

Game Analysis on Trade Strategy of International Trade

¹Lu-ying Hao, ²Xiu-jun Ji

¹Lu-ying Hao, college of management, university of shanghai for science and technology, Shanghai, China

^{*2}Xiu-jun Ji, college of management, university of shanghai for science and technology, Shanghai, China

Email: haoluying123@163.com

Abstract: With the development of global economic integration, trade liberalization has been a mainstream in world economy development nowadays. Value of international trade has been increased with a remarkably high ratio in successive years. However, when the international trade increases rapidly, meanwhile, various countries would adopt a series of measures to protect development and stabilization of their own economy. Thus, there exists a duality of trade liberalization and trade protectionism in international trade. At the same time of boosting trade liberalization, adopting suitable trade protection policies becomes the only road to the protection of international trade. How to balance these two becomes the point of discussion.

Keywords: International trade; Trade liberalization; Trade protection; Game analysis

1. Introduction

In decades, with popularization of international trade, manchesterism has been developed substantially. However, in recent years, various countries have begun to protect economic development and political stabilization of their own, and trade protectionism is making a great clamor, along with it, trade protection war becomes a common occurrence. This paper would analyze how to gain the dominant place in trade protection war, from the aspect of game theory.

Game theory includes four basic game models: static game with complete information, static game with incomplete information, dynamic game with complete information and dynamic game with incomplete information. In trade war, through various trade policy, as well as convention, threatening, commitment and such ways to try to win in trade game. Aiming at the game issues in trade war, we might as well start from the simple static game with complete information.

2. The Analysis of the International Trade Theories

There exist in the world two main trade theories — Free International Trade and Trade Protectionism. Free International Trade calls for the restriction and cancellation of all the obstacles that prevent the free international trade, and the unfair treatment in the international trade, so that all the goods and services in the world can flow freely and the allocation of resources can be optimized. It was Adam Smith who first brought about the idea of Free International Trade. The idea of Free International Trade includes labor division, absolute advantage, competitive advantage and natural endowment theory, etc. These theories, from different aspects, make it

clear that free trade can take advantage of its edge in specializing and gain trade benefit. Through free trade, countries can compete internationally, which will promote the local enterprises to improve the production

technologies and management, and the production efficiency. The local consumers can enjoy products with reasonable prices but good quality, their needs will be catered to, and their welfare will be added to. Moreover, the welfare of every country and even the whole world will be improved, the allocation of resources will be optimized, and the world economy will be developed.

Free Trade is the mainstream of the world economy. In reality, however, economy of different countries develops in a different way, and the characteristics of the economic development in different stages are various. Therefore, the blind advocacy of free trade will have an adverse influence on the local industrial development, employment and environment. In order to protect the local interest, the Trade Protectionism comes into being.

The Trade Protectionism refers to the measures that countries take to restrict the import of foreign good directly or indirectly can protect the local market from foreign competition, promote the development of the local industries and protect the local interest. The commonly used methods of trade protection include taxes and non-tariff trade barriers. On one hand, the large flow of foreign goods into the local market in short time during the early period of the national economic development, under the situation of the unsatisfactory level of local industrial development and the lack of competitiveness, will inflict a destructive influence on the local industries and the deterioration of international balance. All these will not contribute to the establishment of a complete national economic system, therefore, one country will rely greatly on other countries' economy, and

in extreme situations, the sovereignty may be influenced. At the same time, the failure of local industries will cause large unemployment and social instability. On the other hand, Trade Protectionism restricts the free inflow of foreign goods and the free competence between local industries, which gives little momentum and efficiency to national industries, and interpose market configuration to resource and lowers the efficiency of resource allocation. Trade Protectionism makes the market available to less commodities and the consumers to less welfares. Therefore, protectionism comes with a cost.

Based on the theoretical analysis, we can come at the conclusion that we should combine free trade and trade

protectionism in the international trade to optimize the national interest.

3. Analysis on Game Model

Above is theoretical analysis on the basis of trade theory from various countries, now we would introduce game theory model, and try to state the path choosing issue in trade strategy of international trade from the angle of model.

We might as well start from the analysis on static game with complete information (Table 1):

		Country A	
		Machesterism	Trade Protectionism
Country B	Machesterism	Interests are shared by two countries. (3,3)	Interests only belong to Country A. (6 , -2)
	Trade Protectionism	Interests only belong to Country B. (-2,6)	There is no free trade interests. (0,0)

Table 1: analysis in a static condition of all elements

Let's assume that A, B are two countries who carry out international trade because of the exchange needs. In the above model, one country can only decide its trade policies, without knowing others' reaction towards them in advance. The numbers in the table only represents a vague concept of size, instead of actual mathematical meanings. In other words, this is a model in a static condition of all elements.

It is obvious that from the perspective of self-interest, regardless of which kind of trade policy the other side chooses, the trade protection policy is clearly the best. At this point, the two countries' trade policies of Nash Equilibrium are all protectionism, as showed (0,0) in the table. Obviously, in this case, both countries cannot obtain optimal interests, namely the combination of free trade on both sides (3, 3). The Nash Equilibrium is inefficient.

At this time, we have introduced the concept of negotiating to a common ground.

In order to achieve the optimal solution, the two countries can guarantee it through signing a series of trade agreements, which in other words is called to negotiate to a common ground. Country A and Country B can sign a free trade agreement to ensure the implementation of free trade. In this way, both sides can maximize the combination of interest, i.e. (3, 3). This theory illustrates the emergence of trade leagues, trade agreements and free-trade zone.

But this negotiation is clearly unstable. In order to maximize their own interests, the two countries tend to break the agreement and carry out trade protectionism, namely the so-called (6,-2) or (-2, 6). (The reason is the interests got by breaking the agreement is 6, larger than the interest 3 got by complying with the agreement).

We further bring in the concept of Repeated Game.

Repeated Game is the reaction of the real situation in the real international trade war. After signing the free trade agreement, the countries will further formulate a series of sanctions, such as a threat to the other side, saying that if one side violates the agreement, the other side will implement more severe trade sanctions, including raising import tariffs, imposing import trade quotas, restricting the export of raw materials and so on. At this point, because of the fear of sanctions, both parties will guarantee a dynamic compliance of free trade agreement. This also illustrates the frequent occurrence of anti-dumping trade wars, which is also a power weapon for one country to fight for international trade autonomy.

Consequently, in the process of formulating its international trade policy, a country should not only think about the economic benefits of free trade but also establish a series of protective measures to prevent the opportunism threat caused by the violation of the agreement by the other side. The repeated game between freedom and protection is the process of continually seeking a balance in the international trade.

4. Conclusion Analysis

In fact, trade strategy in real is not as simple as the theoretical model analysis we do. Theoretical model only builds from the aspect of theory and give us a basis of reference. We shall formulate a suitable international trade strategy by combining realistic economic development condition.

First, different countries should make different International Trade Policy in each level of the economy development. International trade strategy is connected with the stage of the economy development closely. At the beginning of the economy growth, the government should practice the protectionist policy positively to

develop the domestic industry. For the time being, all the industries need to flourish, but the huge international free trade will shock the domestic economy immeasurably, break down the domestic economic pattern, and disintegrate the domestic economy. Generally speaking, being in the primary stage of the economic growth, the government will take the protectionist policy; but being in the developed staged of industrial economy, the government will take more free trade policy, to get the gains of the Integration of the Regional Economy.

Second, formulating the international trade strategy will also influenced by the national competitiveness. The country in disadvantaged trade position less commerce competitiveness, will take the protectionist policy; but the countries in the dominant position, more commerce competitiveness tend to take the free trade policy. For instance, in the 1970s, because of the economy in Japan and EC developed very fast, the US turn to take the protectionist policy though the American's economy in the developed level, though the American is the top one economic power.

Third, making the International Trade Strategy also influenced by the Nation Economic Strategy. The international trade strategy is ministrant of the ensemble economic development strategy. At the transitional of the economy, the government can enhance the high technology economic barrier entrance properly. Moderate import can stimulate domestic autonomously R&D capability; moderate barrier can provide a good protection environment for domestic emerging industry.

In conclusion, making the international trade strategy policy should be based on Theory of Games, seek out the credible game equalization and benefit equilibrium point.

And select the appropriate trade policy according to the specific economic development stage and also the status of industrial structure. Making the trade policy can also through the way of the strong competitiveness commerce properly compromise to the weak ones. At the Games unceasing, free commerce combined with properly trade protection, can seek out the way of international trade to be suitable for its economic development.

References

- [1] Zhang Weiying, Game Theory and Information Economics, Shanghai People Publish, Shanghai, 1996.
- [2] Wen Qiping, The International Trade of the Dual Game and China's Trade Policy, *Journal of Baoji College of Arts and Science*, 2003.
- [3] Liu Junmei, The Trade Policy of the World Economy and Trade Strategy: History Perspective of International Comparison, *Fudan University Journal*, 2008.
- [4] Tang Ling, Li Chunjie, Evolutionary Game Analysis of Selection in International Trade Dispute, *International Trade*, 2005.
- [5] Yang Hao, Between Two Countries Custom Games in International Commerce, *Zhongnan University of Economics and Law Journal*, 2002.
- [6] Zhu Tong, Li Lei, Strategy Action in Trade Friction, *Economic Science*, 2007.
- [7] Liu Qin, Analysis of Trade Policy Changing between America and China, *Central University of Finance and Economics Journal*, 2001.