# Incentive Effect and Optimization Direction of Industrial Policies on Technological Innovation in Strategic Emerging Industries

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**Abstract：** As the core carrier for developing new quality productive forces, strategic emerging industries are characterized by high investment, high risk, and long cycles in their technological innovation activities, urgently requiring industrial policies to play a guiding and supporting role. Based on the full-cycle theory of the innovation chain, this paper systematically analyzes the incentive mechanisms of industrial policies on technological innovation across the three stages of basic research, application development, and commercialization of results. It reveals the current limitations of policies in terms of precision, synergy, and factor allocation, and proposes optimization paths based on the development patterns of industrial chains. Research indicates that the full release of policy incentive effects requires a transition from single-tool support to the construction of a systemic ecosystem. Through coordinated planning, targeted policy implementation, factor aggregation, and mechanism innovation, a policy system tailored to the development of strategic emerging industries can be constructed.

**Keywords：** Strategic Emerging Industries; Incentive Effect; Innovation Chain

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## 1 Research Background and Significance

Against the backdrop of the accelerating evolution of technological revolution and industrial transformation, strategic emerging industries have become a core area for reshaping national competitive advantages. Their technological innovation capability directly determines the level of industrial development and international discourse power. These industries, supported by major technological breakthroughs, feature strategic importance, advancement, clustering, and dynamism. They not only bear the mission of industrial structure upgrading but are also key to coping with international technological competition. Due to market failures in the technological innovation process—such as the public good nature of basic research, the uncertainty of application development, and the high transaction costs of commercialization—the enthusiasm of innovation entities can be inhibited, providing a theoretical basis for industrial policy intervention.

From a practical perspective, China's strategic emerging industries have achieved phased results, but still face challenges such as core technologies being constrained by others, an imperfect policy support system, and insufficient factor guarantees. In this context, clarifying the incentive logic of industrial policies on technological innovation, identifying bottlenecks in policy implementation, and exploring optimization directions are of great theoretical and practical significance for promoting the industry's leap to the high end of the value chain and achieving scientific and technological self-reliance and strength.

## 2 Analysis of the Incentive Mechanism of Industrial Policies on Technological Innovation in Strategic Emerging Industries

### 2.1 Basic Research Stage: Risk Sharing and Resource Agglomeration Effects

Basic research is the source of technological innovation, characterized by long cycles, high uncertainty, and strong public nature. Market entities often lack the motivation to invest, necessitating the guiding role of industrial policies. Fiscal

subsidies provide stable support for the basic research activities of scientific research institutions and enterprises through direct capital injection, effectively reducing financial constraints in the early stages of innovation. Tax incentive policies, through methods like additional deductions for R&D expenses, indirectly reduce the marginal cost of innovation investment, encouraging enterprises to allocate more resources to basic research.

Simultaneously, policies promote the agglomeration of innovation resources by constructing collaborative mechanisms for basic research. On one hand, by establishing cross-institutional research projects, they guide universities, research institutes, and enterprises to jointly build R&D platforms, promoting knowledge sharing and technical exchange. On the other hand, through specialized talent policies, they attract high-end scientific research talent, creating an agglomeration effect of innovative talent and providing intellectual support for basic research. This resource agglomeration effect not only improves the efficiency of basic research but also promotes interdisciplinary integration, laying the foundation for breakthrough technologies.

### 2.2 Application Development Stage: Industrial Chain Synergy and Innovation Orientation Effects

The application development stage is a key link in transforming basic research results into practical technologies, requiring the collaborative participation of various entities in the industrial chain. Industrial policies, by clarifying the leading role of core enterprises, guide them to play a leading role and drive upstream and downstream small and medium-sized enterprises to engage in joint innovation. This synergy mechanism not only promotes the diffusion of technology within the industrial chain but also integrates the innovation advantages of different entities, forming an innovation ecosystem deeply integrated with "industry-university-research-application."

The innovation orientation effect of policies is equally indispensable. By establishing R&D investment incentive mechanisms, such as granting additional tax reductions to enterprises whose R&D investment exceeds the industry average, policies guide enterprises to tilt resources towards core technology development. Meanwhile, policies encourage enterprises to engage in exploratory innovation by optimizing their internal innovation management mechanisms, reducing path dependence on incremental innovation, and promoting the transition towards disruptive innovation. This orientation effect not only enhances the innovation capability of individual enterprises but also drives the technological upgrading of the entire industry.

### 2.3 Commercialization Stage: Market Connection and Value Realization Effects

Commercialization is the final stage where the value of technological innovation is realized. Policies facilitate the precise matching of innovation outcomes with market demand by building market connection platforms. On one hand, by establishing priority procurement mechanisms for domestically developed products, they provide a stable market demand for innovation outcomes, reducing the market risk of commercialization. On the other hand, by constructing risk-sharing mechanisms, they attract social capital to participate in the commercialization process, solving the problem of funding shortages.

Policies also provide legal protection for innovation outcomes by improving the intellectual property protection system, enhancing the willingness of innovators to commercialize their results. Simultaneously, by cultivating specialized technology intermediary service organizations, they provide comprehensive services such as technology assessment and market promotion for commercialization, reducing transaction costs. This market connection and value realization mechanism not only accelerates the transformation of innovation outcomes into real productive forces but also forms a virtuous cycle of "innovation-commercialization-re-innovation."

## 3 Existing Limitations of the Incentive Effects of Industrial Policies

### 3.1 Insufficient Policy Precision: Structural Imbalance and Targeting Deviation

Current industrial policies suffer from structural imbalances in their incentive direction. Some policies still emphasize expanding production scale, with insufficient support for basic research at the front end and commercialization at the back end of the industrial chain, leading to unbalanced policy support across the innovation chain. In terms of regional layout, policy guidance is not precise enough, leading some regions to blindly follow trends in developing similar industries,

resulting in homogeneous competition and low-level redundant construction, wasting innovation resources.

Regarding policy targeting, there is insufficient differentiated support for different types of enterprises. For high-tech small and medium-sized enterprises (SMEs) with large capital investments and long R&D cycles, policy support lacks sufficient coverage and intensity, making it difficult to meet their innovation needs. For some mature enterprises, policy support is sometimes redundant, failing to effectively stimulate their innovation drive. This targeting deviation prevents policy resources from flowing to the most needed innovation links and entities, reducing the incentive efficiency of policies.

### 3.2 Imbalanced Factor Allocation: Resource Constraints and Mechanism Blockages

Insufficient factor guarantees are an important factor restricting the effectiveness of policy incentives. In terms of capital allocation, financing channels are not smooth enough. Commercial banks' credit evaluation for strategic emerging enterprises still relies heavily on traditional financial indicators, with insufficient attention paid to technical indicators, leading to financing difficulties and high costs for some technology-based enterprises. In terms of talent allocation, the talent cultivation system is disconnected from industrial needs, and the school-enterprise cooperation mechanism is imperfect, making it difficult to cultivate interdisciplinary talents that meet industrial development needs. Meanwhile, the mechanisms for attracting and retaining international high-end talents need optimization.

Significant blockages exist in the factor mobility mechanism. The flow of innovation resources between different entities and regions is not smooth enough. Innovation outcomes from universities and research institutes are difficult to transfer effectively to enterprises. Innovation resources from developed eastern regions struggle to radiate to central and western regions, leading to low allocation efficiency of innovation factors. This imbalance in factor allocation not only restricts the enhancement of innovation capability of individual enterprises but also affects the construction of the entire industrial innovation ecosystem.

### 3.3 Lack of Policy Synergy: Departmental Fragmentation and Systemic Gaps

Insufficient policy synergy is a prominent problem in the current industrial policy system. Policies issued by different departments lack effective coordination, leading to policy conflicts and duplicate support. During the policy formulation process, departments often act based on their own functions without fully considering the systematicity and integrity of policies, resulting in policy effects canceling each other out and reducing the overall incentive effect.

Significant systemic gaps exist in policy system construction. There is a lack of unified national-level top-level design documents for future industries. The policy system lacks foresight and systematicity, making it difficult to adapt to the dynamic development needs of strategic emerging industries. In terms of industrial classification and statistical monitoring, existing standards fail to keep up with the trends of technological revolution and industrial transformation in a timely manner, leading to a lack of scientific data support for policy formulation, affecting the targeting and effectiveness of policies.

### 3.4 Imperfect Innovation Ecosystem: Insufficient Synergy between Market Mechanisms and Policies

In the current innovation ecosystem, the synergistic effect between market mechanisms and policy guidance has not been fully utilized. Some policies still involve excessive administrative intervention, inhibiting the market's decisive role in resource allocation. In the innovation evaluation mechanism, there remains a tendency to prioritize quantity over quality and short-term benefits over long-term development, leading enterprises to prefer short-term innovation activities and underinvest in long-term core technology R&D.

In the construction of the industrial ecosystem, there is a problem of "low-end involution, high-end absence." Innovation capability in key core technology areas is weak, and industrial development faces the risk of being "choked." Meanwhile, the synergy mechanism among innovation entities is imperfect. Innovation resources between state-owned and private enterprises, large enterprises and SMEs, are not effectively integrated to form synergistic innovation forces. This ecological defect not only restricts the full release of policy incentive effects but also affects the sustainable innovation capability of the industry.

## 4 Optimization Directions for Industrial Policies

### 4.1 Targeted Policy Implementation: Building a Dynamically Adaptive Policy System

In terms of policy structure optimization, industrial policies should be promoted to extend from focusing on production scale to covering the entire industrial chain, increasing support for basic research and commercialization, and achieving balanced policy support across all links of the innovation chain. A dynamic adjustment mechanism based on industrial development stages should be established. According to the dynamic characteristics of strategic emerging industries, industrial classification standards and policy support catalogs should be revised and improved in a timely manner to ensure precise alignment between policies and industrial development needs.

In regional layout, coordinated guidance should be strengthened. Based on local resource endowments and industrial foundations, guidance should be planned to help various regions highlight their advantages and develop in a differentiated manner, avoiding homogeneous competition. An early warning mechanism for potential risks in industrial chain security should be established to promptly identify and resolve potential risks in regional industrial layout, ensuring the security of industrial and supply chains. In enterprise support, differentiated policies should be implemented, providing comprehensive and precise support for high-tech SMEs, while focusing on guiding mature enterprises to engage in core technology R&D, enhancing policy targeting.

### 4.2 Factor Empowerment: Improving Resource Allocation Guarantee Mechanisms

In terms of capital factor guarantees, a diversified capital investment mechanism should be established. Fiscal investment in basic research should be increased, tax incentives should be used to encourage enterprises to increase R&D investment, and social capital such as donations and funds should be attracted to participate in innovation activities. Financing channels should be optimized. A government-bank-enterprise docking mechanism should be established to promote commercial banks to build enterprise evaluation and credit systems based on technical indicators. The application scope of financing methods such as intellectual property pledge and policy-based guarantees should be expanded. The role of industrial guidance funds and multi-level capital markets should be leveraged to support enterprises in "investing early, investing small, investing hard, investing long."

In terms of talent factor guarantees, the independent talent cultivation system should be optimized. School-enterprise cooperation should be deepened, and a talent cultivation model of "integrating work and study, alternating learning and training" should be established to cultivate interdisciplinary talents that meet industrial needs. Income distribution mechanisms that reflect the value of knowledge should be explored to stimulate the innovation enthusiasm of scientific and technological talents. The introduction of international high-end talents should be accelerated, and the talent service guarantee system should be improved to provide a favorable innovation environment for talents. A talent mobility mechanism should be established to promote the rational flow of innovative talents among different entities and regions, improving talent allocation efficiency.

### 4.3 Synergistic Enhancement: Constructing a Systematically Integrated Policy Framework

The construction of policy synergy mechanisms should be strengthened. A cross-departmental policy coordination platform should be established to achieve full-process coordination in policy formulation, implementation, and evaluation, avoiding policy conflicts and duplicate support. The mutual coordination of industrial policies with related policies in science and technology, finance, talent, etc., should be promoted to form policy synergy. The issuance of national-level top-level design documents for future industries should be accelerated to build a forward-looking and systematic future industrial policy system, guiding the industry's extension into future fields.

The industrial classification and statistical monitoring system should be improved. Based on the trends of technological revolution and industrial transformation, the classification standards for strategic emerging industries should be revised and improved. Statistical yearbooks should be compiled and annual reports released to provide scientific support for policy formulation. The construction of policy performance evaluation mechanisms should be strengthened. An evaluation indicator system with innovation quality and industrial competitiveness at its core should be established. The implementation effects of policies should be regularly evaluated, and policies should be adjusted and optimized based on

the evaluation results.

### 4.4 Ecological Restructuring: Promoting Synergy between Policy and Market

An innovation ecosystem of "policy guidance + market drive" should be constructed. It is necessary to leverage the guiding role of policies in risk sharing and resource allocation, while fully stimulating the decisive role of the market in innovation incentives. The business environment should be optimized, the legitimate rights and interests of enterprises should be protected, a fair competitive market environment should be created, and the free flow of resource factors should be promoted. A sound intellectual property protection and utilization system should be established. Intellectual property law enforcement should be strengthened, and the intellectual property transaction mechanism should be improved to enhance the protection level of innovation outcomes.

The leading role of core enterprises should be leveraged to promote the integrated development of large, medium, and small enterprises, building an "industrial forest ecosystem." Leading enterprises should be supported to lead or participate in the formulation of international standards. The mutual recognition of domestic and international standards should be promoted to enhance the industry's discourse power in international competition. Research on the patterns of new business forms such as the digital economy and platform economy should be strengthened. Policy rules adapted to the development of new business forms should be established to guide their standardized and healthy development, cultivating new growth points for industrial innovation.

## 5 Conclusion

Industrial policies are important tools for promoting technological innovation in strategic emerging industries. They form multi-dimensional incentive effects through risk sharing and resource agglomeration in the basic research stage, industrial chain synergy and innovation orientation in the application development stage, and market connection and value realization in the commercialization stage. However, current policies have limitations in precision, factor allocation, synergy, and innovation ecosystem construction, which restrict the incentive effects. Optimization needs to be guided by the full cycle of the innovation chain. Through targeted policy implementation, factor empowerment, synergistic enhancement, and ecological restructuring, policies should be shifted from single-tool support to the construction of a systemic ecosystem, stimulating industrial innovation vitality and providing support for developing new quality productive forces and shaping new advantages in international competition.

## References

[1] Zhou Dandan. The Impact of Industrial Policies on Innovation in Strategic Emerging Industries——An Empirical Study Based on A-Share Listed Companies [D]. Shanghai Ocean University, 2022.
[2] Yuan Hai, Li Hang, Wu Zenghai. Research on the Incentive Effect of Policy Tools on Strategic Emerging Industries from the Perspective of Industrial Heterogeneity [J]. Modern Industrial Economy, 2020, 000(004): 75-89.
[3] Ma Xiaoli. The Impact of Industrial Subsidy Phase-Out Policies on Industrial Technology Innovation Output ——Taking China's New Energy Vehicle Industry as an Example [D]. East China University of Political Science and Law, 2022.
[4] Li Tongtong. Research on the Impact of Industrial Policies on Technological Innovation of Enterprises in Strategic Emerging Industries [D]. Xiamen University, 2019.