

**DOMESTIC AND FOREIGN TRADE COORDINATION: ENHANCEMENT  
OF TECHNOLOGY SPILLOVER**

**Oripova Gulirano Nodirovna**

*PhD student of Institute of Advanced Training*

*and Statistical Research*

*Tel: +998(97) 718 12 08*

**e-mail: [grahmatova1996@mail.ru](mailto:grahmatova1996@mail.ru)**

The existing literature discusses the impact of international trade on innovation from the perspective of technology spillover, which mainly includes competition, imitation as well as upstream and downstream contact (Alyson, 2006; Grog and Greenaway, 2002). In Krugman's model (Krugman, 1979), export growth provides technological innovation benefits. As monopolies end and the technology gap narrows, trade competition further promotes technological innovation. In addition, the non-trade sector may benefit from technology spillover by imitating and learning the technology from the trading sector (Fosfuri, 2001; Feder, 2006). An industry's technological innovation will, based on this, also lead to technological progress of related industries due to the technical and economic links between them. For example, multinational companies have put forward higher technical requirements for manufacturers in the processing trade, while manufacturers also require a higher level of technology for suppliers of raw materials and components (Kneller and Pisu, 2007).

There is, however, an underlying problem in that technology spillover of foreign trade does not affect countries at different stages of development in the same manner. Hence, trade does not always have a positive effect on technological innovation. In some developing countries, especially where the industries are



controlled by transnational corporations, trade will continue to be locked at the low end of the value chain (Schmitz and Knorrnga, 2000). At the same time, the comparative advantages of developing countries are concentrated in traditional industries because of their dependence on labor endowments. Therefore, the technology spillover is weak in these countries, making it difficult to promote technological innovation. In essence, whether the technical spillover of foreign trade can play a positive role depends largely on whether there are tight technical and economic connections among domestic industrial sectors. How the industrial sectors conduct international trade drives the technological development of the rest of the industries through the diffusion effect, including the forward effect, the bystander effect and the retrospective effect (Rowstow, 1990).

In view of possible adjustments and coping strategies, one feasible way for developing countries to improve technological spillover is to choose industrial sectors with large diffusion effects for international trade activities. Developing countries, however, are often forced to be low-locked in the global value chain due to their own resource endowments, division of global value chains and various other reasons (Gereffi, 1999; Cramer, 1999). Another feasible idea is to promote technological spillover by strengthening the diffusion effect of the industrial sectors, in which processes of domestic trade can play a role by adjusting the matching of production and demand, and also by reducing inter-regional market fragmentation (Zhang Hao, 2014). So far, few studies have analyzed the impact of domestic trade.

This paper argues that the interaction between domestic and foreign trade (trade coordination) can affect the technological spillover effect by improving competition, imitation and upstream and downstream contact, etc., which will then affect technological innovation. The ways are referred to as the competitive driving

effect, the information diffusion effect and the value chain optimization effect in this paper.

If FDI is dominated by foreign enterprises, these absorb local resources and have a significant impact on the competitive landscape (Konings, 2001). Similarly, if foreign trade is overly developed in a region, competition between foreign goods and domestic goods will intensify. The results are that the local market may show excessive dependence on overseas products, making it difficult for local enterprises to obtain innovative resources. The fierce competitive environment may, however, also stimulate local enterprises to make more efforts to improve technological innovation. The local enterprises can obtain the competitive advantage through innovation of products, crafts, markets, etc. Meanwhile, such developed domestic trade also reduces the transaction cost and enhances the competence of local enterprises. The enterprises can realize innovation revenues through the sale of innovative products. At the same time, the motivation to innovate and the continuous investments in R&D of the companies may be weakened if they are in a relatively relaxed competitive environment.

Market information is an important factor influencing the imitation and innovation activities of enterprises. Enterprises can imitate and improve mature products in the market and thereby realize an imitation innovation effect with the help of market information. In areas where domestic trade is more active, market information and market demand can spread to businesses easier and quicker due to faster economic cycles, and thus act on imitation innovation (Sjöholm, 1996). In addition, innovative products can be tested by the market in a timely manner, which is conducive to making adjustments or carrying out secondary innovation according to market feedback. In this process, foreign trade plays the role of information sources. Contrastingly, in areas where foreign trade is developed, the overseas qualified product information, as well as technical information, can flow in a timely

manner to the local enterprises. Thus, local enterprises can learn from foreign technology or products and implement a reverse crack on them, through which innovation costs can be reduced and innovation efficiency can be improved.

Foreign trade provides a broader market of raw materials and commodities for local enterprises. This makes it possible for them to allocate resources on a global scale, purchase overseas production factors with higher quality and gain markets with more extensive commodities. Generally speaking, foreign trade not only provides more convenient conditions for enterprises to carry out innovative activities, but also stimulates enterprises to obtain higher profit through continuous technological innovation. Limited by capital, talent and other factors, however, some domestic enterprises fail to enter international markets independently. In addition, the search and transaction costs to gain access to overseas resources are higher. Under this circumstance, domestic trade can act as a business synthesizer to connect domestic and foreign markets by virtue of advantages in information, services, logistics, etc. Compared to overseas markets, dominating enterprises in the field of domestic trade have a better knowledge of the demand and products in the domestic market. On the basis of this, enterprises can further access international markets and resources through other major international trade enterprises and build the bridge of “re-intermediary” between domestic and foreign markets. These enterprises can also directly engage in international trade activities and provide service support for domestic enterprises to get involved in international trade. In other words, developed domestic trade will enable international markets and resources to better integrate into the value chain of local enterprises.

Domestic and foreign trade, which complement each other and form a complete category of trade, have relatively independent specialized activities. The coordinated development of the two sectors reflects the integration of internal and external markets as well as the interwork of resources and factors from the

perspective of globalization. This does not mean, however, that the professional boundaries of the two are disappearing. Under the constraints of the production possibility frontier, there are two different development paths when it comes to the coordination between domestic and foreign trade. One is to invest in relatively less developed sectors in order to achieve a balanced development of domestic and foreign trade. The other is to focus on the higher developed trade sector, in which enterprises can avoid weaknesses and maximize the specialized superiority of domestic or foreign trade. The former is in this paper referred to as equalization (or trade equalization), and the latter is called specialization (or trade specialization).

One possible answer is that the different development paths will have different effects depending on the type of innovation. As noted, innovation can be classified into radical innovation and incremental innovation (March, 1991). Radical innovation refers to breaking the existing technological path and reforming products or services (Chandy and Tellis, 2013; Subramaniam and Youndt, 2005), while incremental innovation improves and develops the existing technical pathways by refining and enhancing existing technology or ability (Ettlie, 1983; Gatignon and Tushman, 2002). In regard to the coordination of domestic and foreign trade, equalized development will make a stronger contribution to incremental innovation, while specialized development will be more conducive to radical innovation.

In regard to the competitive driving effect, an improvement of a specialized level of the domestic or foreign trade sector means that the degree of competition increases, bringing about a stronger driving force for the enterprises to carry out radical innovation. The rules of competition will then be directly changed by new products or new services that result from the kind of innovation which substitutes for existing products or services (Rao et al, 2013). If the two trade sectors develop simultaneously, however, the competitive pressure on the enterprises will decrease,

which is more in line with the characteristics of low risk, low exploration and low creativity of incremental technological innovation (Olson, 1995).

In terms of the information diffusion effect, the specialization of certain trade sectors leads to faster information diffusion and higher quality information sources. This is conducive to the formation of knowledge transfer capacity required by radical innovation, leading enterprises to have a non-linear access to other types of knowledge. The equal development of the trade sectors will, however, help enterprises to better absorb information and form the knowledge accumulation capacity needed for incremental innovation. In addition, enterprises find it much easier to implement imitation innovation as well as improvement innovation if they absorb information of related products and technologies, which is more similar to the characteristics of incremental innovation.

With the value chain optimization effect, the specialized division of labor between domestic and foreign trade sectors achieve the accumulation of human capital and improve the ability of independent innovation. Empirical results also show that under certain conditions, human capital has a significant positive impact on radical innovation (Benhabib and Spiegel, 1994; Subramaniam and Youndt, 2005). In addition, this specialization also accelerates the accumulation of knowledge products and R&D investment, strengthening R&D as well as the innovation capacity of enterprises (Cohen and Levinthal, 1989). Companies are not required to provide completely different products or services under incremental innovation conditions, but great emphasis is put on the use of existing knowledge and skills. The equalized development of the trade sectors enhances the ability of enterprises to allocate and integrate existing resources, thus furthering incremental innovation.

***References:***

5. Alyson, C. M. (2006). Export spillovers to Chinese firms, evidence from provincial data. *J Chin Econ Bus Stud*, 4(2), 127–149.
6. Benhabib, J., & Spiegel, M. M. (1994). The role of human capital in economic development evidence from aggregate cross-century data. *J Monetary Econ*, 34(2), 143–173.
7. Chandy, R. K., & Tellis, G. J. (2013). The incumbent's curse? incumbency, size, and radical product innovation. *J Mark*, 64(3), 1–17.
8. Coe, D. T., & Helpman, E. (1995). International R&D spillovers. *European Econ Rev*, 39(5), 859–887.
9. <https://www.trade.gov/country-commercial-guides/uzbekistan-market-overview>
10. <https://stat.uz/en/official-statistics/internal-trade>
11. <https://www.chathamhouse.org/2021/12/re-imagining-trade-domestic-and-foreign-policy>