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**Article**

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# Models of Industrial Policy and Competition: An Empirical Investigation

This study explores how the relationship between industrial policy and competition law is shifting, with the two increasingly working together to achieve broader economic and strategic aims. Drawing on an analysis of over 2,500 industrial policy interventions using advanced language processing tools, it highlights key differences between techno-nationalist and techno-globalist approaches and their impact on competition. The study also identifies significant differences across jurisdictions, emphasising the role of ideological frameworks in shaping policy compatibility.

In recent years, the relationship between industrial policy and competition law has undergone a fundamental transformation. Previously viewed as being in tension with each other, these policy areas are now increasingly seen as complementary tools for achieving broader economic and strategic goals.

The pandemic catalysed a rethinking of competition policy's role. Competition authorities had to balance their traditional enforcement functions with enabling necessary collaboration across sectors and value chains to address public health challenges (Lianos et al., 2022). This dual approach – using competition law both as a “sword” against harmful restrictions and as an “enabling shield” for beneficial cooperation – provided a blueprint for ad-

ressing broader public interest challenges requiring rapid, sustainable interventions.

More recently, the Draghi report on European competitiveness has sparked significant debate within the competition law community. Draghi's approach represents a departure from conventional competition thinking, as it extends the European Union's (EU) competition policy beyond its traditional microeconomic boundaries. The report notes that in an economy characterised by increasing returns, network effects and technological path dependencies, competition law must evolve to foster productivity and growth, promote innovation generation and diffusion, and incentivise substantial public and private investments. It should also be more aware of geopolitical and geoeconomic considerations.

This evolution reflects a broader shift in the role of competition law and policy. In the era of the “entrepreneurial state” (Mazzucato, 2013) and mission-oriented innovation (Mazzucato, 2021), competition policy is increasingly seen as a way to enhance overall competitiveness while maintaining market openness and contestability.

The European Commission's (2025) recent Competitiveness Compass aligns with this vision, suggesting that the integration of competition and industrial policies represents not just a temporary response to crisis but a fundamental reorientation towards more strategic, mission-driven economic governance.

These developments raise a fundamental question: how does the recent transformation of competition law affect our understanding of the relationship between competition policy and industrial intervention? Answering this question requires recognising that industrial policy is not monolithic – different types of industrial policy interven-

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The article partly draws on and further develops the ideas explored in Boulieris et al. (2025).

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tions can have varying effects on competition. This distinction is crucial for identifying the pro-competitive dimensions of industrial policy.

After establishing the broader theoretical framework of our study, we proceed with the empirical part of the investigation. First, we examine how different types of industrial policy interventions reflect either techno-nationalist or techno-globalist approaches. Second, we analyse how various jurisdictions implement the various categories of industrial policy interventions identified, and how pro- or anti-competitive their design is. The final section presents our conclusions.

### **The transformation of competition law and industrial policy: Towards a unified field?**

Moving beyond a narrow consumer-focused framework, competition law can play a transformative role in facilitating the transition to a knowledge economy (Lianos, 2018). This expanded vision of competition law aims to promote more widespread access to advanced production practices, thereby increasing productivity and enabling individuals and firms to transition from the economic periphery to high-value-added activities. This approach emphasises equality of opportunity and capability enhancement, encompassing both consumption and production dimensions.

The fundamental goal becomes the “dissemination of the knowledge economy beyond the insular vanguards in which it remains arrested” (Mangabeira Unger, 2020),<sup>1</sup> creating broader opportunities for participation in production processes. This democratisation of economic opportunity requires greater investment and capital flows to previously marginalised economic and social peripheries, as advantages and opportunities become more widely distributed throughout the economy. Competition law can contribute to this industrial transformation by promoting more equitable access to productive assets essential for development, utilising tools such as interoperability requirements, which may significantly impact the transformation of various industries through the greater diffusion of general-purpose technologies and dynamic capabilities.

This perspective becomes particularly relevant given the profound transformation of production relations over the past 30 years. The presence of significant economies of scale and scope enables the recovery of fixed investment costs. At the same time, modularisation has emerged as the enabler of new organisational forms for production

through the constitution of value chains and ecosystems. This evolution has expanded the role of business collaboration, including cooperation among firms that remain competitors in other contexts.

Contemporary business ecosystems, often built around innovation platforms (Cusumano et al., 2019), emerge not from centralised control but from dynamic interactions between components of correlated productive, innovation or transaction-based systems. The modularisation of production processes, distributed among numerous independent firms, creates organisational boundaries that mirror underlying technological modules. This structural alignment enables the formation of business ecosystems comprising mutually enhancing products or services that are integrated through technology or networks of contractual and/or purely technology-based relationships.

This new economic architecture, characterised by “co-opetition”, where businesses become more competitive through strategic cooperation and development of unique complementary capabilities, challenges traditional competition law frameworks that adopt a partial equilibrium approach in the context of relevant markets. The complexity of these interconnected systems requires competition policy to evolve beyond ensuring competition in “relevant markets” towards actively facilitating inclusive access to the productive infrastructure of the knowledge economy, ensuring that technological and organisational innovations serve broader societal development goals rather than remaining concentrated among elite market participants (Jacobides & Lianos, 2021).

A growing consensus has thus emerged that competition law and industrial policy need not be incompatible, creating space for what the OECD (2024) terms “pro-competitive industrial policy”, but also of pro-industrial development competition law. This shift reflects a broader transformation in the intellectual landscape since the neoliberal consensus of 1980-2009, moving towards a more favourable view of state intervention for market-creation and market-shaping.

### **A closer look at industrial policy: No one-size-fits-all**

Industrial policies can be categorised into three broad approaches based on their underlying goals and orientations.<sup>2</sup>

Traditional techno-nationalist industrial policy focuses on fundamental developmental objectives such as reindustrialisation and expanding domestic technology sectors,

<sup>1</sup> See also Lianos (2022).

<sup>2</sup> See for an in-depth discussion, Boulieris et al. (2025); Luo (2021).

prioritising the building of national industrial capacity, and technological capabilities as core economic development strategies (Montresor, 2001). This theoretical framework suggests that developing industries requires temporary shelter from mature foreign competitors to establish viable market positions and competitive capabilities. This approach has significantly influenced the construction of “industrial states”, governance structures designed to actively encourage domestic industrial development through strategic protection and support mechanisms (Galbraith, 1967).

The contemporary version of techno-nationalism has evolved to emphasise more strategic objectives centred on national security and achieving global economic dominance (Boulieris et al., 2025). This approach seeks to achieve “techno-sovereignty”, providing states with the ability to control critical technologies and maintain strategic autonomy in key sectors. The ultimate goal is to secure national technological independence and competitive advantage in the global arena.

However, techno-nationalist policies come into tension with efforts to address global challenges. For instance, prioritising national innovation ecosystems, domestic startups and national champions through selective enforcement may conflict with the broader diffusion of green technologies needed to combat climate change. This tension arises when national technological sovereignty takes precedence over collaborative global solutions, potentially hampering international cooperation on shared challenges.

In contrast, “techno-globalist” approaches to both industrial policy and competition law aim to address global public goods while simultaneously pursuing national interests. This framework recognises that particular challenges require international cooperation and technology sharing, suggesting that addressing global market failures can strengthen both national and international economic welfare.

Competition law can be implemented through a techno-globalist lens that serves dual purposes. For example, targeting the global market power of digital platforms can simultaneously enhance national consumer welfare and contribute to global competition policy objectives. This approach demonstrates that national competitive advantages can be pursued while contributing to global solutions for issues such as climate change, digital market concentration, and the diffusion of technological innovation.

The fundamental challenge for policymakers remains in designing policies that can effectively balance techno-

nationalist imperatives for technological sovereignty with techno-globalist needs for international cooperation on common challenges. This requires sophisticated policy frameworks that navigate the tension between securing national competitive advantages and addressing global market failures that transcend national boundaries.

This evolving landscape necessitates a more comprehensive empirical analysis to better understand the diverse rationales underpinning industrial policy interventions and their alignment with the objectives of competition law. The challenge lies in developing frameworks that can accommodate both the strategic imperatives of technological sovereignty and the market contestability-enhancing features of traditional competition policy, while navigating the complex interplay between national interests and global cooperation required to address common challenges in a still interconnected world.

### **Determining the pro-competitive dimension of an industrial policy**

As the emerging scholarly consensus is that competition and industrial policy can function as complementary rather than conflicting policy tools, academic debate has shifted from questioning whether pro-competitive industrial policies are viable to examining how such policies should be optimally designed. It is possible to rely on several design features to determine whether industrial policy interventions enhance competitive market dynamics.

Policy scope may constitute a crucial factor for determining the anticompetitive nature of an industrial policy measure. Horizontal policies that apply broadly across all firms and sectors tend to be more pro-competitive than vertical policies targeting specific sectors or industries. When vertical policies concentrate benefits on a small number of firms within a sector, they typically limit competition by creating artificial advantages for selected players. Similarly, interventions in mature technology markets carry higher anti-competitive risks because these markets already have established players and competitive structures.

Industrial policy can actively support competition by promoting market entry and contestability. Subsidies directed towards non-incumbents, particularly small and medium enterprises and startups, generally produce positive competitive effects by enabling new market participants to challenge established players. However, research and development subsidies to incumbent firms may paradoxically discourage entry by productive new firms due to resource reallocation effects that reinforce existing market positions. Policies that reduce entry costs, such as ven-

ture capital programmes and deregulation initiatives, enhance competitive dynamics, while measures like local content requirements typically harm competition.

Market structure before intervention significantly influences the competitive impact of industrial policy. When policies target markets characterised by few competitors or high concentration levels, they risk entrenching incumbent advantages and further limiting competition. The pre-existing competitive landscape thus serves as a critical factor in determining whether intervention will enhance or diminish market competition.

### Empirical analysis

Based on these premises, our research explores the New Industrial Policy Observatory (NIPO) database (Evenett et al., 2024), which documents policy interventions associated with the resurgence of industrial policy and contains structured information on policy measures implemented across multiple jurisdictions, including their regulatory scope and sectoral focus, which was accessed in December 2024.

The dataset encompasses industrial policies announced between October 2015 and November 2023, with implementation periods spanning from July 2020 to December 2029 across 76 different jurisdictions. This timeframe captures the significant expansion of industrial policy interventions that has occurred in recent years, particularly following the COVID-19 pandemic, which catalysed renewed government involvement in industrial development and strategic sector support.

The NIPO database provides a valuable empirical foundation for analysing the contemporary landscape of industrial policy interventions, offering insights into the scale, scope and diversity of measures being implemented globally. By covering such an extensive range of jurisdictions and time periods, the database enables comparative analysis of different approaches to industrial policy and their varying emphases on sectoral targeting, regulatory frameworks and economic objectives.

“New industrial policies” are defined as targeted and selective government interventions specifically designed to develop or support particular locally based firms and sectors of economic activity. These interventions are distinguished by their focus on achieving specific economic or non-economic objectives that extend beyond traditional market considerations.

The scope of these policies includes a broad range of governmental goals, including not only conventional eco-

nomic objectives such as growth, competitiveness and job creation, but also non-economic priorities including national security concerns, social policy aims and environmental sustainability targets.

### Methodology

To bring empirical evidence to this discussion, we trained a large language model to go through the texts of the policies contained in the NIPO database. With the help of publicly available information (e.g. whether the firms benefiting from the policy are start-ups or not), we asked the model to make two types of assessments for each policy. First, to classify it as either “traditional techno-nationalist”, “new techno-nationalist”, “techno-globalist” or “none”, in case the policy does not fit any of these categories. Second, to identify the presence or absence of the above-mentioned pro- and anti-competitive design features.<sup>3</sup> In particular, we looked at whether the policy presents any of the following design features: high/low number of competitors; creating a new competitor; giving a competitive advantage to an incumbent; imposing *ex ante* or *ex post* conditionalities to receive a benefit; imposing *ex ante* or *ex post* local content requirements; increasing or reducing entry costs; being a horizontal, sectoral or selective intervention; and the level of maturity of the technology affected, measured through the technology readiness level, a standard framework for such evaluations. Based on these classifications, we used several data analysis tools to understand how pro- or anti-competitive the design of new industrial policies is, and what characterises and drives them.

### Country-specific trends in industrial policy approaches

Although the three types of policies are similarly common<sup>4</sup> on the global scale, we observe important country divides. A vast majority (70%) of Chinese new industrial policy falls into the “new techno-nationalist” category. These policies are also predominant in the United Kingdom (above 54%), with the other two categories sharing the podium. Conversely, about half of the European Union’s new industrial policies (48%) are techno-globalist, followed by new techno-nationalist policies (34%). The landscape is more balanced and unique in the United States: the share of traditional techno-nationalist policies

3 We established 15 benchmarks of industrial policy structure that could render policies pro- or anti-competitive, drawing inspiration from the approach followed by the OECD (2019) competition assessment toolkit.

4 Techno-globalist policies are slightly less common. They represent 26% of the total policies in the database, while traditional and new techno-nationalist policies represent 36% and 37% each, respectively. Only 2% of the policies do not belong to any of these three categories.



is particularly high (38%) and close to the share of new-techno-nationalist ones (41%).

The picture becomes richer when looking at other secondary yet major jurisdictions. In Russia, new industrial policy is split between traditional (56%) and new techno-nationalist (43%) policies, with techno-globalism being virtually absent. On the contrary, in Germany and France, techno-globalism is heavily present, representing a little more (51%) or a little less (43%) than half of the policies, respectively, with new techno-nationalism accounting for most of the remaining ones. In South Africa, while the share of techno-globalist policies (46%) is similar to what we observe for Europe, France and Germany, traditional and new techno-nationalist policies are equally frequent. In Japan, new techno-nationalism heavily dominates (68%), which likens it to China's approach. In Brazil and India, on the other hand, traditional techno-nationalist policies take the lead (48% and 51%, respectively), followed by either techno-globalist (34% in Brazil) or new techno-nationalist (30% in India). In sum, our analysis shows that, while the vast majority (98%) of new industrial policy falls with similar frequency into these three categories, the prevalence of one over the other is substantially country dependent. This reflects the weight of local politico-institutional contexts and geopolitical factors in crafting contemporary industrial policy.

### Pro- and anti-competitive levers across policy categories

We find that, on average, techno-globalist policies are the most pro-competitive ones, followed by traditional and new techno-nationalist policies, the latter being close to being competition-neutral on average. However, these averages hide important heterogeneity in terms of the design features that make each policy category more or less pro-competitive. Techno-globalist and traditional techno-nationalist policies' pro-competitiveness is mainly driven by the fact that these policies usually apply broadly across all firms and sectors, which prevents the tilting of the playing field. However, like all of the policy categories, they are anti-competitive in that they tend to provide a competitive advantage to an incumbent and target mature technologies, which increases the risk of entrenchment of a (dominant) incumbent firm. Moreover, traditional techno-nationalist policies are particularly prone to increased entry costs, making markets less contestable. Conversely, techno-globalist policies are mildly more likely to reduce entry costs.

Finally, new techno-nationalist policies lower pro-competitiveness stems from the larger presence of targeted (as opposed to horizontal) policies. However, these policies are significantly more pro-competitive than the oth-

er two categories in that they are more likely to impose conditionalities for a firm to receive a benefit, which discourages rent-seeking.

### Pro- and anti-competitive policy tools, motives and jurisdictions

Using a logistic regression, we went one step further to unravel which characteristics drive the presence of these pro- and anti-competitive design features. We report here the most salient ones. Some policy tools stood out as the main drivers. For example, tools like trade and financial measures, import rules, local content requirements, and government investments correlate with design features that reduce competition. On the other hand, certain tools, such as sanctions and import tariffs are mostly linked to design features that foster competition. Public procurement policies that prioritise local suppliers seem to encourage competition because they cover a wide range of areas and purposes.

Some policies' stated motives and jurisdictions also stood out as strong predictors of the presence of certain pro- and anti-competitive design features. Policies mentioning geopolitical concerns were found to be 4.6 times more likely to apply to markets with few competitors (an anti-competitive feature), and 3 times more likely to include *ex ante* conditionalities, a pro-competitive feature. Finally, Russian and supra-national policies were found to be 6.4 and 4.2 times more likely to provide competitive advantages to incumbents, respectively.

### A taxonomy of new industrial policies

Using clustering analysis, we constructed a taxonomy of new industrial policies sharing common design features relevant to competition. The goal was to see if certain design features and policy characteristics (e.g. stated motives, jurisdiction, policy tools used) tend to appear together. We found three clusters.

The first one is constituted by subsidy-oriented policies that raise entry barriers. These policies may threaten market contestability, particularly if they make it harder for new players to enter, or if they favour the technology growth of companies that are already market leaders.

The second cluster is characterised by policies that impose broad-scope regulations and show both pro- (*ex ante* and *ex post* conditionalities) and anti-competitive (local content requirements) design features.

The third cluster is made of policies that aim at creating a new competitor in the market (e.g. through new state-

owned enterprises or by favouring start-ups) or actively localise critical supply chains. They often appear in jurisdictions concerned about technological sovereignty or resilience. Given their focus on new competitors, they foster dynamic competition and market entry. However, they are also likely to include local content requirements, which have an anti-competitive effect.

## Conclusion

The traditional view that industrial and competition policies work at cross purposes has recently been challenged. Recent research increasingly recognises that these policies can be mutually reinforcing, creating substantial opportunities for “competition-compatible” or even “competition-friendly” industrial policy. This intellectual evolution reflects a broader departure from the neoliberal framework that dominated from 1980 to the end of the Great Recession in 2009, with a growing acceptance of industrial policy and state intervention to shape markets as a legitimate tool for achieving broader sustainable development goals, security and technological sovereignty, as well as maintaining global competitiveness.

However, industrial policy takes different forms with markedly different competitive implications. Techno-globalist policies emphasise universal technology sharing to address global challenges, such as environmental degradation and climate change, while techno-nationalist policies prioritise domestic technological advantages, potentially conflicting with broader international cooperation efforts. Understanding these distinctions proves crucial for analysing how industrial policy intersects with competition law, as different approaches yield vastly different outcomes for market competition.

Providing a comprehensive analysis of over 2,500 industrial policy interventions from the NIPO database, our research utilises advanced language processing models to assess their competitive effects. It compares techno-globalist and techno-nationalist approaches across different policy contexts. The analysis reveals a clear hierarchy of competitive effects: techno-globalist policies consistently enhance competition most effectively, whereas traditional techno-nationalist policies show mixed results, with slightly more than half demonstrating pro-competitive characteristics on average. New techno-nationalist policies pose the most significant competitive risks, with approximately half proving to be anti-competitive on average.

The research also highlights significant jurisdictional variations, as different countries favour different ap-

proaches – some emphasise globalist agendas while others pursue nationalist objectives. This may reflect different strategic priorities as well as economic philosophies. Such divergence also suggests that the compatibility between industrial and competition policy depends not only on policy design but also on the underlying ideological framework guiding government intervention in markets.

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