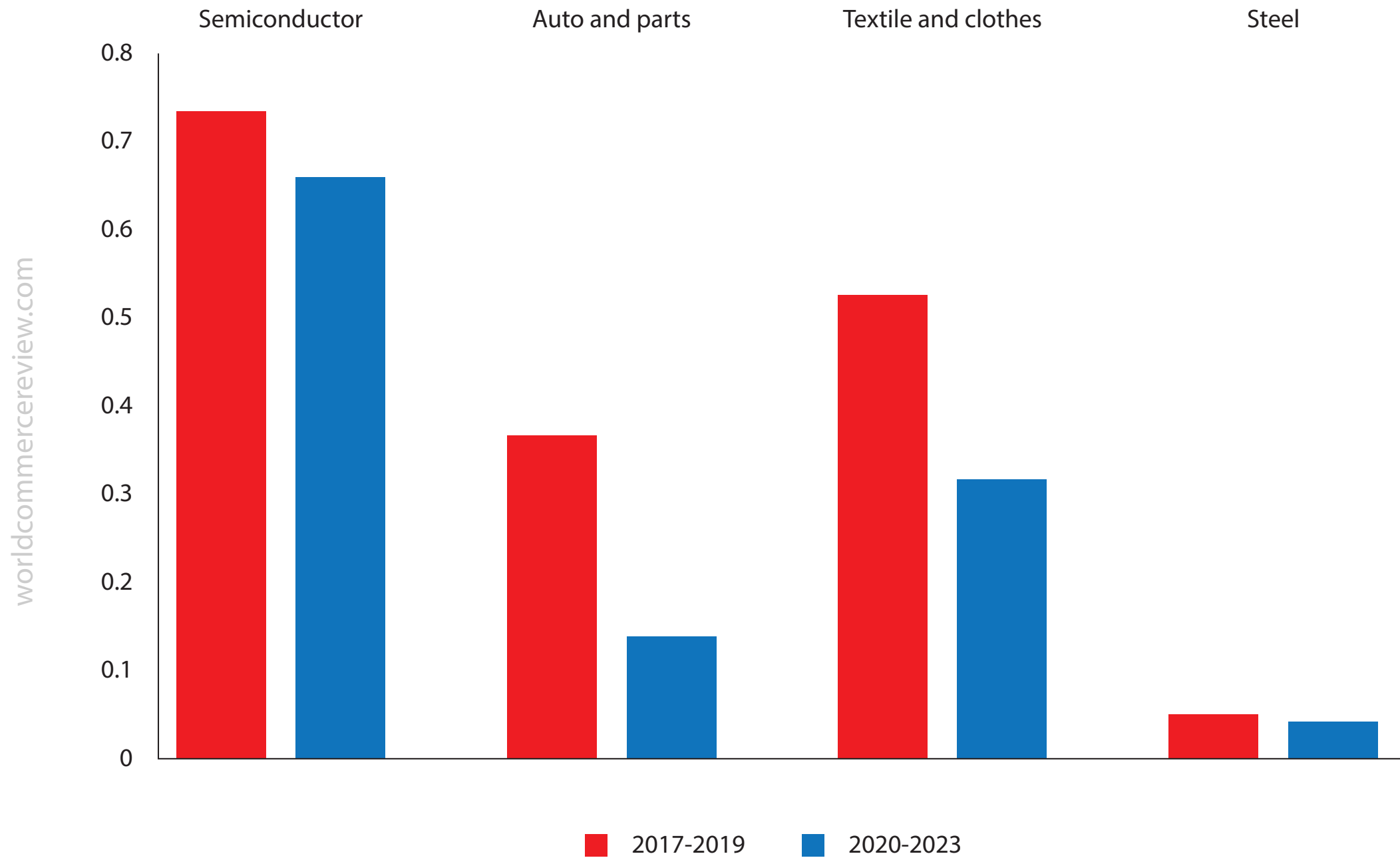
To understand this, we come to a foundational concept in the economic theory of innovation: Joseph Schumpeter's idea of creative destruction (Schumpeter 1942). Innovation disrupts outdated industries, reallocating resources toward more productive uses. Under normal market conditions, overcapacity should disappear through this self-correcting mechanism.

However, politicians do not enjoy watching this kind of market process. Destruction implies the painful social costs of industrial decline – rising unemployment, shuttered factories and dislocated communities. To cushion these impacts, governments choose to intervene and slow the exit of uncompetitive firms.

This tendency becomes more pronounced in periods of rapid innovation, when technology shifts faster than markets can adapt, causing prices to crash and hastening the collapse of traditional sectors.

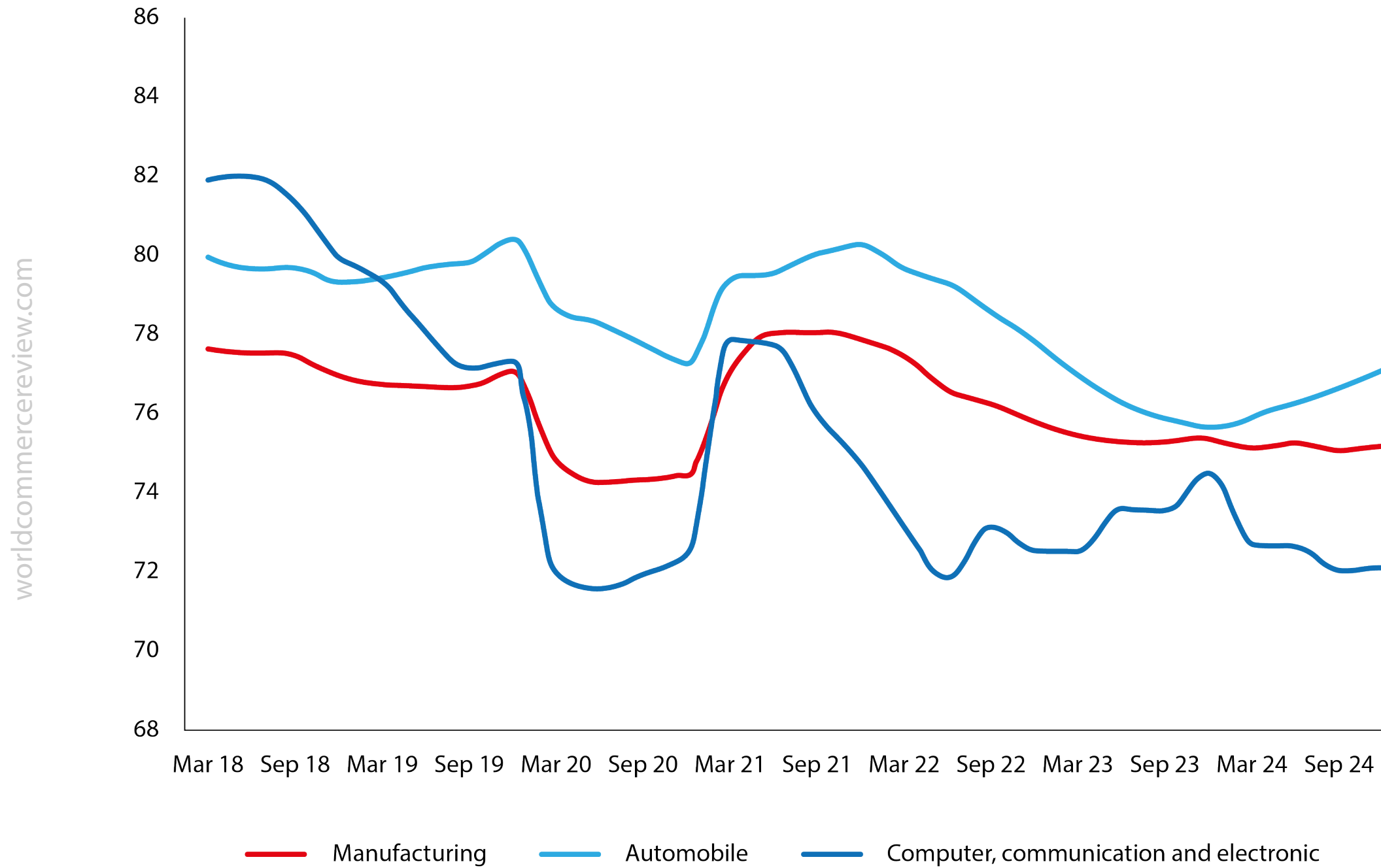
Fearing political backlash, job losses or social unrest, policymakers intervene to shield traditional industries. As a result, the destruction mechanism breaks down and excess capacity becomes more entrenched.

Figure 2. China, subsidy ratio (% of business revenues) in major sectors



Source: Bruegel based on Chinese listed companies' financial statements, WIND.

Figure 3. China, capacity utilisation ratio in key sectors (%)



Note: Four-quarter average. Date as of Q4 2024.

Source: Bruegel based on CEIC Database.

In China, these protections have taken the form of indirect support, including state-directed loans to keep firms afloat, leading to a rise in so-called 'zombie enterprises', particularly in outdated sectors. Europe faces similar issues: Helmersson *et al* (2022) highlighted persistent zombie firms in legacy industries including steel, coal and shipbuilding, particularly since the pandemic.

Globalisation has further complicated the process. Protectionist dynamics have emerged all over the world, especially as governments increasingly interpret industrial decline as the consequence of unfair foreign competition. The EU's investigation into Chinese EVs, which started in 2023 and which the EU has justified as levelling the playing field, is a prominent example⁵.

All in all, the current wave of overcapacity appears to result from a dual dynamic. First, strategic innovation rivalry – particularly in sectors such as semiconductors, EVs and clean energy – is driving a rapid frontloading of new capacity well ahead of demand.

Second, as competitive and geopolitical pressures mount, governments deploy protectionist or support measures to delay the exit of uncompetitive producers, often invoking employment protection, social stability or national security.

While protectionist responses to industrial strain are not new, the present cycle is distinctive in at least three ways:

1. The *breadth* of sectors affected, extending from traditional heavy industries to high-tech manufacturing;
2. The *global simultaneity* of policy interventions, with major economies acting in parallel rather than sequentially; and

3. The *strategic nature* of the rivalry, with technological dominance viewed as a national security objective.

In a world marked by strategic distrust, innovation increasingly triggers defensive trade and industrial measures, which reinforce the overhang and prolong the rebalancing process.

Implications for the global economy

The two-stage process that has contributed to over-capacity in the globalised context has broad implications for the global economy.

In the short term, protectionist measures may appear to provide a buffer for both emerging industries and declining legacy sectors. For instance, China may continue to preserve labour-intensive industries such as textiles in order to compete with lower-income Southeast Asian economies. In Europe, protective measures could buy time for both its emerging EV and traditional internal combustion engine sectors, so they can adapt to technological disruption and foreign competition.

However, such relief is inherently fragile and unsustainable. Over time, persistent reliance on distortionary policies erodes the competitive pressures that drive innovation, efficiency and industrial renewal.

Without mechanisms to phase out unviable firms or shift resources toward higher-value uses, economies risk falling into a low-efficiency equilibrium. As overcapacity drives down prices and profitability, it eventually also puts downward pressure on wages and investment, weakening aggregate demand.

China may be already experiencing a deflation problem, with inflation below 0.5 percent for most of the period since 2023. However, if other countries pursue similarly aggressive, supply-driven industrial strategies and

protectionist measures, they may eventually face the same risks. What appears today as China's challenge could become a broader global concern.

Ultimately, what began as a global push to foster industrial champions and secure technological leadership has evolved into a broader effort to preserve employment and social stability. While the early 2020s were marked by concerns about runaway inflation, the coming decade may be characterised by the opposite risk: global deflation fuelled by entrenched overcapacity and shrinking demand.

Compounding the problem is the unravelling of the rules-based global trade system. As multilateral institutions including the World Trade Organisation lose power, coordinated responses to excess capacity become increasingly unlikely.

The world is drifting toward a fragmented trade environment defined by subsidies, retaliation and industrial duplication. In such a scenario, not only will overcapacity remain unresolved, it may become a common feature of the global economy. ■

Jianwei Xu is Non-Resident Fellow at Bruegel, and a Senior Economist at Natixis, Asia Pacific

Endnotes

1. See Finn (1995). Although Finn's assessment dates back to the mid-1990s, the Federal Reserve continues to calibrate its G.17 capacity utilisation series so that "a rate of 85 percent means about the same degree of tightness that it meant in the past" (Federal Reserve Board, G.17 Methodology), meaning the benchmark remains a valid point of comparison today. See Federal Reserve Board, '[Industrial Production and Capacity Utilization - G.17](#)'.
2. For analysis of the design and implications of these initiatives, see, for example, García-Herrero and Poitiers (2022), García-Herrero and Weil (2022) and García-Herrero et al (2025).
3. See European Commission, '[Important Projects of Common European Interest \(IPCEI\)](#)', undated.
4. Zhou Xin, '[China says it has done more than its share to cut steel production as global forum is scrapped](#)', South China Morning Post, 27 October 2019.
5. See European Commission press release of 12 June 2024, '[Commission investigation provisionally concludes that electric vehicle value chains in China benefit from unfair subsidies](#)'.

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This article is based on *Bruegel Analysis*.

The pricing of profit shifting

MNEs routinely allocate profits across jurisdictions with differing tax regimes. Fotis Delis, Manthos Delis, Sotirios Kokas, Luc Laeven and Steven Ongena examine how stock markets price profit shifting and consider the economic effects

Multinational enterprises (MNEs) routinely allocate profits across jurisdictions with differing tax regimes. Commonly referred to as profit shifting, these crossborder allocations encompass both legal and illegal tax planning strategies that respond to international tax differentials.

According to recent estimates, tax avoidance related to profit shifting results in at least hundreds of billions of dollars in lost tax revenues annually (eg. OECD, 2015).

To combat profit shifting, several countries have actively implemented new policies since the mid-2010s, particularly under the OECD's Base Erosion and Profit Shifting (BEPS) initiative. Additionally, a G7 agreement in June 2021 proposed a minimum global corporate tax rate of 15%, aiming to generate additional global tax revenues by reducing the incentive for large MNEs to shift profits to tax havens.

Building on this, the OECD's Inclusive Framework has been driving the global implementation of the minimum tax rate under Pillar Two, with several jurisdictions beginning to enforce these rules.

In a recent paper (Delis *et al* 2025a), we examine whether global equity markets price the risks associated with profit shifting by MNEs, and if so, what the underlying drivers of this risk premium are.

Understanding this relationship is crucial for three reasons:

First, if profit shifting **affects after-tax earnings or signals exposure to regulatory scrutiny**, markets may incorporate this information into stock prices, either rewarding firms for lower tax burdens or requiring compensation for the associated risks!

Second, profit shifting may elicit different reactions by investors compared to other tax-avoidance strategies. Specifically, profit shifting may exploit international tax differentials, making it inherently **more complex and less transparent**. Traditional measures of tax avoidance, such as effective tax rates and book-tax differences, primarily capture nonconforming strategies where reported financial income diverges from taxable income. In contrast, profit shifting often involves conforming strategies in which financial accounting income decreases in tandem with tax liabilities, thus remaining undetected by these metrics (eg. Hanlon and Heitzman 2010).

We can comfortably conclude that as regulatory scrutiny rises, investors will command compensation for the underlying risks associated with profit shifting

Third, the evolving regulatory environment, characterised by increasing enforcement and policy coordination, has **heightened the risks associated with crossborder tax planning**, potentially affecting how profit shifting is priced in capital markets. Hence it is essential to assess how investors react to these changes in the global regulatory landscape.

Our premise is that investors demand compensation for holding stocks exposed to regulatory and reputational risks associated with profit shifting. We evaluate this proposition by analysing whether equity markets assign a risk premium to profit shifting and how this risk premium changes following regulatory initiatives that enhanced global tax enforcement.

We utilise rich, recently available data on firm-year variations in profit shifting (Delis *et al* 2025b) alongside global stock return data from Orbis. Our profit-shifting estimates are derived from a nonparametric analysis of how firms' profits respond to an index of tax rate differences among all affiliates of each MNE (Huizinga and Laeven 2008).

This approach yields the largest panel of firm-year profit-shifting estimates to date, comprising more than two million observations. We then aggregate these estimates to the MNE-year level and match them with monthly stock return data, resulting in an MNE-year-month panel with over 350,000 observations, including 29,905 MNE-year observations (from 2010 to 2020) covering 6,099 MNEs. The granularity of the data and their global coverage significantly reduce several identification challenges.

We find that stock returns are positively and statistically significantly related to profit shifting, conditional on characteristics that predict returns and several fixed effects. These results are also economically significant, with our baseline specification indicating that a standard deviation increase in profit shifting is associated with a 6.4% increase in stock returns.

Figure 1 illustrates this pattern, showing that firms in higher profit-shifting deciles exhibit systematically higher monthly stock returns, particularly in the top three deciles.

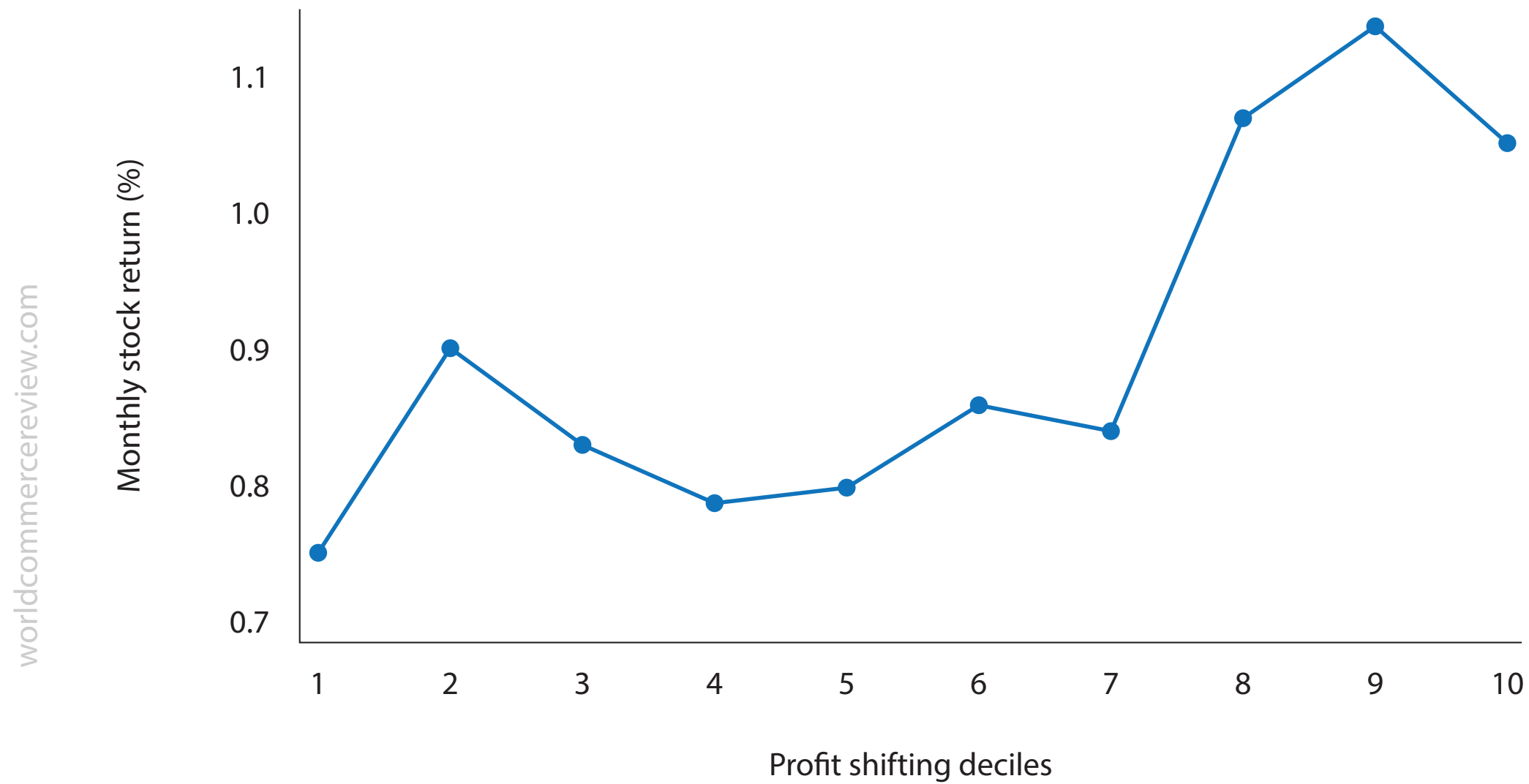
Importantly, we find that the profit-shifting premium arises systematically only after major regulatory milestones aimed at combatting profit shifting. Specifically, using an econometric model with heterogeneous treatment effects, we find that the premium arises after the endorsement of the OECDs BEPS initiative in 2015 and is reinforced following the implementation of the anti-profit-shifting provisions under the US Tax Cuts and Jobs Act (TCJA) – namely, the Global Intangible Low-Taxed Income (GILTI) regime and the Base Erosion and Anti-Abuse Tax (BEAT) – in 2019.

This premium is concentrated among firms with high ex-ante exposure to profit shifting and persists even after controlling for fundamentals and other tax avoidance proxies. It is not driven by changes in institutional ownership; rather, it is more pronounced among firms with observable structures that increase enforcement risk, such as having affiliates located in tax havens.

These findings are robust to alternative measures of profit shifting, placebo tests, and controls for measurement error. The findings suggest that profit shifting is priced as a source of risk in equity markets.

To the best of our knowledge, we are the first to study the link between stock prices and profit shifting. And we systematically document that regulatory risks associated with profit shifting are priced by equity markets. We obtain these results using time-varying estimates of profit shifting in a large global sample of firms and by exploiting recent regulatory changes that increased enforcement risk for firms.

Figure 1. Monthly stock return by profit shifting decile



Note: This figure plots average monthly stock returns across deciles of profit shifting, constructed based on the profit shifting intensity variable. Decile 1 includes firms with the lowest intensity, and decile 10 includes those with the highest.

In sum, we connect two broad but distinct strands of literature: the literature on the link between corporate taxation and stock prices, and the literature on profit shifting by multinational firms. By studying the link between profit shifting and stock prices we effectively link these two literatures.

As these results hold across a broad set of robustness tests, we can comfortably conclude that as regulatory scrutiny rises, investors will command compensation for the underlying risks associated with profit shifting. ■

ABOUT THE AUTHORS

Fotis Delis is an Economist specializing in international corporate taxation as part of the Fiscal Policy Analysis Team at the Joint Research Centre of the European Commission in Seville, Spain, Manthos Delis is a Professor of Financial Economics at Audencia Business School, Sotirios Kokas is Professor of Finance at the University of Essex, Luc Laeven is Director-General of the Directorate General Research at European Central Bank, and Steven Ongena is Research Professor at Katholieke Universiteit Leuven, Senior Chair at Swiss Finance Institute, and Professor in Banking at University of Zurich.

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Monetary policy and the Fed's framework review

The US economy has shown resilience in a context of sweeping changes in economic policy. Jerome Powell says inflation and the hiring slowdown are creating challenging conditions and that balance of risks is changing

Over the course of this year, the US economy has shown resilience in a context of sweeping changes in economic policy. In terms of the Fed's dual-mandate goals, the labour market remains near maximum employment, and inflation, though still somewhat elevated, has come down a great deal from its post-pandemic highs. At the same time, the balance of risks appears to be shifting.

In my remarks, I will first address the current economic situation and the near-term outlook for monetary policy. I will then turn to the results of our second public review of our monetary policy framework, as captured in the revised Statement on Longer-Run Goals and Monetary Policy Strategy.

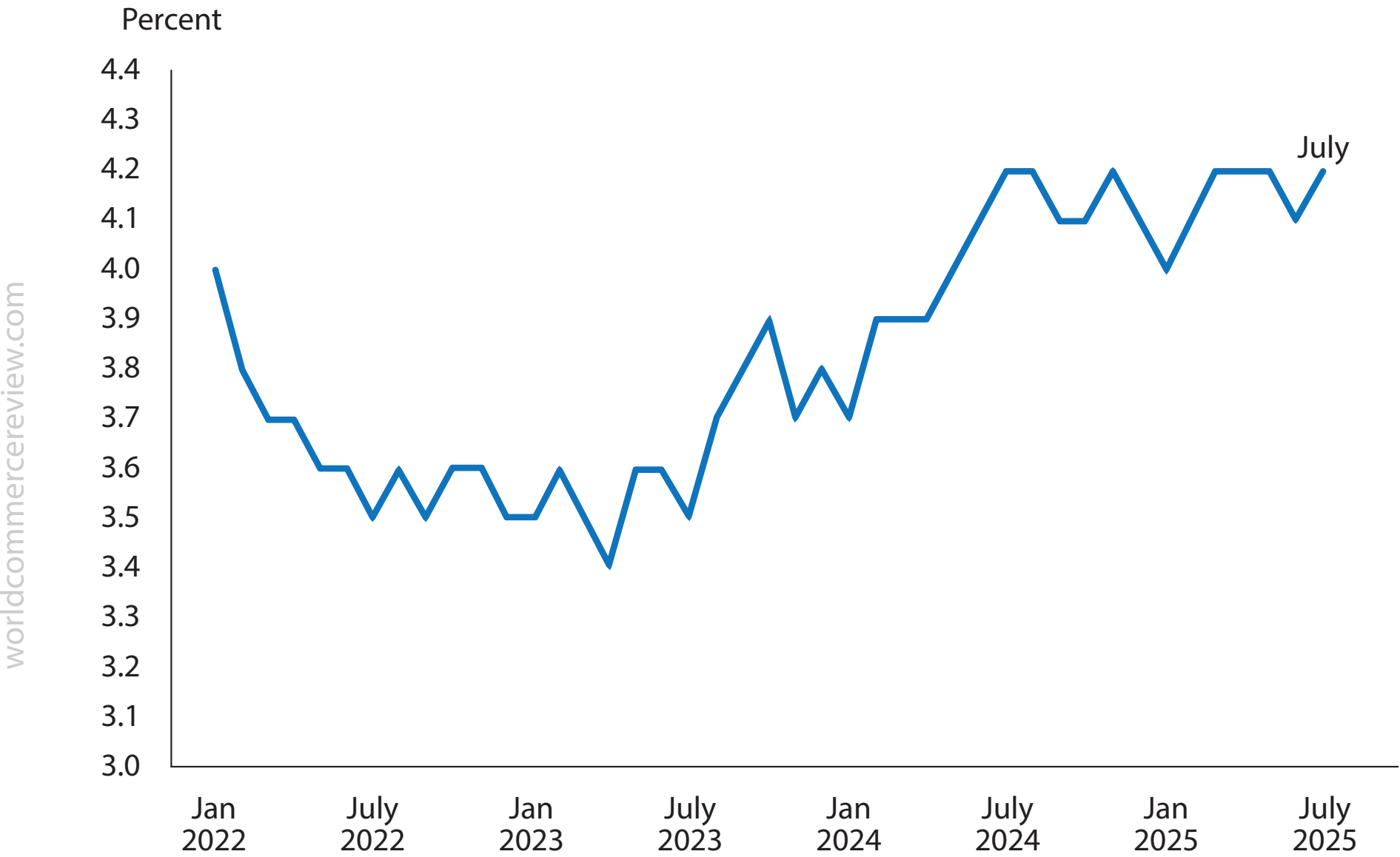
Current economic conditions and near-term outlook

One year ago, the economy was at an inflection point. Our policy rate had stood at 5-1/4 to 5-1/2 percent for more than a year. That restrictive policy stance was appropriate to help bring down inflation and to foster a sustainable balance between aggregate demand and supply. Inflation had moved much closer to our objective, and the labour market had cooled from its formerly overheated state. Upside risks to inflation had diminished.

But the unemployment rate had increased by almost a full percentage point, a development that historically has not occurred outside of recessions¹. Over the subsequent three Federal Open Market Committee (FOMC) meetings, we recalibrated our policy stance, setting the stage for the labour market to remain in balance near maximum employment over the past year (Figure 1).

This year, the economy has faced new challenges. Significantly higher tariffs across our trading partners are remaking the global trading system. Tighter immigration policy has led to an abrupt slowdown in labour force growth. Over the longer run, changes in tax, spending, and regulatory policies may also have important

Figure 1. Unemployment rate



Note: Seasonally adjusted.
Source: Bureau of Labor Statistics, unemployment rate, retrieved from FRED, Federal Reserve Bank of St Louis.

implications for economic growth and productivity. There is significant uncertainty about where all of these policies will eventually settle and what their lasting effects on the economy will be.

Changes in trade and immigration policies are affecting both demand and supply. In this environment, distinguishing cyclical developments from trend, or structural, development is difficult. This distinction is critical because monetary policy can work to stabilize cyclical fluctuations but can do little to alter structural changes.

The economy has faced new challenges. Significantly higher tariffs across our trading partners are remaking the global trading system. Tighter immigration policy has led to an abrupt slowdown in labour force growth

The labour market is a case in point. The July employment report released earlier this month showed that payroll job growth slowed to an average pace of only 35,000 per month over the past three months, down from 168,000 per month during 2024 (Figure 2)².

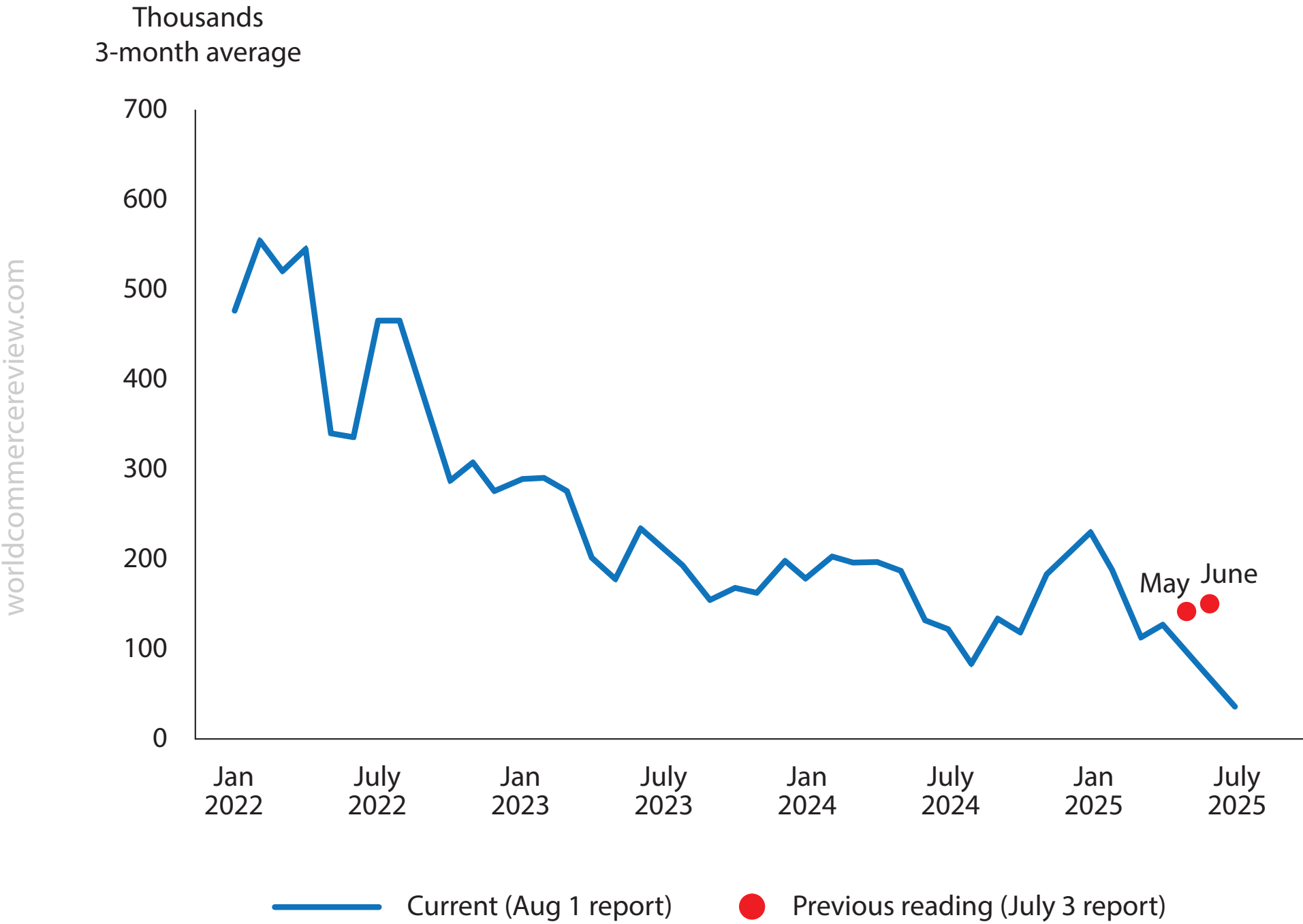
This slowdown is much larger than assessed just a month ago, as the earlier figures for May and June were revised down substantially³. But it does not appear that the slowdown in job growth has opened up a large margin of slack in the labour market—an outcome we want to avoid. The unemployment rate, while edging up in July, stands at a historically low level of 4.2 percent and has been broadly stable over the past year.

Other indicators of labour market conditions are also little changed or have softened only modestly, including quits, layoffs, the ratio of vacancies to unemployment, and nominal wage growth. Labor supply has softened in line with demand, sharply lowering the ‘breakeven’ rate of job creation needed to hold the unemployment rate constant. Indeed, labour force growth has slowed considerably this year with the sharp falloff in immigration, and the labour force participation rate has edged down in recent months.

Overall, while the labour market appears to be in balance, it is a curious kind of balance that results from a marked slowing in both the supply of and demand for workers. This unusual situation suggests that downside risks to employment are rising. And if those risks materialize, they can do so quickly in the form of sharply higher layoffs and rising unemployment.

At the same time, GDP growth has slowed notably in the first half of this year to a pace of 1.2 percent, roughly half the 2.5 percent pace in 2024 (Figure 3). The decline in growth has largely reflected a slowdown in consumer spending. As with the labour market, some of the slowing in GDP likely reflects slower growth of supply or potential output.

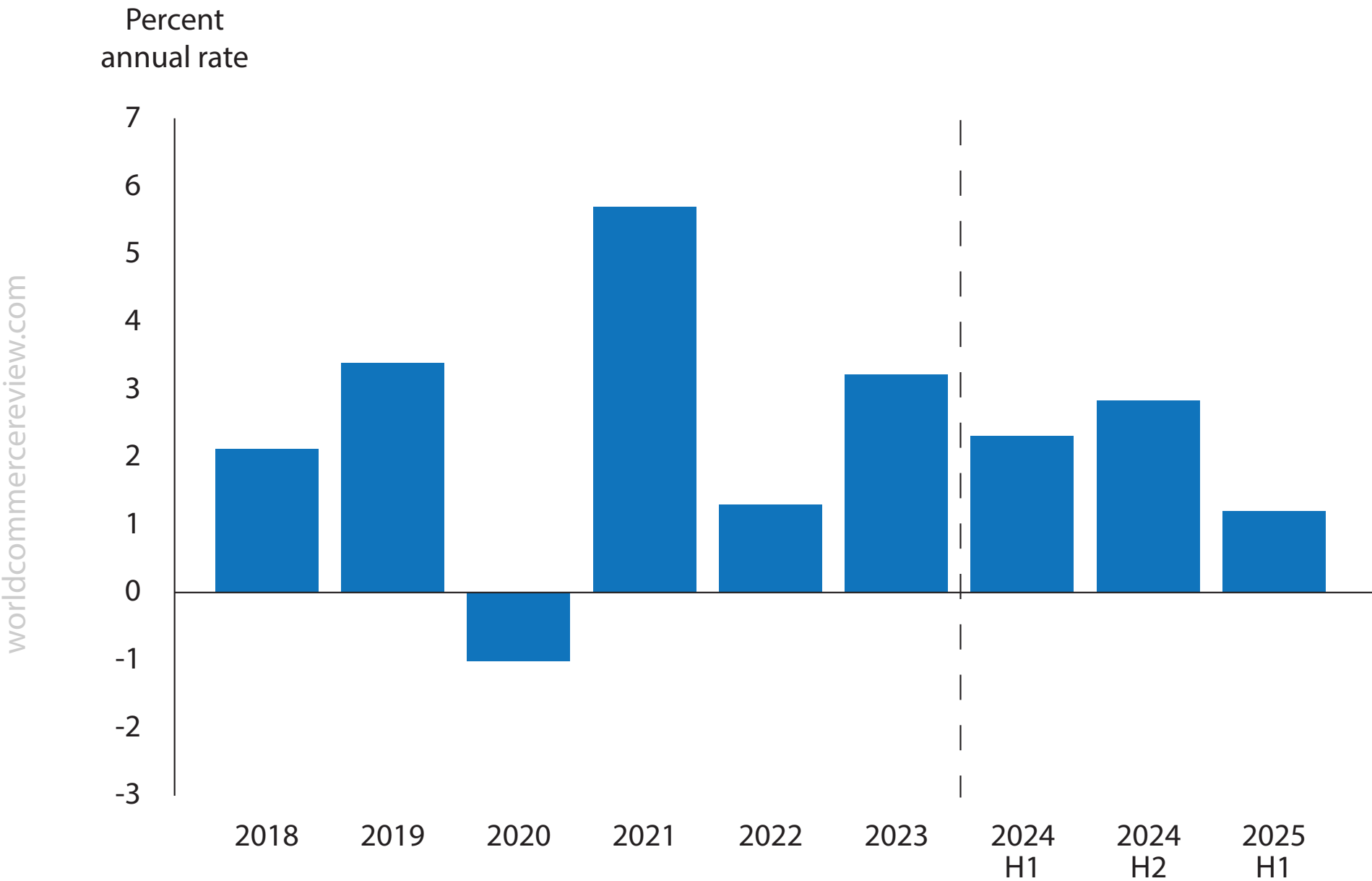
Figure 2. Non-farm payroll gains



Note: Seasonally adjusted. The red dots reflect the May (140.67) and June (149.67) readings as of the employment report released July 3. Values reported are three-month moving average.

Source: Bureau of Labor Statistics, all employees, total non-farm, retrieved from FRED, Federal Reserve Bank of St Louis.

Figure 3. Real GDP



Note: Percent change from preceding period. The vertical line separates yearly GDP data from half-yearly GDP data. Annual GDP values represent Q4:Q4 comparisons, and half-year GDP values represent Q4:Q2 and Q2:Q4 comparisons. Seasonally adjusted.
Source: Bureau of Economic Analysis, real Gross Domestic Product, retrieved from FRED, Federal Reserve Bank of St Louis.

Turning to inflation, higher tariffs have begun to push up prices in some categories of goods. Estimates based on the latest available data indicate that total PCE prices rose 2.6 percent over the 12 months ending in July. Excluding the volatile food and energy categories, core PCE prices rose 2.9 percent, above their level a year ago.

Within core, prices of goods increased 1.1 percent over the past 12 months, a notable shift from the modest decline seen over the course of 2024. In contrast, housing services inflation remains on a downward trend, and non-housing services inflation is still running at a level a bit above what has been historically consistent with 2 percent inflation (Figure 4)⁴.

The effects of tariffs on consumer prices are now clearly visible. We expect those effects to accumulate over coming months, with high uncertainty about timing and amounts. The question that matters for monetary policy is whether these price increases are likely to materially raise the risk of an ongoing inflation problem. A reasonable base case is that the effects will be relatively short lived—a one-time shift in the price level. Of course, ‘one-time’ does not mean ‘all at once’.

It will continue to take time for tariff increases to work their way through supply chains and distribution networks. Moreover, tariff rates continue to evolve, potentially prolonging the adjustment process.

It is also possible, however, that the upward pressure on prices from tariffs could spur a more lasting inflation dynamic, and that is a risk to be assessed and managed. One possibility is that workers, who see their real incomes decline because of higher prices, demand and get higher wages from employers, setting off adverse wage–price dynamics. Given that the labour market is not particularly tight and faces increasing downside risks, that outcome does not seem likely.

Figure 4. Price indexes for components of core PCE inflation

Percent change
from year earlier



Note: Core goods inflation is the change in the personal consumption expenditures (PCE) price index excluding energy and food. Core services inflation is the change in the PCE price index excluding energy services. The data for July 2025 are estimates based on consumer price index and producer price index data.

Source: Bureau of Economic Analysis.

Another possibility is that inflation expectations could move up, dragging actual inflation with them. Inflation has been above our target for more than four years and remains a prominent concern for households and businesses. Measures of longer-term inflation expectations, however, as reflected in market- and survey-based measures, appear to remain well anchored and consistent with our longer-run inflation objective of 2 percent.

Of course, we cannot take the stability of inflation expectations for granted. Come what may, we will not allow a one-time increase in the price level to become an ongoing inflation problem.

Putting the pieces together, what are the implications for monetary policy? In the near term, risks to inflation are tilted to the upside, and risks to employment to the downside—a challenging situation. When our goals are in tension like this, our framework calls for us to balance both sides of our dual mandate.

Our policy rate is now 100 basis points closer to neutral than it was a year ago, and the stability of the unemployment rate and other labour market measures allows us to proceed carefully as we consider changes to our policy stance. Nonetheless, with policy in restrictive territory, the baseline outlook and the shifting balance of risks may warrant adjusting our policy stance.

Monetary policy is not on a preset course. FOMC members will make these decisions, based solely on their assessment of the data and its implications for the economic outlook and the balance of risks. We will never deviate from that approach.

Evolution of monetary policy framework

Turning to my second topic, our monetary policy framework is built on the unchanging foundation of our mandate from Congress to foster maximum employment and stable prices for the American people. We remain fully

committed to fulfilling our statutory mandate, and the revisions to our framework will support that mission across a broad range of economic conditions.

Our revised *Statement on Longer-Run Goals and Monetary Policy Strategy*, which we refer to as our consensus statement, describes how we pursue our dual-mandate goals. It is designed to give the public a clear sense of how we think about monetary policy, and that understanding is important both for transparency and accountability, and for making monetary policy more effective.

The changes we made in this review are a natural progression, grounded in our ever-evolving understanding of our economy. We continue to build upon the initial consensus statement adopted in 2012 under Chair Ben Bernanke's leadership. Our revised statement is the outcome of the second public review of our framework, which we conduct at five-year intervals.

This year's review included three elements: *Fed Listens* events at Reserve Banks around the country, a flagship research conference, and policymaker discussions and deliberations, supported by staff analysis, at a series of FOMC meetings⁵.

In approaching this year's review, a key objective has been to make sure that our framework is suitable across a broad range of economic conditions. At the same time, the framework needs to evolve with changes in the structure of the economy and our understanding of those changes. The Great Depression presented different challenges from those of the Great Inflation and the Great Moderation, which in turn are different from the ones we face today⁶.

At the time of the last review, we were living in a new normal, characterized by the proximity of interest rates to the effective lower bound (ELB), along with low growth, low inflation, and a very flat Phillips curve—meaning that inflation was not very responsive to slack in the economy⁷.

To me, a statistic that captures that era is that our policy rate was stuck at the ELB for seven long years following the onset of the Global Financial Crisis (GFC) in late 2008. Many here will recall the sluggish growth and painfully slow recovery of that era. It appeared highly likely that if the economy experienced even a mild downturn, our policy rate would be back at the ELB very quickly, probably for another extended period.

Inflation and inflation expectations could then decline in a weak economy, raising real interest rates as nominal rates were pinned near zero. Higher real rates would further weigh on job growth and reinforce the downward pressure on inflation and inflation expectations, triggering an adverse dynamic.

The economic conditions that brought the policy rate to the ELB and drove the 2020 framework changes were thought to be rooted in slow-moving global factors that would persist for an extended period—and might well have done so, if not for the pandemic⁸.

The 2020 consensus statement included several features that addressed the ELB-related risks that had become increasingly prominent over the preceding two decades. We emphasized the importance of anchored longer-term inflation expectations to support both our price-stability and maximum-employment goals. Drawing on an extensive literature on strategies to mitigate risks associated with the ELB, we adopted flexible average inflation targeting—a ‘makeup’ strategy to ensure that inflation expectations would remain well anchored even with the ELB constraint⁹.

In particular, we said that, following periods when inflation had been running persistently below 2 percent, appropriate monetary policy would likely aim to achieve inflation moderately above 2 percent for some time.

In the event, rather than low inflation and the ELB, the post-pandemic reopening brought the highest inflation in 40 years to economies around the world. Like most other central banks and private-sector analysts, through year-end 2021 we thought that inflation would subside fairly quickly without a sharp tightening in our policy stance (figure 5)¹⁰.

When it became clear that this was not the case, we responded forcefully, raising our policy rate by 5.25 percentage points over 16 months. That action, combined with the unwinding of pandemic supply disruptions, contributed to inflation moving much closer to our target without the painful rise in unemployment that has accompanied previous efforts to counter high inflation.

Elements of the revised consensus statement

This year's review considered how economic conditions have evolved over the past five years. During this period, we saw that the inflation situation can change rapidly in the face of large shocks. In addition, interest rates are now substantially higher than was the case during the era between the GFC and the pandemic. With inflation above target, our policy rate is restrictive—modestly so, in my view.

We cannot say for certain where rates will settle out over the longer run, but their neutral level may now be higher than during the 2010s, reflecting changes in productivity, demographics, fiscal policy, and other factors that affect the balance between saving and investment (figure 6).

During the review, we discussed how the 2020 statement's focus on the ELB may have complicated communications about our response to high inflation. We concluded that the emphasis on an overly specific set of

Figure 5. Forecasts made in December 2021

	2021 Q4/Q4 core inflation	2021 Q4/Q4 core inflation	End-2022 policy rate
SEP median	4.4%	2.7%	0.9%
Blue Chip consensus	4.4%	2.6%	0.5%*
Primary Dealer median	4.4%	2.5%	0.75%

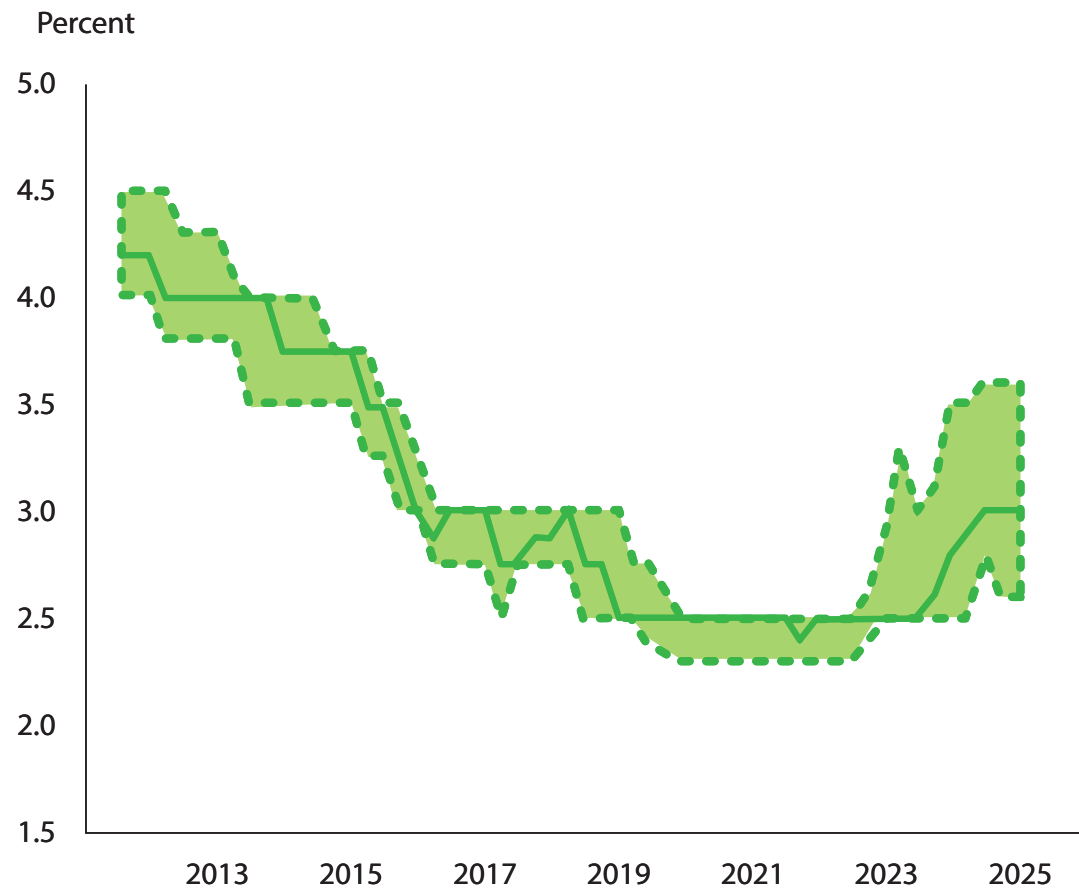
Note: SEP is summary of economic projections.

** Blue Chip reports projections of the three-month T-bill rate in the fourth quarter.*

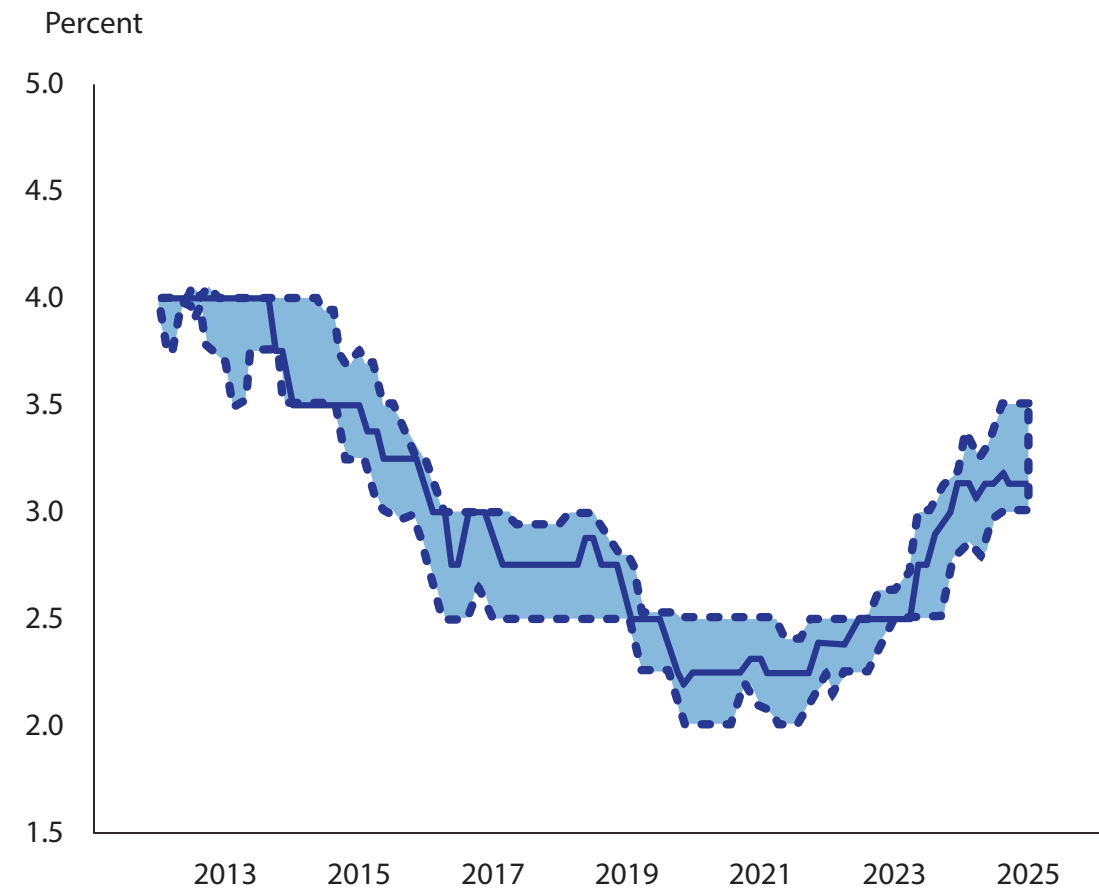
Sources: Federal Reserve Board, Blue Chip, Federal Reserve Bank of New York.

Figure 6. Longer-run federal funds rate: summary of economic projections and survey of primary dealers

Summary of economic projections



Summary of primary dealers



Note: The green shading is the central tendency from the summary of economic projections. The blue shading represents the 25th to 75th percentile of responses from the survey of primary dealers.

Sources: Federal Reserve Board, Federal Reserve Bank of New York.

economic conditions may have led to some confusion, and, as a result, we made several important changes to the consensus statement to reflect that insight.

First, we removed language indicating that the ELB was a defining feature of the economic landscape. Instead, we noted that our *“monetary policy strategy is designed to promote maximum employment and stable prices across a broad range of economic conditions.”* The difficulty of operating near the ELB remains a potential concern, but it is not our primary focus. The revised statement reiterates that the Committee is prepared to use its full range of tools to achieve its maximum-employment and price-stability goals, particularly if the federal funds rate is constrained by the ELB.

Second, we returned to a framework of flexible inflation targeting and eliminated the ‘makeup’ strategy. As it turned out, the idea of an intentional, moderate inflation overshoot had proved irrelevant. There was nothing intentional or moderate about the inflation that arrived a few months after we announced our 2020 changes to the consensus statement, as I acknowledged publicly in 2021¹¹.

Well-anchored inflation expectations were critical to our success in bringing down inflation without a sharp increase in unemployment. Anchored expectations promote the return of inflation to target when adverse shocks drive inflation higher and limit the risk of deflation when the economy weakens¹². Further, they allow monetary policy to support maximum employment in economic downturns without compromising price stability.

Our revised statement emphasizes our commitment to act forcefully to ensure that longer-term inflation expectations remain well anchored, to the benefit of both sides of our dual mandate. It also notes that *“price stability is essential for a sound and stable economy and supports the well-being of all Americans.”*

This theme came through loud and clear at our *Fed Listens* events¹³. The past five years have been a painful reminder of the hardship that high inflation imposes, especially on those least able to meet the higher costs of necessities.

Third, our 2020 statement said that we would mitigate ‘shortfalls’, rather than ‘deviations’, from maximum employment. The use of ‘shortfalls’ reflected the insight that our real-time assessments of the natural rate of unemployment—and hence of ‘maximum employment’—are highly uncertain¹⁴.

The later years of the post-GFC recovery featured employment running for an extended period above mainstream estimates of its sustainable level, along with inflation running persistently below our 2 percent target. In the absence of inflationary pressures, it might not be necessary to tighten policy based solely on uncertain real-time estimates of the natural rate of unemployment¹⁵.

We still have that view, but our use of the term ‘shortfalls’ was not always interpreted as intended, raising communications challenges. In particular, the use of ‘shortfalls’ was not intended as a commitment to permanently forswear pre-emption or to ignore labour market tightness. Accordingly, we removed ‘shortfalls’ from our statement.

Instead, the revised document now states more precisely that *“the Committee recognizes that employment may at times run above real-time assessments of maximum employment without necessarily creating risks to price stability.”* Of course, pre-emptive action would likely be warranted if tightness in the labour market or other factors pose risks to price stability.

The revised statement also notes that maximum employment is *“the highest level of employment that can be achieved on a sustained basis in a context of price stability.”* This focus on promoting a strong labour market underscores the principle that *“durably achieving maximum employment fosters broad-based economic opportunities*

and benefits for all Americans.” The feedback we received at *Fed Listens* events reinforced the value of a strong labour market for American households, employers, and communities.

Fourth, consistent with the removal of ‘shortfalls’, we made changes to clarify our approach in periods when our employment and inflation objectives are not complementary. In those circumstances, we will follow a balanced approach in promoting them.

The revised statement now more closely aligns with the original 2012 language. We take into account the extent of departures from our goals and the potentially different time horizons over which each is projected to return to a level consistent with our dual mandate. These principles guide our policy decisions today, as they did over the 2022–24 period, when the departure from our 2 percent inflation target was the overriding concern.

In addition to these changes, there is a great deal of continuity with past statements. The document continues to explain how we interpret the mandate Congress has given us and describes the policy framework that we believe will best promote maximum employment and price stability. We continue to believe that monetary policy must be forward looking and consider the lags in its effects on the economy.

For this reason, our policy actions depend on the economic outlook and the balance of risks to that outlook. We continue to believe that setting a numerical goal for employment is unwise, because the maximum level of employment is not directly measurable and changes over time for reasons unrelated to monetary policy.

We also continue to view a longer-run inflation rate of 2 percent as most consistent with our dual-mandate goals. We believe that our commitment to this target is a key factor helping keep longer-term inflation expectations well anchored. Experience has shown that 2 percent inflation is low enough to ensure that inflation is not a concern in

household and business decision making while also providing a central bank with some policy flexibility to provide accommodation during economic downturns.

Finally, the revised consensus statement retained our commitment to conduct a public review roughly every five years. There is nothing magic about a five-year pace. That frequency allows policymakers to reassess structural features of the economy and to engage with the public, practitioners, and academics on the performance of our framework. It is also consistent with several global peers. ■

Jerome H Powell is Chair of the Board of Governors of the Federal Reserve System

Endnotes

1. For example, after the July 2024 employment report, the 3-month average of the unemployment rate had increased more than 0.5 percentage point above its lowest value over the previous 12 months. For more information, see Claudia Sahm (2019), “Direct Stimulus Payments to Individuals,” in Heather Boushey, Ryan Nunn, and Jay Shambaugh, eds, [Recession Ready: Fiscal Policies to Stabilize the American Economy \(PDF\)](#) (Washington: Hamilton Project and Washington Center for Equitable Growth, May), pp. 67–92.
2. In early September, the Bureau of Labor Statistics will publish a preliminary estimate of benchmark revisions to the level of nonfarm payrolls as of March 2025, based on data from the Quarterly Census of Employment and Wages. Data available to date suggest that the level of nonfarm payrolls will be revised down materially. The final benchmark revision will be incorporated into the monthly employment data in February 2026.
3. The total downward revision of 258,000 between May and June was spread across private-sector industries as well as state and local government employment, particularly education, and reflected both additional information from surveyed establishments and the re-estimation of seasonal factors.
4. Using the consumer price index and other information, an estimate of the contribution of housing services to 12-month core PCE inflation in July was 0.7 percentage point, while core services excluding housing contributed 2.0 percentage points. The contribution from each of these categories remains slightly above its average during the 2002–07 period, during which core PCE inflation averaged about 2 percent. In contrast, the contribution of core goods to 12-month core PCE inflation in July was about 0.25 percentage point, compared with the 2002–07 average of -0.25 percentage point.
5. For more details, see the information available on the [Board’s website](#).
6. See Jerome H Powell (2019), [“Challenges for Monetary Policy,”](#) speech delivered at ‘Challenges for Monetary Policy,’ a symposium sponsored by the Federal Reserve Bank of Kansas City, held in Jackson Hole, Wyo, August 23.
7. See François Gourio, Benjamin K. Johannsen, and David López-Salido (2025), [“The Origins, Structure, and Results of the Federal Reserve’s 2019–20 Review of Its Monetary Policy Framework,”](#) Finance and Economics Discussion Series 2025-065 (Washington: Board of Governors of the Federal Reserve System, August).

8. A 2020 paper by Caldara and others discusses the structural factors behind the slow evolution of changes in the natural rate of unemployment, trend productivity growth, the natural rate of interest, and the slope of the Phillips curve; see Dario Caldara, Etienne Gagnon, Enrique Martínez-García, and Christopher J Neely (2020), [“Monetary Policy and Economic Performance since the Financial Crisis,”](#) Finance and Economics Discussion Series 2020-065 (Washington: Board of Governors of the Federal Reserve System, August).
9. See David Reifschneider and John C Williams (2000), “Three Lessons for Monetary Policy in a Low-Inflation Era,” *Journal of Money, Credit and Banking*, vol. 32 (November), pp. 936–66; Michael T Kiley and John M Roberts (2017), [“Monetary Policy in a Low Interest Rate World \(PDF\),”](#) Brookings Papers on Economic Activity, Spring, pp. 317–72; James Hebden, Edward P Herbst, Jenny Tang, Giorgio Topa, and Fabian Winkler (2020), [“How Robust Are Makeup Strategies to Key Alternative Assumptions?”](#) Finance and Economics Discussion Series 2020-069 (Washington: Board of Governors of the Federal Reserve System, August); and Ben S Bernanke, Michael T Kiley, and John M Roberts (2019), “Monetary Policy Strategies for a Low-Rate Environment,” *AEA Papers and Proceedings*, vol. 109 (May), pp. 421–26. On average inflation targeting, see Thomas M Mertens and John C Williams (2019), “Monetary Policy Frameworks and the Effective Lower Bound on Interest Rates,” *AEA Papers and Proceedings*, vol. 109 (May), pp. 427–32.
10. See Ekaterina Peneva, Daniel Villar, and Jeremy Rudd (2025), [“Retrospective on the Board Staff’s Inflation Forecast Errors since 2019,”](#) Finance and Economics Discussion Series 2025-069 (Washington: Board of Governors of the Federal Reserve System, August).
11. See Ina Hajdini, Adam Shapiro, A Lee Smith, and Daniel Villar (2025), [“Inflation since the Pandemic: Lessons and Challenges,”](#) Finance and Economics Discussion Series 2025-070 (Washington: Board of Governors of the Federal Reserve System, August). See also, for example, Jerome H Powell (2021), [“Transcript of Chair Powell’s Press Conference \(PDF\),”](#) December 15.
12. See Hess Chung, Callum Jones, Antoine Lepetit, and Fernando M Martin (2025), [“Implications of Inflation Dynamics for Monetary Policy Strategy,”](#) Finance and Economics Discussion Series 2025-072 (Washington: Board of Governors of the Federal Reserve System, August).

13. For additional information, see the report *Fed Listens: Perspectives from the Public*, which summarizes the 10 Fed Listens events hosted by the Board and the Federal Reserve Banks during 2025.

14. See Christopher Foote, Shigeru Fujita, Amanda Michaud, and Joshua Montes (2025), [“Assessing Maximum Employment,”](#) Finance and Economics Discussion Series 2025-067 (Washington: Board of Governors of the Federal Reserve System, August).

15. See Brent Bundick, Isabel Cairó, and Nicolas Petrosky-Nadeau (2025), [“Labor Market Dynamics, Monetary Policy Tradeoffs, and a Shortfalls Approach to Pursuing Maximum Employment,”](#) Finance and Economics Discussion Series 2025-068 (Washington: Board of Governors of the Federal Reserve System, August).

This article is based on a [speech](#) delivered at ‘Labor Markets in Transition: Demographics, Productivity, and Macroeconomic Policy’, an economic symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 22, 2025.

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What progress have EU candidate countries made?

EU candidate countries remain far from EU averages in terms of GDP per capita and their demographic and labour market characteristics. Marek Dabrowski and Maria Catarina Louro examine selected income, demographic and labour market indicators to assess progress

In this analysis, we examine selected income, demographic and labour market indicators for nine actual and potential candidates for European Union membership. Our country group includes the six Western Balkan countries (Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia) and three EU Eastern Partnership countries (Georgia, Moldova and Ukraine).

We gauge how far they are from the EU average on the indicators, and whether and to what extent the gap has shrunk since 2003 (when the EU Thessaloniki Summit offered potential EU accession to Western Balkan countries¹). We also examine differences between candidates and compare them with the three newest EU member states: Bulgaria, Romania (both joined the EU in 2007) and Croatia (an EU member since 2013).

Despite a shared post-communist legacy, EU candidate countries are not homogeneous. They emerged from distinct historical and economic systems: the Soviet Union, communist Yugoslavia and isolated Albania. These backgrounds have shaped their economic structures and integration paths, with the post-Yugoslav states and Albania receiving EU accession offers two decades before Ukraine, Moldova and Georgia. Today, renewed momentum for enlargement is driven not only by long-term convergence goals but also by geopolitical considerations following Russia's invasion of Ukraine.

Income per capita convergence

In GDP per capita terms, since 2003, all candidate countries except Ukraine have converged somewhat towards the EU average, but starting from a low level (Figure 1). In 2024, Montenegro and Serbia recorded the highest GDPs per capita (roughly half the EU average), followed by Georgia (45 percent) and North Macedonia (44 percent). Moldova, Kosovo and Ukraine had the lowest levels of 29 percent, 30 percent and 31 percent of the EU average, respectively.

In 2024, except for Georgia and Kosovo, income per capita in Western Balkan countries was higher than in the Eastern Partnership countries. This difference can be explained by higher starting levels of GDP per capita and faster convergence.

Between 2003 and 2024, Georgia progressed most rapidly (by 29 percentage points (pp) of the EU average), followed by Serbia (18 pp), Albania and North Macedonia (both 16 pp), Kosovo and Moldova (both 13 pp), Bosnia and Herzegovina (11 pp) and Ukraine (1 pp).

The substantial income gap between the candidates and the EU remains. The candidate country with the highest GDP per capita, Montenegro, reached only half of the EU average in 2024

Ukraine is a special case. Between 2003 and 2008, it was among the three countries with highest GDP per capita in our sample. However, it has experienced three de-convergence periods in 2009 (consequences of a global financial crisis), 2013-2015 (effects of domestic political instability and the first stage of Russian aggression) and 2022 (the full-scale Russian aggression).

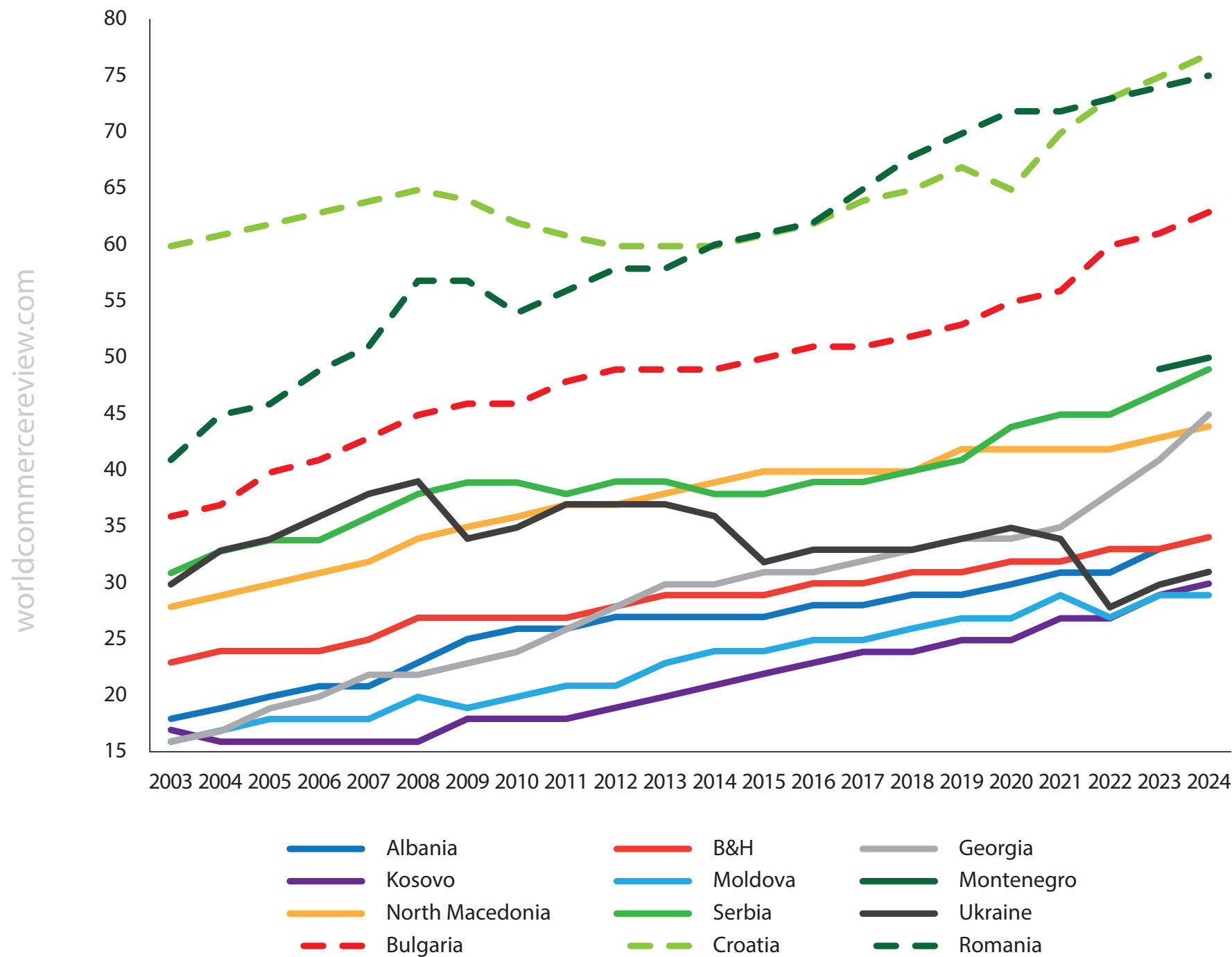
That the Western Balkan countries have converged more rapidly with the EU average than the three Eastern Partnership countries can be explained by geopolitical circumstances, by the earlier start of their EU integration processes and earlier conclusions of Stabilisation and Association Agreements with the EU, and by slightly better business and investment climates. These resulted in larger inflows of foreign direct investment and more trade with the EU (Dabrowski and Moffat 2024).

The rapid GDP per capita convergence of the three newest EU countries suggests EU integration plays a positive role in growth acceleration. Between 2003 and 2024, the gaps between them – especially Bulgaria and Romania – and Western Balkan countries increased. GDP per capita in Bulgaria and Romania grew by 26 pp and 30 pp of the EU average, respectively.

Significant population declines

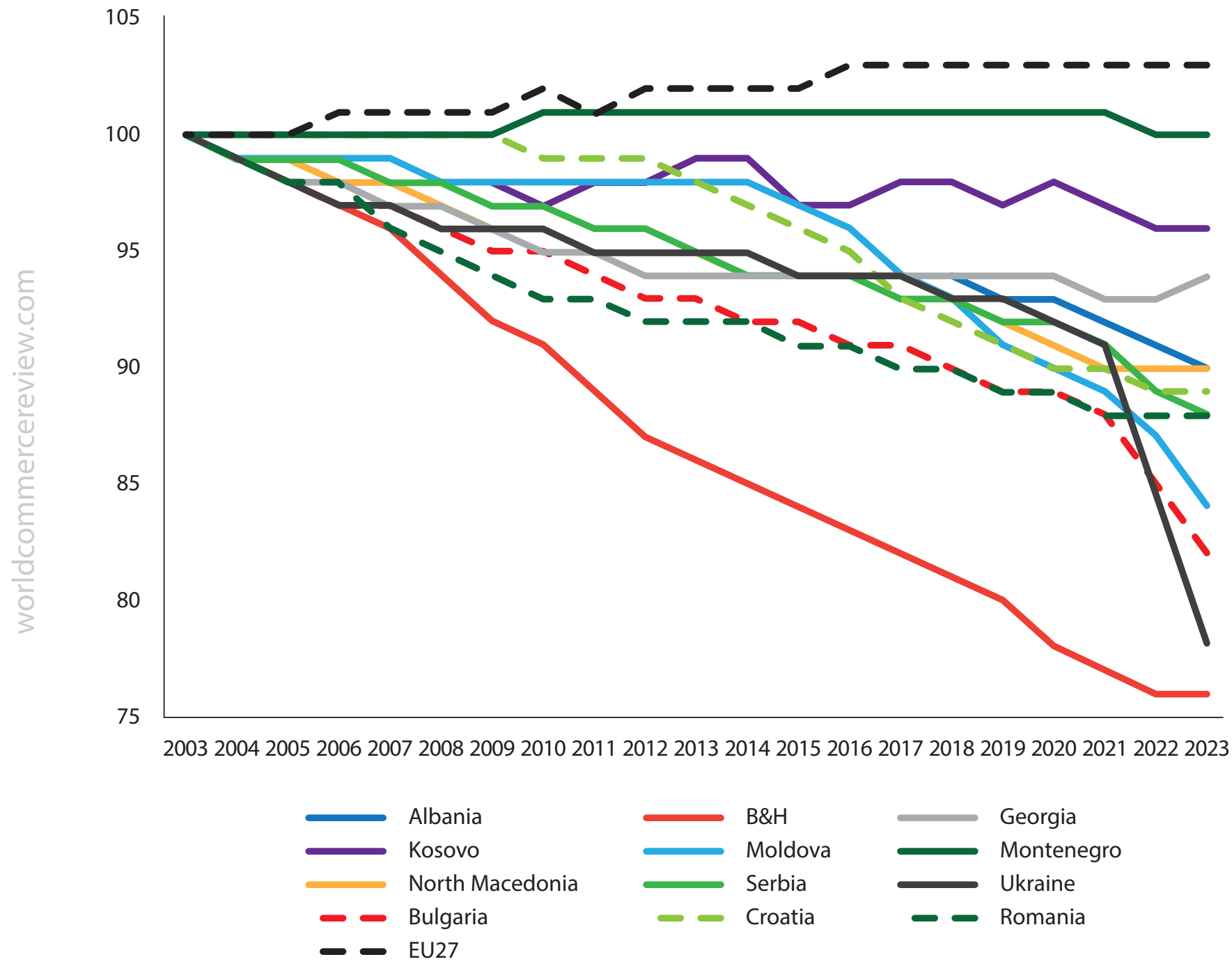
Unlike the EU, all candidate countries except for Montenegro (has which benefitted from incoming migration from, among others, Russia) have suffered from depopulation (Figure 2). Between 2003 and 2023, Bosnia and Herzegovina's population declined by 24 percent, followed by Ukraine (-22 percent, mostly in 2022-2023 because of the full Russian invasion), Moldova (-16 percent), Serbia (-12 percent), Albania and North Macedonia (both -10 percent), Georgia (-6 percent) and Kosovo (-4 percent). The newest EU countries have seen similar trends: Bulgaria has lost 18 percent of its population, Romania 12 percent and Croatia 11 percent.

Figure 1. GDP per capita in constant prices, in PPP 2021 international dollars, % of EU average, 2003-2024



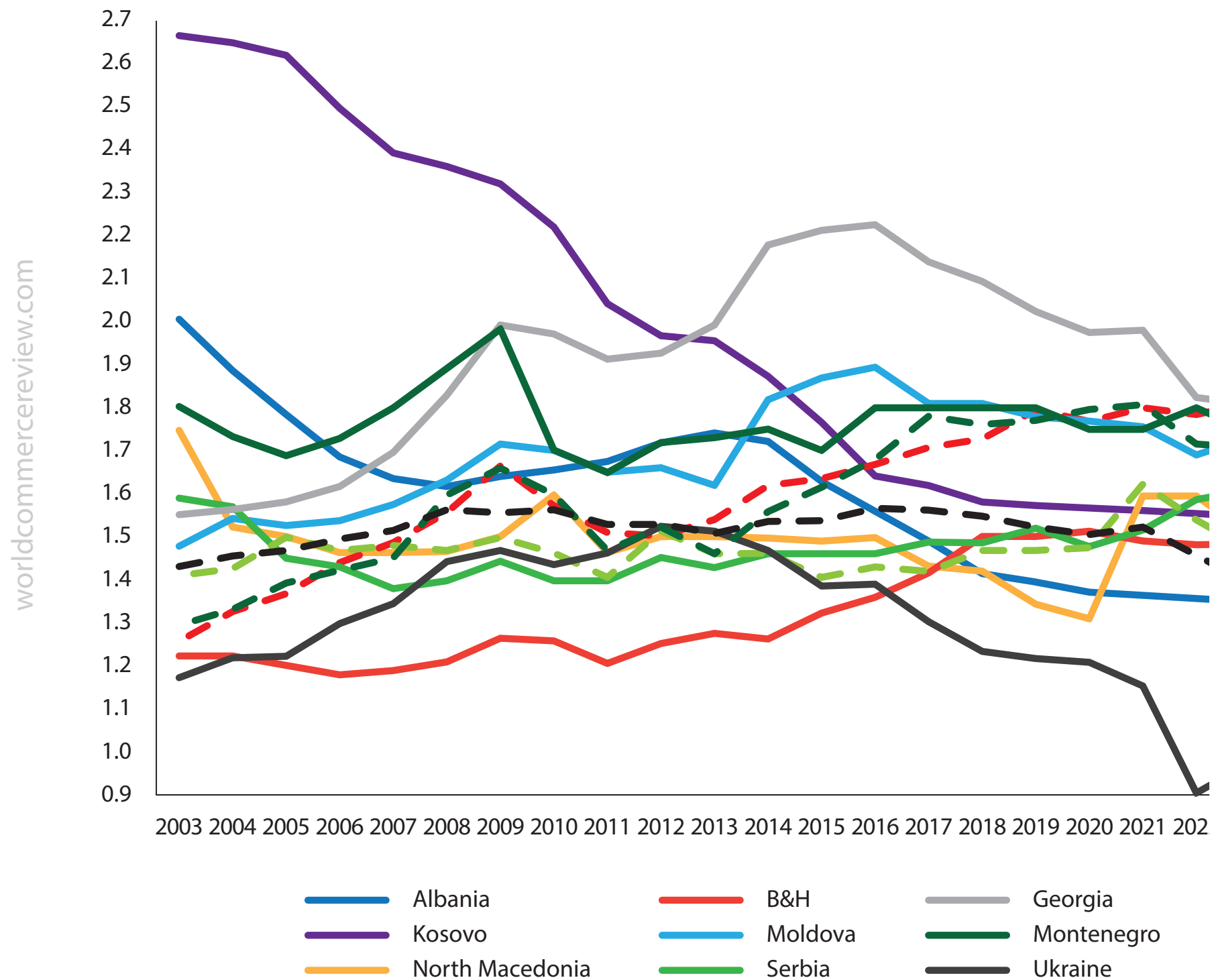
Note: Data for Montenegro is incomplete (only for 2023-2024). EU average refers to the EU27 average.
Source: Bruegel based on IMF World Economic Outlook database, April 2025.

Figure 2. Total populations, 2003-2023, 2003=100



Source: Bruegel based on World Bank World Development Indicators up to 6 May 2025.

Figure 3. Fertility rate, total (births per woman), 2003-2023



Source: Bruegel based on World Bank World Development Indicators, up to 6 May 2025.

Depopulation is a consequence of declining fertility rates, limited progress in increasing life expectancy and net outward migration. Fertility rates in the analysed countries have been converging to the EU level, below the replacement level of 2.1 births per woman. Figure 3 suggests that some countries, in particular, Kosovo, Georgia and Albania, saw delayed fertility rate declines compared to the other countries in the sample and the EU.

In 2023, the EU candidates with the highest rates were Georgia (1.81), Montenegro (1.74) and Moldova (1.73). All countries, except Ukraine and Albania, reported fertility rates above the EU average of 1.39. Ukraine's fertility rate below 1 in 2022-2023 can be explained by the ongoing war. Interestingly, fertility rates in the newest EU countries either improved (Bulgaria and Romania) or stabilised (Croatia), in line with Kirkegaard's (2025) findings on a limited fertility rebound in EU new countries during and after EU accession.

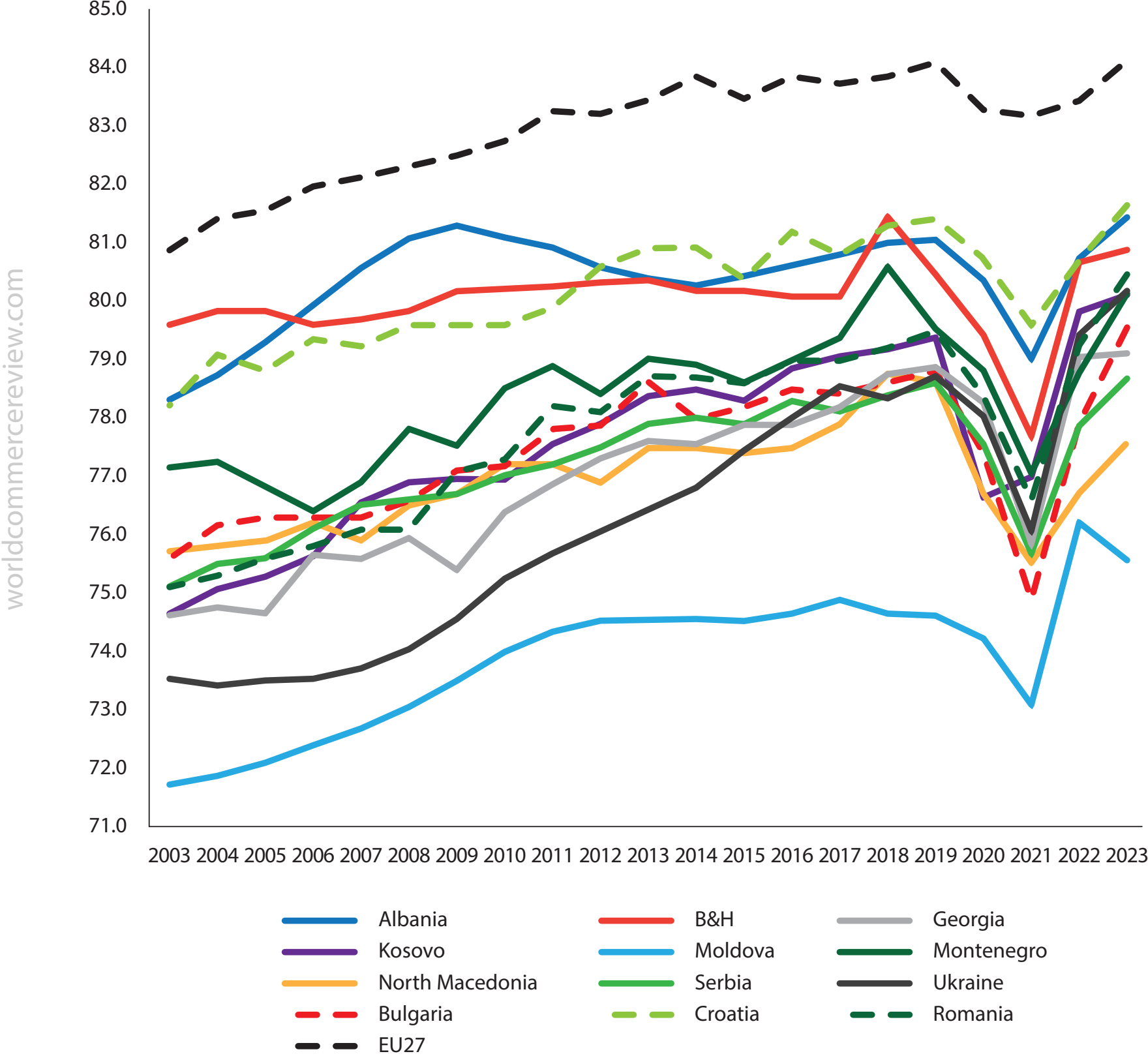
Female life expectancy at birth has improved in most candidate countries but remains below the EU average of about 84 years (Figure 4), and the gap has not decreased. In 2023, it ranged from approximately 75 years in Moldova to 81 years in Albania and Kosovo. Bulgaria, Croatia and Romania have seen trends similar to their Western Balkan neighbours.

The gap in a male life expectancy at birth (Figure 5) looks even more dramatic, except for Albania. The difference compared to both the EU average and female life expectancy is particularly large in Georgia, Moldova and Ukraine, following the same phenomenon in other post-Soviet countries (Gao 2015) and suggesting poor quality healthcare services and unhealthy lifestyles (for example, alcohol abuse). Interestingly, while Croatia's male life expectancy is within the range recorded by Western Balkan countries, Bulgaria and Romania's are closer to post-Soviet countries.

Labour market

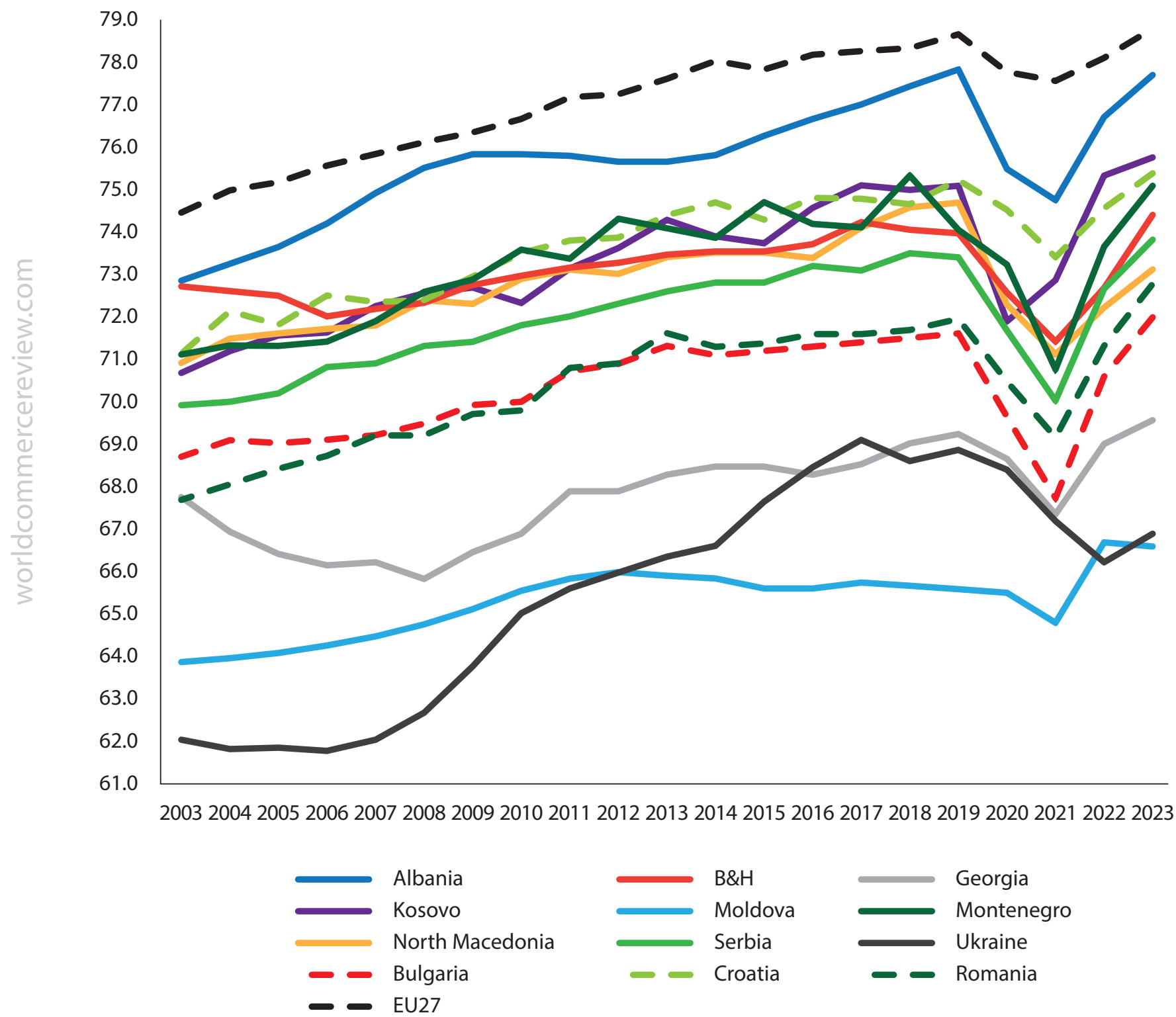
Labour force participation (LFP) rates have generally increased in EU candidate countries, compensating partly for

Figure 4. Female life expectancy at birth, 2003-2023



Source: WCP, BA, and WDI, 2025. World Bank World Development Indicators, up to 6 May 2025.

Figure 5. Male life expectancy at birth, 2003-2023



Source: Bruegel based on World Bank World Development Indicators, up to 6 May 2025.

shrinking working-age populations. However, progress remains uneven and gender disparities persist (Figures 6 and 7).

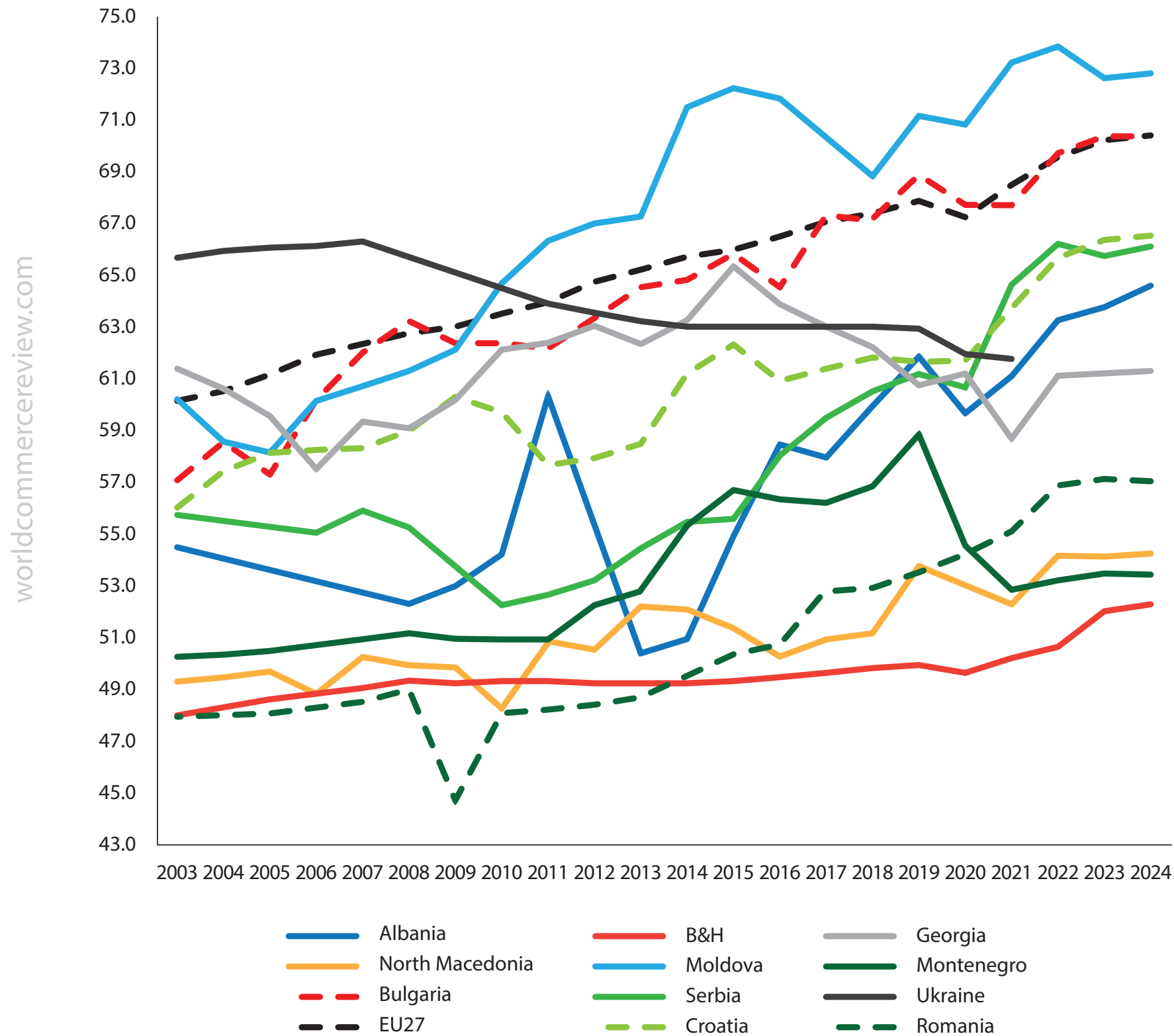
Female LFP has risen in most analysed countries. Moldova and Albania recorded the most visible gains. In Moldova, it increased from 60.5 percent in 2003 to 72.7 percent in 2024, and in Albania from 54.5 percent to 64.6 percent over the same period. A higher rate is also visible in Serbia. However, in Bosnia and Herzegovina, Montenegro and North Macedonia, female LFP remains below 55 percent, well below the EU average of 70 percent.

Historically, female LFP rates were much higher in the former Soviet Union than in the former Yugoslavia, and even higher than in the EU. However, these differences have partly diminished over time (Figure 6). Bulgaria has converged to the EU average while the female LFP rate in Croatia in 2024 was only slightly higher than in Serbia. Romania's rate was 57 percent in 2024, with slow growth from 2003.

Male LFP rates have been higher (Figure 7), typically above 70 percent to 75 percent, but have plateaued or declined in some countries, particularly Georgia and Ukraine. In Bulgaria and Romania, these rates have also converged towards the EU average level. The gender gap in participation is still 15 to 20 pp in most candidate countries. In the EU, it was 9.5 pp in 2024.

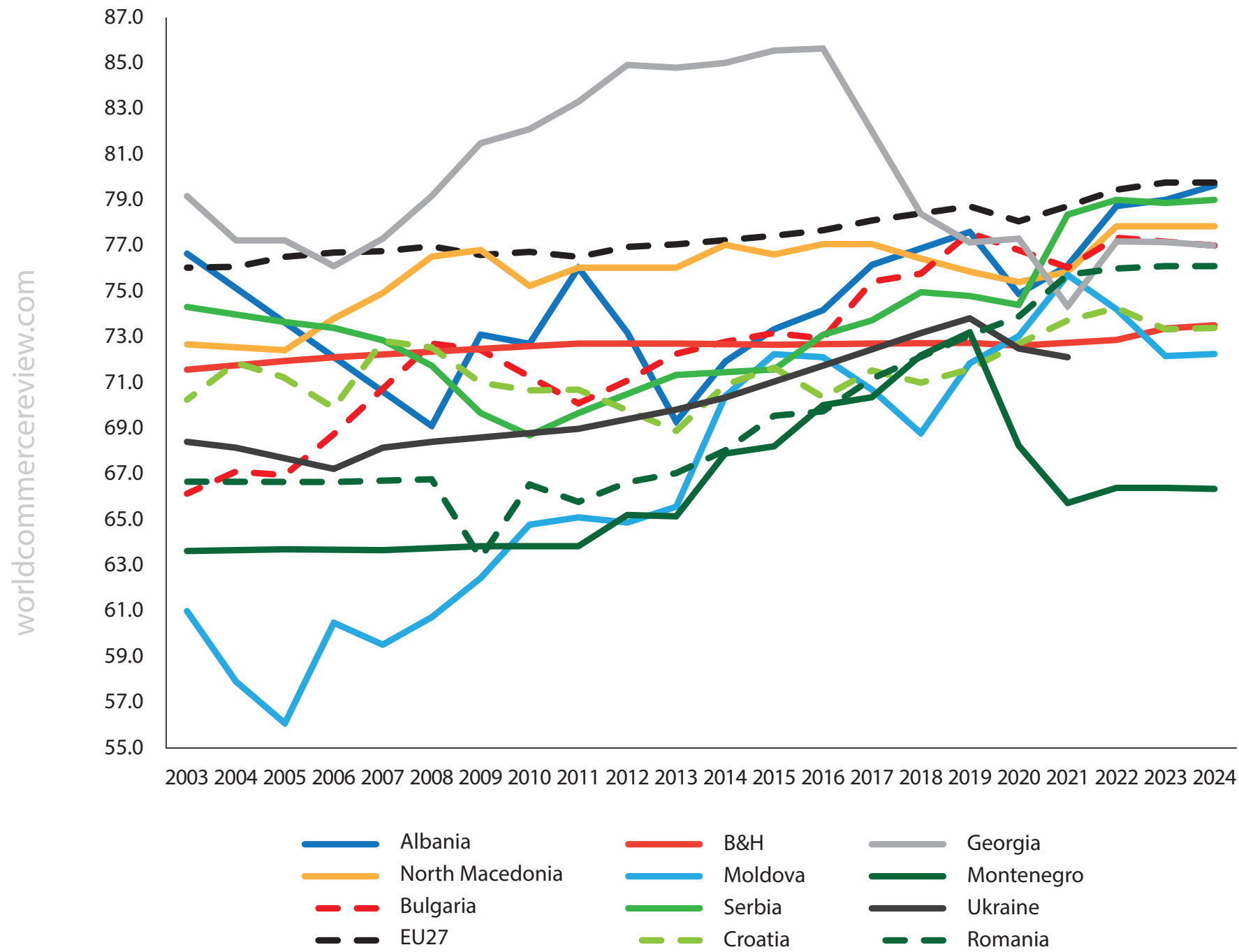
Unsurprisingly, declining working-age populations have helped mitigate high unemployment, especially in the Western Balkans (Figure 8). Although unemployment rates in candidate countries (except Moldova) in 2024 were still higher than the EU average and the three comparator EU countries, there was significant improvement compared to the situation a decade or two earlier. For example, North Macedonia reduced its total unemployment rate from 37.3 percent in 2005 to 13.4 percent in 2024, Serbia from 24 percent in 2012 to 7.4 percent in 2024, and Bosnia and Herzegovina from 31.1 percent in 2006 to 10.7 percent in 2024.

Figure 6. Labour force participation rate, % of female population aged 15-64, 2003-2024



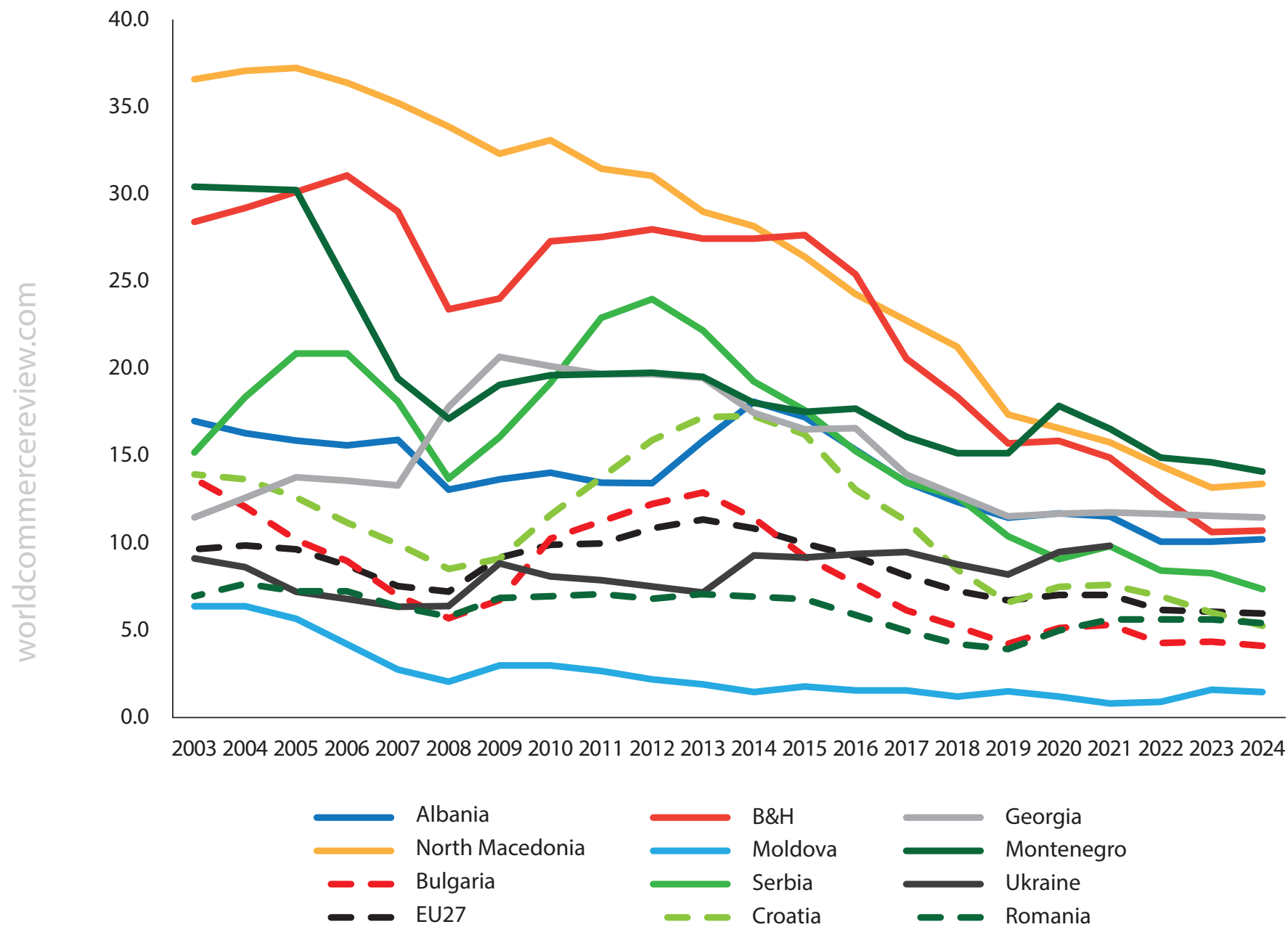
Notes: Modelled ILO estimates. Data for Kosovo is not available.
Source: World Bank World Development Indicators, last updated on 6 May 2025.

Figure 7. Labour force participation rate, % of male population ages 15-64, 2003-2024



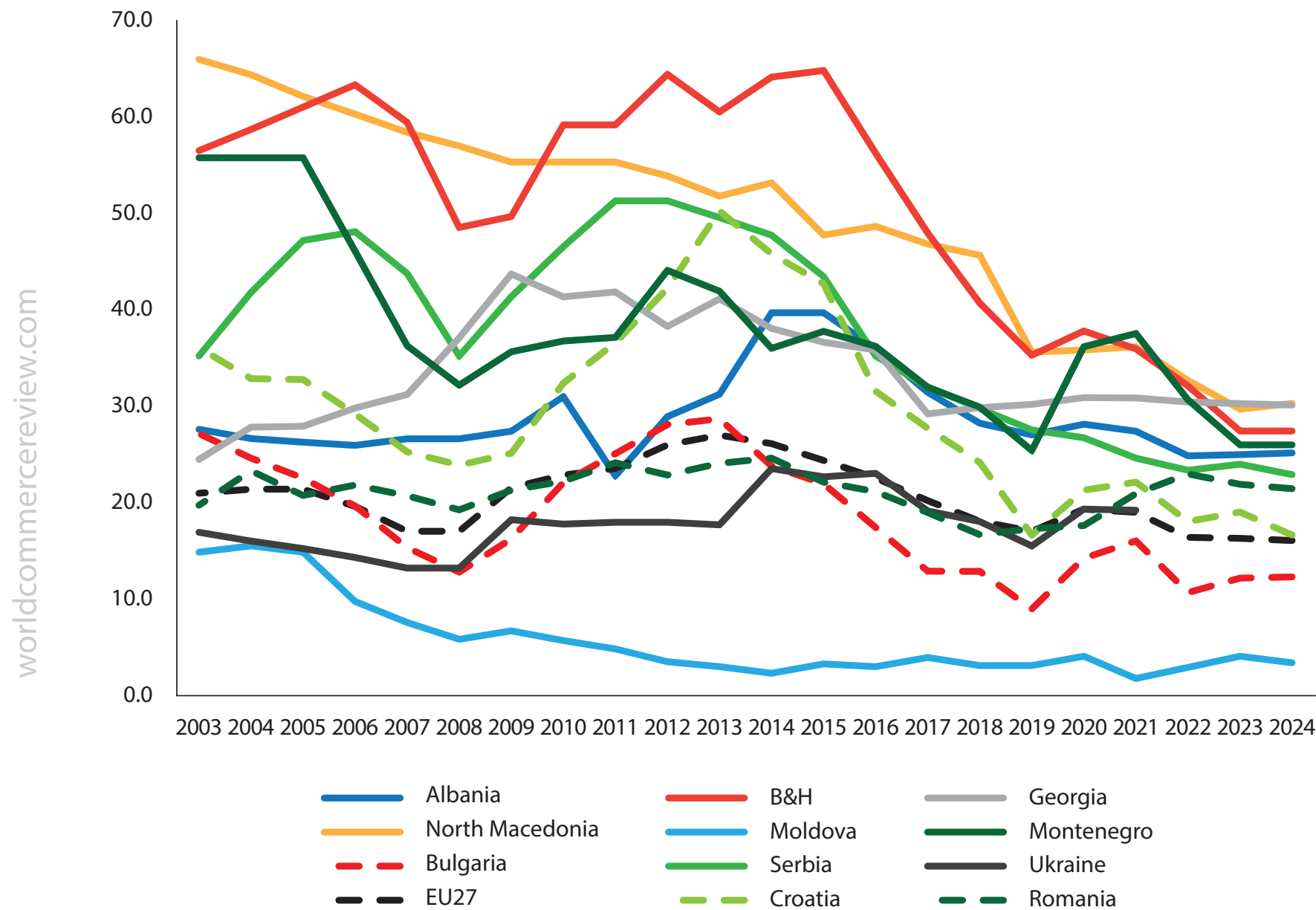
Note: Modelled ILO estimates. Data for Kosovo is not available.
Source: World Bank World Development Indicators, last updated on 6 May 2025.

Figure 8. Unemployment, % of total labour force, 2003-2024



Note: Modelled ILO estimates. Data for Kosovo is not available.
Source: World Bank World Development Indicators, last updated on 6 May 2025.

Figure 9. Youth unemployment, % of total labour force aged 15-24, 2003-2024



Note: Modelled ILO estimates. Data for Kosovo is not available.
Source: World Bank World Development Indicators, last updated on 6 May 2025.

Youth unemployment remains the most entrenched challenge. In 2024, rates exceeded 25 percent in most Western Balkan countries, roughly 10 pp above the EU average, and higher than in Bulgaria, Croatia and Romania (Figure 9). While long-term improvements are visible, the pace of convergence is slow, and youth joblessness remains a major source of economic and social vulnerability.

Conclusions

The economic convergence of EU candidates with the EU average, measured by GDP per capita in constant prices and 2021 PPP international dollars, has progressed since 2003, partly because of declining populations in candidate countries. However, the substantial income gap between the candidates and the EU remains. The candidate country with the highest GDP per capita, Montenegro, reached only half of the EU average in 2024.

GDP per capita convergence could have been more rapid had the EU enlargement process moved faster. The performances of Bulgaria, Romania and Croatia, and of countries that became EU members in 2004, support this hypothesis (Beyer *et al* 2025; Izvorski and Madjoska 2025; Darvas 2024). Full access to the European single market and the EU budget, and institutional harmonisation resulting from the adoption of the EU *acquis* and other reforms, accelerated the growth paths of new EU members.

The three Eastern Partnership countries have been even more disadvantaged because they concluded association and free trade agreements with the EU a decade later, and got membership offers two decades later, than the Western Balkan candidates. The ongoing Russian aggression, meanwhile, has handicapped not only Ukraine but also neighbouring Moldova (Lupusor *et al* 2025).

Demographic and labour market indicators determine potential growth. All candidate countries except for Montenegro have experienced depopulation caused by negative natural population growth and net emigration. A

declining working-age population has helped mitigate historically high unemployment in the former Yugoslavia, although youth unemployment remains a challenge. Gradually increasing labour market participation rates have helped mitigate somewhat declining working-age populations and population ageing.

There are differences in terms of demographic and labour market indicators between the former Soviet Union and former Yugoslavia, going back to the communist era. For example, female LFP rates are higher and unemployment lower in post-Soviet candidate countries, but so are their male life expectancies. ■

Marek Dabrowski is a Non-Resident Fellow, and Maria Catarina Louro a Research Assistant, at Bruegel

Endnote

1. See press release [‘EU-Western Balkans Summit Thessaloniki, 21 June 2003’](#).

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Updating the EU Merger Guidelines

There is a growing push for the European Commission to weaken merger control. Natalia Fabra, Massimo Motta and Martin Peitz argue for a strengthening of the guidelines and offer suggestions to guide the process

The European Commission has begun drafting new Merger Guidelines to replace its 2004 Horizontal Merger Guidelines and 2008 Non-Horizontal Merger Guidelines. Although the existing guidelines remain valuable tools for assessing mergers, significant changes in economic realities and advances in our understanding of merger effects make an update both desirable and timely. In this column, we put forward a series of suggestions to inform and guide that process.

We observe with preoccupation pressure upon the Commission to substantially change its approach to merger policy. In particular, there is a growing push from certain quarters to weaken merger control – ostensibly to spur greater investment and innovation, higher productivity and growth, or the creation of European champions. Others are advocating for the Commission to include a range of objectives other than competition and efficiency in its merger evaluation.

We believe instead that the current overall analytical framework used by the Commission in merger control, and its underlying objectives, are sound and should be preserved. However, improvements can be made, and we submit that there are empirical and theoretical grounds to strengthen, rather than weaken, merger control.

Consider the claim that merger control has hindered higher productivity in Europe. Even a cursory look at EU merger control statistics would suggest that this claim is difficult to substantiate. From 2015 to 2024, for example, the Commission has reviewed 2,833 mergers and prohibited only nine. Moreover, only around 5% of mergers were subject to (behavioural or structural) remedies, which is even lower than the historical intervention rate, close to 7%¹.

These figures undermine the assertion that merger control measures have been unduly aggressive: with Commission interventions being so rare (and national competition authorities arguably having even weaker merger

enforcement), it is difficult to argue that merger policy has been an obstacle to EU productivity or growth unless one thinks that socially valuable mergers have not been proposed due to a perceived risk of intervention for such unobserved merger proposals.

The scholarly empirical evidence points in the opposite direction, suggesting under-enforcement of merger policy in the EU (eg. Duso *et al* 2013)².

Although the existing guidelines remain valuable tools for assessing mergers, significant changes in economic realities and advances in our understanding of merger effects make an update both desirable and timely

According to economic theory, horizontal mergers are presumed to harm consumers unless proven efficiencies more than offset the resulting increase in market power. In response, mergers between competitors commanding sufficient market shares³ or those raising concerns following an initial investigation should be prohibited unless there are significant merger-specific efficiencies.

This represents a radically different approach to the current one, whereby the European Commission has the burden of proving that a merger is anti-competitive. Instead, under certain conditions (which may include the use of structural presumptions), the burden of proof should be reversed⁴.

Furthermore, mounting evidence suggests that several firms enjoying an entrenched dominant position – not only in the digital sector – have systematically acquired potential competitors to prevent competition, without the Commission being able to intervene, primarily because of shortcomings in notification criteria (eg. Motta and Peitz 2021)⁵.

Of course, we are aware that the merger guidelines are not the appropriate instrument to modify the regime of the burden of proof or the notification policy. Nevertheless, we highlight these shortcomings in merger policy to emphasise the broader issue of under-enforcement⁶.

Furthermore, in the case of a firm with an entrenched dominant position, removing a firm that with some non-negligible probability is expected to become a viable competitor in the future, will cause serious harm on consumers. Thus, the more-likely-than-not standard is inadequate for dealing with such situations. Dynamic competition cannot arise if targets that are potential competitors (even with a relatively small probability) are cleared without much scrutiny⁷.

As for non-horizontal mergers, recent theoretical developments have demonstrated the necessity of reviewing them when they involve firms with significant market power⁸.

Several antitrust authorities have abandoned their laissez-faire approach towards vertical and conglomerate mergers. An update of the Merger Guidelines should reflect these developments.

Although we see no grounds to weaken merger control and to change its general assessment framework, we agree that the Merger Guidelines should be updated. One area for improvement is to better account for likely future developments both with and without the merger. Over the past decade or so, the Commission has devoted more attention to the impact of mergers on innovation, investment and variety of offerings, as well as on the long-term effects on competition (in principle, a merger may be competition-neutral, or even beneficial in the short term, but deprive rivals of the resources, data, and scale they need to compete, thereby undermining competition in the future).

Note also that considering these future developments does not require a change in paradigm. The objective of consumer welfare includes effects not only on prices but also on variables such as quality (possibly including, among others, environmental factors and security of access to goods and services), range, variety.

Furthermore, it should be interpreted dynamically rather than statically⁹. This is therefore consistent with an assessment of the protection of the competitive process as a means to avoid merger-induced consumer welfare losses in the long run. Consequently, barriers to entry and expansion may play a more important role in the revised guidelines.

Sustainability ranks high on the policy agenda, but the tension between environmental and competition objectives is often invoked without justification. For instance, recent research finds that firms exposed to stronger product market competition are more likely to innovate in environmentally friendly ways (Aghion *et al* 2023).

To the extent that stricter merger control helps preserve competition, it can also foster green innovation. This reinforces the importance of assessing the dynamic effects of mergers in sectors central to the green transition. As many clean technologies are still in the early stages of development, mergers that strategically delay their deployment can hinder learning-by-doing effects, leading to long-lasting negative consequences.

In cases where collaboration among firms could accelerate green innovation, joint ventures may provide a more efficient alternative to mergers. In any event, the current framework enables the evaluation of such innovation and sustainability effects within the efficiency assessment, without requiring a shift in paradigm (however, out-of-market efficiencies should be taken into account, as we argue below).

The current framework can also accommodate geopolitical and trade risks. For instance, when competing imports are at risk, a prudential merger evaluation should start from a more narrowly defined market in which these imports are no longer a competitive constraint and are therefore excluded from the assessment of the relevant market with and without the merger¹⁰. An update of the Merger Guidelines could provide guidance on how the Commission is to evaluate a merger in sectors subject to such risks.

We understand that the European Commission has sometimes been criticised for not properly considering efficiency claims, so the Merger Guidelines should also clarify the Commission's approach to efficiencies. Relatedly, we submit that the Commission should take into account out-of-market efficiencies in its merger assessments – an issue that might be particularly pertinent when sustainability and security of supply considerations are involved.

The effect on consumers should be considered in the aggregate. It would hardly be a good outcome for society if the Commission were to prohibit a merger that had a negative impact on a small relevant market but which had more than offsetting efficiencies in other markets. ■

Natalia Fabra is Professor of Economics at Cemfi and a Research Fellow at the Centre for Economic Policy Research and CESifo, Massimo Motta is Research Professor at ICREA-Universitat Pompeu Fabra and at the Barcelona School of Economics, and Martin Peitz is Professor of Economics at the University of Mannheim and a Director of the Mannheim Centre for Competition and Innovation - MaCCI

Endnotes

1. Own calculations, data from various Annual Reports on Competition Policy, DG Competition.
2. For more recent academic work on the effects of mergers in the Commission (restricting attention to cross-industries studies; there is of course a huge literature on ex-post assessments of particular mergers or particular sectors), see for example Affeldt et al (2021) and Stiebale and Szücs (2022).
3. There would be no point in prohibiting mergers between small firms since the market power effect is marginal and the possibility that their merger might lead to scale economies is higher, other things being equal.
4. For proposals of changing the burden of proof in the EU merger policy, see for example Motta and Peitz (2019) and Lancieri and Valletti (2024).
5. In addition to suppressing future competition, a dominant acquirer might also suppress the target firm's innovation, as documented by Cunningham et al (2021). This study refers to the US pharma industry. For the EU, see the European Commission-commissioned report by the European Commission and Lear (2024).
6. We also note that since the 2002 Airtours judgment, the Commission has hardly investigated coordinated effects theories of harm. The drafting of the Merger Guidelines might be an excellent opportunity for the Commission to review its approach on this issue.
7. A balance-of-harm standard appears to us more appropriate; see Katz and Shelanski (2007), Furman et al (2019), and Motta and Peitz (2021).
8. Some of these theories are not based on foreclosure arguments (eg. Chen and Rey 2023 and Kadner-Graziano 2025).
9. In economic terms, it is the future discounted value of consumer welfare which should be the object of the analysis.
10. For more details, see Motta et al (2024).

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The EU is still caught in an AI copyright bind

For frontier AI models, more training data improves performance. Tweaks to EU copyright requirements in the AI Act Code of Practice will maintain the AI growth momentum, for now – but will also create new challenges. Bertin Martens discusses

As part of the implementation of the European Union's Artificial Intelligence Act (Regulation (EU) 2024/1689), the European Commission has published several implementation guidelines, including the final Code of Practice (CoP) for the Implementation of the AI Act, issued in July 2025¹. It has also published detailed guidelines for reporting on data used for AI model training and obligations for providers of general-purpose AI models.

The CoP covers three issues: transparency about the construction of AI models, how providers should deal with model safety and security, and how to comply with copyright in AI training data.

Compliance with the first two is easy. Frontier AI models can by now fill in their own transparency forms and run regular safety and security checks. This will not increase regulatory compliance costs beyond what AI modelers are already doing.

Copyright is a thornier issue, however. For frontier AI models, more training data improves performance (Kaplan *et al* 2023). Copyright obligations reduce the quantity of available data and, through licensing requirements, increase the price of model training data. Data access conditions also affect the EU's global competitiveness in AI.

While some CoP copyright provisions make sense – a prohibition on reproducing copyright-protected content in model outputs; training on lawfully accessible data only – others are problematic. This includes being transparent about the origins of datasets used for model training and managing the rapidly rising number of copyright holders who have withdrawn ('opted-out') their data from model training (Longpre *et al* 2024) in accordance with the EU Copyright Directive (Directive (EU) 2019/790).

EU regulators are caught between EU copyright law and global competition between national AI regulations. They cannot modify the law in the short run to accommodate the data needs of AI models. But full application of the law would endanger EU access to the best AI models and services and erode competitiveness. The CoP is the latest attempt to square that circle.

How close AI model outputs may come to the original is an AI model output question, not a data-inputs question. Moving the policy debate to permissible AI outputs would at least clear the way for unrestricted learning and transformative use on the inputs side

The illusion of full transparency

Together with the AI Act, the CoP is intended to help improve transparency about the use of model training data². It assumes that this will facilitate licensing of copyright-protected data, thereby giving copyright holders a fair share of AI revenues.

That wishful thinking ignores the problem of high transaction costs and the licensing fees that negotiating deals with millions of online rightsholders would generate for AI developers. For the multitude of small web publishers, transaction costs may exceed the value of licensing fees.

The model used for online advertising isn't easily transferrable to AI licensing. Nor does collective licensing offer a solution (Geiger and Iaia 2024), replacing individual pricing with single collective prices determined by intermediaries. Shifting the problem from the licensee to an intermediary copyright management organisation does not solve the issue of tracking and assigning value to content use.

Setting the overall collective license price for hundreds of AI models would also result in fragmentation of the EU AI regulatory landscape as national copyright management organisations in EU countries would propose their own rules and pricing.

Spain and Germany, for example, have tried already³. In an ideal world with a global copyright authority, with access to all AI training data inputs, model outputs and revenues, an AI model might solve this vast computational problem – assuming an agreement on how much AI revenue should be redistributed to training data producers (Martens 2024).

High transaction costs exist precisely because such a copyright authority does not exist and provide a justification to grant copyright exceptions (Posner 2004). This could have been applied to AI training data.

EU policymakers found another way out of this conundrum. The CoP guidelines for reporting training data require only a summary list of the most relevant online domains from which training data was scraped⁴. Small online publishers, for which transaction costs are more likely to exceed licensing fees, can be omitted. This twist is in line with the European Commission's goal to 'improve the copyright framework to address new challenges'. But it also creates new challenges.

It may result in biased training datasets – especially penalising for smaller EU language and cultural communities. Leading AI models are already biased in favour of large English-language communities and lack cultural diversity (Zhang *et al* 2025). These CoP copyright provisions undermine the AI Act's aim to reduce bias in AI models.

Stretching the CoP beyond copyright law

However, this approach still leaves some issues unresolved. The CoP defines AI training data very broadly as all data used for pre-training, fine-tuning and reinforcement learning, regardless of whether the data is protected by intellectual property rights⁵.

This includes personal data protected by privacy rights, synthetic data generated by the model developer and data 'distilled' or extracted from other AI models. Models are not protected by copyright (Henderson and Lemley 2025). Developers appear to be increasingly secretive about the production of synthetic training data, often extracted from other AI models, because it has become an important factor in their competitiveness.

Again, a vague CoP formulation rescues developers: only a brief narrative of data sources is required. That gives considerable discretion to the AI Office, responsible for the implementation of the EU AI Act⁶.

The rapid evolution of AI models is diminishing the importance of copyright-protected model training data. The latest generation of 'reasoning' models relies more on reinforcement learning with synthetic data, often extracted from other AI models.

Copyright, however, remains important at the other end of the AI model lifecycle, beyond training, when models retrieve data in real-time from external sources to respond to user queries. However, this data is not covered because copyright provisions in the AI Act and CoP are limited to data used for AI training, not data collected after training.

Unequal treatment of training and post-training data led to another CoP provision that stretches beyond EU copyright law. The CoP instructs AI model developers to ensure that compliance with data mining opt-outs does not negatively affect the findability via search engines of these opted-out contents (Kim *et al* 2025).

In other words, data that is out of bounds for AI bots and models should still be collectable by search bots operated by the same company, to maintain the flow of engine traffic, online sales and advertising revenue to publishers' websites.

This is intended to help web publishers push back against the fall in traffic to their sites induced by AI answer engines⁷. However, it discriminates between machine learning and human learning. Machines will be able to retrieve less information than human users of search engines.

This reduces the quality of AI answers and forces human users to invest more time and cognitive effort in constructing their own replies by clicking and reading relevant pages in search engines, rather than obtaining ready-made answers from AI models.

That keeps human learning costs artificially high, compared to what they could be with a level playing field in data access between search and answer engines. Ultimately, this would have the consequence of reducing the efficiency of human learning and slowing down innovation in society.

Rapid convergence between search engines and AI answer technologies may soon make this CoP provision obsolete. Data collected by search bots and AI bots will converge on the same page. Google, Microsoft and OpenAI already offer search and answer services jointly.

Web publishers and e-commerce platforms realise that the shift from search to answer is inevitable in the AI age, especially with the fast rise in AI agents, and are looking for other ways to generate revenue⁸.

The EU's AI copyright regime can only stand if AI models trained under more liberal regimes in other constituencies can be kept out of the EU market. For that purpose, the AI Act includes an extra-territoriality clause, a very contentious provision because copyright law is essentially territorial law (Quintais 2025).

Countries with less-restrictive copyright regimes tend to do better in AI innovation (Peukert 2025). Japan, for example, applies copyright to use of media data 'for enjoyment' by consumers, but allows a copyright exception for intermediate use for AI training.

In US copyright law, transformative use of media content for purposes other than originally intended may constitute an acceptable exception to copyright protection. US courts seem to be gradually moving in that direction for AI training data (Martens 2025), and President Trump certainly supports the trend⁹.

In July, the US administration published its AI Action Plan (The White House 2025). It recognises that US-China geopolitics and America's wish to achieve global dominance is the main driver of the AI race. It wants to remove all barriers, including regulatory barriers, that stand in the way of achieving that goal.

Should US courts¹⁰ accept AI models as transformative use of training data and grant an exception to copyright protection for these data, the EU would need to align with the US on copyright (the alternative in extremis would be for the EU to drop out of AI altogether). Developers would not re-train models with data acceptable in the EU market, reinforcing a situation in which hardly any leading AI models have been trained in the EU so far.

Attempts to change EU copyright law may also backfire, potentially leading to even more detailed transparency requirements for all AI training inputs and a presumption in the absence of full transparency that relevant works have been used for AI training purposes, which could trigger infringement procedures¹¹.

Policy conclusions

Subtle weakening of copyright enforcement in the CoP, limiting it to the most relevant data used for AI training, has enabled most major AI developers to sign up to the CoP, except Meta and xAI¹². Signatories will have been comforted by vague formulations that leave considerable margin for interpretation by the AI Office.

AI regulators are caught between EU copyright law and AI regime competition with other countries. Attempts to reform that law may take many years and might backfire. Muddling through may be the only feasible option in the short run.

A more satisfactory policy would require a debate on the role of AI in enhancing learning, research and innovation (Senftleben *et al* 2025), and the conditions under which it can access data to feed that process. Copyright is the wrong starting point for that debate. It was originally designed to promote creativity and innovation.

But in the AI era it has become a reactionary force that diminishes innovation potential, controlled by media industries that represent less than 4 percent of GDP. Staying on top in the global AI competition requires an efficient pro-innovation regime¹³.

A better solution would be for copyright law, or at least its application to AI models, to take some inspiration from pro-innovation features in patent law. The innovative content of patents is publicly available and anyone can learn from it, build new innovation around or on top of it (Murray and Stern 2007). But only the patent holder has the right to commercial reproduction of the original invention. That accelerates the spread and accumulation of knowledge growth and still protects original innovators.

Applying this approach to data for AI model training, and to post-training data retrieval, would permit AI models and users to learn from all legally accessible content and data. This could be achieved by widening the interpretation and application of the copyright protection exemption for digital data processing in Art 4§3 of the EU Copyright in the Digital Single Market Directive (Directive (EU) 2019/790).

How close AI model outputs may come to the original is an AI model output question, not a data-inputs question. Moving the policy debate to permissible AI outputs would at least clear the way for unrestricted learning and transformative use on the inputs side. ■

Bertin Martens is a Senior Fellow at Bruegel

Endnotes

1. For the Code of Practice, see European Commission, [‘The General-Purpose AI Code of Practice’](#). Other AI Act guidance, on reporting on data used for AI model training and obligations for providers of general-purpose AI models, is available [here](#).
2. See Article 53 §1(d) of the AI Act (Regulation (EU) 2024/1689) and the CoP copyright section.
3. Spain introduced a proposal but abandoned it; see International Publishers Association, [‘Madrid Withdraws the Royal Decree on AI Licenses’](#), 25 February 2025. The German copyright society has introduced a proposal; see GEMA, [‘GEMA launches AI charter: Protection and promotion of human creativity in the era of generative AI’](#), 5 November 2024.
4. Paragraph 16 in the European Commission [‘Explanatory Notice and Template for the Public Summary of Training Content for general-purpose AI models required by Article 53 \(1\)\(d\) of Regulation \(EU\) 2024/1689 \(AI Act\)’](#), of 24 July 2025. See also footnote 1.
5. See paragraph 13 the European Commission [‘Explanatory Notice and Template for the Public Summary of Training Content for general-purpose AI models required by Article 53 \(1\)\(d\) of Regulation \(EU\) 2024/1689 \(AI Act\)’](#), of 24 July 2025. See also footnote 1.
6. See European Commission, [‘European AI office’](#).
7. Daniel Thomas, [‘Publishers race to counter ‘Google Zero’ threat as AI changes search engines’](#), Financial Times, 25 August 2025.
8. Cristina Criddle and Daniel Thomas, [‘Rise of AI shopping ‘agents’ set to transform ecommerce’](#), Financial Times, 31 August 2025, .
9. Kate Knibbs, [‘Trump Says He’s ‘Getting Rid of Woke’ and Dismisses Copyright Concerns in AI Policy Speech’](#), Wired, 23 July 2025.
10. Numerous court cases are underway; Kate Knibbs, [‘Every AI Copyright Lawsuit in the US, Visualized’](#), Wired, 19 December 2024.

11. A draft European Parliament own initiative report on copyright and AI, issued at the end of June, also calls for AI models not to engage in selective processing of publications and cover the entire press spectrum. That would boil down to mandatory payment of license fees by AI model developers to all press publishers. See [here](#).
12. Pieter Haeck, *'Commission publishes list of signatories to AI code of practice'*, Politico, 1 August 2025.
13. Andres Guadamuz, *'Copyright Blocks the UK's AI Ambitions'*, CEPA, 14 March 2025.

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