A Cluster Analysis of the Impacts of Different Trade Policies

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ABSTRACT

This paper analyses the foreign trade policies of the countries by cluster analysis. We classify the protectionism policy three kinds-high protectionism, median protectionism and low protectionism, and finally we analyze the relationship between these kinds in the structure.

Key words: protectionism   cluster analysis   foreign trade policy

1. Introduction

In retrospect of the related works worldwide, we found that the analyzing foreign trade policy types of a country usually sorts into the developed countries foreign trade policy and developing countries foreign trade policy. There are few related empirical analyses about it. At the other hand, foreign trade policies also could normally be classified into two types: free trade policy and protectionism trade policy. However, we believe that since every nation is residing in its own historic period, economic development level; different political groups have various political and economic pursuits, its foreign policies appear various characteristics. Next, we will briefly review and analyze the current common knowledge for the foreign trade policies:

The free trade policy of the foreign trade policies means: a country cancels the constraint and obstacles to both import and export trade; cancels various privileges and special treatment for its own import and export merchandises; allows the merchandises to be imported and exported freely; to compete freely in the international market. However, there are few countries completely carry out the free trade policy in the history, such as United Kingdom and Netherlands. For the sake of their own national interests, most countries have some kind of protection in their foreign policies. There are only some difference in the protection form and extent.

Protectionism policy means a country widely uses all kinds of limits of imports to protect its domestic industry and market from the competition of the foreign merchandises and provides special treatment and subsidy to domestic export merchandises to encourage exports. But the content of the protective policy changes along with the changes of the political and economic environment. To examine worldwide, the protectionism policy and free trade policy have been existing like twins. But the themes of trade policy varied in different developing periods. Sometimes the protectionism trade policy was dominant, but sometimes there came free trade policy's trend. International trade policies in capitalism period differ from the one in feudalism period. Even in different developing spans in the capitalism period, there are changes of protective trade policy.

The period of mercantile system (1500 to 1778, when Adam Smith's Wealth of Nations published) is the time when the European capital started to accumulate. The policies-makers, legislators, businessmen and writers all believed that gold and silver were the sign of wealth. They thought that the government's intervening in economic activities or protective policy was the reason for the wealth of nations. Therefore, the mercantile system policies executed by the government of each country basically were all compelling. The fundamental points of the policies are: government intervenes foreign trade, directly controls the currency flow; forbids the outflow of gold and silver and the nation monopolizes all the currency trade.

In the 19th century, when UK is striving for the victory of free trade, the United

States and Germany was developing the protectionism policy. They tried hard to protect the domestic market for the emerging industries and expand the market shares of these industries. It helped the emerging industries grew from infant state to maturity, enhanced their competitive advantages and beat the competitors. The main strategy then was increasing the tariff for the competitive imported products, increasing the cost for importing to make them less competitive.

From the end of the First World War to the beginning of the Second World War, the capitalism world experienced a devious development. Firstly, it was the deep political and economic fluctuation after the war, and then it came into a partly stable period. As the process of manufacturing concentration and monopolization in major capitalistic countries speeded up and the serious impact of economic crisis and lasting depression, the competition of the world market and governable areas among many monopolizing capital became unprecedented fierce. The capitalism residing in the period of monopoly, compared with the protectionism policy before the monopoly, differed a lot in both the target of protection and policy goals. The measures of protectionism policy at this time had the characteristics of various forms and tactical aggressiveness.

After the Second World War, there were great changes in foreign trade policies of capitalistic countries. In the postwar, there were two tendencies in the foreign trade policies of developed capitalistic countries. From 1950s to early 1970s, it was mainly the free trade policy. From middle 1970s till now, the protectionism policy revived. As the free trade policy is developing, the new protectionism policy is appearing. The two tendencies appear opposite, but at the same time they integrate and co-exist. According to different situations in different periods, sometimes the trade freedom dominated, sometimes protectionism dominated.

After middle of 1980s, on the base of trade freedom and new trade protectionism, the tendency of International managed trade enhanced incessantly. Managed trade is a kind of international trade policy with a guide of government's intervention, a measure of negotiations and intervening, coordinating and managing domestic import and export and global trade relationship. On one hand, it could boost and enhance the international cooperation, and expand international trade. On the other, there may be the tendencies of blockage, separation and stronger trade protection. The measures and forms of managed trade are international conferences, economic trade groups, international economic trade organizations and agreements, international merchandise conventions, bilateral trade agreements of countries and so on. Due to the variety of the forms, we believe that the index of national protectionism developed by International Economic Forum and Swiss International Management Development College better reflects the characteristics of current protectionism policies. We could make use of it to analyze the national types of protective trade policies.

2. Empirical Analyses

Here we cluster and analyze 15 countries and areas (US, Japan, Germany, Canada,

France, UK, Italy, Singapore, Hong Kong, Taiwan, Korea, Brazil, Mainland China, India and Russia) listed by <China's International Competitive Power Report (2001)-21st Century Development Thesis Study>, with the 8 indices of national protectionism in it.

Since it is the analysis of nation's classification, we use observation clustering(Q clastering). Firstly, we sort the 15 countries with Hierachical Claster Analysis . In order to make full of all the countries' information and guarantee the distance among clusters grouped with an monotonousl increasing , the clustering method is average connection method. For the similarity test, as the closer the distance is, the higher the similarity, we adopted the most widely used Eudemus Distance Square as the cluster distance in this paper. The result of the clustering analysis is shown in the tree diagram below (Diagram 1).

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                      0            5           10          15          20          25
 Label      Num    +---------+---------+---------+---------+---------+

 Germany      3     -+-+
 Canada       4     -+ +-+
 UK           6     ---+ +-----+
 HK SAR       9     -----+       I
 US           1     -+            +-----+
 France       5     -+-----+   I      I
 Brazil      12     -+       +---+      +------------------+
 Italy        7     -------+         I                    I
 Singapore    8     ----------------+                     I
 Japan        2     -+-+                        +-----------+
 Korea       11     -+ +---+                     I          I
 Taiwan      10     ---+   +-------------+        I          I
 India       14     -------+             +---------------+   I
 M. China    13     ---------------------+                   I
 Russia      15     -------------------------------------------------+
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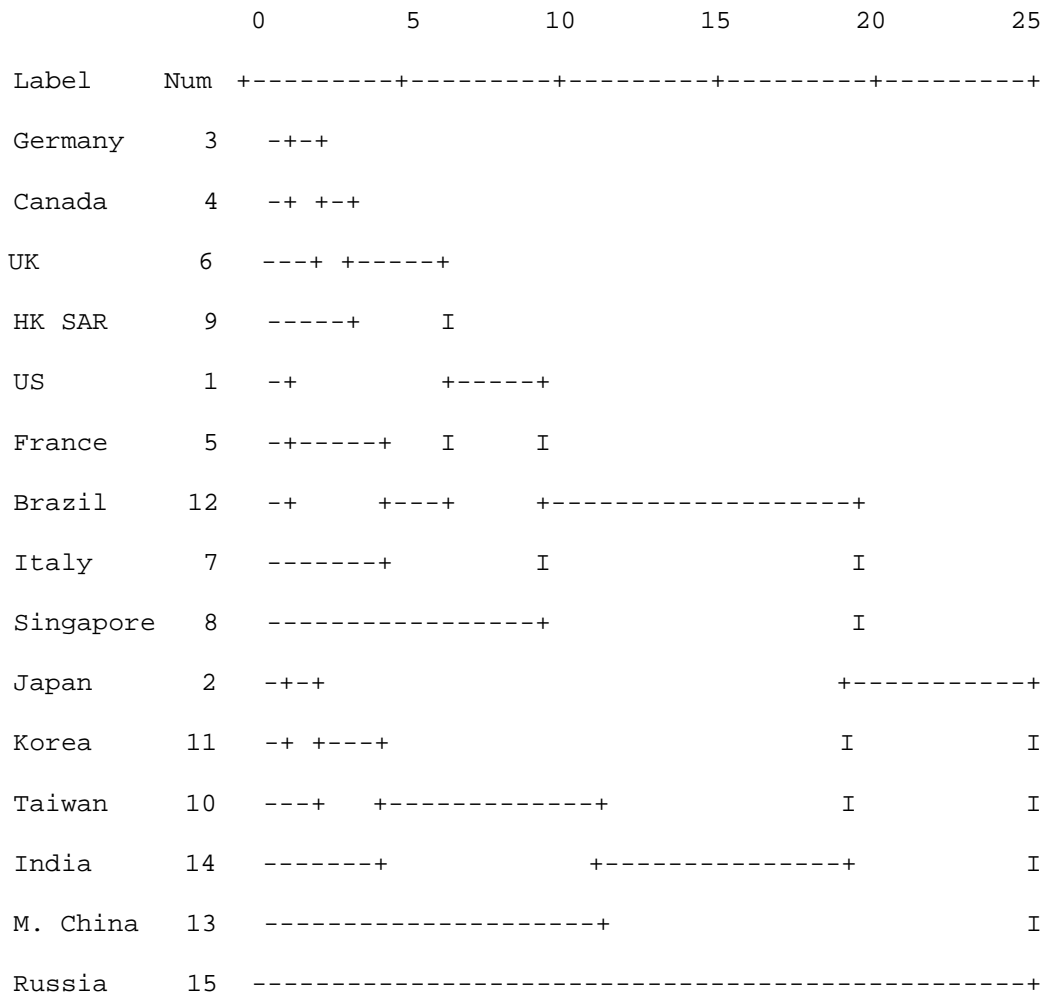
Diagram 1 Tree Diagram (Eudemus Distance Square)

Now, we could see it is reasonable to group into 3 clusters. One cluster includes 9 countries and areas: Germany, Canada, UK, HK SAR, US, France, Brazil, Italy and Singapore; another cluster of 5 countries or areas includes Japan, Korea, Taiwan, India and Mainland China; and the last one is Russia.

In order to study the protective characteristics of 3 clusters of countries, we use K-Mean Cluster to cluster the observations. Since K-Mean Cluster uses Eudemus Distance Square, consistent with the method of the Hierachical Claster Analysis above, these countries and areas are grouped into 3 clusters. So, the clustering result is the same with the one above. See the following two tables. (Table 1 and Table 2)

Table 1

Number of Cases in each Cluster

Cluster	1	9.000
	2	1.000
	3	5.000
Valid		15.000
Missing		.000

Table 2

Cluster Membership

Case	Country/Area	Cluster	Distance
1	US	1	1.644
2	Japan	3	2.639
3	Germany	1	1.895
4	Canada	1	.933
5	France	1	2.234
6	UK	1	1.693
7	Italy	1	3.148
8	Singapore	1	3.624
9	HK SAR	1	2.693
10	Taiwan	3	1.656
11	Korea	3	1.497
12	Brazil	1	2.002
13	Mainland China	3	3.841
14	India	3	1.748
15	Russia	2	.000

Table 3

ANOVA

	Cluster		Error		F	Sig.
	Mean quare	df	Mean quare	df		
Protectionism	8.276	2	.731	12	11.317	.002
Public Sectors' Contract	7.078	2	1.181	12	5.994	.016
Foreign & Domestic Companies	12.744	2	.384	12	33.202	.000
Risk of Multinational Business	10.067	2	.861	12	11.693	.002
Investment Protection Plan	7.200	2	.737	12	9.772	.003
Investment Motivation	8.961	2	1.194	12	7.503	.008
Foreign Investors	13.150	2	.629	12	20.897	.000
Immigrant Law	4.113	2	1.000	12	4.114	.044

From ANOVA (Table 3) we could see that the Cluster MS caused by any variance of the eight is even larger than the Error MS in the cluster. As for the probability, the probabilities of the eight variances making the hypothesis of indifference hold are all below 5%. ANOVA indicates the eight variances in the clustering analysis could better distinguish the difference among clusters. In table 4-Distance between Final Cluster Centers, we could find the distances among clusters are obvious.

Table 4

Distances between Final Cluster Centers

Cluster	1	2	3
1		9.693	4.971
2	9.693		6.167
3	4.971	6.167	

Table 5

Final Cluster Centers

	Cluster		
	1	2	3
Protectionism	7.3768	4.9640	5.2932
Public Sectors' Contract	6.6652	4.0980	4.8378
Foreign & Domestic Companies	7.8688	3.6870	5.7404
Risk of Multinational Business	8.1451	4.8920	6.0358
Investment Protection Plan	7.0647	3.0840	6.8714
Investment Motivation	6.5315	2.0723	5.9963
Foreign Investors	8.3877	4.6270	5.9938
Immigrant Law	6.1868	4.2892	4.7742

According to Table 5-Final Cluster Centers' analysis, only the second cluster of Russia belongs to high protection mode. Each variance of it arranges from 4.2 to 5. Its investment motivation is only 2.0723, which implies that Russia's attractiveness for foreign investment is very small; while the index of protectionism is 4.964, which indicates Russia' intervention to import and export are relatively small.

The third cluster belongs to mid protection mode. Countries and areas of this kind include: Japan, Korea, Taiwan, India and China. Each variance of them arranges from 4.7 to 6.9. The Immigrant Law is only 4.7742, which implies these countries or areas have strong limits for the employment of foreign labors in domestic companies. However, their figures of investment protection plan are as high as 6.8714, very close to 7.0647 of the first cluster, which indicate countries or areas of the third cluster could obtain the investment protection plan, whose extent is next to the first cluster.

The first cluster belongs to low protection mode, which includes nine countries and areas: Germany, Canada, UK, HK SAR, US, France, Brazil, Italy and Singapore. Each variance of them arrange from 6.1 to 8.4. Immigrant Law are the lowest ones, compared with other variances. It means the control of immigration is strong, though their

protection extent is not so high. But the index of foreign investor is 8.3877, which implies foreign investors could obtain the dominant right of domestic companies easily.

3. Conclusion

From the analyses above we could find that the protection extent of the second cluster is the highest, but their international competitive power is relatively weak. Therefore, their foreign trade policies do not have a great influence on the international trade system. The protection extent of countries in the first cluster is the lowest, but it doesn't follow that the foreign trade policies of these countries are free trade policies, as there are the protection to some extent. And these countries are mainly developed countries with stronger competitive power. Their foreign policies will greatly influence the international trade system. The US is just the typical case. It consecutively ranks first in International Competitive Power Yearbook by IMD in 5 years. Therefore, it is the country we mainly study on. The third cluster countries and areas are generally developing countries, whose competitive powers reside in middle level. Their foreign policies will have some impact on the international trade system.

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