



Industrial Policy Reloaded

Karl Aiginger¹ · Christian Ketels^{2,3}

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1 Introduction and Summary

Industrial policy remains a term prone to trigger strong reactions. Many economists in Europe and especially the US have long viewed such policies with strong suspicion. They are concerned about the conceptual pitfalls of governments steering the allocation of resources across sectors away from market signals. They are also concerned about the empirical challenges of getting policies right in practice that could work in theory, given political economy dynamics and the lack of data. Policy practitioners have always less circumspect, ready to take industrial policy action if there were political reasons to do so. For them the challenge is to get guidance on how to implement such policies in an effective way, moving beyond the question of whether they should be used at all.

A de-facto compromise between theory and practice emerged, with more explicit consensus on the value of horizontal policies favoring framework conditions and more disagreements on sectoral policies putting emphasis on specific industries. Policy guardrails were provided through the IMF and the World Bank pursuing the “Washington Consensus” of macroeconomic and general market-oriented policies and through the WTO on the rules of the global trading system (Hoekman and Mavroidis 2021). Within Europe the rules of the Single Market provided formal and practical limits to countries’ policy actions (European Commission 2023a, b).

In recent years, a succession of economic challenges and crises increased the pressure on policy makers to respond in more directed ways to encourage the structural transformation of their economies, enabling sustained and shared prosperity growth in a period of quickly deepening globalization. And the rise of emerging economies, especially China,

✉ Karl Aiginger
Karl.Aiginger@wifo.ac.at
Christian Ketels
Christian.ketels@hhs.se

¹ Europaplattform Vienna-Brussels (Policy Crossover Center), Emeritus Austrian Institute of Economics, Vienna University of Economics and Business, Vienna, Austria

² Institute for Strategy and Competitiveness, Harvard Business School, Boston, MA, USA

³ House of Governance and Public Policy, Stockholm School of Economics, Stockholm, Sweden

that are less bound by the past policy consensus and have the willingness and resources to pursue robust industrial and other policies they view to be in their interest, has increasingly changed the calculus for all countries in terms of whether to abide with the traditional policy approaches.

Five years ago a special issue of this journal analyzed the "Rebirth of Industrial Policy under Responsible Globalization" given these forces (Aiginger and Rodrik 2020). It made proposals on what a New Industrial Policy might look like, e.g., it should follow a high road strategy, technical progress had to be directed, societal goals should guide policy choices, populism and nativism should be addressed as a response to negative repercussions of the past period of globalization (Aiginger 2022).

2 What Recently Changed: New Crises and a New Profile of the Global Economy

Five years later, the world and therefore the need and goals for industrial policy have evolved further. **A series of new or deepening crises** has afflicted the global community, posing new policy challenges:

- The **pandemic and its aftermath** has exposed the fragility but also the importance of global value chains. It focused attention on governments' ability to provide needed medical products, basic health care and other services to their populations. Resilience became a more important policy objective, and active government policy efforts a more important and accepted tool.
- **Climate change** is increasingly visible, with rising implications for prosperity, especially for the poor suffering from heat waves and weather extremes. The green transition is becoming a major policy objective across the world, with the need to manage that transition in ways that distribute the costs and opportunities of that transition across countries and parts of societies in balanced ways.
- Rising **geopolitical tensions** and active wars in the Ukraine and in Israel/Palestine challenge the foundations of the global institutional structure that has sustained the last phase of globalization. They also erode the ability to mobilize global collective action on addressing climate change and other global challenges (Acemoglu 2023).

At the same time, the **profile of the global economy** is fundamentally changing, affecting policy priorities and the potential impact of policy actions:

- **The geographic footprint and growth of global GDP are changing.** Developing countries produce today half of the world output, and a rising share of trade and investment flows. The BRICS countries (Brazil, Russia, India, China, and South Africa) have invited six new members to join their ranks. Together they will account for roughly 30% of global GDP, challenging the dominance of the G-7 countries (Canada, France, Germany, Italy, Japan, the United Kingdom, and the USA). China in particular has enjoyed fast growth in the past. But it is now experiencing old and new problems, like a decreasing population, macroeconomic imbalances with an ailing real estate market, and slowing productivity dynamics, reducing its ability to drive global GDP growth in the future. Global trend growth is falling (Kose and Ohnsorge 2023).

- **Demographic trends are changing policy priorities.** Many advanced economies, including China, are confronted with a rapidly ageing population. Other regions, however, are facing a doubling of population: Africa's population will rise from 1.4 bn to 2.5 bn people up to the middle of the century, and then to 3 bn up to the end of the century. India will continue to see its labor force grow for a few decades overtaking China. Aging societies will experience demographics as a limiting factor for growth. While unemployment might be less of a challenge, skill shortages will increase. These countries would benefit from immigration, but increasing populism could prevent this. Societies still experiencing population growth could give the global economy access to a growing labor force. But these are countries that have struggled to provide jobs for labor market entrants in the past; they face the threat of rising unemployment, poverty, and political tensions.
- **New technologies are changing the patterns of sector-specific opportunities** for growth and job creation. Industry in the sense of manufacturing or infrastructure investments remains an important part of economic activities and global trade in particular. But production activities are made more valuable by services and new digital tools. And they provide less direct job creation opportunities than in the past, with productivity growth outpacing demand. New digital technologies like generative AI will create further disruptions, providing opportunities for productivity growth but also threatening many existing jobs. Raw materials are still important, but growth is shifting to new materials like cobalt, copper, lithium, or nickel that are important for new technologies and decarbonization. Access to sources of renewable energy will become a critical asset; in the transition period access to low-cost oil and gas resources will remain important, if conflicts threaten old sources, or policy fatigue may prevent innovations and change.

3 New Horizons for Industrial Policy

This new special issue aims to take stock of how these recent changes have affected the debate and practice of industrial policy. A few observations stick out from the articles included:

First, the focus of the industrial policy debate is increasingly shifting on **“how to be successful in practice”**, not any more primarily about “whether to be justified in theory”. The paper by *Chiara Criscuolo and Guy Lalanne* outlines a new approach for classifying and measuring industrial policy- see also Criscuolo et al. (2012) or Juhász et al (2023). This is as a critical step to understand what works and what doesn't in specific circumstances, moving beyond the use of individual failures or successes to understand broader patterns of impact. *Fuad Hasanov and Reda Cherif* look in their paper into the specifics of what made industrial policy in Asia so much more successful than in other parts of the world. They identify export orientation as a critical element of the “Asian Miracle” (Birdsall 1993) and thus a key characteristic of successful industrial policies. *Alicia Garcia-Herrero and Michal Krystianczuk* analyze the specifics of the “1000 little (future) giants” program, a key part of China's industrial policy toolkit (for broader context see Branstetter and Li 2023 or Barwick et al 2019). They find the program to be effective in targeting higher performing firms but do not see strong benefits to the firms or the broader economy from the program's support mechanisms.

Second, especially in advanced economies there is a distinct **shift in the objective function for industrial policy**, towards broader societal goals instead of narrow job creation or growth. This shift has contributed to a significantly higher willingness to use policies that only a few years ago were viewed as distortive. *Elizabeth Reynolds* dissects the range of ambitious new policy initiatives launched by the Biden administration in the USA. These policies combine the ambition to rebuild the industrial base in the USA, especially in locations battered over the last few decades by rising Chinese imports (Autor et al 2021), with a focus on creating high quality jobs with social benefits, accelerating the green transition, and strengthening the resilience and self-sufficiency of the US economy in key sectors. *Reinhilde Veugelers, Simone Tagliapietra and Cecilia Trasi* contrast this approach with the efforts of the European Union on a new Green Industrial Policy. There are similarities with the USA on the broader ambition related to the green transition and likely also on the overall resources committed. But there are significant differences in the type of instruments used. And in Europe there are now clear concerns as to whether this difference in approach might also lead to a difference in impact.

Thirdly, these changes in the policy posture of advanced economies have significant **implications for emerging and developing economies**. These tensions are outlined by *Nobuya Haraguchi, Fernando Santiago Rodriguez and Alejandro Lavopa*: on the one hand, the change in the policy dialogue provides more justification for less advanced economies to set active policies that help accelerate their structural transformation (Lin and Monga 2017). On the other hand, they are facing increasing rivalry from advanced economies with much deeper pockets, have weaker institutional structures to implement policies effectively, and are confronted with an economic context in which export-driven export growth of manufacturing is less feasible (Rodrik 2015). *Deepak and Gaurav Nayyar's* article on India provides a concrete perspective on these challenges. India has moved beyond many of the ideological roadblocks that had held it back historically. But it is now facing the task of implementing ambitious policies to drive industrial development with institutional structures that are not fit for purpose. And it is facing a global market environment that is much less conducive to the type of export-oriented industrial policies that Fuad Hasanov and Reda Cherif documented to be historically effective (Ketels et al 2022).

4 The Articles in Detail

Chiara Criscuolo and Guy Lalanne from the *OECD* describe the need for a sound and simple framework to help design and track the application of new industrial policies.

The authors first present a new framework for industrial policies to support an evidence-based discussion of these policies. They argue that this approach is particularly useful in the context of mission-oriented policies towards the green transition that exhibit strong complementarities across specific instruments. The authors then report on the empirical results of applying this framework to map industrial policy actions and expenditures across 9 OECD member countries. They find a significant extent of industrial policy expenditures, and a growing role of green industrial policies. They authors argue that this type of structured data is critical for assessing and improving industrial policy going forward.

Reda Cherif and Fuad Hasanov from the *IMF* look at the reasons of why a group of Asian emerging economies has been successful in their use of industrial policies over recent decades. They look particularly at whether industrial policies were aiming to

substitute imports versus incentivizing exports. Both are often called industrial policies, but their outcomes have been very different.

The authors first review the industrial policy debate to develop their typology of export-oriented versus import-substituting policies. They then provide empirical evidence to show that developing countries largely went through two main periods: a golden age of import substitution between 1965–1980, characterized by rapid growth in manufacturing output, followed by their collapse over 1980–2010. The authors find that very few developing countries pursued export orientation in the 1960s and 1970s, while, in stark contrast, the Asian miracle countries aggressively pursued exports. These Asian miracles were among the very few economies that managed to sustain a rapid growth in their manufacturing output over 1980–2010. The authors explain these outcomes with export orientation encouraging fierce competition, enabling economies of scale due to market size, innovation spillovers due to international linkages, and providing market signals for policy makers. They argue that the real debate should be about “true” industrial policy which failed because it was not tried; they make the case that *laissez faire* can even be worse than import substitution.

Alicia Garcia-Herrero and Michal Krystyanczuk from *Bruegel* analyze the practice of industrial policy in China. Its economy has expanded fastest of all large countries since joining the WTO in the early 2000s. Its China 2025 strategy set out an ambitious industrial policy agenda, which led to significant concerns in other countries about the distortive effects of these interventions. But while the market outcomes are well documented, the details of the industrial policies that China deployed are much less well understood.

The paper looks at two specific issues: First, the authors look at the “words” – they use large language models (LLM) to identify sectoral priorities in key industrial policy documents. They find significant overlap of sectoral priorities across national and most regional five-year plans, but higher divergence between these plans and both the China 2025 strategy and the “10,000 little giants” program, one of its key spin-offs. These differences might be a reflection of different economic profiles across regions, and of different ambitions for the specific policies. Secondly, the authors look at “deeds”- they analyze the selection criteria and actual characteristics of the companies supported through the “10,000 little giants” program. While they find high R&D intensity to be a significant characteristic of selected firms at some times, there is little general evidence of the criteria set out in the policy documents to be reflected in the group of firms actually supported. The authors conclude that that “deeds” do not follow the “words”, at least in the case of the “10,000 little giants” for which data on the recipients of support is publicly available. Overall, there is less evidence on coherence in China’s industrial policy than one might expect.

Nobuya Haraguchi, Fernando Santiago Rodriguez, and Alejandro Lavopa from *UNIDO* analyze how the changing context for industrial policy is playing out for developing countries. While much of the focus of the industrial policy debate has been on advanced and emerging economies, their actions also have significant implications for the market and growth opportunities of developing countries.

The authors reflect on the more intensive use of industrial policies by advanced and leading emerging economies as one of the key contextual changes. The paper reports that high income countries may have invested five times more resources on industrial policy than developing countries. At the same time, stronger support by these countries on fighting climate change could affect their position in international institutions, leading to a New Washington Consensus (Sullivan 2023) that would provide new opportunities for the IMF and the World Bank to engage. The other key change is the situation in developing countries themselves, where progress on the Sustainable Development Goal 9 – Industry, Innovation and Infrastructure – remains far behind their more advanced

peers. The authors report on a range of concrete policy opportunities that they have identified for developing countries in these areas. For many of them, new partnerships, including with the private sector, academia, and NGOs, will be critical. The authors establish the importance of changes in the global institutional architecture to avoid the new approach to industrial policy in advanced economies having significant negative spillovers for developing countries.

Deepak Nayyar and Gaurav Nayyar from *Jawaharlal University* and the *World Bank* take a closer look at India's industrial policy. The country had historically made policy choices that were inconsistent with effective modern industrial policies. It has now changed course and aims to create "good jobs" via industrialization on the back of favorable demographics and geopolitical circumstances. But it is facing challenges from the new global context that might require new policy approaches to lead to success.

The authors provide context on the patterns of India's industrialization between 1950 and 2020. The economic reforms of the early 1990s were a watershed moment. Before that, India focused on import substitution which led to increasing industrialization but low efficiency and growth. The reforms then enabled higher growth in India but drove de-industrialization. The authors conclude that economic openness was necessary but not sufficient to enable industry- and export-driven growth. As for the situation now, the authors document the new Production Linked Incentives (PLI) schemes to accelerate investment in specific manufacturing sectors. The key challenge remains job creation; the service-led transformation of the recent past has increased the demand for high-skilled employees in services but offers few opportunities for the large number of low-skilled job entrants. The authors then compare India with other Asian economies that have successfully industrialized and discuss how changes in the global context are making it increasingly difficult to follow this path. In a final section, the authors outline some principles for a new Indian Industrial Policy, focusing on enhanced coordination and specific approaches towards enabling technological leapfrogging and supporting services.

Elisabeth B. Reynolds former Special Assistant to the US President for Manufacturing and Economic Development and now at *MIT* takes a closer look at the "Modern American Industrial Strategy" deployed by the Biden administration in the USA. These changes have been welcomed in many countries in terms of their ambitions to address climate change. But they have also created anxiety, not the least in Europe, in terms of their distortive effects.

The author puts the new policy initiatives – she looks at the CHIPS and Science Act, the Inflation Reduction Act (IRA), and the Infrastructure Investment and Jobs Act (IIJA) – into the context of the past experience and discourse around industrial policy. In her discussion of these policies, she focuses strongly on the how, i.e., the conditions, guardrails, and processes applied to achieve the policy objectives set while avoiding the well-known pitfalls of industrial policies. The author emphasizes the shift in policy goals; the focus is on "good" jobs that satisfy specific criteria and on addressing climate change, geopolitical risks, and other societal challenges, not simply jobs or growth. The article provides rich detail on the particular characteristics of the three policies discussed, and the demands that implementing them well puts on the administration. The author emphasizes the step change that these policies represent, both in terms of their scale and ambition as in their design.

Reinhilde Veugelers, Simone Tagliapietra and Cecilia Trasi from *Leuven University* and *Bruegel* discuss the past, present, and prospects of green industrial policy in Europe. The EU has set itself the goal of becoming the first carbon-neutral continent globally and launched a range of policy initiatives to realize this ambition. These policies have come under scrutiny – both by the emergence of new policy initiatives in the USA and China that

appear to be more effective, and by concerns within Europe about other objectives, including competitiveness, geopolitical sovereignty, and affordable energy.

The authors document the evolution of Europe's green industrial policies. In a first section, they discuss the historical roots of these policies, including the revival of industrial policy thinking after the economic crises of 2008–2010. They then trace how the green transition has become a core policy priority, leading to the European Green Deal in 2019. Looking at the situation today, the authors argue that Europe has a multitude of [green] industrial policy initiatives, that are, however, generally not well coordinated – if not even conflicting. One key challenge is the alignment of actions at the EU level with those at the level of EU member countries. The most recent policy initiatives, e.g., The Critical Raw Materials Act and the Net Zero Industry Act, have been reactions to the complex geopolitical context in which Europe operates. Some of these include no new resources but focus on different rules and regulations instead. Based on this analysis, the authors recommend a number of key changes to the EU's green industrial policy: (i) a strong green industrial policy with good governance; (ii) existing support has to be simple; (iii) leveraging of private investment is necessary; (iv) leveraging of single market; (v) revamping EU-level support for green innovation; and (vi) enforcing skills.

5 Where Does this Leave us?

Industrial policy is here to stay. There is a rising demand for industrial policy, understood broadly as policies that aim to enhance the performance and profile of the economy using tools that move beyond sector-neutral and general “rules of the game” policy actions. This demand is fueled by new policy challenges and objectives, including achieving the green transition, driving shared prosperity growth, and enhancing resilience in a risky and fragmented geopolitical context. And by a sense in the policy community that traditional policies to enhance overall framework conditions are alone insufficient as a response to these challenges and demands. It is in this sense less a conceptual repudiation of the policies promoted since the 1990s but a reaction to changes in actual circumstances and needs.

The policy approach of the previous era focused on liberalization and improving framework conditions did work in many respects (see Irwin 2020 for the global and Gil and Raiser 2012 for the European experience). But the situation now is different, in part also as a direct consequence of the economic dynamics that the policy approach of the last few decades has created. This has shifted the balance of political opinion even in countries traditionally skeptical towards industrial policy, like Germany and the USA. And as the memory of past industrial policy failures has faded to a certain degree, there is much less resistance to at least attempting new industrial policy measures. This could, however, change relatively quickly if the new industrial policies fail to deliver.

While still diffuse, elements of a new policy framework are emerging. New approaches, like mission-orientation, have some promise and identify critical dimensions of a new framework (Mazzucato 2021). Directionality in terms of aligning market signals with societal goals cannot be taken for granted but needs to be embedded in market designs and policies. And policy action needs to mobilize a broader set of tools and actors to be effective. But so far actual initiatives in this vein have remained vague and have not shown their potential in practice (Tönurist 2023; Kelsey 2023). Old approaches towards industrial policy that worked, like export-orientation, might not be as effective in the new context (Rodrik 2015).

There is an emerging consensus that a policy approach that simply focuses on affecting the allocation of capital to new sectors is not enough. It also requires upgrading the fundamentals that drive productivity and innovation, and their impact on resources (Aiginger and Rodrik 2020, and Rodrik and Stiglitz 2024). The boundaries towards innovation, trade, and infrastructure policies are getting blurred – all of these are critical for individual industries to succeed. Many of these fundamentals are, in fact, sector-specific, requiring policies to move beyond sector-neutral efforts. There is also an emerging consensus that success is driven by the alignment and coherence of policy actions, not simply by the features of any individual policy program. Such alignment and coherence require strategy, roadmaps, and collaboration – both between the public and private sectors and within the public sector. Location-specific factors also play a role, as many actions and results are highly localized (Austin et al 2018; Ketels and Duch 2022).

A new international architecture will be needed to anchor national industrial policies in a stable global context. The past policy consensus was anchored in a set of global institutions and rules, and within Europe in the Acquis governing the Single Market. It relied on collective action to sustain a cooperative equilibrium that was seen to benefit everyone over time. But the willingness to behave cooperatively has eroded. OECD economies feel that others, China in particular, have not followed the spirit of the past consensus and are now looking for at the minimum friend-shoring (Yellen 2022) and “de-risking” their global economic relations (European Commission 2023a, b). Emerging economies, not only China, are at the same time concerned about efforts by advanced economies that erode the opportunities for catch-up via exports that the past system promised. A combination of trade barriers, whether motivated by the green transition or geopolitical concerns, and more robust industrial policies by countries with deep resources are seen as disadvantaging emerging and developing countries (an echo of the earlier argument made by Chang 2002).

There is a clear danger that the more muscular use of industrial policies will lead to increasing tensions in the global international system. Competition could become more focused on capturing rents rather than on creating value. This would have significant costs, even beyond those that a more limited erection of trade barriers will create (Javorcik et al 2023; Aiyar and Ilyna 2023). But even if capturing rents is not the intention, a new balance will need to be found between market access on the one hand and the freedom to drive new industrial policies on the other hand. In Europe this became apparent when Germany launched large programs to support its companies during the pandemic and then the energy crisis following Russia’s invasion of the Ukraine: other EU countries lacked the resources to match these programs and were concerned about their companies consequently being at a competitive disadvantage on the EU Single Market.

6 Industrial Policy is Reloaded

In 2024, industrial policy is not only “reborn”, but also “reloaded”. There is a large willingness of policy makers to engage in industrial policies, with unprecedented funding made available (Evenett et al 2024). We are experiencing industrial policy “at scale”: *“In countries that are already rich the state, after decades of free-market rhetoric, is back in a big way. Governments are spending hundreds of billions on handouts for industries they deem to be strategically important”* (Economist 2024).

This is only to a limited extent the result of changes in conceptual thinking or in the evidence base on industrial policy. Instead, it is driven by changes in the political context,

from people's demands on their governments – a particular concern given the key elections on the calendar this year (US, EU, India) – to pressures in an increasingly fragmented geopolitical system. And it is driven by new needs, especially the green transition and the rising concerns about shared prosperity. The past policy consensus is perceived to have been insufficient to provide policy makers with the necessary tools to address these challenges.

This “reloading” of industrial policy might be politically inevitable. But as the papers in this special issue point out, the reloaded industrial policies need to take account of the many learnings that the industrial policies of the past offer. Otherwise, the current rise in industrial policy action could fail to achieve impact and may even backfire, economically as well as eventually politically. The research presented here does provide concrete learnings and suggestions that can hopefully help guide policy makers and researchers to chart out a path that can avoid this fate.

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