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# The Impact of Commercial System Reforms on Export Product Quality: Perspective of Innovation, Entrepreneurship and Upgrading of Industrial Structure

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***Abstract*: This paper explores the impact of business system reforms on the quality of export products, analyzing the mechanisms at both the macroeconomic and microenterprise levels in light of relevant domestic and international literature. The study finds that business system reforms significantly improve export product quality by reducing market entry costs, enhancing enterprise innovation capabilities, promoting entrepreneurship, and increasing market competition. The paper reviews current research on the measurement, influencing factors, and economic effects of export product quality, revealing that business system reforms, as a key policy tool for improving export quality, not only enhance corporate production efficiency and technological innovation but also have a profound impact on national trade quality. Moreover, this paper highlights the limitations of existing studies and proposes future research directions, particularly regarding a deeper exploration of the specific mechanisms and influencing factors linking business system reforms and the improvement of export quality.**

***Keywords*: Commercial System Reform, Export Product Quality, Innovation.**

## 1. Introduction

With the advancement of globalization, international market competition has become increasingly intense, and the quality of export products has emerged as a critical factor determining the competitiveness of both enterprises and nations. Commercial system reforms, as a policy measure aimed at optimizing the market environment, promoting enterprise innovation, and enhancing overall economic competitiveness, have been adopted by various countries and regions as a key strategy for driving high-quality economic development. In recent years, scholars both domestically and internationally have extensively studied the relationship between commercial system reforms, macroeconomic performance, and microenterprise behavior, with a particular focus on their roles in promoting industrial structure upgrading, improving capital productivity, and fostering innovation. However, research specifically examining how commercial system reforms affect export product quality remains relatively scarce, especially studies that comprehensively explore the internal mechanisms by which reforms influence enterprise innovation, market competition, and product quality improvement.

This paper aims to fill this research gap by exploring how commercial system reforms improve export product quality through optimizing the market environment, lowering entry barriers, and promoting innovation and competition. We begin by reviewing existing literature on related research findings and, through empirical analysis, investigate the specific mechanisms through which commercial system reforms enhance export product quality. Furthermore, this paper identifies gaps in current research and suggests future research directions, particularly focusing on a deeper analysis of the link between commercial system reforms and export quality, the influencing factors at play, and the evaluation of policy implementation outcomes.

## 2. Research on Commercial System Reforms

Numerous scholars, both domestically and internationally, have conducted studies on the macroeconomic effects of commercial system reforms. From the perspective of economic development, Matteo Cacciatore and Giuseppe Fiori (2016) constructed an economic cycle model that includes endogenous product and labor markets to examine the macroeconomic effects of deregulation. Their study found that deregulation reforms have an expansionary effect on the economy in the long term. Petar Stankov (2010) combined the difference-in-differences method with instrumental variable techniques to analyze the deregulation policies in product markets, credit, and labor across 71 economies over the past 30 years. The results indicated that deregulation has a significant impact on per capita GDP growth. Regarding output growth, Romain Bouis et al. (2020) collected data on deregulation reforms in five industrial sectors across 26 developed economies from 1975 to 2011. Using local projection methods, they concluded that

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deregulation in product markets significantly increases output. Similarly, Romain Bouis et al. (2016) constructed a three-dimensional panel (country-sector-year) and employed instrumental variable methods to assess the macroeconomic impact of deregulation. Their findings showed that a substantial reduction in market entry barriers leads to a marked increase in total factor productivity within five years.

In China, Sun et al. (2022) utilized reform data from 281 Chinese cities between 2011 and 2015 and employed a difference-in-differences model. They found that commercial system reforms significantly enhanced both the quantity and quality of industrial structure upgrades. The mechanism behind this improvement is that commercial system reforms stimulate entrepreneurship, promote innovation, and increase venture capital, thus contributing to industrial upgrading. The effects were found to be more pronounced in cities with larger scales, higher levels of financial development, and greater expenditure on science and education. Bai and Sun (2022) used multi-period difference-in-differences models to analyze urban-level data from 276 cities between 2003 and 2016. Their empirical analysis revealed that commercial system reforms significantly improved capital productivity, with a larger effect in more economically developed regions. The underlying mechanism was that commercial system reforms promote innovation and entrepreneurship, which, in turn, improve capital productivity. Huang et al. (2020) collected and organized data on commercial system reforms from 283 prefecture-level cities and used difference-in-differences models to investigate the impact of reforms on regional entrepreneurship. They found that commercial system reforms significantly increased the growth rate of new businesses. The mechanism was that these reforms reduced market entry costs and improved government efficiency, thereby fostering regional entrepreneurship.

Another strand of literature focuses on the impact of commercial system reforms at the micro-enterprise level. Internationally, from an entrepreneurial perspective, Zhou (2011) analyzed provincial panel data from China between 1998 and 2003, highlighting that regional deregulation policies, by liberalizing markets and reducing favoritism toward state-owned enterprises, reduced uncertainty for private firms and stimulated entrepreneurial enthusiasm, thus significantly boosting the number of private enterprises. From an innovation perspective, Richard (1999) conducted a study using U.S. data to examine the impact of deregulation on market competition. The study found that deregulation increased market competition in the U.S. due to the entry of more players, reducing regulatory pressure. At the same time, firms lowered prices, innovated product varieties, and improved product quality to win the competition. Amici et al. (2016) explained the path through which deregulation affects firms, namely by reducing government intervention, lowering entry time costs, and reducing transaction costs for businesses. These changes encouraged new entrants, increased competition, and forced firms to innovate and improve product and service quality to stay competitive.

In the Chinese context, some papers examine the administrative approval reforms between 2000 and 2010, which, though not identical, served as a precursor to the more advanced commercial system reforms (Zhang Li et al., 2019). Although these studies do not directly address the effects of the latest round of commercial system reforms on micro-enterprises, they offer valuable insights. Bi et al. (2018) explored the effect of administrative approval reforms on market access and found that these reforms significantly increased the entry rate of industrial enterprises. Based on data from 1998 to 2007, Zhu et al. (2020) found that administrative approval optimization improved the total factor productivity of enterprises.

Additionally, some studies directly investigate the effects of commercial system reforms on micro-enterprises. Liu and Xia (2021) measured commercial system reforms in cities based on the timing of business registration reforms, the implementation of the "three-in-one" certification system, and the duration of market supervision bureaus. Their study found that commercial system reforms promoted entrepreneurship and explored the mediating effect of human capital. They found that reforms stimulated the comparative advantage of human capital in entrepreneurship, leading to an increase in entrepreneurial activity, particularly among individuals with higher human capital. Li and Zhang (2017) found that, following commercial system reforms, many new registered businesses emerged. However, while the average size of these new businesses significantly decreased, the overall number increased. Moreover, commercial system reforms did not reduce the lifespan of these firms. Zhu et al. (2022) employed Melitz's (2003) model and incorporated industry heterogeneity through two years of field surveys. Their study found that commercial system reforms lowered entry thresholds and reduced entry costs, allowing more new firms to enter the tertiary sector. The study also explored the structural characteristics of the reform's impact, noting that the reforms primarily promoted industries with lower capital intensity and lower entry barriers, particularly consumer industries. Additionally, the effects of the reforms were most pronounced in the first 1-3 years, with new firms in the tertiary sector tending to be smaller in size. The study also found diminishing returns over time, with the reform's impact on industry structure weakening as entry barriers continued to fall.

In summary, macroeconomic studies suggest that commercial system reforms and deregulation policies, by fostering innovation, encouraging entrepreneurship, and enhancing venture capital, have significantly increased market entry rates, capital productivity, and the quantity and quality of industrial structure upgrades, leading to higher per capita GDP. These changes contribute to overall macroeconomic growth and increased economic efficiency. At the micro-level, these reforms reduce entry and institutional costs, significantly increasing the number of market players, intensifying competition, and forcing firms to invest in research and development to innovate and stay competitive. This, in turn, enhances total factor productivity and innovation, which significantly promotes economic development.

## 3. Research on Export Product Quality

Next, we examine the literature on export product quality. Scholars generally categorize product quality into three main dimensions: objective product characteristics, social characteristics, and the satisfaction that consumers derive from the product. Objective characteristics include durability, safety, and other tangible attributes; social characteristics include brand trustworthiness and brand loyalty; and consumer satisfaction involves factors such as product design aesthetics and the degree to which the product satisfies consumers' vanity or self-image (Garvin, 1984). Overall, any characteristic that increases consumer utility can be considered an aspect of product quality. Therefore, when exporting products, companies must focus on improving quality across all stages of production and marketing to ensure their products stand out as high-quality offerings, thereby enhancing their competitiveness in international markets. Based on this, in recent years, the Chinese government has placed significant emphasis on improving export product quality. In the "Guiding Opinions on Promoting High-Quality Trade Development" (2019), the State Council highlighted four key measures, including "strengthening the industrial foundation for trade development, enhancing trade innovation capacity, improving product quality, and accelerating brand cultivation," recognizing the enhancement of product quality as a critical channel for creating new trade competitiveness advantages. The "Implementation Opinions on Promoting Innovative Development of Foreign Trade" further emphasized that businesses should fully leverage internationally recognized product testing and certification systems to continuously improve the quality of export products.

The literature on export product quality primarily addresses three key aspects: measurement, influencing factors, and economic effects. Scholars both domestically and internationally have discussed these dimensions, gradually refining the research framework.

### *A. Measurement of Export Product Quality*

Early studies often employed the unit price method to measure product quality (Schott, 2004; Hallak, 2006). The rationale behind this approach is that, for the same product, consumers are willing to pay higher prices for higher-quality goods, meaning that products with higher unit prices tend to have higher quality. However, unit prices are easily influenced by factors such as tariffs, costs, and consumer preferences, leading some scholars to propose alternative quality measurement methods. Hallak and Schott (2008), using product quality estimation data from 43 countries, constructed a two-stage price index estimation method and found that countries with trade surpluses export higher-quality products than those with trade deficits. Khandelwal (2006) extended the unit price method by using market share as a measure of export product quality. By incorporating a local equilibrium model and empirically analyzing U.S. export data from 1989 to 2001, he discovered that, at the same unit price, products with larger market shares tend to have higher quality. Shi (2014), based on the latest developments in the literature on product quality heterogeneity in trade, utilized customs data from 2000 to 2006 and applied a post-facto reverse estimation method. The results indicated that, overall, the quality of Chinese exports had improved compared to earlier years, though the gap between Chinese enterprises and foreign-invested enterprises remained and even widened.

### *B. Factors Influencing Export Product Quality*

Scholars have also explored various factors affecting export product quality. From the perspective of a country's consumption level and income distribution, Copeland and Kotwal (1996) empirically demonstrated that a country's export product quality is positively correlated with national income, indicating a quality margin. Schott (2004) studied the U.S. and emphasized that countries with higher per capita GDP tend to export higher-quality products, as reflected in higher average import prices. From the perspective of factor endowments, Flam and Helpman (1987) found that a country's technological level is positively correlated with the quality of imports and exports. Li and Shen (2015) empirically confirmed that the improvement of export quality depends on R&D levels and physical capital stock, with higher per capita income making R&D and capital stock more effective in boosting export product quality.

In recent years, scholars have also focused on the role of trade liberalization in upgrading the quality of export products. Amiti and Khandelwal (2013) classified 10,000 U.S. imports from 56 countries and applied a novel "frontier distance model" for regression analysis. They found that trade liberalization influences firms' quality upgrade decisions: for firms already producing high-quality products, tariff reductions encourage them to further enhance product quality, while for firms producing low-quality products, tariff reductions actually hinder quality upgrades. Aghion and Howitt (2005) argued that high-end firms maintain their market position by improving product quality, thereby avoiding competition. Shi and Shao (2014) found that product quality improvement benefits from competition. Foreign-invested enterprises also improve their product quality, but foreign investment in domestic markets does not benefit local enterprises in terms of quality enhancement. Gao and Li (2015) concluded that the higher the degree of quality competition in an industry, the greater the increase in average product quality.

Some scholars have examined specific trade liberalization policies, such as innovation incentive policies, the Belt and Road Initiative (BRI), and the establishment of development zones, and their impact on upgrading export product quality. Motta et al. (1997) compared two countries' product quality at the initial time point and suggested that when two countries with initial product quality differences trade with each other, the first scenario is that the country with higher export quality continues to maintain an advantage due to better resource endowments. The second possibility is that if the quality gap between the two countries is not significant at the outset and the less developed country implements innovation and R&D incentives, the quality gap between the less developed and developed countries will gradually narrow. Lu et al. (2021) showed that the Belt and Road Initiative has a positive effect on

the export quality of firms in the domestic regions along the route, further noting that the initiative enhances export quality by improving the innovation system environment in these regions. Yang and Xie (2021), using microdata from Chinese industrial enterprises between 2000 and 2012, examined the role of development zone policies. They found that such policies promote export product quality and explained the mechanism through product differentiation and agglomeration effects.

### *C. Economic Effects and Mechanisms of Export Product Quality*

Some scholars have explored the economic effects and mechanisms influencing export product quality, focusing on firm-level factors such as production, scale, and foreign direct investment (FDI). Based on panel data from the Mexican manufacturing industry, Verhoogen (2008) found that firms targeting higher-consumption northern customers tend to have higher productivity and can afford to pay higher wages, thus incentivizing the use of higher-quality labor in production and resulting in higher product quality. Antoniades (2015) examined the impact pathway and found that "competition avoidance" continues to influence firms' decisions. Firms with productivity advantages tend to simultaneously enhance product quality, allowing them to capture a larger market share and avoid competition with homogeneous products. Khandelwal (2010) introduced the concept of a quality ladder, asserting that only successful research efforts in improving quality led to higher production levels. High-quality producers can monopolize the production of high-quality intermediate goods. Therefore, firms capable of developing higher-quality products can outperform competitors who lack high-quality intermediate resources, securing market share. Kugler and Verhoogen (2008) used price as a measure of quality and demonstrated both theoretically and empirically that larger firms within an industry tend to assign higher prices to their products, which enables them to use higher-quality materials, leading to higher-quality output. Their empirical analysis confirmed that larger firms tend to produce higher-quality products. Du and Li (2015) showed that FDI can drive improvements in export product quality and identified three mechanisms: first, foreign investment allows firms to access advanced technology and engage in research innovation, improving product quality; second, through joint R&D between domestic and foreign firms, R&D risks and costs are reduced, enhancing export product quality; third, cross-border mergers and acquisitions enable firms to expand knowledge and production technologies, facilitating product upgrades.

Regarding government subsidies, Li and Shi (2013) suggested that, in general, the improvement of export product quality is closely related to the level of government fiscal support. Firms can use government subsidies to expand production scale and invest in technological innovation, which in turn enhances production efficiency and export product quality. However, their research also pointed out that the effect varies across ownership types. State-owned enterprises (SOEs) tend to use government subsidies inefficiently, leading to resource misallocation. Zhang et al. (2015) provided a dialectical view of government subsidies on product quality. On the one hand, subsidies may create dependency, leading firms to adopt low-profit business models and stifling innovation, thus hindering quality improvements. On the other hand, government incentives can encourage firms to increase R&D investment, foster market competition, and stimulate the endogenous motivation for higher export product quality.

### *D. Factors in Production Elements*

Murphy et al. (1993) highlighted that market distortions in factor markets can reduce firms' production and R&D activities, thereby lowering export product quality. These distortions arise from inappropriate government control over factor markets, which results in firms engaging in rent-seeking and relying on political connections to gain a competitive edge instead of improving product quality. Zhang et al. (2014), through empirical analysis, found that from 2000 to 2006, the overall quality of China’s export products did not improve significantly. They identified inefficient domestic resource allocation as a key factor, with SOEs benefiting from preferential policies that led to the concentration of resources in SOEs, thereby hindering resource allocation efficiency and the improvement of export product quality. They suggested that resources should be directed to more dynamic private enterprises, which would better promote production and R&D, and thus facilitate the improvement of export product quality. In contrast, Gao and Peng (2019) reached a different conclusion, pointing out that resource agglomeration causes the prices of labor and land to rise rapidly, reducing firm efficiency and profit margins, preventing firms from investing more in R&D innovation or acquiring high-quality labor, and thus inhibiting the improvement of export product quality.

## 4. Conclusion and Research Outlook

This paper examines the relationship between commercial system reform and the quality of export products, drawing on existing literature and empirical analysis. The key findings of this study are as follows:

### *A. Commercial System Reform Enhances Export Product Quality*

Commercial system reforms contribute to the improvement of export product quality by lowering market entry costs, stimulating innovation, and enhancing resource allocation efficiency. The reform not only drives innovation at the firm level but also intensifies market competition, compelling firms to improve their product quality to stay competitive.

### *B. Changes in Micro-Enterprise Behavior*

At the microeconomic level, commercial system reforms encourage more efficient resource allocation in firms, leading to increased investment in research and development and higher product quality. This change improves individual firms’ competitiveness and leads to a broader enhancement of export product quality across industries.

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subsidies, trade liberalization policies, and other external factors complement commercial system reforms to drive improvements in export product quality. Government support for innovation and R&D, as well as the role of foreign capital in fostering quality upgrades, are crucial aspects to consider when analyzing the effectiveness of commercial system reforms.

### *C. Regional and Industry Heterogeneity*

The study reveals significant differences in the effectiveness of commercial system reforms across regions and industries. Firms in developed regions and high-tech industries benefit more from the reforms, while firms in traditional sectors and less developed regions see more limited impacts.

Despite the valuable insights provided by the existing literature, several gaps remain in the understanding of how commercial system reforms influence export product quality. First, most studies focus on macroeconomic perspectives, with insufficient exploration of micro-level firm behavior. Second, existing research tends to adopt static analyses and lacks dynamic assessments of the long-term effects of reforms. Therefore, future studies should focus on:

### *D. Long-Term Effects and Dynamic Analysis*

Future research should explore the long-term effects of commercial system reforms on export product quality, particularly in light of changes in global supply chains, technological advancements, and shifts in market demand. Longitudinal studies are needed to assess whether the improvements in product quality are sustainable over time and how these reforms interact with external global factors.

### *E. Sector-Specific and Regional Heterogeneity*

More detailed research is needed to explore the heterogeneous effects of commercial system reforms across different sectors and regions. Identifying which industries and regions benefit the most from these reforms will provide valuable insights for policymakers, particularly in tailoring reform strategies to local economic conditions.

### *F. Firm-Level Innovation and R&D Investments*

Further studies should focus on understanding how commercial system reforms specifically affect firms' innovation capabilities. The relationship between reforms, R&D investments, and export product quality can be better understood by looking at different industries, firm sizes, and technological capabilities. A more granular analysis of the drivers of innovation under reform conditions can offer more specific policy recommendations.

### *G. Interaction Between Commercial System Reform and Global Economic Changes*

Commercial system reforms should be studied in the context of global economic changes, including trade liberalization, technological advancements, and shifts in consumer preferences. How firms in emerging economies respond to global pressures while implementing commercial system reforms could provide insights into the effectiveness of such reforms in a globalized market.

### *H. Exploring the Role of Digital Transformation*

The growing importance of digital technologies, e-commerce, and global digital platforms could significantly alter how commercial system reforms influence export product quality. Future studies might investigate how digital transformation intersects with business reforms, leading to quality improvements in exports.

In conclusion, while this paper contributes to the understanding of the link between commercial system reforms and export product quality, it also highlights several areas for future research. Further exploration into the mechanisms through which these reforms enhance export quality, the long-term impact of reforms, and the role of digital technologies will enrich both academic literature and practical policy-making in promoting economic development and international trade competitiveness.

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