



저작자표시-비영리-변경금지 2.0 대한민국

이용자는 아래의 조건을 따르는 경우에 한하여 자유롭게

- 이 저작물을 복제, 배포, 전송, 전시, 공연 및 방송할 수 있습니다.

다음과 같은 조건을 따라야 합니다:



저작자표시. 귀하는 원저작자를 표시하여야 합니다.



비영리. 귀하는 이 저작물을 영리 목적으로 이용할 수 없습니다.



변경금지. 귀하는 이 저작물을 개작, 변형 또는 가공할 수 없습니다.

- 귀하는, 이 저작물의 재이용이나 배포의 경우, 이 저작물에 적용된 이용허락조건을 명확하게 나타내어야 합니다.
- 저작권자로부터 별도의 허가를 받으면 이러한 조건들은 적용되지 않습니다.

저작권법에 따른 이용자의 권리는 위의 내용에 의하여 영향을 받지 않습니다.

이것은 [이용허락규약\(Legal Code\)](#)을 이해하기 쉽게 요약한 것입니다.

[Disclaimer](#)

**Master's Thesis**

**Competitiveness in Services Sector of  
China and South Korea**

**An Analysis of Service Trade and Global Value  
Chains Participation**

한중 서비스업의 경쟁력 - 서비스 무역 및 글로벌  
가치사슬 참여 분석을 중심으로

**August 2022**

서울대학교 국제대학원  
국제학과 국제통상전공

王楹塬

# **Competitiveness in Services Sector of China and South Korea**

**An Analysis of Service Trade and Global Value  
Chains Participation**

**Prof. Cheong Young-Rok**

**Submitting a master's thesis of  
International Studies**

**August 2022**

**Graduate School of International Studies  
Seoul National University  
International Commerce Major**

**Yingyuan Wang**

**Confirming the master's thesis written by  
Yingyuan Wang  
August 2022**

Chair      Prof. Rhee, Yeongseop      (Seal)  
Vice Chair Prof. Ahn, Jaebin      (Seal)  
Examiner Prof. Cheong, Youngrok      (Seal)

# ABSTRACT

With the gradual decline in manufacturing as a percentage in GDP, the importance of services sector in economic development and international trade has become increasingly prominent. The performance in services sector has become a big criterion to access a country's competitiveness. Meanwhile, with the deepening of globalization, the international division of labor and production activities are very active. Both International trade and global value chain participation have become important indicators for analyzing a competitiveness. China and South Korea, as long-standing trading partners, are geographical adjacent and have similar industrial structures. This paper applies trade competitiveness index, revealed comparative advantage index and global value chain participation to compare the competitiveness of services sector of China and South Korea. The paper draws a conclusion that neither country is competitive compared to world advanced economies. Both countries have own advantageous service industries, but South Korea's overall competitiveness is higher than that of China. Based on the results, this paper discusses the difference in three aspects: factor endowment, innovation in global value chain production and government regulation, and proposes that investment in intelligence, market liberalization of service industries and transformation in global value chain participation need to be enhanced to increase competitiveness.

**Key words:** *China, South Korea, Service Trade, Trade Competitiveness, Revealed Comparative Advantage, Global Value Chains*

**Student Number:** 2020-28769

# TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION.....	6
1.1 Overview .....	6
1.2 Purpose of Research .....	8
1.3 Structure of Research .....	9
CHAPTER 2: ANALYTICAL FRAMEWORK.....	11
2.1 Background .....	11
2.2 Literature review.....	12
2.3 Analytical Structure .....	17
2.3.1 Model .....	17
2.3.2 Data Description.....	21
CHAPTER 3: EMPIRICAL STUDY.....	22
3.1 Empirical Results.....	22
3.1.1 Overview .....	22
3.1.2 Calculation Results.....	23
3.2 Discussions.....	34
3.3 Policy Implication.....	39
CHAPTER 4: CONCLUSION.....	41
4.1 Summary of Research.....	41
4.2 Limitation.....	41
REFERENCES .....	43
APPENDIX.....	48
ABSTRACT (KOREAN) .....	54

## LIST OF FIGURES

Figure 1	Smile Curve .....	15
Figure 2	Average STRI across Countries, 2021 .....	38
Figure 3	China's Trade in Services, 2020.....	48
Figure 4	China and South Korea Services TC index, 2010-2019 .....	24
Figure 5	China and South Korea Services RCA index, 2010-2019 .....	28
Figure 6	World GVC Participation, 2019 .....	36

## LIST OF TABLES

Table 1	RCA, VRCA, IRCA and SRCA .....	48
Table 2	EPOBS 2010.....	49
Table 3	China Services Trade Competitiveness 2010-2019 .....	23
Table 4	South Korea Services Trade Competitiveness 2010-2019 .....	24
Table 5	China Services RCA 2010-2019 .....	27
Table 6	South Korea Services RCA 2010-2019 .....	28
Table 7	RCA, VRCA, IRCA and SRCA of Services .....	51
Table 8	IMS of China and South Korea's Services Exports 2010-2019....	52
Table 9	China Services GVC Participation 2005-2014 .....	31
Table 10	South Korea Service GVC Participation 2005-2014 .....	32
Table 11	International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4 .....	53
Table 12	Summary of Main Observations.....	33

## LIST OF CHARTS

Chart 1	Manufacturing value added as a percentage of GDP in selected countries (1980-2019) .....	7
---------	---	---

## **LIST OF ABBREVIATIONS**

CA	Competitive Advantage
EBOPS	Extended Balance of Payment Services Classification
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GVC	Global Value Chain
IMS	International Market Share
KDI	Korean Development Institute
KIEP	Korea Institute for International Economic Policy
OECD	Organization for Economic Co-operation and Development
RCA	Revealed Comparative Advantage
TC	Trade Competitiveness Index
TiVA	Trade in Value Added
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organization
WIOD	World Input-Output Database

# CHAPTER 1: INTRODUCTION

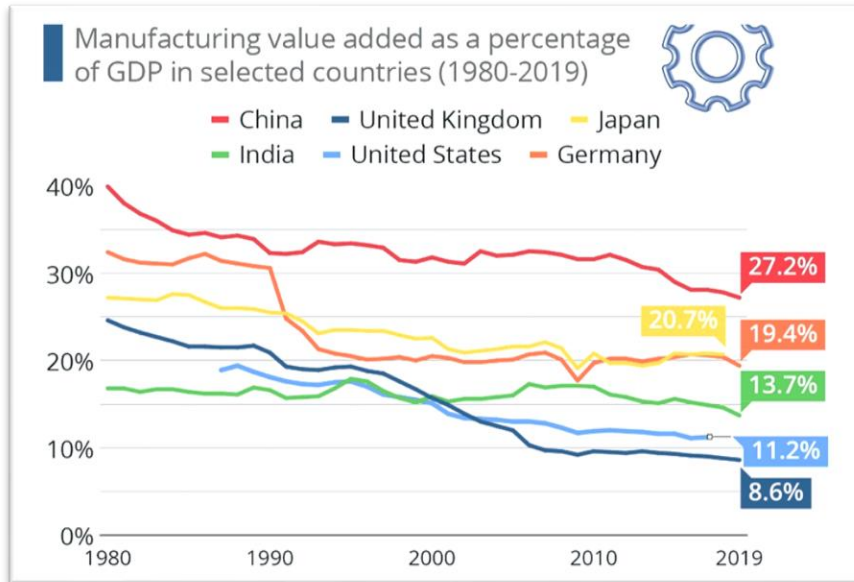
## 1.1 Overview

With the development of economic globalization and the acceleration of international production restructuring, the service sector is playing an increasingly prominent role in the global economic development. In addition, the demand and growth of service trade are getting more and more of people's attention. Countries in the world are trying their best to introduce relevant policies and measures to develop the service industry and service trade.

In the history, the manufacturing sector had played the key role in the development of economy. The proportion of manufacturing in country's GDP has a positive relation with the economic growth. But the positive impact is only pronounced in periods of accelerated growth, namely in the poorer countries. However, in nowadays world economy, services' power in economic development surpassed manufacturing. According to the World Bank, services account for the majority of GDP and employment globally, and are growing faster than manufacturing. As China's industrialization enters the later stage (2011-2019), the average annual growth of the value-added of the service industry exceeds that of the manufacturing industry by 1.2%. It is shown (chart 1) that emerging big economy like China and India, advanced economies like Japan, US, UK and Germany, are experiencing a decline of manufacturing sector, which are becoming less and less important for national incomes.



**Chart 1 Manufacturing value added as a percentage of GDP in selected countries (1980-2019)**



*Source: Statista*

Unlike manufacturing, the role of the service industry in high-quality economic development is mainly to support stable development. In particular, the service sector in China and South Korea is still in a period of rapid growth and has the potential to grow faster than the manufacturing sector, thus contributing more to the steady growth of the economy. And it is also why studying the competitiveness of service sector is necessary.

services sector ranging from traditional areas such as construction, utilities, transport, and real estate, to business services such as R&D, design, engineering, sales, marketing, finance, insurance, and accounting. The development of this sector explains the divergent economic growth across countries. Services also account for a large growing share of exports in value-added terms. (Haven and Marel, 2018) People always think service output is intangible and do not really notice while interacting with it. It is permeating all aspects of economic activity.

With the rapid development of services, the concept of "service trade" first appeared in international economics literature only 30 to 40 years ago. Before 1970s, trade in services was not a remarkable area in world economic and trade relations. The many turns of negotiation organized by the GATT have not yet explored this issue. Since entering the 1970s, international service trade has developed rapidly. In 1970, the total world trade in services was only 71 billion U.S. dollars, but by 1980 it rapidly soared to 383 billion us dollars, which is a rise of about 5 times in only 10 years. After 1980, this rapid growth momentum is still maintained by the international service trade field. The average annual growth rate is about 5%. Compared with the trade in goods during the same period, average growth rate of service trade is nearly twice of average growth rate 2.5%. (He, 1995) Following this trend, in 1995, the treaty General Agreement on Trade in Services (GATS) of the World Trade Organization (WTO) entered into force. The multilateral trading system was extended to service sector with this treaty, in the same way the GATT provides such a system for merchandise trade.

## **1.2 Purpose of Research**

In light of the above introduction on the fast-growing importance of service sector to the economic development, this paper narrows down the analysis focus to China and South Korea as they are geographically adjacent, with similar humanities and institutional environments, and have close trade history. Since the end of the 20th century, China's service trade has developed rapidly and has begun to surpass South Korea in the scale of trade value. China's government has put huge investment in R&D in recent years, trying to transform structurally. However, as a traditional manufacturing country, China started late in the development of services sector whereas South Korea agilely began to develop service trade in the last century, which leads to the difference in competitiveness level. According to Michael Porter, (1990) 'When the international competition in the service trade

becomes increasingly heated and becomes more professional and complex, whether a company or country has a competitive advantage in the service industry will also be an important topic in the future.’ Therefore, in the era of service, it is important to construct a comprehensive analysis of competitiveness of services sector in China and South Korea.

Through the analysis, the author aims at comparing the overall international competitiveness<sup>1</sup> using multiple indexes and updated dataset. Also, the author is eager at find out in which service industries which country performs better and to discuss the possible reasons as well as some implications on how to enhance the competitiveness. Finally, the research also aims to produce a more comprehensive analysis by adding on the Global Value Chain perspectives to the traditional models.

### **1.3 Structure of Research**

Given the overview and the purpose of the study, this paper (Chapter 2) gives a background information of the topic and key terms and then conducts a literature review, including relatively new comparative studies on the services sector of China and South Korea; An OECD paper introducing roles of the service industry in the global economy and global value chains; A paper on the producer service industry, namely the high value-added service industry in the international production activities; etc. Then, to study how China and South Korea perform in terms of service trade and especially in what service industries they have competitiveness, this paper introduces the models applied and the data description, including trade competitiveness index (TC) and revealed comparative advantage index (RCA). More innovatively, with the deepening of international production

---

<sup>1</sup>International competitiveness is the degree to which a country can, under free and fair market conditions, meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its citizens. (Coviello, N. E., Ghauri, P. N., & Martin, K. A-M. (1997)

fragmentation, the concept of global value chains is combined in the comparison to further analyze the competitiveness of two countries. The results are given in Chapter 3 with a thorough discussion and policy implementations. At last (Chapter 4 ), limitation of the research and a summary are briefly included.

## CHAPTER 2: ANALYTICAL FRAMEWORK

### 2.1 Background

After raw material production and manufacturing, the services sector, as the third tier of the economy, includes a wide range of tangible as well as intangible services and is the largest value-added sector in the global economy. Services are particularly important because countries with service-centered economies are considered more developed than industrial or agricultural economies. (Investopedia team, 2022) Due to the crucial power of service sector, it is important to explore the competitiveness of this sector, so as to analyze the service trade. This section presents major types of trade in services, as well as some existing paper assessing the competitiveness of China and South Korea based on service trade data.

There are three main types of service trade. The first is the traditional service trade that are closely connected and related to the usual trade in goods, including international maintenance and repair, international transportation, construction, and international financial services (mainly refer to trade settlement services), Retail and wholesale of products, etc. The second type is based on factor transfer as its essence. This type is closely related to international investment. It includes different types of investment such as stocks and bonds, business management projects, labor export such as construction and engineering contracting, and financial services, etc. The third is a new type of service trade, which has unique characteristics compared to the trade of goods, such as the services provided by the international tourism industry, the services of the world information network, media products, intellectual property services, and cultural products. China's competitiveness mainly remains in the traditional type. South Korea is competitive mainly in the second type but shifting to the new type in recent years.

## **2.2 Literature Review**

### **South Korea's Service Sector**

In Chun Kon Kim et al.' research paper, the international trade competitiveness of services of South Korea is calculated in detail, and the international and regional comparisons are made with import and export volume and TC index as the main indicators. At the same time, the report also expounds the necessity of service trade statistics as the scale of service trade increases. Unlike statistics on international merchandise trade, statistics on trade in services are incomplete because of the fundamental reason that services are difficult to manage accurately, due to the intangible nature. There are also tariffs on services that are not levied like tariffs on goods. Chun Kon Kim et al. also proposes policy implications in the report to improve the measuring and collecting of data of the international trade in services.

(Chun Kon Kim et al.2017)

### **China's Service Sector**

Zhang and Evenett(2020) analyzed the growth of China's services sector and associated trade since the beginning of reform and opening up at 1978 and raised points about complementarities between structural change and sustainability. In the paper, they concluded some notable characteristics that the growth of services trade displays. First of all, China has entered a stage of rapid development since joining WTO. The growth in trade of services is faster than that of the development of the services sector itself. And the growing of services trade is at a speed above the world average. In the growth, the flowing of FDI played an important role.

### **Bilateral Services Trade between China and South Korea**

In addition to China and South Korea's trade to the world, Dong, in a comparative study (2019), analyzes the development and competitiveness of service trade between China and South Korea based on the bilateral service trade data from 1998

to 2017 released by the bank of Korea. Using the trade integration degree, intra-industry trade index and TC index, Dong analyzes the bilateral service trade competition between China and South Korea and found out that two countries have high degree of integration in services and have formed close trade relations. But within the service trade, the competition among the departments is very fierce. At present, China has an absolute competitive advantage in manufacturing service industry. Two countries are intensively competing in the insurance service industry and the government service industry. South Korea has a competitive advantage in sectors such as transportation, travel, intellectual property, and communication services. On the contrast, China encounters huge trade deficit in these sectors. Dong at last emphasizes the significance and value of analyzing the development process of bilateral service trade, trade competitiveness and future development prospects.

### **Connecting GVC and traditional measurement: A comparison among RCA, VRCA, IRCA and SRCA**

Xin Zhou integrated GVC perspective and RCA by introducing three indicators: RCA in value added terms, RCA in terms of GVC income and RCA in terms of services in manufacturing GVC and analyzed 13 service industries of China from 2005 to 2015 based on OECD-TiVA data. (See appendix Table 1) The results show (see appendix table 7) that the traditional RCA indicators generally underestimate the comparative advantage of China's service industries. As the growth rate of service trade in the world has significantly exceeded that of goods trade, the growth rate of China's service trade has exceeded that of global service trade.

RCA was once considered to be the most ideal indicator for understanding the comparative advantage status of a country's industry. With the deepening of the division in global value chains, this indicator has also encountered new challenges.

First, it uses the export value for accounting which is not entirely the added value generated by the exporting country. Secondly, it does not consider indirect exports. The value-added provided by a certain industry in a country to the global market can also be reflected in the exports of other industries in this country as well as the exports of other countries (Koopman et al., 2014; Wang Zhi et al., 2015).

It is necessary to study the participation of various service industries in the international segmentations, which can be an important basis for studying the upgrading of national industrial structure and realizing high-quality economic development. Therefore, in addition to TC and RCA, this paper also adds global value chain perspectives to reflect the competitiveness of China and South Korea's service sector more comprehensively.

### **Global Value Chain Activities**

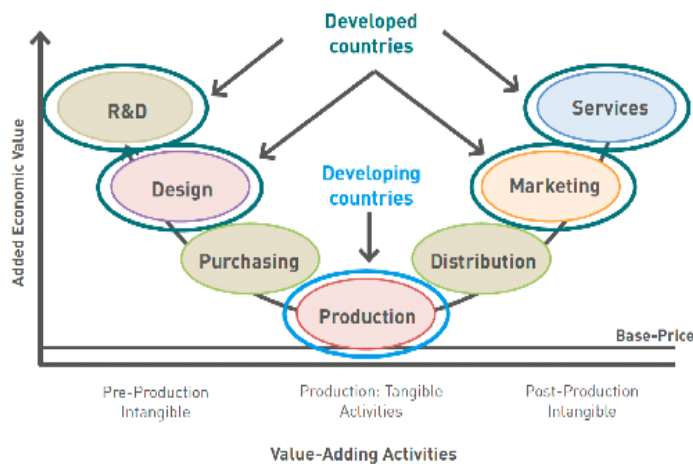
In the OECD Trade Policy Paper (2017), new evidence is provided on the role of services in GVCS. With the launch of the Value-added Trade Database (TiVA), it has been highlighted that services account for a larger share of world trade than traditional statistics suggest. (Miroudot, Cadestin, 2017) In fact, services sector almost accounts 50% for the world exports. And 25% to 60% of employment in manufacturing firms is found in service support functions such as R&D, engineering, transport, marketing, IT management and so on. Miroudot and Cadestin summarizes the four main roles of services in trade and in global value chains.

"Linking the manufacturing activities of countries." To manage geographically dispersed production processes, companies need services such as transportation, communications, logistics, and finance. Without such linkage, the global value chain may not exist. However, services industries are not solely the "glue" in GVC (Low, 2013). In addition to linking activities between countries, there are some important service inputs. For instance, any value chain starts from research and



development (R&D), design as well as engineering operations that are services inputs when outsourced. Other services are found at the other end of the value chain, such as marketing and distribution, which are important production stages, not just linkages in the value chain production. Thus, services link could be viewed as a portion of the broader category of service input that not only support the function of the value chain, but are also necessary input in main production phases. Recent studies have shown that in the global value chain, the producer service industry<sup>2</sup> is at the top of the smile curve (Figure 1) and creates greater added value than the manufacturing industry.

**Figure 1 Smile Curve of GVC Production**



*Source: Gereffi, Gary & Fernandez-Stark, Karina. (2016)*

<sup>2</sup> Producer service industry refers to the service industry that provides guarantee services for maintaining the continuity of the industrial production process, promoting industrial technological progress, industrial upgrading and improving production efficiency. It is a supporting service industry directly related to the manufacturing industry and does not provide consumers with direct and independent service consumption. The producer service industry takes human capital and knowledge as the main inputs and is an important part of the production activities of the global value chains. (X. Wenhua and C. Jianqing, 2010)

Therefore, as the value-added, high-tech service trade volume accounts for an increasing proportion of the international trade volume, the competitiveness of service trade (with producer service industry as one of the services sectors) has begun to become a measure of whether the country's trade competitiveness and trade structure are reasonable.

In actual economic statistics, the industry division and definition of the services is a difficult point since some service industries (such as transportation services, banking services) can be regarded as productive services (because of the needs of enterprises) or as consumer service industry (because ordinary consumers also need it), but the focus of different service industries is different. Some previous scholars used the input-output method to analyze services. For example, Gu and Zhou's study in 2010 estimated the industrial base and status of China's services using input-output method, and by virtue of the vertical specialization share to evaluate China's globalization level. Compared with South Korea, the development of services is rapid, but its contribution to the national economy is still relatively low. And from the sectional composition of services, China's accommodation and catering industry and other traditional labor-intensive industries occupy a higher proportion of the intermediate service, while the technical & knowledge-intensive services provide the lower proportion. Most services in China have not yet participated in GVC. And they are at low level in the international production fragmentation. (Gu and Zhou, 2010)

Park (2020), based on the data of OECD-ICIO (Inter-Country Input-Output Table), uses method proposed by Wang, Wei and Zhu in 2013 to assess the international competitiveness of South Korea's services through RCA, NRCA, GVC position index, GVC participation index. Park calculated the value-added exports of services in big economies like China, South Korea, and Japan, and compared the value-added trade structure of these countries and concluded that the composition

of GVC of South Korea's service sector is relatively loose and the division of production is not active enough.

## 2.3 Analytical Structure

### 2.3.1 Model

#### Trade Competitiveness Index (TC)

The trade competition index is also called the comparative advantage index by industry insiders, which refers to the ratio of the difference between a country's import trade and export trade to the world's total import and export trade.

The calculation formula used is:

$$\text{TC}_i = (X_{ij} - M_{ij}) / (X_{ij} + M_{ij})$$

where:

$X_{ij}$  = total export value of the j commodity in country i;

$M_{ij}$  = total import value of the j commodity in country i.

Under normal circumstances, the value range of the TC index is: [-1, 1]. When  $TC > 0$ , it means that country i is a net exporter of the jth commodity, and that this commodity itself has a greater comparative advantage. , And the closer it is to 1, the greater the international competitiveness of this commodity; when  $TC < 0$ , it means that country i is the net importer of the j commodity, which leads to the smaller comparative advantage of this commodity, and At the same time, it reflects that the international competitiveness of this kind of commodity is relatively weak; when TC is close to 0, it means that the competitive advantage of the j commodity in country i is basically close to the average level, and is equivalent to the international level; when  $TC = 1$  , Which means that the j commodity in country i

has only export commodities but no imported commodities, indicating that the country has an absolute international competitive advantage; when  $TC = -1$ , it means that the  $j$  commodity in country  $i$  has only imported commodities but no exported commodities, which is respected in the international market in an absolute disadvantaged position.

### **Revealed comparative advantage index (RCA)**

The Revealed Comparative Advantage Index is a method adopted by the American economist Balassa Bela in 1965 when he measured the comparative advantage of some international trade. It can reflect the comparative advantage of a certain industry in a country. It is expressed by the ratio of the industry's share in the country's exports to the industry's share in total world trade. Excluding the impact of fluctuations in national aggregates and world aggregates, it can better reflect a relative advantage of a country's export in a certain industry compared with the world's average export level. It can analyze the overall service trade of China and South Korea and the international competitiveness of the industry.

Calculation formula:

$$\text{➤ } RCA_{ij} = (X_{ij} / X_j) / (W_j / W)$$

where,

$X_{ij}$  = country  $i$ 's exports of product  $j$

$W_j$  = world's exports of product  $j$

$X_j$  = country  $i$ 's total exports

$W$  = world's total exports

When a country has a revealed comparative advantage ( $RCA > 1$ ) for a given product, the country is inferred to be a competitive producer and exporter of the

product relative to the country producing and exporting the product or a country below the world average. A country that shows comparative advantage in product I is considered to have export strength in that product. The higher the RCA value of a country to product I, the higher its export intensity to product I.

According to the standard proposed by JERTO, the index is further refined. If the RCA index is greater than 2.5, it indicates that the service trade of the country and region has strong international competitiveness; if the RCA is between 2.5-1.25, it indicates that the country and the service trade in a region has strong international competitiveness; if the RCA is between 1.25-0.8, the country and region's service trade is considered to have moderate international competitiveness; if it is below 0.8, it is at a comparative disadvantage.

### **GVC Participation Index<sup>3</sup>**

The GVC Participation Index provides an estimate of the extent to which an economy is linked to its global value chain for foreign trade. The index is composed of two parts that reflect the upstream and downstream links of the international production chain. Basically, individual economies participate in GVCS by importing foreign inputs to produce the goods and services they export (backward participation in GVCS) and by exporting domestically produced inputs to partners responsible for the downstream production phase (forward participation in GVCS). (WTO Explanatory notes,2019) Forward GVC participation is expressed as the share of GVC activity in the value added created by a country's sector, reflecting the ability to provide intermediate goods for global production.

---

<sup>3</sup> The calculation of GVC participation is too large and requires complex matrix to calculate each part in GVC participation. In addition, the Inter-Country Input-Output tables (ICIO) and related measurements of different databases are slightly different. Thus, in order to reduce the error rate in the data, this paper cites the results that have already been published in other working papers or academic papers, then integrates and analyzes them. Furthermore, this paper combines qualitative research to provide a comprehensive and independent analysis of GVC participation of the service sector in China and Korea.

Backward GVC participation is expressed as the share of the contribution of domestic and foreign production factors involved in global production segmentation activities to the value added of a country's final product. Just as the total export value of a product can serve as a barometer of its competitiveness in overseas markets, value-added exports can indicate the competitiveness of a certain production activity.

Calculation formula:

$$\text{➤ } GVC_p = IV_{ir}/E_{ir} + FV_{ir}/E_{ir}$$

where,

$IV_{ir}$  = indirect value-added exports of the  $i$  industry in country  $r$ , that is, it measures how much value added is included in the intermediate product exports of the  $i$  industry in country  $r$  and processed by a country later then exports to the third country;

$FV_{ir}$  = foreign value added in a country's exports

$E_{ir}$  = total export value of the  $i$  industry in country  $r$

$GVC_p$  as a whole reflects the degree of participation of country  $r$ 's  $i$  industry in the global value chains. The larger the indicator, the higher the participation of the country's industry in the global value chain, and vice versa.

### 2.3.2 Data Description

Due to the breakout of covid-19 in 2020, the service trade was heavily hit and is still recovering now. Especially in China (see appendix figure 3), both imports and exports of services encountered a big decline in 2020. Thus, a 10-year period from 2010 to 2019 was selected to eliminate the interference. China, South Korea and World are sample regions. Trade data are from Unstats and Bank of South Korea to calculate trade competitiveness (TC) and revealed comparative advantage (RCA). Trade in value added (TiVA) and input-output data are from WIOD for global value chain participation (GVCp) calculation. However, the calculation is very complex, the paper quoted scholar Niu and Guo's calculation results for 2005 to 2014 as a numerical support. This paper uses in total 3 indexes to analyze the service trade competitiveness of China and South Korea in a more comprehensive frame.

The services measured in this paper is based on 'Extended Balance of Payments Services Classification (EBOPS 2010)<sup>4</sup>' Services (S) are classified into following 12 categories: goods-related services (SPX4), transport (SC), travel (SD), construction (SE), insurance and pension services (SF), financial services (SG), charges for the use of intellectual property n.i.e. (SH), telecommunications, computer and information services (SI), other business services (SJ), personal, cultural and recreational services (SK), government goods and services n.i.e. (SK). (See appendix table 2)

---

<sup>4</sup> All main categories can be further disaggregated for more detailed information at <https://unstats.un.org/unsd/classifications/Family/Detail/101>

## CHAPTER 3: EMPIRICAL STUDY

### 3.1 Empirical Results

#### 3.1.1 Overview

According to international market share<sup>5</sup> (IMS) (Appendix table 8), this paper makes an overall comparison of trade in services in South Korea and China in the global market. Also, a general analysis of competitiveness is given based on IMS statistic. The services exports of China and South Korea account for a relatively small proportion of the world's total service exports. China's IMS of services is higher than that of South Korea. In the ten years from 2010 to 2019, the average IMS in South Korea is about 2% and in 4.3% in China. South Korea's been on a slightly downward trend since 2015 whereas China's showing a slight growing trend.

Looking at each classification of services sector, in China, Goods-related services occupy a high position in the international market, with an average of close to 15%. Other new service industries such as financial services and Personal, cultural, and recreational services are very disadvantage in international market. In South Korea, Construction occupies a high position in the international market, with an average of approximately 15%. Insurance and pension services, financial services and Telecommunications, computer, and information services are relatively weak in the international market. Among all, Personal, cultural, and recreational services grow the fastest which has doubled from 2010 to 2019 showing a big jump in South Korea's cultural industry.

---

<sup>5</sup> International Market Share (IMS) is a basic indicator to measure the position of a country's trade in services in the world market, reflecting the share of a country's trade in services in the international market. IMS of trade in services refers to the share of a country's service trade exports in the world market, that is:  $IMS = \text{a country's services exports} / \text{world services exports}$ . This paper uses the data from UNCTAD and Bank of Korea to calculate China and South Korea's IMS. The results are in Appendix Table 8.)



### 3.1.2 Calculation Results

#### ➤ Trade Competitiveness Index (TC)

**Table 3 China Services Trade Competitiveness 2010-2019**

China	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
S	-0.04	-0.10	-0.17	-0.23	-0.33	-0.33	-0.37	-0.34	-0.32	-0.28
SPX4	0.99	0.99	0.99	0.99	0.99	0.88	0.83	0.81	0.82	0.76
SC	-0.30	-0.39	-0.38	-0.43	-0.43	-0.38	-0.41	-0.43	-0.44	-0.39
SD	-0.09	-0.20	-0.34	-0.43	-0.68	-0.69	-0.71	-0.74	-0.75	-0.76
SE	0.48	0.60	0.54	0.47	0.52	0.24	0.21	0.47	0.51	0.50
SF	-0.80	-0.73	-0.72	-0.69	-0.66	-0.28	-0.51	-0.44	-0.41	-0.39
SG	-0.02	0.06	-0.01	-0.07	-0.04	-0.06	0.22	0.39	0.24	0.23
SH	-0.88	-0.90	-0.89	-0.92	-0.94	-0.91	-0.91	-0.71	-0.73	-0.68
SI	0.44	0.47	0.49	0.38	0.30	0.39	0.36	0.18	0.33	0.33
SJ	0.06	0.07	0.09	0.09	0.26	0.19	0.14	0.18	0.19	0.19
SK	-0.50	-0.53	-0.64	-0.68	-0.67	-0.44	-0.49	-0.57	-0.47	-0.55
SL	-0.09	-0.17	-0.02	0.02	-0.32	-0.41	-0.41	-0.34	-0.44	-0.41

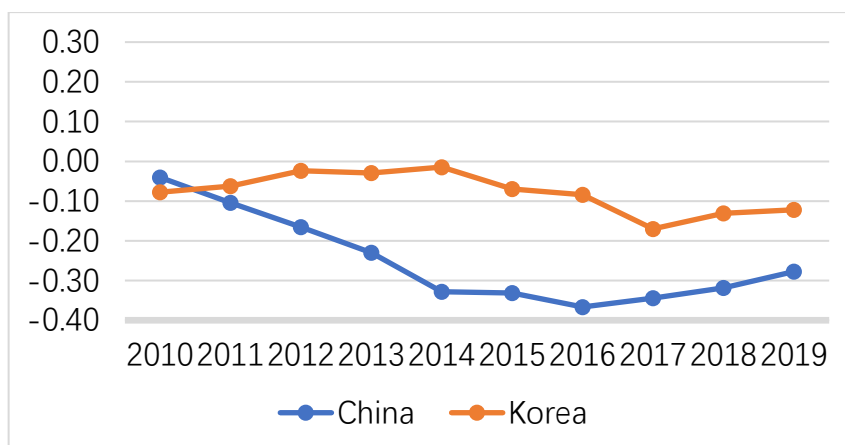
*Source: Author's Calculation*

**Table 4 South Korea Services Trade Competitiveness 2010-2019**

South Korea	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
S	-0.08	-0.06	-0.02	-0.03	-0.01	-0.07	-0.08	-0.17	-0.13	-0.12
SPX4	-0.51	-0.59	-0.54	-0.49	-0.47	-0.51	-0.51	-0.58	-0.58	-0.62
SC	0.12	0.09	0.14	0.11	0.09	0.07	-0.02	-0.10	-0.07	-0.06
SD	-0.29	-0.23	-0.22	-0.20	-0.14	-0.26	-0.23	-0.41	-0.35	-0.27
SE	0.68	0.61	0.71	0.62	0.65	0.65	0.68	0.59	0.59	0.58
SF	-0.26	-0.14	-0.24	-0.18	0.04	-0.06	-0.17	-0.05	-0.05	-0.29
SG	-0.08	-0.06	-0.11	-0.23	-0.10	-0.02	0.02	0.07	0.17	0.17
SH	-0.48	-0.26	-0.38	-0.39	-0.31	-0.21	-0.15	-0.14	-0.12	-0.13
SI	-0.17	-0.08	0.00	0.08	0.19	0.11	0.15	0.14	0.26	0.32
SJ	-0.34	-0.30	-0.28	-0.22	-0.18	-0.20	-0.16	-0.22	-0.21	-0.20
SK	-0.24	-0.08	-0.07	-0.05	0.01	0.14	0.26	0.12	0.13	0.14
SL	0.03	0.02	0.13	0.06	0.05	-0.12	-0.20	-0.26	-0.15	-0.14

*Source: Author's Calculation*

**Figure 4 China and South Korea Services TC index 2010-2019**



*Source: Author's Calculation based on UNCTAD Database*

Referring to the trade in total services (figure 4), neither China nor South Korea has a competitive advantage in Service sector. The Trade Competitiveness index has always been negative for both countries, indicating that both China and South Korea are net importer of Services, which leads to the smaller comparative advantage in this sector. As for advanced economies such as the US, its TC index has always in above 0 (around 0.2) from 2010 to 2019.

## **China**

From 2010 to 2016, China's service trade competitiveness has been on a decline. In 2016, the TC index of China has dropped to the lowest level of -0.37 (within 2010-2019). It turned on to a slow but steady rising from 2017, but still hasn't turned to the highest level. Among all industries, Goods-related services (SPX4) has the highest TC, indicating a big net export in such industry. Construction (SE), telecommunication (SI) and other business services (SJ) also have TC index above 0 indicating a relative competitiveness in the international trade.

Even though the scale has expanded year by year, China is still mainly importing rather than exporting. So the trade competitiveness has not been improved very effectively. The result is consistent with the conclusions discussed by China's Service Trade Development Report released in 2020. As of 2020, China has ranked second in the global service import and export in terms of trade scale for seven consecutive years, having reached 661.72 billion U.S. dollars in 2020. The growth rate is higher than the world's average level, but TC still lies under South Korea. (MOFCOM, 2020) It is worth noting that the tourism has always been a dominant industry in China, but the Travel TC index of 2010-2019 has turned from nearly 0 to -0.76, indicating a significant increase in Travel imports or a decline in exports or both. Also, Charges for the use of intellectual property n.i.e. kept suffering from great disadvantages. Insurance and pension services, financial services of China had been more competitive in international trade.

## **South Korea**

From 2010 to 2019, the service trade competitiveness of South Korea was only slightly lower than that of China before 2011 and has been higher than China ever since. The continuous decline of China can be an explanation, but the steady development is an important part too. The TC index rose from -0.08 in 2010 to approximately 0 in 2014 and then encountered a drop from 2014 till 2017. In 2017, the TC index had declined to its lowest level at -0.17 within the ten years period. The improvement of South Korea's service trade is slow too in terms of the overall services (S). Specifically, when look at each industry in detail, construction (SE) holds the most competitive position among all categories with an average level about 0.65. South Korea's Transport (SC), Financial services (SG), Telecommunications, computer, and information services (SI), and Personal, cultural, and recreational services (SK) have turned to positive TC indexes during 2010 and 2019, indicating an increase export in international trade, among which, telecommunications, computer, and information services (SI) and Personal, cultural, and recreational services (SK) ushered big rises from -0.17 to 0.32 and -0.24 to 0.14.

➤ **Revealed comparative advantage index (RCA)**

**Table 5 China Services RCA 2010-2019**

China	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave
S	0.53	0.48	0.47	0.45	0.44	0.45	0.47	0.44	0.48	0.46	0.47
SPX4	2.83	4.6	3.57	3.56	4.11	4.18	3.9	3.64	4.02	3.74	3.82
SC	0.67	0.79	0.88	0.93	1.04	1.17	1.15	0.93	0.97	0.96	0.95
SD	1.71	1.30	1.47	1.45	1.41	1.22	1.32	1.22	1.08	1.05	1.32
SE	1.47	1.32	1.16	1.58	1.29	1.80	2.52	2.59	3.43	3.37	2.05
SF	0.19	0.23	0.25	0.39	0.28	0.34	0.44	0.54	0.48	0.90	0.40
SG	0.02	0.05	0.02	0.03	0.02	0.02	0.03	0.05	0.11	0.06	0.04
SH	0.06	0.04	0.07	0.04	0.04	0.05	0.07	0.05	0.08	0.07	0.06
SI	0.64	0.61	0.31	0.28	0.33	0.40	0.43	0.35	0.29	0.38	0.40
SJ	1.17	1.61	1.39	1.31	1.32	1.36	1.30	1.39	1.40	1.40	1.37
SK	0.05	0.05	0.05	0.14	0.12	0.22	0.27	0.06	0.06	0.07	0.11
SL	0.42	0.32	0.27	0.30	0.29	0.23	0.26	0.39	0.31	0.21	0.3

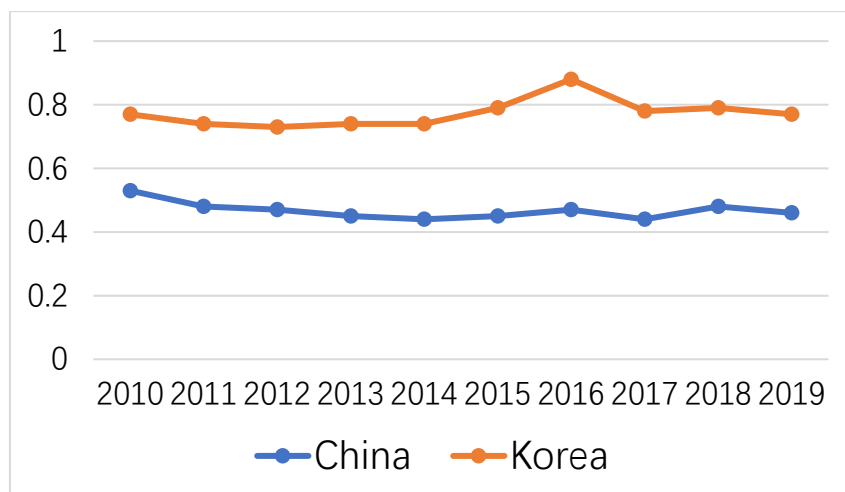
*Source: Author's calculation*

**Table 6 South Korea Services RCA 2010-2019**

South Korea	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Ave
S	0.77	0.74	0.73	0.74	0.74	0.79	0.88	0.78	0.79	0.77	0.77
SPX4	0.08	0.05	0.05	0.06	0.08	0.09	0.13	0.15	0.1	0.15	0.09
SC	2.00	2.30	2.31	2.16	2.07	2.09	2.17	1.99	2.17	1.92	2.12
SD	0.65	0.53	0.49	0.43	0.39	0.34	0.44	0.53	0.48	0.51	0.48
SE	3.34	2.80	2.94	4.29	5.30	5.43	5.41	7.01	5.57	6.66	4.80
SF	0.04	0.03	0.13	0.18	0.23	0.26	0.24	0.20	0.28	0.22	0.18
SG	0.36	0.31	0.37	0.48	0.58	0.65	0.55	0.42	0.44	0.48	0.46
SH	0.50	0.70	0.72	0.65	0.64	0.43	0.48	0.70	0.58	0.72	0.61
SI	0.57	0.43	0.44	0.38	0.46	0.32	0.32	0.37	0.39	0.35	0.40
SJ	0.88	0.83	0.79	0.80	0.77	0.81	0.59	0.65	0.76	0.79	0.77
SK	0.41	0.15	0.21	0.43	0.52	0.53	0.54	0.61	0.62	0.68	0.47
SL	1.55	1.45	1.37	1.29	1.23	1.14	0.77	0.80	0.64	0.72	1.10

*Source: Author's calculation*

**Figure 5. China and South Korea Services RCA index 2010-2019**



*Source: Author's calculation based on UNCTAD and World Bank*

Overall, as shown in figure 5, from 2010-2019, RCA of the two countries have been relatively stable. South Korea's revealed comparative advantage in services is greater than that of China with an average of 0.77. And the average RCA of China is 0.47. Except for 2016 when South Korea's RCA reached 0.88, neither China nor South Korea's average level is greater than 0.8 (according to JERTO's standard), meaning both countries' services trade are at comparative disadvantage. The international competitiveness of two countries' service trade is relatively weak. Similarly, if we look at US's RCA index in the same period, it has been fluctuating between 1.4~1.5, much higher than China and South Korea.

## **China**

Looking at the industries in detail, Goods-related services (SPX4) has an average RCA of 3.8, indicating a strong international competitiveness in this sector and is the most comparative industry among all services sector. The average RCA of Travel (SD), Construction (SE) and Other business services (SJ) are between 1.25 and 2.5, indicating a strong international competitiveness. But the advantage of Travel shows a declining trend, whereas Construction is increasing, from 1.47 in 2010 to 3.37 in 2019. Other business services is relatively stable. The RCA indexes of transportat (SC) and computer and information services (SI) have all been greater than 0.8 in recent years, indicating an average level in terms of trade competitiveness. The competitiveness of financial and licensing services is very weak with average RCA 0.04 and 0.05.

China has been transforming its service trade structure. The proportion consists of the traditional service industries such as transport (SC) and travel (SD) is declining. The proportions of higher-end industries of services, such as Insurance and pension services (SF), financial services (SG) have increased to some extent.

## **South Korea**

In comparison, South Korea's Goods-related services (SPX4) has a relatively low RCA with an average of less than 0.1. Construction (SE) as South Korea's traditional top industry kept growing from 3.34 in 2010 to 5.86 in 2019, with an average RCA 4.8. This shows a strong international competitiveness in its trade in construction services is. Transport (SC) also exhibits a comparative advantage with an average RCA of 2.12. Government goods and services (SL) has an average RCA of 1.10, being considered to have moderate international competitiveness. Although, there is a decline trend from 1.55 in 2010 to 0.72 in 2019. it is still relatively competitive among all service industries. The RCA of other industries mostly remained below 0.8, showing that the competitiveness is comparably weak. Among them, the disadvantages of Goods-related services (SPX4), Insurance and pension services (SF) are the most obvious.

### **➤ Global Value Chains Participation Index (GVCp)**

The author was not able to get the GVC participation results. But it is considered to be necessary to have a numerical support for the analysis of competitiveness in the perspective of global value chain. Therefore, this paper cited the results from Niu and Guo. (2017) The classification is based on ISIC Rev.4 database. (See Appendix Table 11) Same industries are re-noted in abbreviated forms used in EBOPS 2010.



**Table 9 China GVC Participation, 2005-2014**

China	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
S	2.81	2.95	3.28	3.64	5.06	4.46	4.50	2.05	2.02	2.03
Wholesale	0.15	0.15	0.23	0.27	0.37	0.33	0.34	0.22	0.24	0.24
Retail	0.11	0.11	0.05	0.06	0.08	0.07	0.07	0.13	0.14	0.26
SC_inland	0.27	0.27	0.29	0.30	0.38	0.35	0.35	0.01	0.01	0.01
SC_waterway	0.10	0.10	0.09	0.09	0.13	0.12	0.12	0.01	0.02	0.01
SC_air	0.07	0.08	0.09	0.09	0.13	0.12	0.12	0.65	0.60	0.46
SD	0.09	0.08	0.10	0.10	0.13	0.11	0.12	0.03	0.03	0.02
SI	0.22	0.22	0.22	0.24	0.32	0.29	0.30	0.04	0.03	0.04
SG	0.33	0.37	0.46	0.52	0.77	0.69	0.68	0.05	0.05	0.06
Real estate & other business services	0.70	0.73	0.83	0.90	1.29	1.13	1.14	0.46	0.45	0.47
Social public services	0.40	0.46	0.52	0.59	0.83	0.69	0.68	0.43	0.42	0.41

*Source: re-organized by auther based on Niu and Guo 2017*

**Table 10 South Korea GVC Participation, 2005-2014**

South Korea	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
S	2.72	2.80	2.68	2.32	2.45	2.32	2.26	2.13	1.97	2.01
Wholesale	0.12	0.13	0.12	0.08	0.10	0.10	0.09	0.11	0.11	0.10
Retail	0.24	0.25	0.23	0.19	0.21	0.22	0.21	0.13	0.13	0.12
SC_inland	0.17	0.17	0.17	0.15	0.15	0.15	0.14	0.04	0.04	0.04
SC_waterway	0.17	0.15	0.15	0.14	0.11	0.11	0.10	0.01	0.02	0.02
SC_air	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.13	0.17	0.13
SD	0.14	0.14	0.14	0.14	0.12	0.12	0.12	0.09	0.09	0.08
SI	0.40	0.40	0.36	0.29	0.33	0.29	0.28	0.05	0.05	0.06
SG	0.86	0.91	0.90	0.77	0.82	0.76	0.77	0.20	0.20	0.20
Real estate & other business services	1.11	1.16	1.07	0.87	0.98	0.92	0.90	1.15	0.94	1.03
Social public services	0.28	0.30	0.28	0.24	0.28	0.26	0.25	0.19	0.19	0.19

*Source: re-organized by author based on Niu and Guo 2017*

From 2004 to 2011, China's service sector's participation in global value chains showed an overall upward trend, staying above 3 on average, reaching a peak of 5.06 in 2009 and maintaining a relatively stable level, but declined from 2011 to 2014. This is related to the global economic downturn caused by the subprime financial crisis. The participation index shows that industries with relatively high sector participation include real estate leasing and other business service, financial services (SG), etc. The real estate leasing industry reached 1.14 in 2011, which is the highest industry sector in all service sector indexes. This shows that in China's service sector, real estate and other business service have a higher degree of participation in the global value chain than other domestic service industries. The

participation of inland transportation, waterway and air transportation (SC) are relatively low, with an average of about 0.1. In addition, China's tourism services and financial services have a relatively low degree of participation in intermediate goods services.

The participation of the South Korean service sector in the global value chain remained at an average of about 2.5, which was maintained at a relatively stable level throughout the selected period, but it declined slightly after 2011. Similar to China, some service sectors have relatively high levels of participation. For example, financial services (SG) participation in global value chain activities is the highest relative to other industries, with an overall upward trend, reaching an average of about 0.8. South South Korea's financial services industry actually have reached 0.56 in the late 1990s, which means that the its financial services participated in the global value chain earlier than many other service sectors.

➤ **Summary of Results**

**Table 12 Summary of Main Observations**

	<b>China</b>	<b>South Korea</b>
Overall Competitiveness	Lower	Higher
Most/Least competitive	SPX4 / SG	SE / SPX4
No deficits	<b>SPX4, SE, SI</b>	<b>SC, SE, SG, SI, SK</b>
Increasing trend	SD, SE, SF	SE, SF, <b>SG, SK, SI</b>
GVC participation	≈3.28	≈2.37

*Source: by author*

To summarize (table 12), from 2010 to 2019, the overall competitiveness of China is lower than that of South Korea, which is consistent with the result of existing

papers. Furthermore, two countries have comparative advantages in different service industries. China is most competitive in goods-related services (SPX4), financial services (SG) is the least competitive service industry in China. South Korea has an overwhelming advantage in Construction (SE). On the contrary, goods-related service is the least competitive industry in South Korea's service sector.

Moreover, considering the main industries in which the country has no trade deficits or have an increasing trend, the paper found out that China is more competitive in traditional services whereas, South Korea, except its dominant service industry-construction, is more competitive in new services.

And last, the GVC participation is found to be not active in either China or South Korea.

### **3.2 Discussion**

#### **➤ Difference in Factor Endowment**

The difference in factor endowment greatly explains the difference in South Korea and China's competitiveness level. The start of China's industrialization was only after the establishment of the People's Republic of China. It was not until the early 1990s that China ended the initial stage of industrialization. After 2010, industrialization entered the later stage, with output value and employment of non-agricultural industries exceeds 90%. After experiencing the rapid growth of the manufacturing industry, China has only begun to enter the stage of high-quality development through structural upgrading and other improvements in recent years. The prolonged development of the manufacturing has forced service sector to also revolve around the manufacturing, which has led to a very unbalanced competitiveness of China's service industry. Looking at two countries' export and import, China's service trade export industry is still dominated by primary factors of production, while industries dominated by advanced factors, such as financial

services, insurance services and other new service industries account for a very small share. On the other hand, South Korea, despite primary factors investment in the early stage, has invested more advanced factors, such as high-end technology and infrastructure construction. Compared with South Korea, China lacks senior talents, and the level of science and technology is not too high. This paper considers that the lack of advanced factor endowment is one of the main reasons why China's service competitiveness lags behind South Korea.

➤ **Discussion on IRCA VRCA SRCA and Traditional RCA**

As mentioned in Chapter2, Zhou in 2019 proposed a comparison among traditional RCA, IRCA, VRCA and SRCA, which integrates the global value chain activities and the RCA indicators. (See Table 7) Zhou concludes that RCA generally underestimates the comparative advantages of services sector. China is the most underestimated country in the G20 countries by traditional RCA. Among selected industries, financial services is the most undervalued. Compared with other G20 countries, China's services sector relies more on indirect value-added exports through other industries. The integration with other industries is more important for its services sector to enhance comparative advantage. And although China's participation in the services global value chain is relatively low, its share of income in it has increased significantly. Zhou reached this conclusion based on the data of 2005 and 2015, but still critically supplement this paper's result.

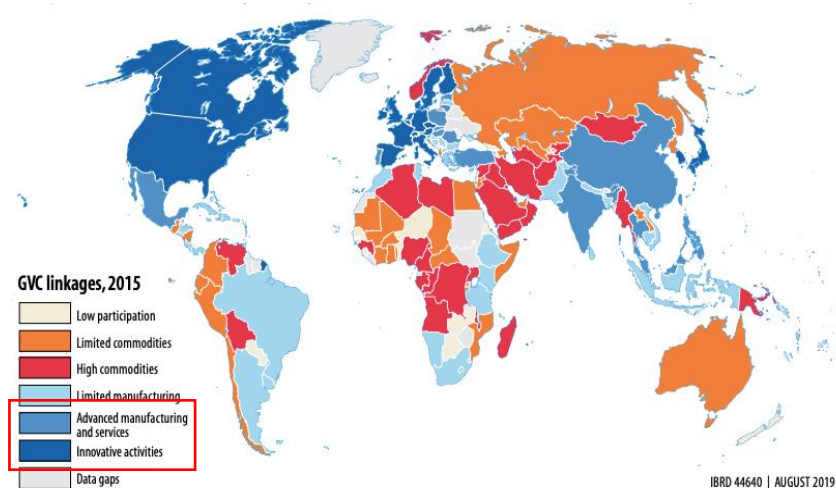
➤ **Global Value Chain to Global 'Innovation' Chain**

China's participation in global value chains is higher than that of South Korea. Although the degree is high and the scale is large, the participation of high value-added service industries is not as high as that of South Korea. Many Chinese scholars have also proposed that China should gradually shift from being embedded in the global value chain to being embedded in the global innovation chain. Only by participating in the global innovation chain at a high level can

China gain more competitiveness. To lay out the innovation chain around the industrial chain, the key is to promote the improvement of the innovation chain through the development of innovation-intensive industries driven by technological innovation.

It was mentioned in the 2020 World Development Report that all countries in the world are participating in the global value chain activities but are in the different way. As shown in Figure 6, despite the data that's missing, global value chain linkages are divided into 6 categories: Low participation, Limited commodities, High commodities, Limited manufacturing, Advanced manufacturing and services and Innovation activities.

**Figure 6 World GVC Participation 2019**



Source: Source: WDR 2020 team, based on the GVC taxonomy for 2015

South Korea, in dark blue, has already participated mainly in the innovative activities, creating high value added at the edges of the smile curve. However, China, in medium blue, is still participating the global value chain production activities mainly in the advanced manufacturing and services.

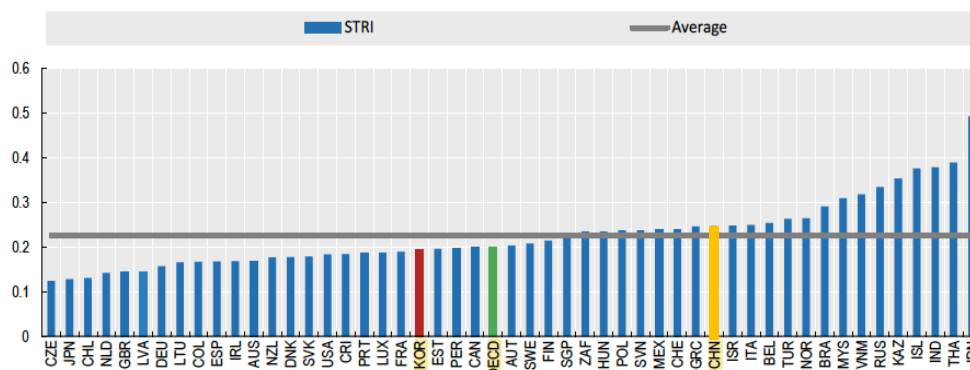
South Korea participated in global value chain production activities agilely. For example, the participation index of the financial services reached 0.56 as early as the end of the 1990s. Another example would be the success of Samsung's internationalization strategy. GVC management has become a critical business priority for many MNCs as it relates to the productivity and competitiveness of firms in the global market. (Moon 2016) With that in mind, by 2013, Samsung in total established sales offices in 50 countries and approximately 90% of Samsung's total revenue are from its international sale. Samsung has been trying to expand foreign facilities and R&D centers across the world. Apple, which has a relatively lower proportion of international sales at 60%, had Apple stores in 16 countries based on 2013 figures. Samsung also never stops to converge. Samsung work closely with firms in Japan, Europe, and other parts of the world to efficiently source their component parts. And since the competition is no longer among a small number of companies that sell final goods, MNCs, in this case, Samsung begin to aggressively utilize GVC to improve the competitiveness of their businesses. MNCs must excel in every part of their GVC activities to reap sustainable profit. This is very worth learning for China who is still mainly in the manufacturing stage of global value chain activities.

### ➤ **Government Regulation**

Government regulations in service sector impact a country's competitiveness mainly in two ways. First, regulations directly influent foreign investments and trade of terms. Second, global value chain activities and value chain upgrading are closely related to whether government regulations are open or not. Services trade restrictions index (0 to 1) indicates the degree of openness of a country's trade in services. Smaller values mean more openness. STRI database provides service trade policy information (including market access, national treatment clauses, domestic regulations) affecting service imports, covering finance,

telecommunications, retail, transportation, and professional services and the main trade patterns for each sector.

**Figure 2 Average STRI across Countries, 2021**



Source: OECD

The overall degree of openness in OECD and backward countries is relatively high, while it is more conservative in emerging economies. In figure 2, China lies above OECD average level, whereas South Korea is lower than that, indicating a relatively more open regulatory environment for services trade in South Korea. The government regulations in South Korea have been stable with no significant changes, and between 2014-2017, South Korea introduced reforms that liberalized most services sector, (OECD, 2021) making it a friendly environment for foreign investments.

Biryukova and Vorobjeva (2017) have used STRI and OECD-TiVA databases to study the impact of service trade liberalization on GVC participation and found that service trade restrictions had a negative impact on GVC participation, reducing transportation services, financial services. Such trade barriers and FDI barriers can reduce GVC participation and thus impact the country's economic development. Also, Ma (2019) has analyzed the impact on value chain upgrading. She argues that liberalization can promote skills upgrading, increase the innovation capacity of



firms, and increase productivity by better organizing production or introducing new technologies. The openness of China is relatively low compared to other countries in the STRI sample, indicating a restrictive regulatory environment for trade, but it has been increasing progressively over the past years due to regulatory reforms across different services sectors. However, despite progress on trade liberalization efforts, market access to certain key services sectors remains prohibited for foreigners or subjected to stringent conditions, such as telecommunication services and financial services.

### **3.2.1 Policy Implication**

#### **➤ Enhancing Investment in Intelligence**

The supply of factor endowment has an important impact on the development of services. Service is an intelligence-intensive industry, and the development prospects of a country's trade in services are closely related to the quality of its employees and the quality of services provided. China should increase the investment in higher factors, attach importance to talent education, introduce outstanding elites, and improve the level of education and technology. Through various incentive models or high-paying policies to guide outstanding talents to invest in new service industries, so as to gradually improve the imbalance of competitiveness

#### **➤ Opening up Service Market**

As mentioned, STRI is an important index indicating the level of openness of one country's certain services industry. Although China's services have achieved rapid development since its reform and opening up, compared with South Korea, it still lags behind. Innovation and adoption of technology depend on access to knowledge and to the networks, people, goods and services that spread that knowledge around the world. In this case, China could benefit from a more open market for trade in

services and from reforms that promote competition in key service sectors throughout the economy. (OECD, 2021)

### ➤ **Strengthening Value-added Production**

In terms of global value chain activities, nowadays, China's economic development has entered 'new normal'. The development is trapped in many problems such as capital withdrawal, rising costs, lack of talent, and factor diversion. Transformation and upgrading are needed. China needs to reconstruct GVC activities and to participate in high value-added activities. Take the smile curve as an example, China should strengthen the two edges, such as design and R&D. Extend to the high end and promote professional development of the local service industry. Utilize domestic and foreign high-quality services to deeply integrate into the global value chain production, enhance international competitiveness, thereby bringing long-term economic growth.

Chung Sunghoon once mentioned in a KDI report that The expansion of GVCS over the past two decades has widened the gap between the value of exports and domestic value added, reducing the unit contribution of exports to national economic growth. Therefore, policies now need to aim at creating added value rather than increasing total exports and focus on improving the competitiveness of inputs and productive activities. Regulatory reform in services is needed to remove unnecessary barriers to upgrading and foreign investment. (Chung, 2015)

To make more effective use of GVCS, shift the focus of the discussion from "what is sold at what price" to "how much added value is created and through what production activities". This applies to services sector in both China and South Korea.

## CHAPTER 4 : CONCLUSION

### 4.1 Summary of the Research

Since the 1980s, the proportion of service sector and service trade in the world economy has been increasing, which is an irresistible trend. If the country wants to maintain its competitiveness in the future, it must strengthen its service sector. After analyzing, the overall services sector, neither South Korea nor China is at a strong competitive position among advanced economies. Both countries have comparative advantage in different service industries. China's scale of services is greater than that of South Korea, whereas the value-added export and competitiveness are left behind South Korea. After comparing each industry of the service sector in terms of TC, RCA and GVC participation, it is concluded that China's service trade is taking advantage of traditional industries, but it should also vigorously develop knowledge and technology-intensive services and actively participate in the global value chain activities (especially forward participation) and transform into high factor endowment production. Also, it is important for both China and South Korea to keep liberalizing service trade to participate more in the open and advanced international market.

### 4.2 Limitation

**The year period selected excludes 2020**, ignoring the impact brought by the global pandemic. In long run, this is hard to entirely change the competitiveness or the structure of China or South Korea's services sector. Long term development is more related to the performance in global value chain activities and value-added production, which furthermore enhance a country's economic growth and international competitiveness. However, this paper ignored the short-term impacts

on service trade brought by the pandemic, especially under the huge increase in global segmentations that is greatly disrupted by the pandemic.

Besides, this paper mentions that in the context of the deepening of the global division of labor, traditional RCA cannot reflect the competitiveness of value-added exports, so other indexes are proposed as supplements. However, this paper ignores the **Competitive advantage index, that is, the CA index**, which is also an important indicator for analyzing the competitiveness of international trade. An industry may have both exports and imports, and the RCA index only considers the relative proportion of an industry's exports and does not consider the impact of imports of this industry. Vollratlh (1988) put forward the CA index, subtracting the comparative advantage of the industry's import from the comparative advantage of export, so as to obtain the real competitive advantage of the industry in the country.

Lastly, the **GVC participation may overestimate a country's dependence on other countries' inputs**. There is no doubt that the production of goods and services has become increasingly globalized since the 1970s, but this trend is one that is hard to measure. The best way would be to use firm-level trade and census data across countries, but such data are very rare (Bems and Kikkawa, 2021). Although global input-output databases can be used to measure the extent to which production processes have globalized in recent years, fully characterizing GVC participation by distinguishing between forward and backward linkages leads to overstating a country's dependence on other countries' inputs (Borin, Mancini and Taglioni, 2012). The concepts of forward and backward participation are important since exposure to foreign economic forces depends on the absolute and relative importance of forward and backward linkages in GVCs. But this distinction neglects the fact that GVC participation encompasses many activities that are linked simultaneously both forward and backward to entities abroad. In conclusion, most countries and sectors' participation in GVC activities is two-sided and twice as large as commonly believed.

## REFERENCE

- Borin, Alessandro; Mancini, Michele; Taglioni, Daria. (2021), Measuring Exposure to Risk in Global Value Chains. *Policy Research Working Paper*; No. 9785. World Bank, <https://openknowledge.worldbank.org/handle/10986/36314> License: CC BY 3.0 IGO.”
- Bo-Young Choi, Baram Lee, Jong-Hun Pek, (2018), An Analysis of Service Trade Regulations in Korea, China, and Japan and its Policy Implications. *KIEP World Economy Brief*, Vol.8 No.26, ISSN -2233-9140
- Chung, Sunghoon, (2015), Korea’s Participation in Global Value Chains and Policy Implications. *KDI Focus*, No.59
- Chun Kon Kim et al.(2017), Statistics of Trade in Services and Its Improvements. *Korea Institute for Industrial Economics & Trade*,  
[https://www.kiet.re.kr/kiet\\_web/main.jsp?sub\\_num=8&state=view&idx=54788&pageNo=1&pageNoS=18&pageNoA=4#none](https://www.kiet.re.kr/kiet_web/main.jsp?sub_num=8&state=view&idx=54788&pageNo=1&pageNoS=18&pageNoA=4#none)
- Coviello, N. E., Ghauri, P. N., & Martin, K. A-M. (1997). International competitiveness: Empirical findings from SME service firms. *Journal of International Marketing*, 6(2), pp. 8-27. McGraw-Hill (1995). *ENR (August 28)*, pp. 32-34.
- Dazhong, C. (2008). Development Level, Structure, and Impact of Producer Services in China: An International Comparison Based on Input-Output Approach. *Economic Research Journal*, 1, 76-88.

Fernandez-Stark, K., & Gereffi, G. (2019). Global value chain analysis: A primer. In *Handbook on global value chains*. Edward Elgar Publishing.

Francois, J., & Hoekman, B. (2009). *Services trade and policy*. CEPR Discussion Paper 7616. retrieved from <http://www.iadb.org/intal/intalcdi/PE/2009/04504.pdf>

Gu Guoda, Zhou Lei. (2010). Research on China's Trade in Producer Services Based on Global Value Chains. *Journal of International Trade*, 5.

Haven, T., & Marel, E. V. D. (2018). Servicification of Manufacturing and Boosting Productivity through Services Sector Reform in Turkey. *World Bank Policy Research Working Paper*, (8643).

Katharina Buchholz. (2020). The Global Decline of Manufacturing. *Statista*. <https://www.statista.com/chart/20148/manufacturing-value-added-as-percent-of-gdp-in-major-economies/>

Koopman, R., Z. Wang and S.-J. Wei, (2014), Tracing Value-added and Double Counting in Gross Exports. *American Economic Review* 104(2):459-494

Low, P. (2013). The role of services in global value chains. *Global value chains in a changing world*, 61-81.

Manual on Statistics of International Trade in Services 2010, *Annex I*, p. 145-148. <http://unstats.un.org/unsd/tradeserv/TFSITS/manual.htm>

Michael E. Porter. (1990). *The Competitive Advantage of Nations*.

International Business, *Harvard Business Review*.

Ministry of Commerce of the People's Republic of China. (MOFCOM). (2020). Report on China's Development of Trade in Services 2020

Mun, H. C., & Moon, H. C. (2016). *The strategy for Korea's economic success*. Oxford University Press.

OECD (1992), *Technology and the Economy: The Key Relationships*, Paris Cedex 16: *Organization for Economic*, pp. 1-328.

OECD Services Trade Restrictiveness Index (2021), Korea-2021, <https://www.oecd.org/trade/topics/services-trade/documents/oecd-stri-country-note-kor.pdf>

OECD (2021), OECD Inter-Country Input-Output Database, <http://oe.cd/icio>

Timmer, M. P., Dietzenbacher, E., Los, B., Stehrer, R., & De Vries, G. J. (2015). An illustrated user guide to the world input–output database: the case of global automotive production. *Review of International Economics*, 23(3), 575-605.

UNCTAD (2021). Global merchandise and services trade nowcast. (accessed 25 October 2021).

World Bank. (2020). *World Development Report 2020: Trading for Development in the Age of Global Value Chains*. Washington, DC: *World Bank*. <https://openknowledge.worldbank.org/handle/10986/32437> License: CC BY 3.0 IGO.”

WTO. (2019). Trade in Value-Added and Global Value Chains Profiles Explanatory Notes.  
[https://www.wto.org/english/res\\_e/statis\\_e/miwi\\_e/explanatory\\_notes\\_e.pdf](https://www.wto.org/english/res_e/statis_e/miwi_e/explanatory_notes_e.pdf)

Xin Zhou. (2022). RCA of Services Sectors of China in GVCs: Calculation and Comparison, *Journal of Shanghai University of International Business and Economics*(01), 77-95. doi:10.16060/j.cnki.issn2095-8072.2022.01.006.

X. Wenhua and C. Jianqing. (2010). Notice of Retraction: Analysis on the Circular Economy at Enterprise Level and Coupled Production Service, *2010 International Conference on E-Business and E-Government*, 733-736

Yingying Ma, (2019). Services Liberalization and Global Value Chains: Participation and Position. *Journal of International Trade* 7, 113-127.

刘昂,贺卉雯,明平会 (2007), 中韩服务贸易对比分析, *国商* Q1041

王直,魏尚进,祝坤福, (2015), 总贸易核算法:官方贸易统计与全球价值链的度量. *中国社会科学*,2015(9).

韩爱丽.(2017).中韩服务业国际竞争力比较研究 (黑龙江大学硕士学位论文).  
<https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201801&filename=1017145866.nh>

何茂春. (1995). 服务贸易及其在国际贸易中的地位. *财经界*, (4), 48-48.



牛蕊 & 郭凯頔.(2017).全球价值链视角下的中韩生产性服务贸易研究.天津市社会科学界联合会.(eds.)学习贯彻党的十九大精神 推进“五个现代化天津”建设——天津市社会科学界第十三届学术年会优秀论文集(中)(pp.37-44).天津出版传媒集团、天津人民出版社.

박정욱. (2020). 서비스산업의 부가가치기준 무역구조와 국제경쟁력 분석  
<https://oak.chosun.ac.kr/handle/2020.oak/15745>

김천곤·강민성·박문서(2017). 서비스무역 통계현황 및  
개선방안,*KIET 연구보고서*, 2017-866

## APPENDIX

**Figure 3 China's Trade in Services**



*Source: Ministry of Commerce People's Republic of China 2021*

**Table 1 RCA, VRCA, IRCA and SRCA**

Indicators	Basis	Description	Measurement in OECD-TiVA
RCA	$X_{ij}$	Export of country i service j	Total export of Country i service j
VRCA	$V_{ij}$	Value-added of j service included in total export of country i	(Country i as the exporter, all industries as exporting industries) value-added in the total export from country i service j
IRCA	$I_{ij}$	GVC income of country i service j	Industry j as final demand industry, world as final demand country, the value-added from all industries in country i
SRCA	$S_{ij}$	Value-added provided by county i service j to the manufacturing in GVC	Manufacturing industry as final demand industry, world as final demand country, the value-added from country i service j

*Source: re-organized by author based on Zhou's description*

**Table 2 EBOPS 2010 moved to appendix**

Name	Code	Description
Service	S	Total services
Goods-related services	SPX 4	Covers: Manufacturing services on physical inputs owned by others and Maintenance and repair services n.i.e.
Transport	SC	Include all transport services involving the carriage of people and objects from one location to another as well as related supporting and auxiliary services. Also included are postal and courier services.
Travel	SD	Travel is defined as covering goods and services for own use or to be given away, acquired from an economy, by non-residents during visits to that economy. It covers stays of any length, provided that there is no change in residence. Travel includes goods and services acquired by persons undertaking study or medical care while outside the territory of residence. It also includes acquisitions of goods and services by seasonal, border and other short-term workers in the economy of employment.
Construction	SE	Construction covers the creation, renovation, repair, or extension of fixed assets in the form of buildings, land improvements of an engineering nature, and other such engineering constructions as roads, bridges, dams, and so forth. It also includes related installation and assembly work. It includes site preparation and general construction as well as specialized services such as painting, plumbing, and demolition. It also includes management of construction projects.
Insurance and pension services	SF	Insurance and pension services include services of providing life insurance and annuities, nonlife insurance, reinsurance, freight insurance, pensions, standardized guarantees, and auxiliary services to insurance, pension schemes, and standardized guarantee schemes.
Financial services	SG	Financial services cover financial intermediary and auxiliary services, except insurance and pension fund services. These services include those usually provided by banks and other financial corporations.
Charges for the use of intellectual	SH	Charges for the use of intellectual property n.i.e. include: (a) charges for the use of proprietary rights (such as patents, trademarks, copyrights, industrial processes and designs including trade secrets, franchises) and

property n.i.e.		(b) charges for licenses to reproduce or distribute (or both) intellectual property embodied in produced originals or prototypes (such as copyrights on books and manuscripts, computer software, cinematographic works, and sound recordings) and related rights (such as for live performances and television, cable, or satellite broadcast).
Telecommunications, computer, and information services	SI	(1) Telecommunications services encompass the broadcast or transmission of sound, images, data, or other information by telephone, telex, telegram, radio and television cable transmission, radio and television satellite, electronic mail, facsimile, and so forth, including business network services, teleconferencing, and support services. They do not include the value of the information transported. Also included are mobile telecommunications services, Internet backbone services, and online access services, including provision of access to the Internet. Excluded are installation services for telephone network equipment (included in construction) and database services (included in information services). (2) Computer services consist of hardware- and software-related services and data-processing services. They exclude noncustomized packaged software (systems and applications), and video and audio recordings on physical media; computer-training courses not designed for a specific user; and leasing of computers without an operator. (3) Information services include news agency services, such as the provision of news, photographs, and feature articles to the media. Other information provision services include database services, direct non-bulk subscriptions to newspapers and periodicals, other online content provision services, and library and archive services.
Other business services	SJ	Other business services cover research and development, professional and management consulting and technical, trade-related and other business services.
Personal, cultural, and recreational services	SK	Personal, cultural, and recreational services consist of (a) audiovisual and related services and (b) other personal, cultural, and recreational services.
Government goods and	SL	Government goods and services n.i.e. cover: (a) goods and services supplied by and to enclaves, such as embassies, military bases, and international organizations;

services n.i.e.	(b) goods and services acquired from the host economy by diplomats, consular staff, and military personnel located abroad and their dependents; and (c) services supplied by and to governments and not included in other categories of services.
--------------------	---

*Source: Organized by author based on UNSTAT EPOBS 2020*

**Table 7 RCA, VRCA, IRCA and SRCA of Services in 2005 and 2015**

	RCA of Services							
	RCA		VRCA		IRCA		SRCA	
	2005	2015	2005	2015	2005	2015	2005	2015
Financial services	0.02	0.02	0.34	1.08	0.45	0.6	0.53	1.57
Other business services	0.14	0.08	0.24	0.38	0.55	0.59	0.28	0.57
Education	0.03	0.01	0.05	0.09	0.77	0.87	0.12	0.2
Telecommunications, comp	0.07	0.05	0.17	0.12	0.39	0.48	0.35	0.34
Transport	0.53	0.46	1.06	0.92	0.86	0.68	1.26	1.12
Real estate	0.11	0.05	0.23	0.44	0.54	0.64	0.26	0.58
wholesale repairment	0.49	0.57	0.67	0.93	0.49	0.57	0.58	0.86
Personal, cultural, and recre	0.18	0.06	0.63	0.88	0.66	0.69	1.18	1.44
Government goods and ser	/	/	0.06	0.13	0.68	0.68	0.09	0.16

*Source: Re-organized by author based on Zhou's paper 2019*

**Table 8 IMS of China and South Korea's Services Exports 2010-2019**

Name	Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average
services	CHN	0.045	0.045	0.044	0.042	0.042	0.044	0.041	0.041	0.045	0.045	0.043
	KOR	0.021	0.020	0.022	0.021	0.021	0.020	0.019	0.016	0.016	0.016	0.019
Goods-related services	CHN	0.197	0.184	0.176	0.149	0.129	0.147	0.131	0.123	0.126	0.127	0.149
	KOR	0.018	0.017	0.019	0.019	0.019	0.018	0.015	0.013	0.012	0.010	0.016
Transport	CHN	0.041	0.039	0.043	0.040	0.039	0.043	0.039	0.039	0.041	0.044	0.041
	KOR	0.047	0.041	0.045	0.040	0.038	0.038	0.032	0.026	0.027	0.026	0.036
Travel	CHN	0.048	0.045	0.045	0.043	0.035	0.037	0.036	0.029	0.028	0.024	0.037
	KOR	0.011	0.011	0.012	0.012	0.014	0.012	0.014	0.010	0.011	0.012	0.012
Constructio	CHN	0.168	0.155	0.128	0.111	0.142	0.174	0.144	0.223	0.230	0.252	0.173
	KOR	0.139	0.163	0.206	0.211	0.179	0.128	0.134	0.099	0.110	0.082	0.145
Insurance and pension services	CHN	0.018	0.028	0.029	0.031	0.034	0.041	0.032	0.031	0.035	0.034	0.031
	KOR	0.005	0.005	0.004	0.005	0.006	0.006	0.005	0.008	0.006	0.005	0.006
Financial services	CHN	0.004	0.002	0.004	0.007	0.010	0.005	0.007	0.008	0.007	0.008	0.006
	KOR	0.005	0.004	0.004	0.003	0.003	0.004	0.004	0.005	0.005	0.006	0.004
Charges for the use of intellectual	CHN	0.003	0.003	0.004	0.003	0.002	0.003	0.003	0.012	0.013	0.016	0.006
	KOR	0.013	0.016	0.014	0.014	0.017	0.020	0.020	0.019	0.019	0.018	0.017
Telecomm unications, computer, and informatio n services	CHN	0.034	0.038	0.043	0.041	0.043	0.054	0.054	0.052	0.074	0.079	0.051
	KOR	0.003	0.004	0.004	0.005	0.006	0.007	0.008	0.009	0.008	0.009	0.006
Other business services	CHN	0.052	0.060	0.052	0.055	0.060	0.054	0.051	0.050	0.052	0.052	0.054
	KOR	0.014	0.014	0.017	0.017	0.018	0.018	0.018	0.017	0.016	0.017	0.017
Personal, cultural, and recreational	CHN	0.002	0.002	0.002	0.003	0.003	0.011	0.011	0.010	0.014	0.013	0.007
	KOR	0.008	0.009	0.011	0.013	0.015	0.014	0.017	0.013	0.013	0.014	0.013
Goverme nt goods and services	CHN	0.014	0.010	0.013	0.017	0.014	0.015	0.017	0.024	0.023	0.020	0.017
	KOR	0.015	0.016	0.016	0.016	0.015	0.015	0.013	0.014	0.014	0.017	0.015

*Source: Author's calculation*

**Table 11 International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4**

Section	Divisions	Description
A	01-03	Agriculture, forestry and fishing
B	05-09	Mining and quarrying
C	10-33	Manufacturing
D	35	Electricity, gas, steam and air conditioning supply
E	36-39	Water supply; sewerage, waste management and remediation activities
F	41-43	Construction
G	45-47	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	49-53	Transportation and storage
I	55-56	Accommodation and food service activities
J	58-63	Information and communication
K	64-66	Financial and insurance activities
L	68	Real estate activities
M	69-75	Professional, scientific and technical activities
N	77-82	Administrative and support service activities
O	84	Public administration and defence; compulsory social security
P	85	Education
Q	86-88	Human health and social work activities
R	90-93	Arts, entertainment, and recreation
S	94-96	Other service activities
T	97-98	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	99	Activities of extraterritorial organizations and bodies

*Source: UNSTAT*

# 한중 서비스업의 경쟁력 - 서비스 무역 및 글로벌 가치사슬 참여 분석을 중심으로

## 초록

국내총생산(GDP)에서 차지하는 제조업의 점진적인 감소와 함께, 경제 성장과 국제 무역에서 서비스 산업의 중요성은 점점 더 두드러지고 있다. 서비스 산업의 성과는 한 나라의 경쟁력을 평가하는 중요한 기준이 되었다. 한편, 세계화의 심화와 함께 국제 분업과 생산 활동이 매우 활발히 이루어지고 있으며, 국제 무역과 글로벌 가치사슬 참여는 경쟁력 분석의 중요한 지표가 되었다. 중국과 한국은 오랜 기간 동안 무역파트너로서 지리적으로 인접해 있으며 유사한 산업 구조를 가지고 있다. 본 연구에서는 중국과 한국의 서비스 산업의 경쟁력을 비교하기 위하여 무역경쟁력지수, 비교우위지수, 글로벌 가치사슬 참여 등을 적용하였다. 본 연구를 통하여 두 나라 모두 세계 선진국과 비교 시 경쟁력이 떨어진다는 결과를 얻을 수 있다. 두 나라 모두 우세한 서비스 산업을 보유하고 있지만 한국의 종합적인 경쟁력은 중국보다 높았다. 연구결과를 토대로 본 연구에서는 요소 부존, 글로벌 가치사슬 혁신적 생산, 정부규제 등 세 가지 측면에서 양국의 차이점을 논의하고, 국가경쟁력 향상을 위하여 첨단산업 투자 강화, 서비스 산업 시장 자유화, 글로벌 가치사슬 참여 전환 등을 제시하였다.

**키워드:** 중국, 한국, 서비스 무역, 무역 경쟁력, 비교 우위, 글로벌 가치사슬

**학생번호:**2020-28769



