

## Technological Contents of China's Exports and Its Dynamic Changes----a New Measure based on global input-output model

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Since the 90s of twentieth Century, the scale and structure of China's exports have changed dramatically, and the export of goods has increased from 148.78 billion US \$ in 1995 to 2209.00 billion US \$ in 2013, the average growth rate of 1384.75%. According to the traditional gross trade statistics, the proportion of China's high-tech products exports increased continually, and the structure of export upgrades significantly. Based on the measures of technological complexity proposed by Lall, most of the studies show that the technological content of China's exports has increased significantly and the level of technological complexity exceeds its income level ( Lall, et al ,2006;Rodrick,2006; Hausmann et al, 2007).

However, all the methods above neglect an important feature of the rapid economic globalization in recent decades, that is the rise of global value chains(GVC). Goods that a country exports are not produced completely by the country. A country's export products are manufactured by use of foreign intermediate inputs, and the technological content of export products does not completely come from the export country. A scientific methods to measure the technological content of export should not based on the product in the traditional method, but on production process. Lall et al. (2006) pointed out: "the technological complexity is actually affected by a variety of non technical factors, rather than the specific technical measures." Especially, they also point out: "a measure of the technological content of exports requires the production process data, rather than the data of the gross product, but it is difficult to obtain the data about the production process." That is to say, measuring the technological content should be based on the specific production stage of the task / activity , that is the production process.

Therefore, this paper tries to establish a new method to measure the technological content of export products based on the production process by using the global input-output tables (1995-2011) from WIOD. The new method is similar with the literature of value-Added trade methods. The overall technological content of export is divided into domestic technological contents and foreign technological contents in our new measure. our preliminary results show that: First, since 1995, the technological level of China's export indeed have been upgraded and optimized. The overall technological contents, domestic technological contents and the index of domestic technological contents of the overall exports or the individual sector's exports have risen since 1995. the index of domestic technological contents of China exports have risen from 0.26 in 1995 to 0.55 in 2011. Therefore they are converging to the average level of the world. Second, compared with developed countries such as USA ,Japan , the technological content of China's export products is extremely low and locked in the most low-end. Therefore ,it is difficult for China to threat the advanced technology position of developed countries such as USA, Japan.