

How is innovation competition exacerbating global overcapacity?

The world is moving into a period of entrenched manufacturing overcapacity, threatening deflation and stagnant growth

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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).

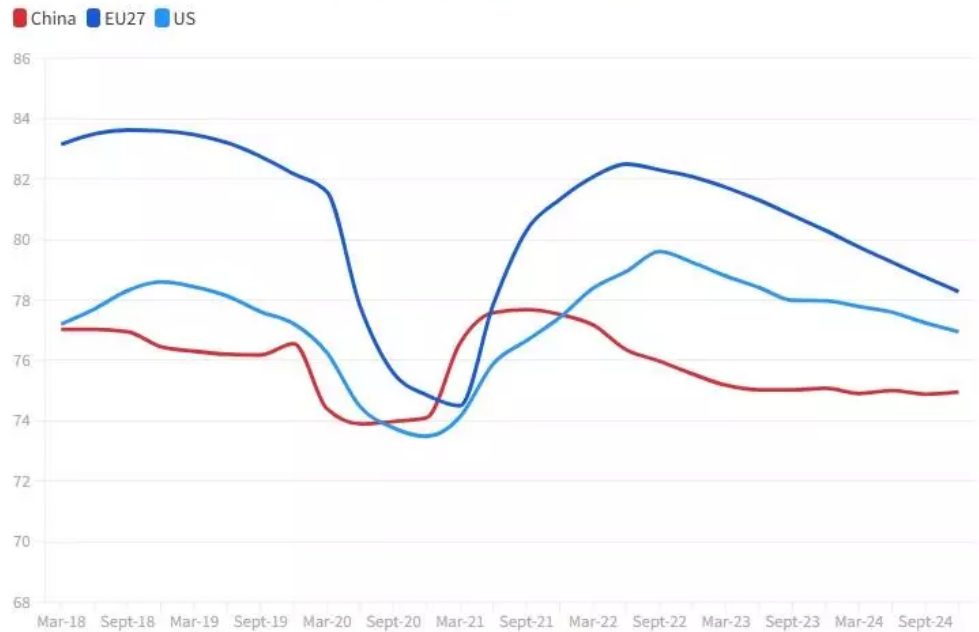
While volumes of solar panels, electronics and electric vehicles (EVs), for example, have continued to multiply, concerns over idle plants and unsold inventories have become increasingly acute (McWilliams *et al*, 2024). This supply/demand imbalance has already triggered trade tension between China and 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.

Figure 1: Manufacturing capacity utilisation (%)



Source: Bruegel based on CEIC, FRED and Eurostat. Note: four-quarter average. Data as of Q4 2024.



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). 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.

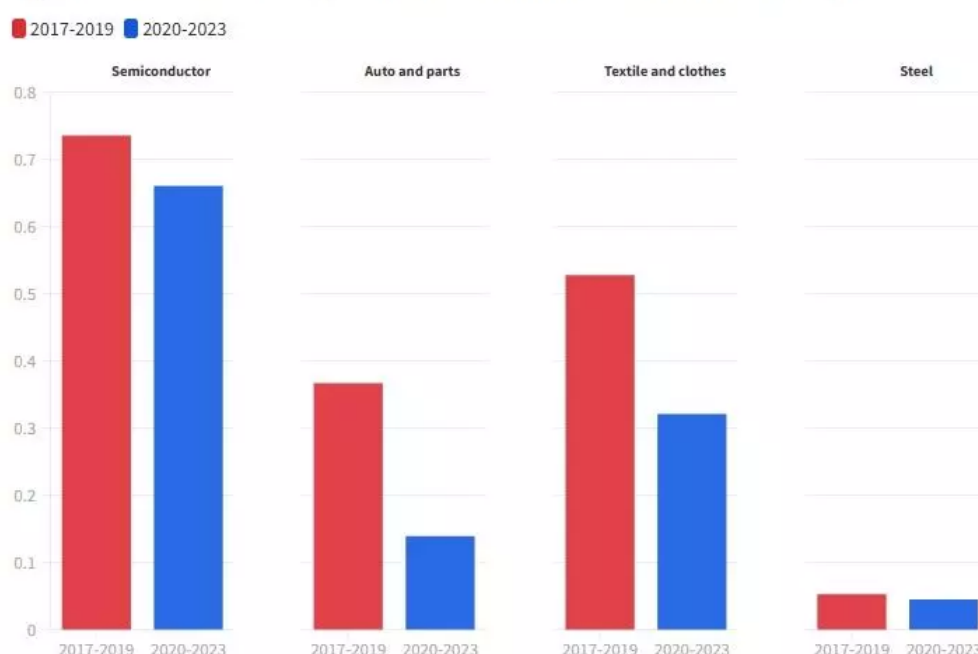
Government protection and 'zombie' capacity

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 reduced significantly 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).

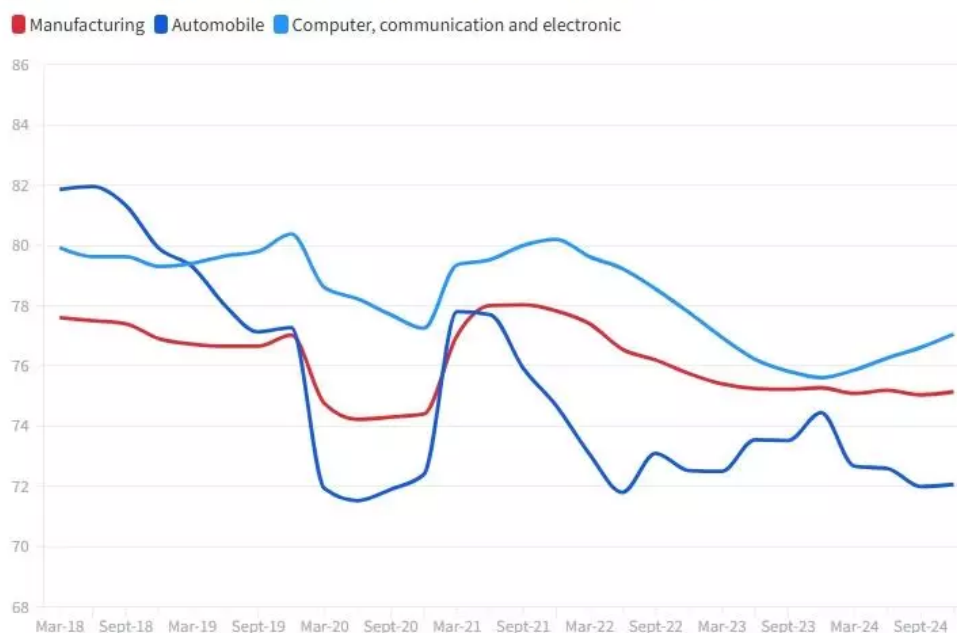
Figure 2: China, subsidy ratio (% of business revenues) in major sectors



Source: Bruegel based on Chinese listed companies' financial statements, WIND.



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.

Figure 3: China, capacity utilisation ratio in key sectors (%)

Source: Bruegel based on CEIC Database. Note: Four-quarter average. Date as of Q4 2024.



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.

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.

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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', <https://www.federalreserve.gov/releases/g17/>.
- 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, https://competition-policy.ec.europa.eu/state-aid/ipcei_en.
- 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, <https://www.scmp.com/economy/china-economy/article/3034753/global-steel-forum-scrapped-china-says-it-has-done-more-its>.
- 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', https://ec.europa.eu/commission/presscorner/detail/en/ip_24_3231.

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