

The Application of Statistical Process Control on Quality Management

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Keywords: Application Study, Process Control, Quality Management

Abstract: This paper analyzes China's foreign trade and trade structure since the reform and opening up, and finds that China's current trade structure has major problems. Exports are concentrated in primary products and high-energy products. This extensive development strategy is sustainable for China's trade. The development and even the sustainable development of the economy poses a major challenge. In the context of the current global economic downturn in the post-crisis era, the most crucial thing is to adjust China's foreign trade strategy, adjust the export structure, and further optimize China's economy.

1. Introduction

Since the reform and opening up, China's economy has experienced tremendous development. The annual income of human settlements has been greatly improved, and the problem of food and clothing has been solved while living a well-off life. We can't help but ask what makes China's economy a huge development. The reason is our export-oriented strategy. During this period, due to the increase in exports, China's economy has developed substantially, and in turn, economic development has also driven exports. Increase. However, after observing the structure of China's economy, we find that our export-oriented strategy is unsustainable. China's current structural contradictions are very prominent. After the experience of the world economic crisis, the pace of global economic development has slowed down, and our exports have suffered severely. The reason for this is that our export structure has major problems. This article will examine China's export structure and provide some opinions to maintain the continued strong development of China's economy in the post-crisis era.

2. Display technology added value principle and assignment method

In economics, if a product is high-tech, it should be seen how much technology contributes to the added value of the product, rather than whether the production of the product uses advanced equipment, advanced technology, or whether the product itself contains advanced components. . Therefore, in economics, the level of product technology can be measured by the added value of technology. The technical added value of the product refers to the increase in the added value due to the use of technology during the formation of the added value of the product. If technology is used as a factor of production, the technical added value of a product can also be understood as the reward for the technical element of the distribution of added value. Both are equivalent under certain conditions. Because of these two equivalent definitions, there are at least two measures for the technical added value of a product. One approach is measured in terms of the contribution of technology to the added value of the product, and the other is measured by the compensation that technology receives in the distribution of added value of the product. The conclusions from these two measures should be equivalent. In reality, there are thousands of trade products, and if you want to measure the technical contribution or technical reward of each product, you need very large statistical data and data processing. Of course, the categorization of tradable goods can greatly reduce the amount of data and data processing. However, the subjective classification of tradable goods can easily classify products with different technical value added, thus losing the benefits of detailed classification statistics. First, assume that in a world of 2 2 2, there are only two production factors, technical and non-technical. The ratio of technical factor endowments to non-technical

factor endowments in the two countries is different. According to Samuelson's elemental average price theorem, the unit returns of the two countries' technology are equal, and the unit reward of technology is equal to the unit contribution of technology to the added value of products. From this, it can be inferred that in the production process, products with more technologies are used, and the added value of the technology is higher. Secondly, according to Heckscher Olin's factor endowment theory, countries with more abundant technical elements have comparative advantages in technology-intensive products. Technology-intensive products are products that use more technology, that is, products with relatively high technology added value. Therefore, this conclusion means that countries with more abundant technical elements have comparative advantages in products with high technology added value. In other words, countries with more abundant technical elements and products with comparative advantages are products with higher technology added value.

3. Analysis of trade structure based on the distribution of traded goods technology

After calculating the added value of the display technology of each product according to the above method, it is arranged on the horizontal axis from small to large, and the trade amount or trade ratio of each country on each product corresponds to the vertical axis, and the obtained A technical distribution map of a country's trade goods. If the vertical axis represents the export value (EV) or the export share (ES), the figure is a technical distribution map of the export product. If the vertical axis indicates the import amount (MV) or the import share (MS), the figure is the technical distribution of the imported products (see Figure 1). The biggest advantage of this trade commerce technology map is that it represents thousands of tradable goods as a visual trade structure. A comparison of the distribution of export technology and the distribution of imported technologies makes it easy to see the trade structure or trade pattern of a country. Similarly, it is easy to compare the past and present trade structure of a country based on the technical distribution of traded goods, or to compare the trade structure of the country with that of other countries, or even to compare the bilateral trade structure. Figure 1. In addition to the intuitive trade structure comparison, the tradable product technology map can also perform some structural analysis based on the distribution map.

The overall status of a country's tradable goods technology level or its relative position in the world is an important part of the technology distribution analysis method. Since the technical distribution of a country's traded goods is not normally distributed in many cases, the weighted average of the added value of tradable goods technology does not provide a good description of the overall state of the country's technical level. Inspired by the Lorenz curve and the Gini coefficient, this paper describes the overall state of the technical level of a country's trade products by constructing a tradable technical height curve and a technical height index. In Figure 2, the abscissa represents the cumulative share of the outlet or inlet. Its minimum value is 0 and the maximum value is 1. The ordinate indicates the arrangement of the added value of the tradable goods display technology from low to high. The minimum value is 1 m (m is the number of products) and the maximum value is 1. Trade value added value indices can be arranged equidistantly.

The shape and location of the curve can determine the overall state of the technical level of a country's trade products. If a country exports only one product with the lowest technical added value, its technical height curve is OAM. If a country exports only one product with the highest technical added value, its technical height curve is OBM. The diagonal OM indicates that a country has an equal amount of exports on all commodities. If the low value-added products in a country's exports are mostly, the flatter part near the origin O will be curved, and the curve will bend to point A, such as OCM. If the high value-added products in a country's exports are mostly, the flatter the part near M, the curve must bend to point B, such as ODM. If the medium value-added products of the export are mostly, the middle part of the curve is relatively flat, such as OEFM. It can be seen that the development process of the curve from OCM through OEFM to ODM can describe the gradual upgrading process of the added value of a country's tradable goods technology. The higher the position of the curve, the higher the overall technical level of the tradables, so this curve is

called the technical height curve of the tradables. The height value of the tradable technical height curve can be expressed by the area covered by the curve. This area is called the technical height index.

The pattern of low-tech products and imports of relatively high-tech products has been further confirmed; the technology of China's imports and exports is increasing, and the technology of export is increasing faster than that of imports; the technology imported from China does not reach the height of export technology of the United States and Japan. That is, China has not imported many high-tech products exported by the United States and Japan; the technology of China's exports has not reached the world average level, nor has it reached the height of imported technology from the United States and Japan, that is, despite the relatively high-tech products exported by the United States, Imports are relatively low-tech products, but China's exports do not reach the average technical level of imports from the US and Japan. The average technical height index of China, Japan, the United States and the world can be found: China's exports are relatively

Finally, let's take a look at how many high-tech products China exports. Table 3 provides a share of trade in products of various skill levels. In 2003, China's exports of high-tech products accounted for 116% of total exports, an increase of 3 percentage points over 1995. It can be seen that China's exports of high-tech products are indeed increasing, but it is still far from becoming the main force of China's exports, and it is not the main force for China's export growth. Because China's fastest-growing exports are products with medium-to-high technology. During 1995 and 2003, the export share of this category of products increased by 13 percentage points. In addition, it is not correct to say that most of China's exports are low value-added products. In 1995, the proportion of China's low value-added products fell by 16 percentage points. By 2003, the proportion of exports of low value-added products was not large, and it was no longer the main force of Chinese exports. Medium-tech products are the largest component of China's current exports.

4. Conclusion

This paper also analyzes China's foreign trade structure by using the above trade structure analysis method. It is found that China has shifted from low-tech value-added exports to export-oriented structures with medium-tech value-added exports, while imports are still high-tech products. Mainly, China's exports of high-tech products have increased, but high-tech products have not yet become the most important component of China's exports, nor are they the fastest-growing component of China's exports. On the whole, although the height of China's export product technology has improved, it has not yet reached the world average level, nor has it reached the high level of imported products from the United States and Japan. In addition, from the perspective of foreign trade relations, the view that China's foreign trade will be subject to greater competition pressure from ASEAN at the medium and low-level technical level will be subject to the pressure of greater competition from the US, Japan and Korea in the medium and high-tech level. In fact, these countries are not competitive enough against China. The EU is China's real competitor in the field of high-tech. In particular, the EU is in a clear position to compete with China, and China does not pose much competitive pressure on the EU. This is especially important for China, which is in the process of developing into a medium- and high-tech field.

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