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國際學碩士學位論文

**Developments and Prospects of
China's Trade Facilitation Policy**

중국 무역원활화 정책의 발전 및 전망

2014年 8月

서울대학교 國際大學院

國際學科 國際通商學專攻

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Developments and Prospects of China's Trade Facilitation Policy

A thesis presented by

Peng Qinya

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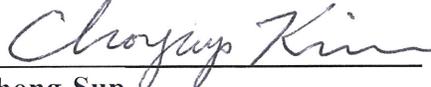
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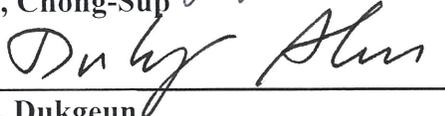
Developments and Prospects of China's Trade Facilitation Policy

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Abstract

Developments and Prospects of China's Trade Facilitation Policy

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Over the past three decades, the continuous advancement of global economic integration has encouraged a robust growth of international trade. International trade can positively promote economic growth, and generate higher levels of revenue and welfare. Based on this general point of view, it is in every economy's interest to further diminish trade barriers, facilitate commodity export and import, and create a healthier trading environment for business entities.

However, considering trade facilitation measures a complex of various development factors, the undertaking of individual countries will have its own focus and characteristics. Specifically, China, as the world's largest trading partner, has its own agenda on the development of trade facilitation, and has been spending enormous effort on its trade facilitation reforms.

Recognizing the significance of trade facilitation development in China, this paper aims to assess China's trade facilitation status quo via qualitative and quantitative methods. Based on this purpose, the paper is going to be divided into 4 parts. The first part gives a background introduction to the issue at hand; the second

part puts forward a qualitative analysis of China's trade facilitation development route; the third part quantifies trade facilitation performances, and compares China's performance with those of other selected countries and territories; the last part concludes the paper and presents policy recommendations on how to improve the status quo.

Key words: China, Trade Facilitation, Analytic Hierarchy Process

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Chapter I. Introduction

As a result of multilateral, regional, as well as bilateral efforts, barriers to achieving a more open and vigorous international trading system have been gradually minimized. Especially, the fruitful Tokyo Round and Uruguay Round of the General Agreement on Tariffs and Trade (GATT)/ World Trade Organization (WTO) trade negotiations have brought about tremendous benefits to the world trading system by reducing tariff rates to a significant extent. However, the latest Doha Round seemed to have come across several difficulties, with virtually all but one of its major topics reaching a literal deadlock. The only one remaining agenda with seemingly promising outcomes is the facilitation of trade, which addresses the issue of the remaining non-tariff barriers. After more than nine years of negotiations, WTO members finally reached consensus on a Trade Facilitation Agreement at the Bali Ministerial Conference in December 2013, as part of a wider “Bali Package”. The final agreement contains provisions for faster and more efficient customs procedures through effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues (WTO, 2013).

1.1. Definition and Importance of Trade Facilitation

So what is trade facilitation? Actually, there is no real consensus on its definition so far in the academia. Different organizations in different literature tend to underline different aspects of trade facilitation. Wilson et al. (2002) summarized the evolving definitions of trade facilitation by various mainstream international groups, as shown in Table 1.

WTO and UNCTAD:	“simplification and harmonization of international trade procedures, including activities, practices, and formalities involved in collecting, presenting, communicating, and processing data required for the movement of goods in international trade.” (WTO website, and UNCTAD, E-Commerce and Development Report 2001, p 180)
OECD:	“simplification and standardization of procedures and associated information flows required to move goods internationally from seller to buyer and to <i>pass payments</i> in the other direction” (OECD, TD/TC/WP(2001)21 attributed to John Raven)
UN/ECE:	“ <i>comprehensive and integrated approach</i> to reducing the complexity and cost of the trade transactions process, and ensuring that all these activities can take place in an efficient, <i>transparent, and predictable manner</i> , based on internationally accepted norms, standards, and best practices” (draft document 3/13/2002)
APEC 1999:	“the use of technologies and techniques which will help members to <i>build up expertise</i> , reduce costs and lead to better movement of goods and services” (APEC Economic Committee 1999)
APEC 2002:	“trade facilitation generally refers to the simplification, harmonization, <i>use of new technologies</i> and other measures to address procedural and administrative impediments to trade. (APEC Principles on Trade Facilitation 2002)

Table 1: The Evolving Definition of Trade Facilitation¹

In the “Bali Package”, the Trade Facilitation Agreement addresses this issue in

¹ Wilson et al. (2002).

12 Articles:

Article 1	Publication and availability of information
Article 2	Prior publication and consultation
Article 3	Advance rulings
Article 4	Appeal or review procedures
Article 5	Other measures to enhance impartiality, non-discrimination and transparency
Article 6	Disciplines on fees and charges imposed on/ in connection with importation and exportation
Article 7	Release and clearance of goods
Article 8	Border agency coordination
Article 9	Movement of goods under customs control intended for import
Article 10	Formalities connected with importation and exportation and transit
Article 11	Freedom of transit
Article 12	Customs cooperation

Table 2: The 12 Articles of the Trade Facilitation Agreement²

Generally, the primary goal of trade facilitation is to reduce transaction costs and complexity of international trade for businesses, to improve the international trading environment, and to optimize efficient and effective levels of government control at the same time.

The importance of trade facilitation is underlined by the fact that the traditional barrier to trade – tariff rates – has already been effectively reduced to a minimal

² The World Trade Organization. (2013).

level, and further tariff cuts would only generate marginal benefits. At the same time, according to recent studies from the World Bank and other international economic institutions, trade facilitation reforms could do much more to increasing international trade flows than reductions in traditional trade barrier fields could achieve.

As Pascal Lamy, Director-General of the WTO, addressed in a speech to the Chittagong Chamber of Commerce in Bangladesh, “removing barriers to trade and cutting red tape in half, which is what a multilateral Trade Facilitation Agreement could deliver, could stimulate the US\$22 trillion world economy by more than \$1 trillion” (Lamy 2013). Many academic studies have also been conducted by scholars worldwide on the benefits that trade facilitation reforms could bring about to developing countries as well as developed countries. For developing countries, Wilson et al. (2004) concluded in a World Bank report that improvement in trade facilitation of the “below-average” countries “halfway” to global average level could yield an increase in global trade of \$377 billion, or about 9 percent per year. For developed economies where there is much room for improvement of performance in many different facets of logistics, trade-related services, and administrative procedures, trade facilitation enhancements can also generate ample new trade flows on both internal and external margins.

China, as the world’s largest trading partner, has achieved certain goals in the development of its trade facilitation policy and measures.

A World Bank study adopts the Logistics Performance Index (LPI) to measure on-the-ground trade logistics performance of 155 countries, as an indicator to decide the effectiveness of trade facilitation reforms. This index is based on surveys

conducted among logistics professionals and provides a comprehensive picture of supply chain performance including indicators regarding the following aspects:

“*Customs*, designed to measure the efficiency of clearance process by customs and other agencies;

Infrastructure, designed to measure the quality of transportation and IT infrastructure;

International shipments, designed to measure the ease and affordability of arranging international shipments;

Logistics competence, designed to measure the competence of the local logistics industry;

Tracking and tracing, designed to measure the ability to track and trace international shipments; and

Timeliness, designed to measure the timeliness of shipments in reaching the destination (World Bank 2012).”

According to this report, China was revealed as one of the LPI “overperformers” (non-high-income countries with the 10 largest residuals above the average line), indicating that China has an above-average trade facilitation performance within the same per capita income group (See Figure 1).

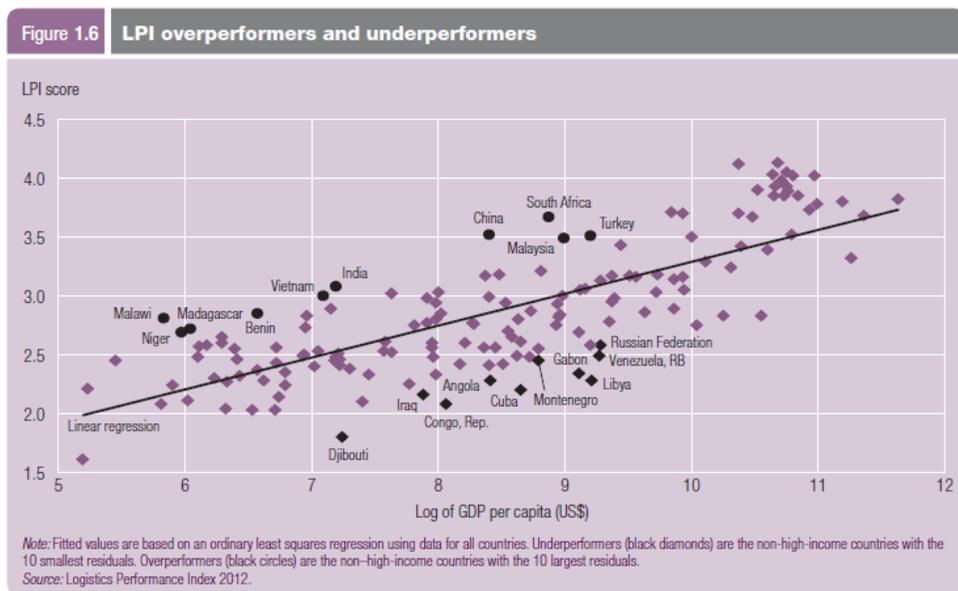


Figure 1: LPI Overperformers and Underperformers³

However, although ranking 26 in the Global LPI Ranking, China’s trade facilitation effort is still lagging behind that of most developed countries. If we observe more closely by comparing China’s LPI scores with those of Singapore (1st rank) and Korea (21st rank), we can find that the bottleneck seems to be in customs procedures (See Table 2 and Figure 2). In particular, respondents raised issues concerning the transparency of customs clearance where only about a third agreed that such activities are transparent. In addition, the quality of service provided by customs brokers, transport associations and shipping agencies are also considered low. However, a majority of those surveyed agreed that improvements have been made since 2005 with regards to the clearance procedures of the China Customs.

³ The World Bank. (2012).

Country	LPI	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
Singapore	4.13	4.1	4.15	3.99	4.07	4.07	4.39
Korea, Rep.	3.7	3.42	3.74	3.67	3.65	3.68	4.02
China	3.52	3.25	3.61	3.46	3.47	3.52	3.8

Table 3: LPI Scoreboard Comparison⁴

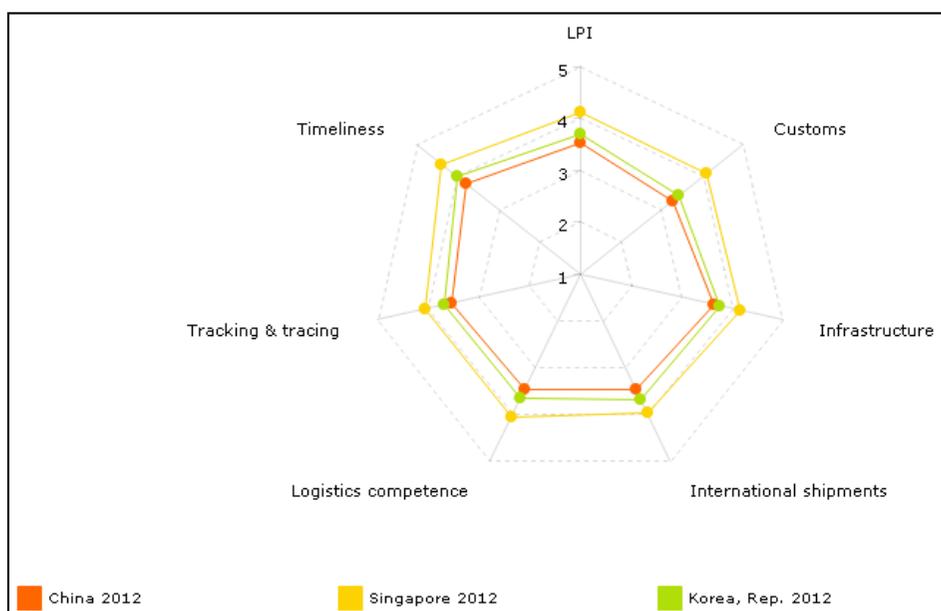


Figure 2: LPI Chart Comparison⁵

Another World Bank study, the Doing Business report series, addresses a country's overall environment to conduct business activities. According to the Doing Business 2013 report co-published by the World Bank and the International Finance

⁴ The World Bank. (2012). Retrieved from <http://lpiurvey.worldbank.org/international/scorecard>.

⁵ Ibid.

Corporation, out of the 185 observed countries and regions, China's overall ease of doing business ranked as low as 91. More specifically, Table 3 below presents a snapshot of China's performance in trading across borders. Comparing the relative time and costs over the period of the World Bank study seem to indicate, however, that China's trading-across-borders efficiency enhancement has reached a saturation level, i.e. number of documents and time to import and export has remained stagnant since 2007.

Trading across borders	2009 Rank	86
	2012 Rank	60
	2013 Rank	68
Documents to export (number)		8
Time to export (days)		21
Cost to export (US\$ per container)		580
Documents to import (number)		5
Time to import (days)		24
Cost to import (US\$ per container)		615

Table 4: Trading across Borders (2012-2013)⁶

⁶ The World Bank. (2013). Retrieved from <http://www.doingbusiness.org/data/>.

Especially, China and the Republic of Korea in May 2012 officially launched rigorous negotiations of a potential China-ROK Free Trade Agreement (FTA). Great importance has been attached to the successful conclusion of these negotiations in that, from the Korean perspective, China is its biggest trading partner which accounts for nearly 30% of Korea's trade dependence, whereas from the Chinese perspective, the potential China-ROK FTA will become the first substantive and economically beneficial preferential trade arrangement in which China is a partner (Brooks 2009).

However, the newly emerging China is still facing fundamental challenges in its unsatisfactory trading environment. China's trade facilitation performance is also relatively weak compared with that of Korea (ranking 21 in the 2012 Global LPI Ranking). In this light, a study on the developments and prospects of China's trade facilitation reforms, together with an assessment of shortcomings of the current situation, seems to have been attached with some more pragmatic meanings and implications.

1.2. Objectives and Research Questions

This paper aims to assess China's trade facilitation status quo via qualitative and quantitative methods. It endeavors to answer the following three research questions: 1) what policy framework has the China adopted to enhance its performance in trade facilitation? 2) what is China's trade facilitation status quo compared with major economies? 3) what are the weak links and obstacles hindering China's further development in trade facilitation?

Based on these questions, the paper is going to be divided into 4 parts. The first part gives a background introduction to the issue at hand; the second part puts forward a qualitative analysis of China's trade facilitation development route; the third part quantifies trade facilitation performances, and compares China's performance with those of selected major countries and territories; the last part concludes the paper and presents policy recommendations on how to improve the status quo.

Chapter II. Qualitative Analysis -- Developments in China's Trade Facilitation through International Negotiations

Ever since China's Reform and Opening-up Policy, especially after its blending into world trading system following its accession into the World Trade Organization, trade facilitation (in Chinese "*mao yi bian li hua*", "贸易便利化") has become a most important topic in China's trade development agenda. Over the years, the country has been actively exploring ways to enhance its trading environment, so as to reap greater benefits for its goods exportation and achieve sustainable development in its foreign trade (Antkiewicz & Whalley 2005). Such efforts could be partly revealed in its participation in international negotiations. However, we have to bear it in mind that compared with industrialized and newly industrialized countries, China's participation in international trade facilitation projects is still relatively inactive.

2.1. China's Participation in the WTO System

Ministers from WTO member-countries decided for the first time at the 1996 Singapore Ministerial Conference to look at possible ways of simplifying trade procedures, an issue later known as "trade facilitation". Pursuant to the Doha Ministerial Declaration (WTO 2001), member-countries recognized "the case for further expediting the movement, release and clearance of goods, including goods in transit, and the need for enhanced technical assistance and capacity building in this area", and therefore officially agreed on negotiations on the revision, clarification

and improvement of facilitation-related articles in GATT 1994, as well as identifications of trade facilitation needs and priorities of member-countries. Related GATT articles include Article V: Freedom of Transit, Article VIII: Fees and Formalities Connected with Importation and Exportation, and Article X: Publication and Administration of Trade Regulations.

However, such negotiations are not without obstacles. Although during the 2005 Hong Kong Ministerial Conference, the report submitted by the Negotiation Group on Trade Facilitation was the only one jointly approved in the name of all WTO member-countries, it again reached a stalemate in a 2006 informal trade negotiation meeting in Geneva mainly due to North-South differences on some core issues. Entering 2013, some dawning lights have finally been brought back to the deadlocked situation, and the resume of trade facilitation negotiation has entered the phase of countdown. It is expected that negotiations on trade facilitation, ahead of all other agendas, would hopefully become the first topic to be concluded before the end of this year (Chen & Li 2006).

Though a newly-joined member, the role of China in this process could not be neglected. For example, as a member of the Group of 20 (occasionally known as G21, G23, or G20+, a bloc of developing nations in trade negotiations), China put forward at the Fifth Ministerial Meeting in Cancun a proposal on flexible handling of facilitation-related issues on trade in sensitive agricultural products, on the condition of changing current unfair trading practices in this sector. Moreover, on the 5th-7th April 2006 meeting of the Negotiation Group on Trade Facilitation, China, together with India, Pakistan and Sri Lanka submitted a proposal on the process of

trade facilitation negotiations. In view of the concerns described, rather than struggling through the negotiating process, the sponsors proposed to take up those concerns and solve relevant issues in parallel with the rule drafting process so as to lay a good foundation for text-based negotiations. Those issues were basically the ones members had to address in the establishment of all trade facilitation rules. “They were (i) the arrangement of commitments for developing member-countries, (ii) the provision of technical assistance and capacity building support, and (iii) the applicability of the dispute settlement mechanism. The basic idea was that since they were tangible issues that gave deep impact on the decisions to be taken by members during the negotiations, members would have to deal with them sooner or later. It might be better to face up to them now rather than later to make the decision-making effort smoother and easier” (WTO 2006). These proposals were China’s first attempts to voice its opinions on trade facilitation in a multilateral context, and they were highly praised and actively echoed by many developing members.

2.2. China's Participation in the Asia-Pacific Economic Cooperation

Over the last few years, the Asia-Pacific Economic Cooperation (APEC) Committee on Trade and Investment (CTI) has been at the forefront of international work on trade facilitation. Pursuant to Paragraph 7 of the 1994 Leader’s Declaration (also known as the Bogor Declaration), APEC economic leaders declared the decision to expand and accelerate APEC's trade and investment facilitation programs to promote further flow of goods, services, and capital among APEC economies by eliminating administrative and other impediments to trade and investment (APEC 1994). Since the Bogor Declaration, much input has been dedicated to various facilitation projects,

where plurilateral, bilateral and unilateral initiatives have all contributed to building a healthier regional trading environment. Via these projects, “tariff and non-tariff measures have been removed in many cases; foreign investment has been liberalized; outcomes in a range of other areas, such as services, competition policy, intellectual property rights and customs procedures have improved; economic and technical cooperation activities have developed in parallel to the progress made on the liberalization and facilitation fronts” (APEC/SOM 2005).

China’s participation in this area has been very active and significant since its accession into the APEC in 1991. China has had very close trade and economic ties with other APEC members, with its trade with other APEC members reaching 344.55 billion US dollars in 2000, accounting for 72.6 percent of the nation’s total. In the 2006 APEC Ministerial Meeting, China welcomed the APEC’s “Action Plan for Trade Facilitation – 2006 Route Map” and agreed to make assessment on lowering transaction costs by 5% by the year that followed, and another 5% by 2010. Bo Xilai, the Chinese Commerce Minister in office then, made a speech at the meeting and proposed two policy suggestions:

“First, take pragmatic actions and enhance cooperative effectiveness. Expand online demonstration of customs clearance, in order for all APEC members to expedite trade flow and improve trade efficiency through the completion of Online Release System construction by 2010; further simplify procedures of entry and exit, promote program of commercial tour card, reduce unnecessary restrictions, and provide more convenient situation for flow of commercial personnel in the Asia-Pacific region; make efforts to promote paperless trading;

Second, intensify joint actions and promote common development. APEC members should enhance the scope of joint actions, especially in areas related to the needs of developing countries' trading activities, increase capital input, encourage the sharing of results of modern science and technology; attach greater importance to the capacity building of developing countries, in order to promote balanced and healthy overall trade facilitation" (Ministry of Finance 2006, author translated).

Of course China's unilateral contribution to APEC trade facilitation projects is limited, but the declarations above indicated the Chinese government's positive attitude in intensifying its participation in multilateral trade facilitation reforms through joint efforts.

2.3. The China-ASEAN Free Trade Area

Trade facilitation is also an important topic in China's economic cooperation with the Association of Southeast Asian Nations (ASEAN). The China-ASEAN Free Trade Area (CAFTA) is a free trade area among the ten member states of the ASEAN and the People's Republic of China. The initial Framework Agreement on Comprehensive Economic Cooperation (the Framework Agreement) was signed on 4 November 2002 by eleven heads of governments, with the intent on establishing a free trade area among the eleven nations by 2010.

Pursuant to Article 2(f) of the Framework Agreement, parties agreed on the "establishment of effective trade and investment facilitation measures, including, but not limited to, simplification of customs procedures and development of mutual

recognition arrangements”. Parties also agreed on the scope of cooperation in facilitation as follows (pursuant to Article 7.3):

“Measures to strengthen co-operation shall include, but shall not be limited to:

(a) promotion and facilitation of trade in goods and services, and investment,

such as:

(i) standards and conformity assessment;

(ii) technical barriers to trade/non-tariff measures; and

(iii) customs co-operation;

(b) increasing the competitiveness of small and medium enterprises;

(c) promotion of electronic commerce;

(d) capacity building; and

(e) technology transfer.”

2.4. The Shanghai Cooperation Organization

Although the intended purpose of the establishment of the Shanghai Cooperation Organization (SCO) is more diplomacy and security oriented, nowadays more and more importance has been attached to the exploration of possible cooperation opportunities in the economic and trade arena. Heads of government of the six member states held the first meeting in Alma-Ata in September 2001 to discuss regional economic cooperation and signed the Memorandum between the

Governments of the Member States of the SCO on the Basic Objectives and Orientation of Regional Economic Cooperation and the Launching of a Process of Trade and Investment Facilitation. On the regional level, the most important thing to do seems to be trade facilitation. Building infrastructure as well as harmonizing custom regulations will be very time-consuming but highly rewarding. In September 2003, the SCO heads of government met in Beijing and adopted a plan for multilateral economic and trade cooperation of the SCO member states. Later, at the summit in Tashkent in June 2004, member parties decided to establish working groups on e-commerce, customs, quality inspection, investment promotion and transportation facilitation, and these groups were headed by respectively China, Russia, Kazakhstan, Tajikistan and Uzbekistan (Wacker 2004).

2.5. Cooperation in the Greater Mekong Subregion

The Greater Mekong Subregion (GMS) designates a development project formed by the Asian Development Bank in 1992 that brought together six countries and regions of the Mekong River basin, namely Cambodia, Laos, Myanmar, Thailand, Vietnam, and the Yunnan Province of China. On the Eighth Ministerial Conference on GMS Subregional Cooperation held in 1998 in Manila, trade facilitation was officially included into the GMS cooperation agenda, and specialized working groups were also established to assist the research and implementation of trade facilitation reforms. Trade issues that would be addressed within the GMS framework include exchange of trade information, facilitation of customs procedures, quarantine measures of animals and plants, issues related to trade logistics and transit trade, e-business facilitation, investment promotion capacity building, facilitation of cross

border personnel movements, etc. (GMSEC 2009)

China's other attempts in seeking regional trade facilitation cooperation include facilitation initiatives agreed in the Closer Economic Partnership Arrangement (CEPA, a preferential trade agreement between Mainland, China and Hong Kong/Macao, China), China-Singaporean FTA, China-New-Zealand FTA, etc. Such efforts are all contributing to China's development in trade facilitation on different degrees. However, such initiatives, as discussed above, are non-systemic measures based largely on plurilateral or regional levels, demonstrating much distance from the more comprehensive and collaborative facilitation cooperation among industrialized countries, e.g. OECD countries (De 2007).

Chapter III. Qualitative Analysis -- Domestic Efforts on Trade Facilitation

Ever since China's formulation of the Reform and Opening-up Policy, its economic growth has achieved astonishing results. Similarly, China's achievements on trade facilitation reforms are also remarkable. As illustrated above, China was found to be one of the LPI "overperformers", which can be seen as an affirmation of its outstanding performance. This section is dedicated to discuss about China's trade facilitation building on a domestic level. Mainly four dimensions, namely reform on foreign trade management system, revision of trade regulations, construction of customs, and establishment and mutual recognition of standards, will be elaborated in the following texts.

3.1. Reform on Foreign Trade Management System

China's reform on foreign trade management system is a procedure of liberalization of trade. It included steps of gradual relaxation of foreign trade projects, replacing total trading restriction with quota controls and licensing, lifting of quota controls, gradual liberalization of market, and cuts in tariffs and taxes. This procedure was gradually pushed forward by important momentums along China's economic growth path, e.g. the accession into the WTO, conclusions of free trade agreements, etc.

In 2004, China started to utilize the registration system for foreign trade business entities, as an alternative to the inspection mechanism for managerial authority of foreign trade business. This system has enhanced the accessibility of trading rights to a great deal, stimulated the diversification of business entities, and

created a much easier environment for foreign trade management. Moreover, since the establishment of the administration mechanism for import/ export licensing in 1999, information technology has been widely utilized in Chinese foreign trade departments and bureaus, which also contributed a lot to the efficiency building of import/ export procedures.

3.2. Revision of Trade Regulations

On July 1st, 2004, China published its newly revised Foreign Trade Law, which contains many new traders-friendly clauses. The new Foreign Trade Law provides convenience to trade facilitation in the following four aspects: improvement in legislation, which provides more dependable legal assurance to trading entities; improvement in publication and administration of trade regulations, policies and procedures, which enhances the accessibility of information to trading entities; establishment of government-supervised onsite and online enquiry points, which also composes an improvement of information accessibility; improvement in transparency of legislative procedure, which gives interest groups more opportunities to openly voice their opinions.

3.3. Construction of Customs

On the part of China Customs, there have been continuous improvements in clearance procedures as well as pilot projects on the use of information and communications technology (ICT) to speed up and standardize the relevant procedures. These include a paperless customs clearance; a “one declaration, one inspection and one clearance” (in Chinese “yi ci shen bao, yi ci jian cha, yi ci fang

xing”, “一次申报，一次检查，一次放行”) process to facilitate the movement of goods between inland cities and ports; and several ICT capacity building projects which promote the data exchange and joint inspection of various government departments.

China’s efforts in custom construction are also revealed in the Golden Projects, which are a series of e-government programs, with seven functioning projects so far. Famous examples of these projects include: the Golden Bridge Project, a project focused on commercial internet service; the Golden Card Project, a project focused on building a national credit card network; the Golden Macro Project, a project focused on increasing information sharing between government bodies and helping with decision making; the Golden Custom Project, also known as Golden Gate Project, a project linking customs points through a national electronic data interchange system, and promote paperless trade, etc. These Golden Projects, especially the Golden Custom Project, have significantly lowered custom declaration costs and shortened custom inspection time.

3.4. Establishment and Mutual Recognition of Standards

Establishment of national standards and harmonization with international standards are also important components of trade facilitation reforms. Until 2010, China has established national standards for over 30,000 items, covering a wide range of basic standards, product standards, security standards, sanitary standards, methodology standards, environment standards, administration standards, etc.

China has also been active in joining multilateral agreements on mutual

recognition of standards, particularly in accordance with the WTO Agreements on Technical Barriers to Trade (TBT) and the Application of Sanitary and Phytosanitary Measures (SPS).

Within the APEC framework, China has joined, in the mandatory domain, the APEC Mutual Recognition Arrangements on Conformity Assessment of Food, the APEC Arrangement for the Exchange of Information on Toy Safety, the APEC Mutual Recognition Arrangement on Conformity Assessment of Electrical and Electronic Equipment. In the voluntary domain, China has actively participated in multilateral mutual recognition arrangements such as the International Laboratory Accreditation Cooperation (ILAC), the Asia Pacific Laboratory Accreditation Cooperation (APLAC), the International Personnel Certification Association (IPC), the International Accreditation Forum (IAF), the Pacific Accreditation Cooperation (PAC), etc.

3.5. Other Aspects

China's domestic trade facilitation measures also include various other aspects such as the establishment of Bonded Areas (in Chinese "bao shui qu", "保税区"), facilitation of business personnel movement, etc. Through the "integration of zone and port" policy (in Chinese "qu gang lian dong", "区港联动"), China accelerated its export goods movement and clearance to a great extent by taking advantage of the various coastal ports and free trade zones. Moreover, "F" visa grants to foreign business personnel have been considerably liberalized, and special passages for business people have also been designated at many custom checkpoints.

Chapter IV. Quantitative Analysis -- Assessing China's

Trade Facilitation Status Quo

There are ample existing studies on the facilitation of trade from both qualitative and quantitative perspectives. Earlier studies usually adopted qualitative methods to determine the definition, scope, and cost and benefit of trade facilitation. More recent studies, however, started to expand the entry points and addressed the issue from more diversified angles by designing mathematical models to quantify the concept. Generally speaking, it is relatively more difficult to conduct qualitative studies on the facilitation of trade and the reasons are complex. For example, how to define the concept of trade facilitation, how to attribute relative factors, how to quantify the factors, how to set the benchmarks, and how to interpret the numbers are all important but complicated questions to be taken into consideration. These problems have all brought about some hindrance to conducting empirical studies, making it difficult to fully transcribe the facilitation of trade into numerical models.

In this light, this chapter will endeavor to come up with a logically consistent model by building upon some major existing studies, and reflect new insights and tendencies.

4.1. Methodology – the Analytic Hierarchy Process

Since the aim of this research is to assess China's Trade Facilitation performance, which is a comprehensive and multifaceted topic that encompasses various factors, it is important to identify the various influencing factors, attribute priorities to each factor, and analyze how each factor may contribute to the overall performance. In

this regard, this paper is going to adopt the Analytic Hierarchy Process (AHP) method, in an effort to quantify trade facilitation performance in each aspect.

The AHP method, developed by A. L. Saaty in the 1970s, is a structured technique for organizing and analyzing complex decisions. It can be applied to a wide variety of complex, unrestricted and multi-attribute decision situations including choice, ranking, prioritization, resource allocation, benchmarking, et cetera. The basic principle of AHP is decomposing a decision problem into multiple layers (the goal, the criteria, and the alternatives), representing and quantifying each influencing factor, and relating each factor to the overall goal.

The AHP has largely 3 steps:

- Constructing the Hierarchy. This step consists of the decomposition of the overall goal into a set of factors and sub factors. The top level of the hierarchy states the decision goal, which, in our case, refers to trade facilitation performance. The subsequent levels include the factors that influence the decision (called attributes or criteria). The bottom level consists of the decision alternatives.
- Setting priorities: consists of determining, for each level of the hierarchy, the relative importance between each pair of factors. The pairwise judgment starts from the second level to the lowest.
- Maintaining logical consistency: while the comparison of different factors is based on subjective measures, the coherence is not guaranteed. To solve this problem, the AHP requires the evaluation of the pairwise comparison matrices.

A standardized eigenvector is extracted from each matrix, allowing us to assign weights to criteria and alternatives.

Once we have finished constructing the hierarchy and setting priorities, the next step is to compute the vector of criteria weights. In order to compute the weights for the different criteria, the AHP starts creating a pairwise comparison matrix **A**. The matrix **A** is a n by n real matrix, where n is the number of evaluation criteria considered.

$$A = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{bmatrix} \quad (1)$$

Each entry a_{ij} of the matrix **A** represents the importance of the i th criterion relative to the j th criterion. If $a_{jk} > 1$, then the j th criterion is more important than the k th criterion, while if $a_{ij} < 1$, then the i th criterion is less important than the j th criterion. If two criteria have the same importance, then the entry a_{ij} is 1. The entries a_{ij} and a_{ji} satisfy the following constraint: $a_{ij} * a_{ji} = 1$. The relative importance between two criteria is measured according to a numerical scale from 1 to 9, as shown in Table 5.

Intensity of importance	Definition	Explanation
1	Equal importance of both elements	Two elements contribute equally to the property
3	Weak importance of one element over another	Experience and judgment slightly favor one element

		over another
5	Essential or strong importance of one element over another	Experience and judgment strongly favor one element over another
7	Demonstrated importance of one element over another	An element is strongly favored and its dominance is demonstrated in practice
9	Absolute importance of one element over another	The evidence favoring one element over another is of the highest possible order of affirmation
2, 4, 6, 8	Intermediate values between two adjacent judgments	Compromise is needed between two judgments
Reciprocals of the above nonzero numbers	If activity i has one of the above nonzero numbers assigned to it when compared with activity j, then j has the reciprocal value when compared to i	

Table 5: Saaty's Nine-Point Scale and Its Explanation⁷

Consider n stocks A_1, A_2, \dots, A_n , with known worth w_1, w_2, \dots, w_n , and suppose that a matrix of pairwise ratios is formed whose rows give the ratios of the worth of each stock with respect to all others as follows:

⁷ Saaty. (1982)

$$a_{ij} = \frac{w_i}{w_j}, (i, j=1, 2, \dots, n). \quad (2)$$

Therefore, we will have:

$$\begin{matrix} & A_1 & A_2 & \dots & A_n \\ \begin{matrix} A_1 \\ A_2 \\ \vdots \\ A_n \end{matrix} & = & \begin{bmatrix} \frac{w_1}{w_1} & \frac{w_1}{w_2} & \dots & \frac{w_1}{w_n} \\ \frac{w_2}{w_1} & \frac{w_2}{w_2} & \dots & \frac{w_2}{w_n} \\ \vdots & \vdots & \ddots & \vdots \\ \frac{w_n}{w_1} & \frac{w_n}{w_2} & \dots & \frac{w_n}{w_n} \end{bmatrix} \end{matrix} \quad (3)$$

We can recover the scale w using the following equation:

$$\begin{bmatrix} \frac{w_1}{w_1} & \frac{w_1}{w_2} & \dots & \frac{w_1}{w_n} \\ \frac{w_2}{w_1} & \frac{w_2}{w_2} & \dots & \frac{w_2}{w_n} \\ \vdots & \vdots & \ddots & \vdots \\ \frac{w_n}{w_1} & \frac{w_n}{w_2} & \dots & \frac{w_n}{w_n} \end{bmatrix} \begin{pmatrix} w_1 \\ w_2 \\ \vdots \\ w_n \end{pmatrix} = n \begin{pmatrix} w_1 \\ w_2 \\ \vdots \\ w_n \end{pmatrix} \quad (4)$$

Once the matrix A is built, it is possible to derive from A the normalized pairwise comparison matrix $Anorm$ by making equal to 1 the sum of the entries on each column, i.e. each entry \bar{a}_{ij} of the matrix $Anorm$ is computed as:

$$\bar{a}_{ij} = \frac{a_{ij}}{\sum_{l=1}^n a_{lj}}. \quad (5)$$

Finally, the criteria weight vector W (that is an n -dimensional column vector) is built by averaging the entries on each row of $Anorm$, i.e.

$$W_i = \frac{\sum_{l=1}^n \bar{a}_{il}}{n} \quad (6)$$

Therefore, W_1, W_2, \dots, W_n are the weights of each factor.

The research will therefore follow the abovementioned three steps by first structuring the hierarchy with selected influencing factors, setting priorities based on previous studies, then assigning weight to each factor.

4.1.1. Constructing the Hierarchy

All indicator systems should form an organic and unified entirety that reflect the principles of scientificity, practicality, quantifiability, hierarchicality and integrity. Among the many existing studies that tried to quantify trade facilitation by adopting hierarchical indicator systems, a most classic one was the study conducted by Wilson, Mann & Otsuki (WMO), in which they took an effort in assessing the potential benefits that trade facilitation could bring about (2005). Their study created the trade facilitation indicators by attributing collected and indexed inputs into the four specific trade facilitation indicators as follow:

- Port efficiency, which addresses the quality of infrastructures of ports and airports:
 - Port facilities and inland waterways
 - Airport transport
- Customs environment, which addresses direct customs costs, and administrative transparency of customs and border crossings:

- Hidden import barriers
- Irregular extra payment and bribes
- Regulatory environment, which addresses the economy's approach to regulations:
 - Transparency of government policy
 - Control of corruption
- Service Sector Infrastructure, which addresses the extent to which an economy has the necessary domestic infrastructure and is using networked information to improve efficiency and transform activities to enhance economic activity:
 - Speed and cost of Internet access
 - Effect of Internet on business.

However, since the abovementioned study was conducted almost a decade ago, it did not reflect the trends of most recent events, nor did it encompass all related aspects covered in latest discourse. Moreover, the WMO study presumed that each indicator was of equal importance to trade facilitation performance, which deviates from the reality as well as its own findings. Therefore, this paper is going to adopt the overall framework proposed by WMO, but reattribute sub-factors by referring to the Trade Facilitation Agreement (the Agreement) concluded in December, 2013.

First, the author summarized the key issues touched upon in each Article of the Agreement and proxied each issue with one or more than one indicators from

recognized reports and surveys. They include: the World Competitiveness Yearbook (WCY) published by the International Institute for Management Development, the Global Enabling Trade Report (GETR) published by the World Economic Forum, the Rule of Law Index published by the World Justice Project (WJP), the Global Competitiveness Report (GCR) published by the World Economic Forum, and the Corruption Perceptions Index published by the Transparency International (TI).

Articles	Key Issues	Proxied by	Source
Article 1	Availability of Information	Transparency of Government Policy	WCY
		Government Online Service Index	GETR
Article 2	Availability of Information	Transparency of Government Policy	WCY
		Government Online Service Index	GETR
Article 3	Advance Rulings	Customs Services Index	GETR
Article 4	Appeal or Review Procedures	Civil Justice	WJP

Article 5	Impartiality and Transparency	Transparency of Government Policy	WCY
Article 6	Disciplines on Fees and Charges	Irregular Payments and Bribes	GCR
		Corruption Perceptions Index	TI
Article 7	Release and Clearance of Goods	Burden of Customs Procedures	GCR
	Electronic Payment	Extent of Business Internet Use	GET R
Article 8	Border Agency Coordination	Burden of Customs Procedures	GCR
	Bureaucracy	Bureaucracy	WCY
Article 9	Movement of Goods under Customs Control	Burden of Customs Procedures	GCR
Article 10	Formalities	Customs Services Index	GET R
		Burden of Customs Procedures	GCR
	International Standards	Openness to Multilateral Trade Rules	GET R
Article	Infrastructure	Quality of Port Infrastructure	GCR

11		Quality of Air Transport Infrastructure	GCR
	Freedom of Transit	Burden of Customs Procedures	GCR
Article 12	Custom Cooperation	Openness to Multilateral Trade Rules	GET R

Table 6: Selection of Indicators⁸

Second, the indicators were rearranged according to the WMO framework. The new Trade Facilitation Index (TFI) therefore encompasses four Level I Factors, namely, Port Efficiency (B1), Customs Environment (B2), Regulatory Environment (B3) and Service Sector Infrastructure (B4), as well as 12 Level II Factors (or Alternatives, as referred to in the original Saaty paper), namely, Port Infrastructure (C11), Air Transport Infrastructure (C12), Bureaucracy (C21), Burden of Customs Procedures (C22), Customs Services (C23), Irregular Payments and Bribes (C24), Transparency of Government Policy (C31), Corruption (C32), Civil Justice (C33), Openness to Multilateral Trade Rules (C34), Business Internet Use (C41), and Government Online Service (C42). Below is a more specific summary of the TFI.

⁸ Author Organized Base on the 2013 Trade Facilitation Agreement.

	Level I Factors	Level II Factors (Alternatives)	Code	Scale	Year	Source
TFI	Port Efficiency (B1)	Port Infrastructure	C11	1-7	2013-2014	GCR
		Air Transport Infrastructure	C12	1-7	2013-2014	GCR
	Customs Environment (B2)	Bureaucracy	C21	0-10	2014	WCY
		Burden of Customs Procedures	C22	1-7	2013-2014	GCR
		Customs Services	C23	0-1	2014	GETR
		Irregular Payments and Bribes	C24	1-7	2013-2014	GCR
	Regulatory Environment (B3)	Transparency of Government Policy	C31	0-10	2014	WCY
		Corruption	C32	0-100	2013	TI
		Civil Justice	C33	0-1	2014	WJP
		Openness to Multilateral Trade Rules	C34	0-100	2014	GETR

	Service Sector Infrastructure (B4)	Business Internet Use	C41	1-7	2012-2013 weighted	GETR
		Government Online Service	C42	0-1	2012	GETR

Table 7: Reconstruction of Indicators⁹

Here is a brief explication on each factor:

- Port efficiency addresses the quality of infrastructures of ports and airports. Higher scores indicate less hindrance at the ports. This factor includes two alternatives, both of which are proxied by GCR survey pillars.
 - Port infrastructure. The specific survey question in the GCR (2014) was: How would you assess port facilities in your country? (1 = extremely underdeveloped; 7 = well-developed and efficient by international standards)
 - Airport transport infrastructure. The specific survey question in the GCR (2014) was: How would you assess passenger air transport infrastructure in your country? (1 = extremely underdeveloped; 7 = extensive and efficient by international standards)
- Customs environment addresses direct customs costs, and administrative transparency of customs and border crossings. It assesses the integrity of one economy's soft policy environment. Higher scores indicate lower customs costs

⁹ Author Organized Based on WMO, 2005.

for traders. The four Level II factors are proxied by indicators from respectively WCY, GCR and GETR.

- Bureaucracy. The specific survey question in the WCY (2014) was: Does bureaucracy hinder business activity? (0 = extremely hindered; 10 = does not hinder at all)
 - Burden of customs procedures. The specific survey questions in the GCR (2014) was: How would you rate the level of efficiency of customs procedures (related to the entry and exit of merchandise) in your country? (1 = extremely inefficient; 7 = extremely efficient)
 - Customs services. The GETR (2014) Customs Services Index evaluates the extent of services provided by customs authorities and related agencies. (0 = extremely limited services; 1= extensive and efficient services by international standards)
 - Irregular payments and bribes. The specific survey questions in the GCR (2014) was: In your country, how common is it for firms to make undocumented extra payments or bribes connected with imports and exports? (1 = common; 7 = never occurs)
- Regulatory environment addresses the economy's approach to regulations. Higher scores indicate more transparent policy and more regulated conducts. The four Level II factors are proxied by indicators from respectively WCY, TI, WJP and GETR.

- Transparency of government policy. The specific survey question in the WCY (2014) was: Is transparency of government policy satisfactory? (0 = not at all transparent; 10 = extremely transparent)
 - Corruption. The Corruption Perceptions Index (2013) measures the perceived levels of public sector corruption in 177 countries and territories. (0 = extremely corrupt; 10 = not corrupt at all)
 - Civil justice. The WJP (2014) civil justice factor measures the accessibility, affordability, effectiveness, impartiality, and cultural competency of the legal system. (0 = lowest justice; 1 = highest justice)
 - Openness to multilateral trade rules. The GETR (2014) openness to multilateral trade rules index evaluates the overall participation of countries in multilateral trade rules or instruments. (0 = lowest participation; 100 = highest participation)
- Service Sector Infrastructure addresses the extent to which an economy has the necessary domestic infrastructure and is using networked information to improve efficiency and transform activities to enhance economic activity. The two Level II factors are both proxied by relative indicators from the GETR.
 - Business internet use. The specific survey question in the GETR (2014) was: To what extent do companies within your country use the Internet in their business activities (e.g., buying and selling goods, interacting with customers and suppliers)? (1 = not at all; 7 = extensively)

- Government online service. The GETR (2014) government online service index assesses the quality of government's delivery of online. (0 = lowest; 1 = highest)

As the 12 Level II factors are proxied by indicators from different sources and have different scales, it is important to adjust and unify the indicators using the same scale. This paper is going to adopt the 0-10 scale, and sort out the data as follows.

Country	C11	C12	C21	C22	C23	C24	C31	C32	C33	C34	C41	C42
Argentina	4.4425	4.2611	1.0256	1.7734	5.5556	3.0579	0.7179	3.4000	5.4066	7.1300	5.7066	5.2940
Australia	6.6112	7.6058	4.6750	7.0329	8.6364	7.8469	6.2308	8.1000	7.2659	8.0500	7.6276	8.6270
Austria	6.2034	7.3276	3.0370	7.0207	9.1667	7.3185	3.6667	6.9000	7.5362	7.7200	8.2491	7.4510
Belgium	8.8044	8.2772	2.4528	6.7963	6.2500	7.6791	3.6981	7.5000	6.8853	8.1500	7.6998	6.4710
Brazil	2.8461	3.8053	0.7071	3.3119	4.2857	4.7859	2.0606	4.2000	5.0682	5.5200	6.8521	6.7320
Bulgaria	4.8595	5.3143	1.6364	4.8823	6.2121	5.1576	1.5357	4.1000	5.2635	8.2000	6.2877	4.9020
Canada	7.5618	8.1046	4.7170	6.2906	8.9583	7.9424	6.1852	8.1000	7.2382	5.9300	7.5358	8.8890
Chile	6.9965	7.0149	4.2333	6.5298	8.1818	7.7622	6.4516	7.1000	6.1072	6.8200	7.4514	7.5160
China	5.8040	5.9023	2.1373	5.4080	6.3636	4.9843	3.3725	4.0000	4.0848	8.5800	6.4466	5.2940
Colombia	4.1221	4.9852	1.9667	4.5516	5.0694	4.0146	2.6393	3.6000	4.9488	6.3500	6.5349	8.4310
Croatia	5.5040	5.6103	0.9643	5.3475	5.3030	4.4615	3.2759	4.8000	5.2310	8.9400	6.9736	6.4050
Czech Republic	5.7023	7.9258	2.9630	5.8424	7.2727	4.4897	3.2308	4.8000	6.4753	7.6200	7.7539	5.4250
Denmark	7.7943	7.7328	5.5932	6.5514	7.2917	8.4676	6.9180	9.1000	8.1833	8.3400	7.8177	8.5620
Estonia	7.6696	5.2259	5.0175	7.1179	8.1818	7.6375	5.1636	6.8000	7.1828	8.2200	8.4134	8.2350
Finland	8.9679	8.7057	6.0000	8.5800	8.9583	9.4116	6.6275	8.9000	7.5197	7.7800	8.6238	8.8240
France	7.3436	8.4408	2.2951	6.0860	7.5000	7.3326	3.7333	7.1000	6.9112	8.1100	7.4278	8.7580
Germany	8.0817	8.4689	4.1149	6.4739	8.3333	7.7852	6.4471	7.8000	8.2168	8.1200	7.8604	7.5160

Greece	5.8243	7.0923	1.3725	4.8535	5.6818	4.2791	2.7451	4.0000	6.1205	8.3900	5.6989	5.7520
India	5.3137	6.2734	2.6032	4.6468	5.5556	3.7067	2.8889	3.6000	3.8638	6.3800	6.4135	5.3590
Indonesia	4.7969	5.8434	3.1273	5.0164	7.5000	3.8524	4.5455	3.2000	4.6534	4.3300	6.5268	4.9670
Italy	5.4737	5.5879	0.8350	5.2298	6.6667	4.7322	2.7115	4.3000	5.7637	8.1800	5.5259	5.7520
Japan	7.0651	7.3789	4.1538	6.5958	9.3182	8.5485	5.6444	7.4000	7.3136	6.7900	8.3410	8.6270
Jordan	5.8216	7.4775	4.2564	5.9400	6.1667	6.5602	4.1235	4.5000	6.2336	6.1600	7.0969	3.9220
Kazakhstan	2.7893	5.1536	3.7476	4.9569	2.5000	5.0965	4.8317	2.6000	4.6944	6.2500	6.4257	7.8430
Republic of Korea	7.5436	7.9220	2.5588	5.7470	9.0909	5.5873	3.7971	5.5000	7.3592	7.2600	8.0584	10.0000
Malaysia	7.3649	7.9442	5.3835	6.7493	4.6528	6.1604	5.7727	5.0000	5.6829	5.9800	7.6178	7.9080
Mexico	5.5953	6.1182	2.0519	4.9412	4.0000	4.3221	2.7792	3.4000	3.9136	7.7500	6.4984	7.3200
Netherlands	9.6509	9.1052	4.0741	7.5243	9.1667	8.4757	6.4557	8.3000	8.3548	8.0000	8.2145	9.6080
New Zealand	7.5721	8.2662	5.2830	8.1855	8.1818	9.4861	7.2549	9.1000	7.4473	7.2500	7.8854	7.8430
Norway	7.5380	8.4584	5.0909	6.8348	6.8750	8.8193	8.0000	8.6000	8.5841	8.1400	8.3334	8.5620
Peru	4.5246	5.2669	2.3030	5.1799	6.4583	4.4375	3.5942	3.8000	3.9279	6.9700	6.3699	5.1630
Philippines	3.9236	4.2410	2.6667	3.6982	7.1212	3.8526	4.1455	3.6000	3.9555	6.0300	6.9444	4.9670
Poland	4.4743	4.8533	2.0000	5.2771	7.7273	6.2646	4.6538	6.0000	6.2043	7.7300	5.7363	5.3590
Portugal	6.9635	7.7033	2.5758	6.5287	4.6528	6.9369	3.9692	6.2000	6.1818	7.6300	7.6038	6.5360
Romania	3.3259	3.9396	0.6667	3.9097	7.9545	4.6429	3.5484	4.3000	5.8730	8.7500	6.1576	5.1630
Russia	4.8048	4.8618	1.9710	3.8584	6.6667	3.7255	3.9130	2.8000	4.5657	7.1800	5.9818	6.6010
Singapore	9.5834	9.5901	6.0000	8.6551	9.7222	9.1798	7.2333	8.6000	7.6905	6.2500	8.1332	10.0000
Slovenia	6.8214	5.5525	1.3939	6.3644	7.9167	6.3519	2.6465	5.7000	6.0617	9.2200	7.4512	6.6670
South Africa	6.1601	8.4243	2.6182	5.5694	6.4583	5.9909	3.7455	4.2000	5.3357	5.9700	7.6006	4.5750
Spain	7.9672	8.3953	1.8378	6.4192	9.0909	6.2425	3.1892	5.9000	6.1548	8.3800	7.1928	7.5820
Sweden	8.0408	7.8789	5.7353	7.5133	9.1667	8.6014	8.2609	8.9000	7.8260	7.9200	8.5245	8.4310
Thailand	5.8415	7.5431	2.6829	4.8610	7.1970	4.5944	1.7073	3.5000	3.8757	4.9100	6.3689	5.0980

Turkey	5.5603	7.5439	3.7692	4.6495	6.2500	5.7967	2.9231	5.0000	5.2187	7.7400	6.7774	4.6410
UAE	9.0552	9.4693	6.7059	8.1806	6.8750	8.9336	7.7692	6.9000	5.8950	5.5100	8.2200	8.6270
Ukraine	4.5090	4.7406	1.4224	3.3002	3.2576	2.9981	1.7857	2.5000	5.1585	7.7000	6.1010	4.2480
United Kingdom	7.7938	7.6792	4.5581	6.9390	9.0909	8.3118	6.1839	7.6000	7.2191	7.5600	8.4362	9.7390
USA	7.7862	8.2474	4.1296	6.2929	8.1818	6.5706	5.5741	7.3000	6.0985	8.4800	7.7301	10.0000
Venezuela	2.5583	3.3147	0.5116	1.3882	4.0000	2.4823	0.3810	2.0000	3.2701	4.9000	5.1924	4.8370

Table 8: Adjusted Indicators (1-10)¹⁰

Below is an outlook of the Hierarchy of the Trade Facilitation Index.

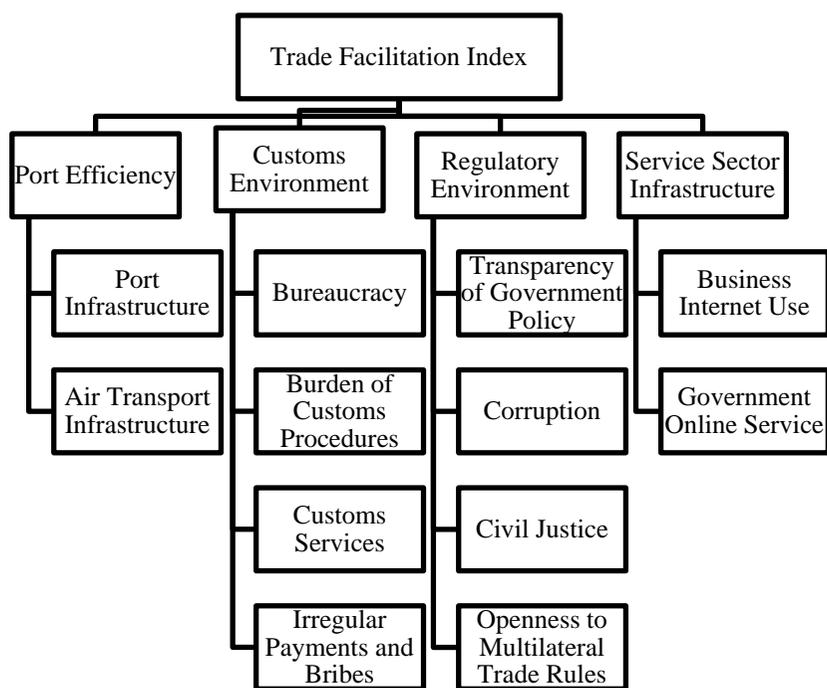


Figure 3: Hierarchy of the Trade Facilitation Index¹¹

¹⁰ Author Calculated.

¹¹ Author Organized Based on WMO, 2005.

4.1.2. Setting Priorities

The most common practice of setting priorities is to survey experts in certain fields and collect their subjective points of view, since the AHP method has been widely applied in decision situations such as choice, ranking, benchmarking, quality management, etc. However, in our case, consulting experts is no longer the best approach since this paper aims to transcribe the facilitation of trade into a numerical model that most closely reflects the reality. Bearing this in mind, rather than consulting experts for their subjective opinions, this paper is going to utilize the most accordable computed data from relative existing studies, in an effort to maintain the objectivity of the results.

For the Level I priorities, this paper referred to the findings of the WMO (2005) study, and assumes the importance of one factor to another equals to the relative amount of extra benefits generated by enhancing the performance of each factor. The following table shows the results of importer and exporter's changes in trade flows by simulating changes in each sub-factor of trade facilitation.

	<i>Importer's Change in Trade Facilitation</i>	<i>Exporter's Change in Trade Facilitation</i>	<i>Total</i>
'Border' Measures			
Port Efficiency	23.40 (0.6 per cent)	84.53 (2.2 per cent)	106.93 (2.8 per cent)
Customs Environment	32.87 (0.8 per cent)		32.87 (0.8 per cent)
'Inside-the Border' Measures			
Service Sector Infrastructure	36.64 (0.9 per cent)	117.38 (3.0 per cent)	154.02 (4.0 per cent)
Regulatory Environment	24.39 (0.6 per cent)	58.86 (1.5 per cent)	83.25 (2.1 per cent)
Grand Total	117.30 (3.0 per cent)	259.77 (6.7 per cent)	377.06 (9.7 per cent)

Table 9: Overview of Simulation: Bring Below-average Members Halfway up to the Global Average (Change in Trade Flow in \$ Billion)¹²

By comparing the benefits of one factor to another, the Comparison Matrix of the Level I Determinants as follows can be achieved.

TFI	Port Efficiency (B1)	Customs Environment (B2)	Regulatory Environment (B3)	Service Sector Infrastructure (B4)
Port Efficiency (B1)	1.00	3.25	1.28	0.69
Customs Environment (B2)	0.31	1.00	0.39	0.21
Regulatory Environment (B3)	0.78	2.53	1.00	0.54
Service Sector Infrastructure (B4)	1.44	4.69	1.85	1.00

Table 10: Comparison Matrix of the Level I Determinants¹³

¹² WMO. (2005).

¹³ Author Calculated Based on WMO, 2005.

For the Level II priorities, this paper referred to the findings of OECD Working Papers NO. 118 (2011), which considered issues listed in the Draft Consolidated Negotiating Text (DCNT) on trade facilitation (2011), which differs from the Trade Facilitation Agreement only slightly. Despite the minor differences, the 12 Level II factors can be well related to the DCNT list, and reorganized as follow.

NO.	Issues	Related Level II Factors
A	Information availability	C31, C42
B	Involvement of the trade community	-
C	Advance Rulings	C23
D	Appeal Procedures	-
E	Fees and charges	C24
F	Formalities – Documents	-
G	Formalities – Automation	C41
H	Formalities – Procedures	C22
I	Cooperation – Internal	-
J	Cooperation – External	C34
K	Consularization	-
L	Governance and Impartiality	C21, C32, C33

Table 11: Relevance between the DCNT List and Level II Factors¹⁴

The following table shows the contribution of each factor to the variance on the results.

¹⁴ Author Organized Based on OECD, 2011.

Table (A)			
Variables	Allsectors	Manufacture	Agriculture
Distance	0.1219832	0.3757817	0.3218164
Language	-0.0010912	0.0080058	0.0141814
Contiguity	0.0049999	0.0086096	0.0169311
Colony	-0.0000132	0.0017971	0.0091415
TFI (a)	0.0166545	-0.0032856	0.0146686
TFI (b)	-0.0042474	-0.0165852	-0.0132058
TFI (c)	0.0366809	0.0731933	0.0313421
TFI (d)	-0.0002984	-0.0021532	0.0004747
TFI (e)	0.0028812	0.0118199	0.0016537
TFI (f)	-0.0000639	0.0010075	0.0110249
TFI (g)	0.0459798	0.053976	0.0795318
TFI (h)	0.0116362	0.0679939	0.0258553
TFI (i)	-0.0886707	-0.1925854	-0.0931335
TFI (j)	0.0612996	0.1589718	0.0453592
TFI (l)	0.0195569	0.0166539	0.0071849
Total	0.2272874	0.5632011	0.4728263

Table 12: Contribution to the Variance¹⁵

By comparing each one of the all-sectors variance to that of one another, the Comparison Matrix of the Level II Determinants as follows can be achieved.

Port Efficiency (B1)	Port Infrastructure (C11)	Air Transport Infrastructure (C12)
Port Infrastructure (C11)	1.00	1.00
Air Transport Infrastructure (C12)	1.00	1.00

Table 13: Comparison Matrix of the Level II Determinants (Port Efficiency)¹⁶

¹⁵ OECD. (2011).

¹⁶ Author Calculated.

Customs Environment (B2)	Bureaucracy (C21)	Burden of Customs Procedures (C22)	Customs Services (C23)	Irregular Payments and Bribes (C24)
Bureaucracy (C21)	1.00	1.68	0.53	6.79
Burden of Customs Procedures (C22)	0.59	1.00	0.32	4.04
Customs Services (C23)	1.88	3.15	1.00	9.00
Irregular Payments and Bribes (C24)	0.15	0.25	0.11	1.00

Table 14: Comparison Matrix of the Level II Determinants (Customs Environment)¹⁷

¹⁷ Ibid.

Regulatory Environment (B3)	Transparency of Government Policy (C31)	Corruption (C32)	Civil Justice (C33)	Openness to Multilateral Trade Rules (C34)
Transparency of Government Policy (C31)	1.00	0.85	0.85	0.27
Corruption (C32)	1.17	1.00	1.00	0.32
Civil Justice (C33)	1.17	1.00	1.00	0.32
Openness to Multilateral Trade Rules (C34)	3.68	3.13	3.13	1.00

Table 15: Comparison Matrix of the Level II Determinants (Regulatory Environment)¹⁸

Service Sector Infrastructure (B4)	Business Internet Use (C41)	Government Online Service (C42)
Business Internet Use (C41)	1.00	2.76
Government Online Service (C42)	0.36	1.00

Table 16: Comparison Matrix of the Level II Determinants (Service Sector Infrastructure)¹⁹

¹⁸ Ibid.

¹⁹ Ibid.

After applying the priorities of each Level I and Level II factor to the calculation, the weight of each Level I and Level II factors can be obtained. The following table summarizes the results of the calculation.

TFI	Level I Factors	Level II Factors (Alternatives)	Code	Weight
	Port Efficiency (B1) [0.2823]	Port Infrastructure	C11	0.1412
		Air Transport Infrastructure	C12	0.1412
	Customs Environment (B2) [0.0864]	Bureaucracy	C21	0.0248
		Burden of Customs Procedures	C22	0.0148
		Customs Services	C23	0.0427
		Irregular Payments and Bribes	C24	0.0040
	Regulatory Environment (B3) [0.2212]	Transparency of Government Policy	C31	0.0314
		Corruption	C32	0.0370
		Civil Justice	C33	0.0370
Openness to Multilateral Trade Rules		C34	0.1158	
Service Sector	Business Internet Use	C41	0.3010	

	Infrastructure (B4) [0.4101]	Government Online Service	C42	0.1091
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Table 17: The AHP Results²⁰

4.1.3. Maintaining Logical Consistency

When many pairwise comparisons are performed, some inconsistencies may typically arise. The AHP method incorporates an effective technique for checking the consistency of the evaluations by conducting the computation of a suitable consistency index (CI).

$$CI = \frac{\lambda_{\max} - n}{n - 1} \quad (7)$$

Generally, if we divide CI by the Random Index (RI, is the consistency index when the entries of A are completely random, see Table 18), we can come up with the Consistency Ratio (CR). If the CR is smaller than or equal to 10%, the inconsistency is deemed acceptable.

$$CR = CI / RI \quad (8)$$

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Table 18: Values of the Random Index (RI) for small problems²¹

In our study, the CRs are as follow. Therefore, it is safe to conclude that the

²⁰ Ibid.

²¹ Saaty. (1982).

AHP results in this study remain logically consistent.

Comparison Matrices	CR	Consistency
Level I Determinants	0.0000 < 10%	consistent
Level II Determinants (Port Efficiency)	0.0000 < 10%	consistent
Level II Determinants (Customs Environment)	0.0056 < 10%	consistent
Level II Determinants (Regulatory Environment)	0.0000 < 10%	consistent
Level II Determinants (Service Sector Infrastructure)	0.0000 < 10%	consistent

Table 19: Local Consistency of Comparison Matrices²²

4.2. Analysis of the Results

After obtaining the weights of Level 2 Factors against that of the overall goal, W_{ij} ($i = 1, 2, 3, 4; j = 1, 2, 3, 4$), we can calculate the final Trade Facilitation Index by summing up weighted indicators $W_{ij} * C_{ij}$ ($i = 1, 2, 3, 4; j = 1, 2, 3, 4$). The formula for the model is as follows:

$$\begin{aligned}
 \text{TFI} = & W_{11}C_{11} + W_{12}C_{12} + W_{21}C_{21} + W_{22}C_{22} + W_{23}C_{23} + W_{24}C_{24} + W_{31}C_{31} \\
 & + W_{32}C_{32} + W_{33}C_{33} + W_{34}C_{34} + W_{41}C_{41} + W_{42}C_{42}
 \end{aligned}
 \tag{9}$$

²² Author Calculated.

After applying Formula (9), we can come up with the final TFI ranking of the 48 countries and regions.

Ranking	Country	TFI	Ranking	Country	TFI
1	Netherlands	8.5522	25	Czech Republic	6.7396
2	Singapore	8.5288	26	South Africa	6.4551
3	Finland	8.4665	27	Croatia	6.2238
4	Sweden	8.2082	28	Turkey	6.2152
5	Norway	8.0870	29	Jordan	6.1649
6	UK	8.0417	30	China	5.9942
7	UAE	8.0032	31	Mexico	5.9760
8	USA	7.9056	32	Greece	5.9645
9	Denmark	7.8830	33	Thailand	5.7224
10	Germany	7.8431	34	Italy	5.6592
11	New Zealand	7.7846	35	Colombia	5.6560
12	Rep. of Korea	7.6951	36	India	5.6423
13	Japan	7.6320	37	Bulgaria	5.6069
14	Australia	7.5611	38	Poland	5.6039
15	Canada	7.5230	39	Russia	5.5180
16	Estonia	7.4928	40	Peru	5.4964
17	France	7.4914	41	Indonesia	5.4311
18	Belgium	7.4867	42	Romania	5.3763
19	Spain	7.3729	43	Kazakhstan	5.3501
20	Austria	7.3496	44	Philippines	5.3333

21	Chile	7.1043	45	Ukraine	5.0722
22	Malaysia	7.0431	46	Brazil	5.0517
23	Portugal	6.9260	47	Argentina	4.9994
24	Slovenia	6.7955	48	Venezuela	3.9082

Table 20: The TFI Ranking of 48 Major Economies (0-10)²³

Among the 48 major economies, Netherlands ranked the highest, followed by Singapore and Finland. China ranked 30, lower than 60% of the countries surveyed. The correlation between TFI and log of GDP per capita indicates that, though slightly better than nations of the same income group, China is still lagging behind compared with most advanced countries, who are China's major trading partners.

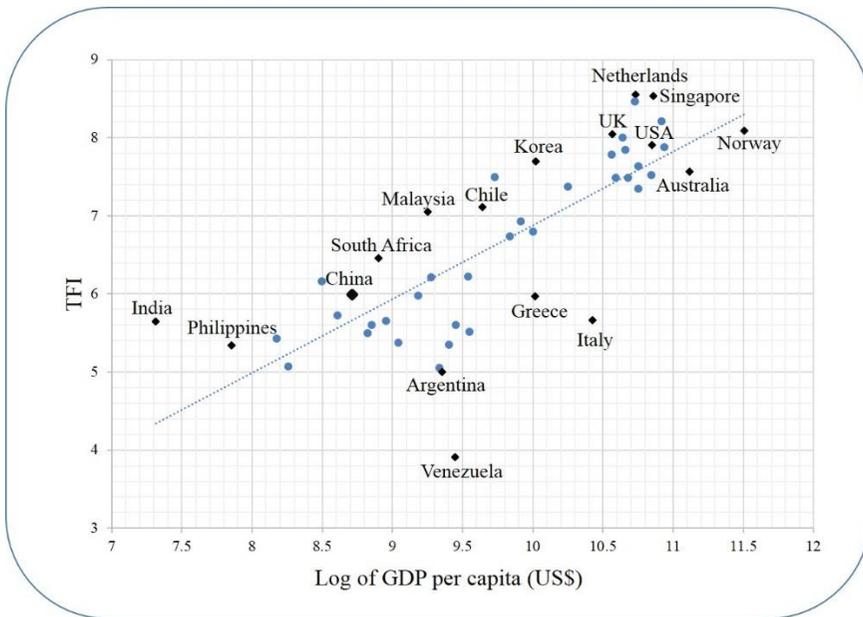


Figure 4: Correlation between TFI and Log of GDP per capita²⁴

²³ Ibid.

²⁴ Ibid.

If we compare the TFI to the 2012 LPI (see Figure 1), we can easily notice that although the two indicators have obtained similar results in general, their assessments of the performance of China differ greatly. In the LPI report, China was categorized as an “overperformer”, meaning, China has been doing much better than economies at the same level of GDP per capita. However, the TFI showed a different story and concluded China to be an “average performer”, meaning, China’s trade facilitation performance has been mediocre compared with countries with the same level of economic development. The reason behind such differences lies in the different weights assigned to each sub-indicator. The LPI presumes that each sub-indicator is of equal importance to one another, whereas the TFI ended different weights to each sub-indicator according to how much difference it brings about to changes in trade flows.

Sub-category-wise, except for the openness to multilateral trade rules category, China’s performance in other areas are all relatively low, with the lowest being civil justice, service sector infrastructure and corruption. More specifically, the elimination of bribery and other corrupt practices of officials involved at the clearance and release of imported goods, the completion of clearance of goods before they have arrived physically in the customs territory, and the improvement of coordination between relevant agencies, and the construction of port and E-business infrastructure should be placed at the top of China’s trade facilitation agenda in the future.

Category	China's Ranking
TFI	30
Quality of port infrastructure	30
Quality of air transport infrastructure	32
Bureaucracy	34
Burden of customs procedures	29
Customs services index	33
Irregular payments and bribes	32
Transparency	33
Corruption	36
Civil Justice	43
Openness to multilateral trade rules	5
ICT use for business-to-business transactions	36
Government Online Service Index	37

Table 21: China's Ranking in Each Sub-category²⁵

²⁵ Ibid.

Chapter V. Policy Recommendations

As revealed above in the Trade Facilitation Index, the bottleneck to China's further trade facilitation seems to be all round, with the most dominant being regulatory environment (civil justice, transparency and corruption), infrastructure (the quality of transportation and IT infrastructure) and customs procedures (the efficiency of clearance process by customs and other agencies).

The reasons behind the weak link in customs procedure are varied. First, incompleteness of relative trade regulations accounts for a major stumbling stone. Although the new Foreign Trade Law was enacted in 2004, subsequent regulations, implementation details and procedures are not yet complete. In some fields, old conventions are still widely being referred to albeit the existence of new conventions in the new Law. Moreover, since trade facilitation is an inter-sectoral concept that touches upon various issues throughout the goods movement process, its smooth functioning is highly dependent on legislation on domestic market liquidity. However, as a developing country, China's legislative capacity on domestic market liquidity is far behind the requirement of market economy development. Therefore, the ineffective law enforcement and legislative procedure are acting as a major obstacle towards the achievement of more efficient customs procedures.

Second, in China's foreign trade practices, normative documents formulated by some governmental administrative organs, especially by local offices, are still significantly lacking transparency. Often times the documents are only circulated within relative bureaus rather than disclosed to the general public. Other times the documents are only articulated in Chinese, while foreigners must go through many

detours before accessing the information. Another aspect relates to the arbitrariness in document formulation and regulation enforcement. In contemporary China, different localities still apply highly localized standards to document formulation and regulation enforcement, while normative approaches are largely absent. This phenomenon severely hinders efficient interregional information flows, increases unnecessary administration costs and impedes smooth movement of goods and services. As Greene and Tsai (2008) found in an earlier study, clear and transparent rules for customs procedures, predictable and impartial procedures as well as pressures for illegal payments were more of an issue for foreign (OECD) firms than their local counterparts.

Other problems hindering China's further facilitation of trade include more fundamental issues such as lack of competent human resource, loose interdepartmental coordination, unsatisfactory infrastructure capacity, etc. These factors also complicate the situation by touching upon more sensitive issues such as governance and domination. Proper solutions to these problems are beyond the capacity of any single agencies, but rather require the government to function as a whole and carry out some overarching reform plans (Huang 2005).

Based on previous analysis, this paper is going to put forward some policy recommendations in the following aspects.

1. Enhance customs efficiency by strengthening the construction of infrastructure and facilities, regulating customs authority and improving service quality.

2. Standardizing the taxation environment by building an online tax payment system and publishing comprehensive guidelines on taxation.
3. Ameliorate regulation environment by adopting international regulations, norms and conventions, and actively participating in international forums and organizations.
4. Promote E-business usage and expand the applicable range of online payment.
5. Facilitate the movement of business personnel by improving the visa management system and pushing forward e-government portal.

Chapter VI. Conclusion

Over the past three decades, China has been spending enormous effort on its trade facilitation reforms through a two-track approach – commitment to international agreements and arrangements, and reforms and capacity building on a domestic level.

On the international level, China's participation in the World Trade Organization, the Asia-Pacific Economic Cooperation, the China-ASEAN Free Trade Area, the Shanghai Cooperation Organization, the cooperation in the Greater Mekong Region, as well as many other multilateral arrangements all stimulated its integration into the international trading system, and promoted the internationalization of its trade facilitation reforms.

On the domestic level, reform on the foreign trade management system, revision of trade regulations, construction of customs, and establishment and mutual recognition of standards also acted as building blocks of a better trading environment for business entities in China.

However, compared with more advanced countries, China is still lagging behind in many relative areas, the most dominant of which being in regulatory environment and customs procedures. More specifically, the elimination of bribery and other corrupt practices of officials involved at the clearance and release of imported goods, the completion of clearance of goods before they have arrived physically in the customs territory, and the improvement of coordination between relevant agencies, particularly on document requirements, should be placed at the top of China's trade

facilitation agenda in the future.

The requirement for trade facilitation forms is also intensified by the various ongoing negotiations of free trade agreements that China has been engaging in, the most important of which being the China-ROK FTA and the China-ROK-Japan FTA. In particular, several previous studies have estimated that the spillover effect of the conclusion of the China-ROK FTA could be even larger than direct economic gains generated within the free trade area *per se*. Many scholars believe that this FTA would function as the starting point and leverage for further economic integration in the Asian region as a whole. Therefore, joint exploration and flexible handling of trade facilitation-related issues under such frameworks seem to have become more important than ever.

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초록

중국 무역원활화 정책의 발전 및 전망

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지난 30 년간, 국제 경제 융합의 지속적인 발전은 국제 무역의 고속 성장을 촉진하였다. 국제 무역은 경제 성장에 대하여 적극적인 영향을 가지고 있으며 더 많은 수입과 복지를 일으킬 수 있다. 이 관점에 의하여, 무역 장벽의 최소화와 상품 수출입의 원활화를 통하여 건전한 무역 환경을 창조하는 것은 세계 모든 나라에 대한 이로운 행동이다.

그러나, 무역원활화라는 개념이 다양하고 복잡한 발전 요소들을 포함되어 있다는 점을 고려하여, 각 나라의 구체적 접근방법과 특징도 달라진다. 특히 중국 같은 경우는 세계 1 위 수출 대국으로서 남다른 계획을 가지고 있으며, 무역원활화 정책을 추진하기 위해 커다란 노력을 기울이고 있다.

중국 무역원활화 정책 발전의 중요성을 염두에 두면서, 본 논문은 질적과 양적인 방법론으로 중국 무역원활화 현황에 대한 분석 및 평가하기를 목적으로 한다. 이에 입각하여, 본 논문은 4 부분으로 나뉘어진다. 첫 부분은 본 주제에 대한 배경설명이며, 두 번째 부분은 중국 무역원활화 발전 경로에 대해 질적 분석을 진행한다. 셋 번째 부분은 무역원활화 실적을 수량화함으로써 중국의 무역원활화 성과를 다른 특정 대상 국가와 비교한다. 마지막 부분은 본 논문을 끝내가면서 현황을 개선하기 위한 몇 가지 정책건의를 제시한다.

Keywords: 중국, 무역원활화, 분석적 계층화 과정

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