한국의 각 대륙별 수출입 동향과 수출 증대방안
Trends of Import and Export by Each Continent in Korea and Plans to Increase Exports

최수호
서강대학교 경영학부

Soo-Ho Choi(shchoi88@sogang.ac.kr)

요약

본 연구의 목적은 각 대륙별 한국의 수출입액 동향을 살펴보고, 향후 한국 수출을 증대하기 위한 방안을 찾아보는데 있다. 각 대륙은 아시아, 유럽, 북미, 중남미, 중동을 선정하였다. 분석기간은 2000년 1월부터 2018년 4월까지 총 220개월이며, 관세청에서 자료를 수집하였다. 회귀분석결과, Coefficient가 아시아, 유럽, 북미, 중동, 중남미 순으로 높게 나왔다. 각 대륙별 시장은 서로 독립적으로 움직이고, t통계량과 p-value(≦0.01)에서 통계적으로 유의하게 산출되었다. 최근 유럽, 중동, 중남미가 새로운 시장으로 부각되고 있다. 향후 한국의 수출 증대를 위해서는 중국과 동남아시아를 비롯한 아시아 시장에 대한 지속적인 관심이 필요하다. 또한 새로운 시장으로 떠오르는 유럽, 중동, 중남미에 대한 수출비중을 높이기 위해 효율적인 대응전략을 마련해야 한다.

■ 중심어 : | 수출입 동향 | 아시아 | 북미 | 유럽 | 중남미 | 중동 |

Abstract

The purpose of this study is to examine the trends of import and export of Korea by each continent and to find ways to increase export to Korea in the future. Each continent selected Asia, Europe, North America, Central and South America, and the Middle East. The analysis period was 220 months from January 2000 to April 2018, and data were collected from the KCS. Regression analysis showed that the coefficient was higher in Asia, Europe, North America, Middle East and Latin America. The markets of each continent moved independently of each other and were statistically significant at t statistic and p-value(≤0.01). As a result of this study, Asia and North America have been major export markets in Korea. Europe, the Middle East and Central and South America are emerging as new markets in Korea. In order to increase Korea's exports in the future, there is a need for continued interest in Asian markets including China & Southeast Asia.

■ keyword : | Import & Export Trend | Asia | North America | Europe | Central & South America | Middle East |

I. Introduction

Korea is highly dependent on trade, so it has a high share in the national economy. The Korean economy is heavily influenced by the global economy. Korea recorded a trade surplus in Asia (exports of $ 284.3

billion, imports of $ 201.9 billion), North America, Central & South America, and recorded deficits in Europe, the Middle East and Oceania. In 2017, total exports are in the order of semiconductors (17.1%), ships (7.4%), automobiles (7.3%)[1].

Semiconductor, the flagship of Korea's exports, continues to grow as memory demand for smartphones and enterprise servers. Semiconductors exported $ 99.7 billion in 2017, surpassing $ 90 billion in annual exports for the first time as a single item. The major exporting countries are China (39.5%), Hong Kong (27.2%), Vietnam (9.3%), the US (4.5%), Taiwan (4.4%), Philippines (94.3%), Singapore (3.2%). We expect that Asia-oriented exports will gradually expand to each continent. Demand for semiconductors is expected to steadily increase in the future due to investments in AI, IOT, and autonomous vehicles[2].

Korean cosmetics exports reached a peak of $3.92 billion in 2017. China's demand is recovering and as the export market is diversified to Vietnam and EU. Cosmetics exports came in the order of China, Hong Kong, US, Japan and Thailand. Korea exported $1.46 billion to China and $120 million to Vietnam and expects to expand further. Korea exported $111 million to the EU, an increase of 515.2% over the 2013. Cosmetics exports to France and the United Kingdom are rising significantly. Korea exported $8,000 to Russia, up 393.7% from 2013. The world-wide 'K-beauty' has been linked to Russia[3].

The purpose of this study is to examine the trends of Korea 's exports by each continent and find ways to increase exports to Korea in the future. Each continent selected Asia, Europe, North America, Central & South America, and the Middle East. The analysis period was from January 2000 to April 2018 using a total of 220 monthly data. In this study, we try to perform numerical analysis, index analysis, and model analysis using SPSS, e-Views, and Excel.

II. Precedent Research

1. Asia

Won & Lee (2017) analyzed the impact of Korea on ASEAN exports. The results of the analysis are as follows. First, Japan's ASEAN market share was replaced by China. Second, the export competition between Korea, China and Japan is becoming more intense. Third, the economic growth of ASEAN is increasing Korea's exports to ASEAN[4]. Lim & Lee (2016) analyzed that Korea's FDI improves the export structure in Southeast Asia. The improvement effect was significant in capital-intensive industries, and the export effect was greater in high-income and low-income countries. The 2008 global financial crisis worsened the export structure to capital-intensive industries[5]. Kim (2014) analyzed the determinants of Korea's exports to Southeast Asia. Southeast Asian exports have increased for a long time due to Korea's real GDP, real exchange rate, FDI, and increased production capacity[6].

Kim (2017) analyzed the impact of Korea's investment in China on US exports. As a result, Korea 's direct investment in China has replaced exports to the United States. The substitution effect in consumer goods exports was larger[7]. Kim (2015) analyzed the impact of China and the US on the Korean economy. The importance of China is increasing, but the role of the United States is gradually declining. China's influence is rapidly expanding in Korea, Taiwan, Australia and Indonesia, so it is overwhelmingly influential in America[8]. Kim (2011) investigated the effect of exchange rate and economic activity on Korea's export and imports in Southeast Asia. In the case of exports, the elasticity of the exchange rate is in Indonesia, and the income elasticity is in Vietnam. In the case of imports, both income and exchange rate elasticity were significant

in Vietnam. The elasticity of trade shows that imports are larger than exports, export market expansion is limited[9].

2. Europe

Kang (2016) looked at the impact of the economic downturn in Europe on Korea′s EU exports. Korea′s exports are heavily dependent on the EU′s economic growth. Korea should change its FDI and export structure considering the business cycle of its trading partners[10]. Utai Uprasen (2017) examined the impact of Korea′s export of machinery and transportation equipment to the EU. China′s increase in exports to Europe can be attributed to a decline in Korea′s exports. However, China′s export growth has a complementary effect on Korea′s exports. Most Korean export industries are not affected by China′s export growth[11]. Kim & Kim (2015) looked at the increase in exports to Slovenia, Slovakia, Estonia and Latvia, which have recently joined the eurozone. As a result, although the share of exports in four countries did not increase, the degree of specialization of export industry showed a relatively large increase compared to other countries[12].

Utai Uprasen (2015) analyzed the substitution effects of Korea and the US on export competition in the EU. As a analysis result, Korea could face greater risks than the US to export to the EU. Therefore, in order for Korea to enter the EU, it needs to improve its competitiveness by Industry[13]. Kim (2012) compared and analyzed the international competitiveness of Korean and EU shipbuilding industries. As a result of the analysis, the effect of the 2008 global financial crisis on Korea′s exports has a statistically significant negative(−) effect, and Korea′s EU shipbuilding exports have been reduced[14].

3. USA

Seo & Kang (2016) studied the export competitiveness of Korea and China in the US market. Results first, Korea has a dominant market share in commodity code 27 than China. Second, the resilience between the two countries′ exports is inelastic[15]. Park (2014) analyzed the impact of US quantitative easing on Korea・US trade relations. Research result, the US and Korea showed no significant change in export competitiveness due to quantitative easing. This is because Won/$ remains stable and some exports are competitive in the US market[16].

Shim (2017) analyzed the comparative advantage with the US in the export industry before and after the FTA. As a result, first, it seeks to balance loss and profit while enhancing trade competitiveness for services. Second, comparative disadvantages items should strengthen competitiveness, and comparative advantage items should strengthen responsiveness. Cost reduction and price competitiveness will continue to increase[17]. Ak, Kim, Park (2017) studied the effect of US TBT (Technical Barriers to Trade) on Chinese exports. US TBT regulations and economic variables can affect Chinese exports[18]. Lee (2016) studied the impact of the US export insurance system on export promotion. As a result, there is one cointegration vector between export supply, export insurance, and export relative prices. The US export insurance system is not statistically significant for export promotion[19].

4. Central & Southern America

Kim & Lee (2016) analyzed the relationship between Korea′s Central & Southern America ODA (Official Development Assistance) and economic cooperation. As a result, ODA showed a weak positive(+) relationship with exports and FDI. Korea′s

economic cooperation with Central and South America's ODA has been relatively weak[20]. Choi (2012) studied the prospect of Latin American automobile exports and countermeasures after the conclusion of the FTA. As a result, GDP showed a strong correlation with export performance among exchange rate, GDP, and oil price. Automobile exports to Central & Southern America are strongly linked to the economic situation in Central & Southern America. Therefore, countermeasures against the construction of local production systems are needed[21]. Yoon (2013) looked at the ZPE (Zona de Processamento de Exportação) that Brazil has been implementing since 2007. Brazil is a new phase of economic development, and it needs fundamentally structural changes for babies. Therefore, the foreign-oriented EPZ policy is very important[22].

5. Middle East

Hur at al (2016) analyzed the causal relationship between economic growth, oil exports and oil consumption in the United Arab Emirates, Iran, Bahrain, Kuwait, Iraq, Oman, Saudi Arabia. The analysis shows that the UAE, Bahrain, and Oman have a long-term balance between economic growth and oil consumption. Saudi Arabia, Iran and Iraq have long-term balances between economic growth and oil exports. Kuwait does not have a long-term balance of economic growth, oil exports and oil consumption. The study suggests how the Middle East countries should grow in the future[23].

Seo (2015) suggested the need for Korea to enter the Middle East export market. Korean companies need to enter the Iranian market. Iran is a hub connecting Asia·Europe·the Middle East, and bordered by seven countries. Korea and Iran are expected to have the most economic impact in construction. The automobile market in Iran is also a major market of Korea. Korea will have to export finished cars, auto parts, steel plates and tires to Iran. In addition, project orders for power generation, chemical and refining industries are expected. In order to enter the Iranian market in the future, more detailed measures should be taken[24].

KOTRA (2012) suggested that the Middle East is emerging as the main export market of Korea. Exports rose by 13.7% from January to June 2012, marking the largest increase by continent. In particular, Saudi Arabia is the largest exporter in the Middle East, up 20.1%. The proportion of exports also increased from 6.8% (2011) to 7.7% (2012). Korea's exports to the Middle East in 2012 are expected to exceed $ 40 billion. The Middle East market is regarded as the most important market to achieve $ 2 trillion in Korean trade[25].

III. Data Collection & Export by each Continent

1. Data Collection

In this study, we will examine the export trends of Korea by each continent and the ways of export increase in the future. Each continent is divided into Asia, Europe, North America, Central and South America, and the Middle East. The data required for this study were collected from the trade statistics of the Korea Customs Service. The analysis period for each continent was 220 months from January 2000 to April 2018, and monthly data were used.

[Table 1] shows representative countries in each continent. For convenience, Korea's total exports are Korea, Asia exports to Asia, Europe exports to Europe, and North America exports to Nor. Ame., Central and South America exports to C&S Ame., Middle East exports to M&E Asia. The monthly data

used in this study were numerical analysis, indicator analysis, and model analysis using Excel, SPSS and e-views. We will examine the extent to which each continent's exports account for Korea's total exports and what continent's exports will increase in the future. We also compare export trends and growth rates for each continent.

Table 1. Countries in each continent

Continent	Countries
Asia	China, Vietnam, Hong Kong, Japan, Taiwan, India, Singapore, Philippines, Indonesia, Malaysia, Thailand, Turkey etc.
Europe	Germany, Russia, UK, Netherlands, Italy, Netherlands, Poland, France, Belgium, Spain, Slovakia, Czech Republic, Denmark etc.
North America	United States, Canada
Central & South America	Mexico, Brazil, Panama, Chile etc.
Middle East	Saudi Arabia, United Arab Emirates, Iran, Iraq etc.

2. Export Trend by each Continent

[Table 2] shows the export situation by region. As of June 2018, Asia, the EU, North America increased, and the Middle East, Central & South America decreased. South East Asia (including Hong Kong, Singapore and Taiwan) was $13.91 billion (11.8%), China was $13.84 billion (29.7%), Vietnam $3.94 billion (8.7%), Japan was $26 billion (10.7%). The EU was worth $4.5 billion (1.4%). By country, 16 countries including Germany (22.1%), Italy (39.3%), Poland (37.9%) and France (32.3%) increased, and 12 countries including Britain (△33.3%), Netherlands (△9.9%), Slovenia (△24.7%) decreased. The US recorded $6.43 billion (7.6%). The Middle East was $1.83 billion (−10.4%). By country, 8 countries including Iraq (112.3%), Egypt (25.7%), Israel (7.0%), Oman (12.9%) increased, and 8 countries including UAE (△14.1%), Iran (△11.9%), Saudi Arabia (△39.3%), Kuwait (△8.3%) decreased.

Table 2. Export Performance by Region

(Unit : US $ millions, %)

	June '17	'June '18	Rate of change	2017 January to June	2018 January to June	Rate of change
Total Export	51,272	51,185	△0.2	279,105	297,185	6.5
USA	5,981	6,434	7.6	33,994	34,457	1.4
Japan	2,351	2,602	10.7	13,213	15,243	15.4
E U	4,397	4,461	1.4	27,915	28,594	2.4
Australia	4,945	959	△80.6	12,069	5,073	△58.0
Canada	468	515	10.0	2,555	2,879	12.7
E&S Asia	12,444	13,917	11.8	71,147	80,412	13.0
(Vietnam)	4,319	3,943	△8.7	23,292	23,554	1.1
(HongKong)	3,198	4,376	36.8	17,699	23,040	30.2
(Singapore)	978	736	△24.7	5,298	5,681	7.2
(Taiwan)	1,231	1,640	33.2	7,248	8,458	16.7
Middle East	2,037	1,826	△10.4	12,657	11,757	△7.1
China	10,675	13,844	29.7	65,446	79,234	21.1
C&S Ame.	2,430	2,247	△7.6	13,696	13,861	1.2
CIS	1,215	872	△28.2	4,913	5,190	5.6
Eastern Europe	948	1,087	14.7	5,856	6,723	14.8

CIS (Commonwealth of Independent States) : In 2014, the constituent countries are nine countries including Russia, Belarus, Moldova, Kazakhstan, Uzbekistan, Tajikistan, Kyrgyzstan, Armenia and Azerbaijan.
Source : Korea Customs Service, Statistics archive, Press Releases (July 16, 2018) [26].

[Table 3] shows the balance of trade by region. Korea's trade surplus for the 77th consecutive month from February 2012 to June 2018 has been recorded. As of June 2018, major surplus countries are

Southeast Asia ($7.55 billion), China ($5.14 billion), Vietnam ($2.41 billion) and the United States ($1.68 billion). The main deficit countries are Middle East (-63.5 billion $), Japan (-18.44 billion $), Australia (-710 million $) and EU (-600 million $).

Table 3. Trade Balance by Region

(Unit : US $ millions, %)

	June '17	June '18	Rate of change	2017 January to June	2018 January to June	Rate of change
Total Export	10,721	6,240	-4,481	44,878	32,055	-12,823
USA	1,175	1,677	502	7,959	5,548	-2,411
Japan	-2,422	-1,842	581	-13,893	-12,770	1,123
E U	-905	-630	275	336	-3,746	-4,082
Australia	3,256	-705	-3,961	2,347	-4,677	-7,024
Canada	-45	72	118	-54	0	54
E&S Asia	6,432	7,545	1,114	35,747	41,739	5,992
(Vietnam)	3,140	2,410	-730	16,024	14,164	-1,861
(HongKong)	3,069	4,224	1,156	16,829	21,959	5,130
(Singapore)	196	171	-24	971	1,584	613
(Taiwan)	-206	295	501	-1,656	69	1,725
Middle East	-3,175	-6,349	-3,174	-21,837	-30,606	-8,769
China	2,324	5,137	2,813	17,701	27,391	9,690
C&S Ame.	1,054	444	-610	5,641	3,414	-2,227
CIS	188	-600	-788	-1,354	-3,685	-2,331
Eastern Europe	640	835	195	4,337	5,197	860

Source : Korea Customs Service (2018) [26]

IV. Empirical analysis

1. Numerical Analysis

[Table 4] shows the descriptive statistics of total exports to Korea and exports by each continent. The average was higher in Central & South America (2.962%), Middle East (1.699%), Europe (1.488%), Asia (1.035%), North America (1.027%), Korea (0.969). Standard deviations were highest in Central & South America (22.5), Middle East Asia (14.5), Europe (13.8), North America (11.5), Korea (8.1) and Asia (7.5). The skewness is a positive(+) value with a long tail to the right. The kurtosis shows a very dense normal distribution with values of 3 and 4.

Table 4. the Descriptive Statistics

	Korea	Aaia	Europe	Nor. Ame.	C&S_Ame	M&E_Asia
Mean	0.969	1.035	1.488	1.027	2.962	1.699
Median	0.492	0.454	0.837	-0.418	0.996	1.665
Maximum	24.918	23.952	53.756	36.549	85.424	60.665
Minimum	-22.283	-25.683	-33.481	-28.112	-46.226	-34.491
Std. Dev.	8.107	7.576	13.881	11.549	22.509	14.507
Skewness	0.134	0.271	0.439	0.523	0.591	0.466
Kurtosis	3.207	3.834	3.714	3.490	3.623	4.089
Jarque-Bera	1.052	9.083	11.752	12.268	16.382	18.834
Probability	0.590	0.010	0.002	0.002	0.000	0.000
N	220	220	220	220	220	220

[Table 5] shows the correlation of exports by each continent. The correlation was highest in Asia (0.882), North America (0.785), Europe (0.705), Middle East (0.658) and Central & South America (0.372) for

Korea. Correlation coefficient between Asia and North America is as high as 0.710. [Table 6] shows that regression analysis in which Korea is a dependent variable and each continent's export is an independent variable. Coefficient was 0.546 in Asia, 0.182 in Europe, 0.103 in North America, 0.079 in Middle East and 0.056 in Central and South America. When Asia's exports rise by one, Korea is up 0.546.

Adjusted R-squared was 0.941, and the dependent variable (Korea) showed an explanatory power of 94.1%. The Durbin-Watson stat value is 2.836, which is close to 2, meaning a market that moves independently of each other. The t-statistics and p-value($\leq$ 0.01) for each continent were statistically significant.

Table 5. Correlation

	Korea	Aaia	Europe	Nor. Ame.	C&S_Ame	M&E_Asia
Korea	1					
Aaia	0.882**	1				
Europe	0.705**	0.475**	1			
Nor. Ame.	0.785**	0.710**	0.516**	1		
C&S Ame	0.372**	0.207**	0.143*	0.213**	1	
M&E_Asia	0.658**	0.575**	0.336**	0.545**	0.208**	1

** : The correlation is significant at level 0.01. * : The correlation is significant at level 0.05.

Table 6. Regression Analysis: Dependent Variables - Korea

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Asia	0.546	0.026	20.656	0.000
Europe	0.182	0.011	16.169	0.000
Nor. Ame.	0.103	0.017	5.918	0.000
C&S_Ame	0.056	0.006	9.335	0.000
M&E Asia	0.079	0.011	6.904	0.000
R-squared	0.942	Mean dependent var		0.969
Adjusted R-squared	0.941	S.D. dependent var		8.107
S.E. of regression	1.954	Akaike info criterion		4.201
Sum squared resid	821.731	Schwarz criterion		4.278
Log likelihood	−457.123	Hannan-Quinn criter.		4.232
Durbin-Watson stat		2.836		

2. Indicator Analysis

[Figure 1] shows the growth rate of exports by Korea and each continent. The rate of increase since January 2000 was 521% in Asia, 445% in the Middle East, 411% in Korea, 348% in Central & South America, 338% in Europe and 232% in North America. It seems that Asia has been leading Korea's exports.

The change rate of each continent is shown in [Figure 2]. During the past 220 months, the rate of change has been high in Central & South America, Europe, the Middle East, and relatively low in Asia and North America.
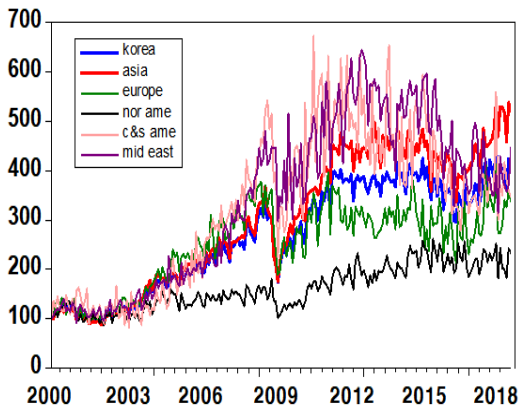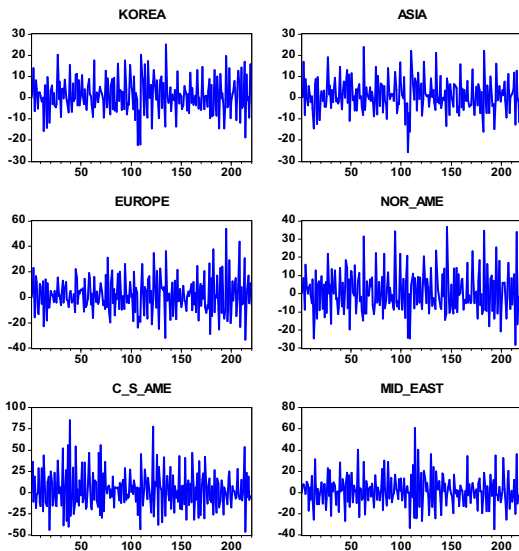
Figure 1. Growth Rate

Figure 2. Change Rate

Figure 3. Distribution chart

3. Model Analysis

[Figure 3] shows the growth rate distribution for each continent. The distributions are broad in order Central & South America (-60%~+100%), Middle East (-40%~+70%), Europe (-40%~+60%), North America (-30%~+40%), Asia (-30%~+30%). Central & South America, the Middle East and Europe are relatively broader than in Asia and North America, meaning new markets.
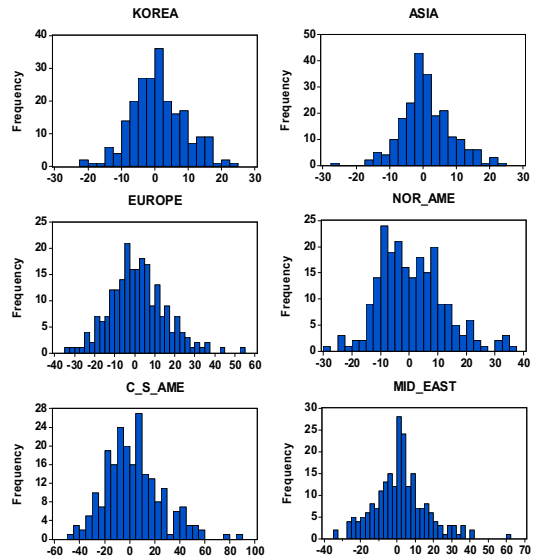
Scatter charts for each continent are shown in [Figure 4]. The X axis is the variation rate of Korea and the Y axis shows the variation rate of each continent. The distribution of Asia, Europe and North America seems to be on the upward trend as a whole, so it seems that the harmonization phenomenon with Korea is high. On the other hand, the distribution pattern of Latin America appears to be generally rounded, and seems to be less harmonization with Korea.

The autocorrelation function (ACF) for each continent is shown in [Table 7] and [Figure 5] The current state of the ACF is not closely related to the past and future, and it is not independent over time. Therefore, time series data of Korea and each continent are considered to have autocorrelation. There is an autocorrelation because the probability of significance in the Box-Ljung statistic is smaller than the significance level (0.05). Therefore, it means that there is no random and independent period between time series data.
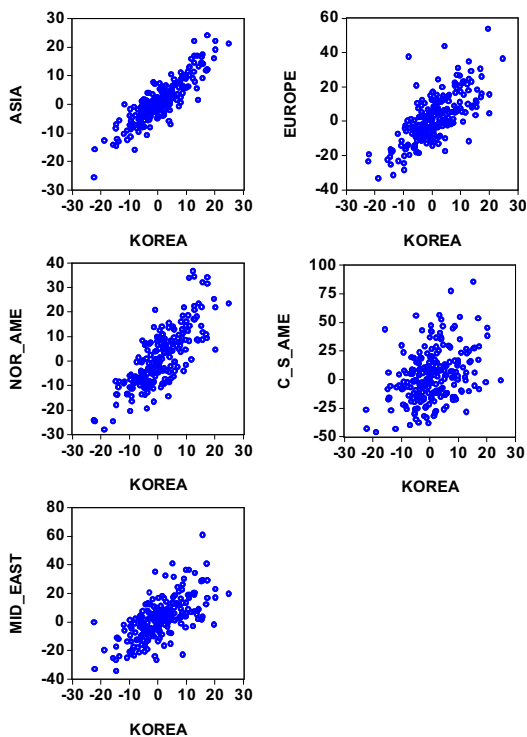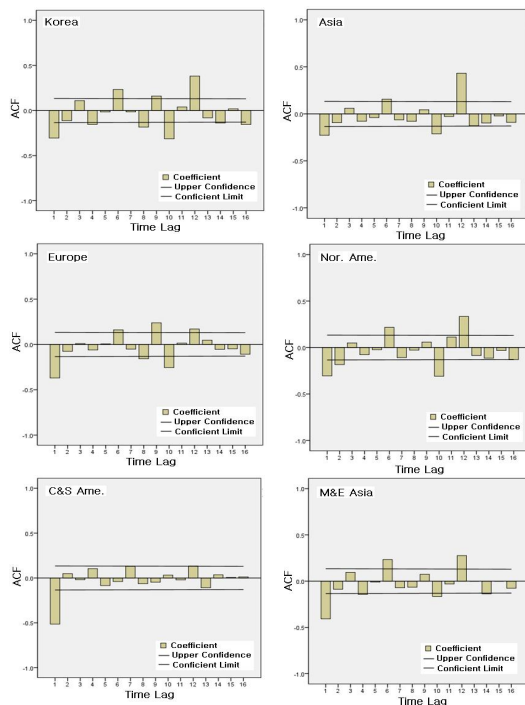
Figure 4. Scatter Chart

Figure 5. ACF : Korea, Asia, Europe, North America, Central & South America, Middle East

Table 7. Autocorrelation Function : Korea

Korea					
Time lag	Auto Correlations	Standardization Error*	Box−Ljung Statistic		
			Value	Degree of Freedom	P**
1	−.305	.067	20.745	1	.000
2	−.112	.067	23.576	2	.000
3	.109	.067	26.256	3	.000
4	−.154	.067	31.612	4	.000
5	−.016	.066	31.669	5	.000
6	.233	.066	44.065	6	.000
7	−.015	.066	44.117	7	.000
8	−.184	.066	51.934	8	.000
9	.160	.066	57.853	9	.000
10	−.314	.066	80.832	10	.000
11	.038	.065	81.177	11	.000
12	.381	.065	115.310	12	.000
13	−.082	.065	116.885	13	.000
14	−.138	.065	121.412	14	.000
15	.018	.065	121.494	15	.000
16	−.154	.065	127.199	16	.000

∗ : The assumed basic process is independent (white noise).

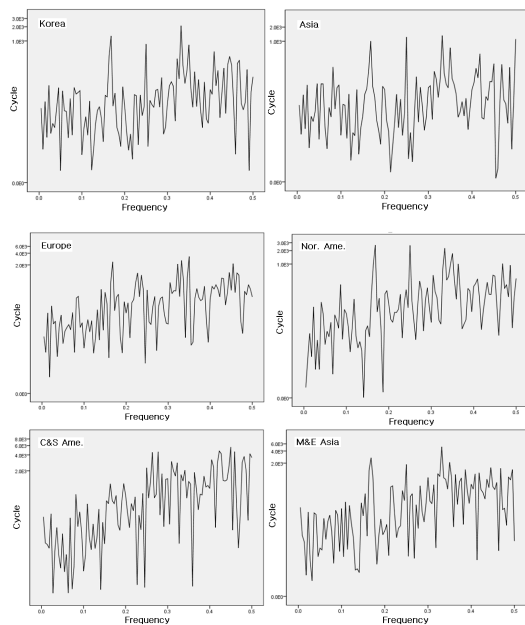∗∗ : It is based on the approximate chi−square approximation.

Figure 6. Period according to Frequency

Each continent cycle according to frequency is shown in [Figure 6]. The X axis represents the frequency from 0.0 to 0.5, and the Y axis represents the cycle. Overall, the frequency and cycle are distributed evenly, but the cycle increases slightly as the frequency increases. It has a relatively high cycle in Central and South America, the Middle East and Europe and is emerging as a new market.
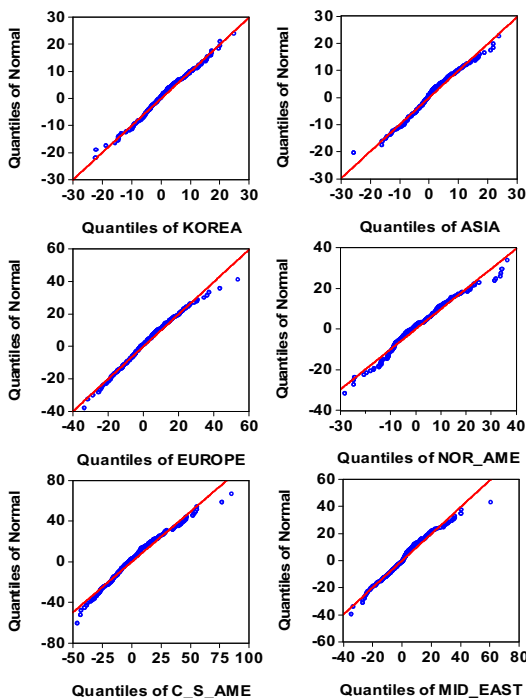

Figure 7. Q-Q Charts

Quantiles-Quantiles Charts for each continent are shown in [Figure 7]. In the Q-Q Charts, the baseline (1:1 on the X and Y axes) is shown as a red line. In general, exports by each continent are moving close to the baseline, but they are deviated to some baselines at the top of the Middle East and Central and South America.

The analysis of the missing values for each continent is shown in [Table 8], and mean, standard deviation, missing (frequency, %), extreme value (lower limit, upper limit) are shown. In Asia and North America, the average and standard deviation are both small, indicating a very stable market. On the other hand, Central & South America and the Middle East are both emerging markets with high average and standard deviation. The missing show the same frequency of one (0.5%). Extreme values have relatively many lower and upper bounds in the Middle East (2, 8) and Asia (1, 4).

V. Conclusion

In this study, we looked at export trends of Korea by each continent and looked for ways to increase exports in the future. Each continent is divided into Asia, Europe, North America, Central & South America, and the Middle East. The analysis period

Table 8. Missing Value Analysis

Univariate Statistics							
	N	Mean	S,D,	Missing		Extreme Value*	
				Frequency	%	Lower limit	Upper limit
Korea	220	.97	8.108	1	.5	2	1
Asia	220	1.04	7.576	1	.5	1	4
Europe	220	1.49	13.881	1	.5	0	3
Nor Ame	220	1.03	11.549	1	.5	0	4
C&S Ame	220	2.96	22.509	1	.5	0	4
M&E Asia	220	1.70	14.507	1	.5	2	8

*. Number of cases out of Range (Q1 − 1.5 * IQR, Q3 + 1.5 * IQR)

was from January 2000 to April 2018 using a total of 220 monthly data.

In the descriptive statistics analysis, the average was highest in Central & South America, the Middle East, Europe, Asia, North America and Korea. Standard deviations were highest in Central & South America, the Middle East, Europe, North America, Korea and Asia. Central & South America, the Middle East and Europe are both higher in terms of mean and standard deviation, indicating a new market.

The results of correlation analysis was high in Asia, North America, Europe, Middle East, Central & South America for Korea. Korea's total exports have been affected a lot by Asia, North America and Europe. Regression analysis result, coefficient was in the order of Asia 0.546, Europe 0.182, North America 0.103, Middle East Asia 0.079, Central & South America 0.056. In exports, when Asia rises one unit, it means that Korea rises 0.546. The markets of each continent moved independently of each other and were statistically significant at t statistic and p-value ($\leq$ 0.01).

In the growth rate trend since January 2000, it was high in order Asia (521%), Middle East (445%), Korea (411%), Central & South America (348%), Europe (338%). It is believed that Asia has led Korea's total exports. In the analysis of the changing rate and distribution, Central & South America, Europe and the Middle East are relatively high and wide, indicating that these are a new export market. In Scatter Charts, the distribution of Asia, Europe and North America is on the whole upward, and it seems that it has led to export to Korea.

In the ACF, time series data of Korea and each continent are considered to have autocorrelation. There is an autocorrelation because the probability of significance in the Box-Ljung statistic is smaller than the significance level (0.05). In each continent cycle according to frequency, Central & South America, the Middle East and Europe are showing a relatively high cycle and are slowly climbing into new markets. In each continental Q-Q chart and box plot analysis, Central & South America, North America, Europe and the Middle East have a relatively higher rate of change than Asia, and some RBIs ($\circ$, $*$) are shown at the top indicating abnormal surges.

As a result of this study, since January 2000, Asia and North America have been Korea's major export markets. Recently, Europe, Middle East and Central & South America are gradually emerging as new markets. In order to increase Korea's exports in the future, there is a need for continued interest in Asian markets including China and Southeast Asia. Efficient and systematic countermeasures should be set up for Europe, Middle East and Central & South America markets that are emerging as new markets. Finally, it is necessary to widely disclose 'K-Pop', 'K-Food' and 'K-Beauty' in Korea for each continent.

참 고 문 헌

[1] Korea Customs Service, "Monthly Imports and Exports in June 2018 (definite value)," Customs Planning Division Press Release (published July 16, 2018), pp.1-18, 2018c.

[2] Korea Customs Service, "Exported goods Semiconductor, Export Growth this year," Customs Planning Division Press Release (published March 23, 2018), pp.1-7, 2018b.

[3] Korea Customs Service, "Cosmetics Exports grew at an Average Annual Rate of 39.2%, Steady 'K Beauty' Popularity," Customs Planning Division Press Release (published June 28, 2018), pp.1-4, 2018a.

[4] Y. G. Won and H. Y. Lee, "Competition of

Korea, Japan and China in ASEAN and Determinants of Korea's Exports to ASEAN Countries : Do Chinese and Japanese Exchange Rates Matter?," The Southeast Asian Review, Vol.27, No.4, pp.41-76, 2017.

[5] S. Lim and D. W. Lee, "Korean FDI and Export Upgrading in Southeast Asia," The Southeast Asian Review, Vol.26, No.4, pp.179-216, 2016.

[6] W. J. Kim, "The Determinants of Korean Export to Southeast Asian Countries," The Southeast Asian Review, Vol.24, No.4, pp.1-31, 2014.

[7] W. J. Kim, "The Effect of Korea's FDI to China on Korea's Exports to United States," The Journal of Northeast Asian Economic Studies, Vol.29, No.4, pp.1-19, 2017.

[8] W. J. Kim, "The Impacts of China and the United States on the Korean Economy," Korea Trade Review, Vol.40, No.1, pp.59-87, 2015.

[9] C. B. Kim, "Effects of the Exchange Rate and Industrial Activity on Export to and Import from the Southeast Asia Via Korean Port," The Journal of Korea Port Economic Association, Vol.27, No.4, pp.207-218, 2011.

[10] Y. D. Kang, "Economic Recession in the European Union (EU) and Korea's Exports to the EU : An Analysis of the Post Korea-EU FTA Era," Journal of International Trade & Commerce, Vol.12, No.6, pp.187-206, 2016.

[11] Utai Uprasen, "Impact of China on Exports of Machinery and Transport Equipment from Korea to the European Union," Humanities and Social Sciences Research, Vol.18, No.2, pp.375-402, 2017.

[12] S. N. Kim and B. J. Kim, "Effects of Joining Euro Zone by the Central and Eastern European Countries to Their Exports," East European & Balkan Studies, Vol.39, No.4, pp.183-202, 2015.

[13] Utai Uprasen, "Displacement Effect on Exports of Machinery and Transport Equipment from Korea and the U.S. to the European Union," International Area Studies Review, Vol.19, No.2, pp.61-90, 2015.

[14] M. A. Kim, "Impact of Global Crises on Korea's Shipbuilding Trade Flows to the EU," The Journal of Contemporary European Studies, Vol.30, No.2, pp.155-181, 2012.

[15] D. G. Seo and S. J. Kang, "Study on the Export Competitiveness of China and Korea in the U.S. Market," Journal of Industrial Economics and Business, Vol.29, No.4, pp.1325-1344, 2015.

[16] S. M. Park, "The Impact of USA-Korea Trade Relations Due to the Quantitative Easing of Americ," The Journal of Korean Policy Studies, Vol.14, No.3, pp.29-48, 2014.

[17] J. H. Shim, "An Analysis of Comparative Advantage and Intra-Industry Trade in Korean Export Industry in Respect to Korea-U.S. FTA," International Commerce and Information Review, Vol.19, No.4, pp.175-197, 2017.

[18] D. Ak, M. B. Kim, and H. R. Park, "The Effect of the American TBT on China's Export and the Countermeasures," Journal of Korea Research Association of International Commerce, Vol.17, No.2, pp.99-120, 2017.

[19] S. Y. Lee, "Effect of Export Insurance System on Export Promotion in U.S.," The Journal of Korea Research Society for Customs, Vol.17, No.3, pp.217-232, 2016.

[20] S. N. Kim and S. J. Lee, "On the Relationship between ODA and Economic Cooperation among Korea and Latin American Countries," Latin American and Caribbean Studies, Vol.35, No.1, pp.277-305, 2016.

[21] G. Y. Choi, "An Investigation to Outlook the Effect of FTA on Motor Car Export to Latin America and the Appropriate Action Plan - By

Looking at Statistics and Factors that Influenced Export of Motor Cars to Chile-," International Commerce and Information Review, Vol.14, No.3, pp.139-158, 2012.

[22] T. D. Yoon, "Brazil′s Economic Structure and the Export Processing Zones (EPZ) : A Sign of Economic Structural Change?," Latin American and Caribbean Studies, Vol.32, No.3, pp.123-150, 2013.

[23] G. B. Choi, Zaid Yahya Abdulkader, and E. N. Hur, "Empirical Study on the Relationship Among Economic Growth, Oil Consumption, and Oil Exports in the Middle East Countries," Journal of the Korean Society of Mineral and Energy Resources Engineers, Vol.53, No.1, pp.19-35, 2016.

[24] S. H. Seo, "Middle East Revive largest Export Market Construction, Auto parts, Steel Special expectation : Impacts and Opportunities on Korea," Chindia Plus, Vol.108, pp.30-33, 2015.

[25] KOTRA, "Promising Export Items and Advancement Plan in the Middle East," Global Market Report, Vol.12, No.55, pp.1-196, 2012.

[26] Korea Customs Service : www.customs.go.kr

저 자 소 개

최 수 호(Soo-Ho Choi)   정회원

▪2011년 2월 : 항공대 항공교통물류학부(이학사)
▪2016년 2월 : 서강대학교 대학원 경영학부(경영학석사)
▪2016년 3월 : 서강대학교 대학원 경영학부(경영학박사수료)
▪2014년 3월 ~ 현재 : 서강대학교 경영학부 조교
<관심분야> : SCM, GVC, 물류, 서비스경영