Korea Focus

Exporting the Korean Wave to Europe

– An Analysis of the Trade Effect

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Abstract: The growing global popularity of South Korea's culture, known as the *Korean Wave*, has contributed to the country's economic growth by increasing not only the exports of its cultural goods but also pulling other types of exports. Using the theory of dynamic cultural proximity in international trade, this paper shows empirically that South Korea's cultural exports multiply the exports of its consumption goods to Europe where traditional cultural ties with Korea are weak. Examining the panel data of four decades disentangles the positive effect of the country's cultural exports that concurs with the emergence and advancement of the Korean Wave. This finding highlights the role of South Korea's cultural exports in stimulating European consumers' preferences for products 'made in Korea'.

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1. Introduction

In the past decade, South Korea has emerged as a transnational cultural influencer as the Korean Wave (South Korea's cultural economy exporting pop culture, entertainment, music, TV dramas, and movies) has gained popularity worldwide. Following the Asian Financial Crisis in the late 1990s, the government of South Korea has promoted the exports of popular culture as a new economic initiative to achieve the country's economic advancement and sustainability (Kim 2017). Starting with soap operas that have become popular in neighboring Asian countries since the early 2000s, the Korean Wave is now successful in various genres – from popular music to films, dramas, and games, etc. – in different parts of the world. The global penetration of Korean culture is more evident when one considers K-Pop (Korean popular music) stars like Psy of Gangnam Style (a dance pop-song which created an international hit in 2012) and BTS, one of the top ten recording artists of 2019 worldwide according to the Global Artist Chart (published by the International Federation of the Phonographic Industry). Also, South Korea's film production is making successes, with an example of *Parasite*, which won the Best Picture prize at the Academy Awards in the United States in 2020 for the first time as a non-English speaking film.

As South Korea's cultural presence has become more eminent globally, its cultural exports play a more pivotal role in the economy. Today, South Korea's cultural production is the 7th largest in the world and it forms one of the country's major export items (Figure 1). In 2018, South Korea's exports of cultural products (including music, TV-dramas, and films) exceeded its exports of home appliances that have long been the country's key export commodities. Furthermore, South Korea's cultural exports have grown fast in recent years – with an average growth rate of 9.2 percent for the last five years compared to the country's total export growth at 2.3 percent.[1] With this development, South Korea's cultural industries are expected to become an important contributor to the national economy that has heavily relied on manufacturing sectors.

Recognizing the growing importance of South Korea's cultural economy, this paper aims to identify the role of the country's cultural exports in the national economy by examining their multiplying effects on the exports of other goods 'made in Korea'. As proposed by the theory of cultural proximity in international trade (Schulze 1999), trade of cultural goods and services can stimulate bilateral trade beyond the scope of cultural sectors because such exchanges can boost foreign consumer preferences for goods produced in the exporting country by facilitating cultural exposure. Anecdotal evidence also suggests links between the popularity of Korean music, television programs, and films and increasing foreign demand for Korean food, clothes, cosmetics, and tourism (Economist 2020). For instance, youth K-Pop fans in Europe are eager to buy Korean beauty products and fashion items, which can be witnessed by recent openings of K-beauty online shops Europewide and fan shops that sell Korean consumption goods together with fan character items in major cities in Germany, the United Kingdom, and elsewhere (KOFICE 2019).

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[1] This is a slower pace than the OECD average export growth rate of close to 4 percent (OECD Economic Outlook Statistics and Project Database), signaling that manufacturing-based export-led growth may not be sustainable for the South Korean economy.

Observing this trend, this paper provides systematic evidence by analyzing trade data of four decades that shows the positive effect of South Korea's cultural exports on its exports of other goods to Europe. The analysis focuses on the European markets, considering the rising importance of this region in South Korea's cultural exports. While South Korea exports cultural products mainly to other Asian countries (comprising about 80 percent of its total cultural exports), the share of its exports to Europe has increased in recent years – from 6.1 percent in 2017 to 10 percent in 2019. Furthermore, the analysis of European countries can unravel the net effect of the cultural exports in a clearer way because their cultural proximities with South Korea are otherwise limited – different from its Asian trading partners which have geographical adjacency, linguistic similarities, and historical ties with South Korea to a great extent.

The results of the panel analysis based on the bilateral trade model reveal the multiplying effect of South Korea's cultural exports to Europe as they pull the exports of the country's consumption goods (food, clothes, cosmetics, home appliances, etc.) to the respective continent. This positive effect is significant and increasing for the last two decades upon the emergence of the Korean Wave (2000–2019), while the cultural exports created no effect on South Korea's exports in other industries prior to the Korean Wave (1980–1999). This difference between the ex-ante and ante-post effects suggests the Korean Wave as the driving force of stimulating consumer preferences for Korean products in Europe. Especially, the grossing industries of K-Pop, K-Movies, and K-Dramas are the key sources of generating the multiplying effect of South Korea's cultural exports, and this effect is stronger in Eastern Europe, indicating greater potential gains of market expansion to this region for South Korea's cultural economy.

2. Cultural Proximity and International Trade

The literature of international trade proposes cultural proximity as an important stimulator of trade because it accumulates cultural capital that can positively influence consumer preferences for goods and services produced in a country of similar culture (Schulze 1999). Linguistic similarities, colonial links, migration, shared religions and values[2], and geographical and genetic adjacency are commonly suggested as indicators of culture proximity that can promote exchange of goods and services across countries (Melitz 2008, Head and Ries 1998, Rauch 1999, Silva and Tenreyro 2006, Marvasti and Canterbery 2005, Guiso et al. 2009). For instance, the high volumes of trade between South Korea and other Asian countries can largely be explained by their cultural and geographical closeness.

Such cultural proximity is often considered pre-determined through history. However, it is not necessarily a fixed factor originating from rooted country characteristics and tradition only, but it can also be formed through dynamics of cultural exchange and contacts with other countries. For instance, trading cultural goods and services can be a way of increasing exposure to the culture of an exporting country, through which people in an importing country can experience the other culture and develop familiarities with it.

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2 For example, Hofstede et al. (2010) introduce the cultural index (based on masculinity, uncertainty, individualism, and power) and apply this index to explain concentration and diversification of a country's exports.

In this regard, cultural exports from a country to another can serve as an indicator that measures a time-varying, dynamic degree of bilateral cultural proximity (Rohn 2013). In the South Korean contexts, K-Pop and other cultural products of the Korean Wave have become influential and prevailed in different parts of the world. Hence, people in other countries have increasing opportunities of experiencing the Korean culture by consuming its cultural products, which can stimulate consumer preferences towards different types of goods and services from Korea. Such a trade effect of cultural exposure can particularly be important in places where cultural distances are initially large – for instance, Europe where linguistic, religious, and traditional similarities and historical links with Korea are limited.

In fact, cultural exports can create an extensive effect on consumer preferences in importing countries, considering their nature of non-excludability and non-rivalry. Consumption of cultural goods affects not only direct consumers but also others who did not pay for the goods because non consumers are also exposure to such cultural goods and the usage of the goods can be shared by others beyond the persons who purchased them (Towse 2013). Hence, exchange of cultural goods plays a role similar to that of public goods of which influences can reach out throughout an economy. By spreading and sharing films, songs, TV programs, games, and books imported from a country, consumers can further develop appetites and interest in other goods produced in that country (Disdier and Mayer 2007, Takara 2018). According to Rauch (1999), the effect of cultural exports is particularly influential on goods that are consumed on a daily basis (for example, clothes, food, home appliances, cosmetics, etc.) because consumer preferences are an important determinant of purchase decisions of such goods and the tastes of choosing consumptions goods are similar to those of cultural goods to a large extent.

With this theoretical articulation of the role of cultural proximity in international trade, one can hypothesize that exposure to the Korean culture (i.e. the Korean Wave in this context) can increase consumer preferences for South Korean products abroad (Kim 2019, Chang and Kim 2019). Operationally, the country's cultural exports can be instrumental as a channel that generates the effect of the cultural exposure and experience on consumption decisions of daily goods as proposed above. Moreover, the effect may not be limited in consumption goods only but can be extended to other areas of trade (for instance, value added, high-technology products) if cultural exports contribute to improving the recognition of the country's market position and status in the global economy.

3. South Korea's Cultural Products in the Global and European Markets

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), cultural goods include important artistic, historical or archaeological values for the country of origin and are part of that country's cultural heritage. Among the different attributes of cultural goods, this paper focuses on their industrial aspect of reproducibility because reproduceable goods can be traded in markets with large volumes and monetary values and therefore influence wide ranges of consumers.

In this regard, the Ministry of Culture, Sports and Tourism of South Korea (MCST) identifies ten major items of cultural goods that constitute the country's cultural industry (KOCCA 2019): namely, publications, comics, music, (video and online) games, films, animation, character goods, broadcasting and advertisements, knowledge information, and content solutions. This paper follows the classification of the MCST, given that its relevance to the scope of the analysis.

South Korea's cultural economy has become more important in recent years alongside the advancement of the Korean Wave. The total production of the country's cultural goods has grown at the annual rate of 5.2 percent on average for the last five years and its cultural exports have grown faster at 9.2 percent for the same period (Kim 2019). In contrast to the slow growth of South Korea's total exports at an annual rate of 1.4 percent in these years, the growth of its cultural exports is significant. Moreover, the contributions of South Korea's cultural economy to the global markets are sizeable. In 2019, South Korea's cultural production was ranked as the 7th largest in the world with the size of USD 60 billion, placing it just behind the United Kingdom and France (KOCCA 2019).[3] That being said, the relative importance of South Korea's cultural economy excels that of its overall economic size (GDP), which is the 11th largest in the world.

Also, cultural goods are one of South Korea's major export items with the size of USD 9.8 billion (1.8 percent of the total exports), exceeding the exports of home appliances in the monetary term (see Figure 1). Since 2010, South Korea's cultural exports have consistently increased, and their monetary values have more than tripled: from USD 3.49 (2010) to 9.8 billion (2017) (see Appendix A). Among different cultural goods, video and online games are most sold items with the value of USD 6.3 billion, followed by character goods, knowledge information, and music.

South Korea's main trading partners for cultural exports are other Asian countries (see Figure 2). China, together Hong Kong and Taiwan (the Chinese world) import almost 45 percent of South Korea's cultural exports, followed by Japan (19 percent) and Southeast Asia (15 percent). The share of South Korea's cultural exports to Europe are smaller than the Asian markets but it is consistently increasing in recent years. In 2010, the value of its cultural exports to Europe was worth USD 27 million but it has almost doubled within eight years (i.e. USD 52 million in 2017, see Figure 3) with an annual growth rate of 12 percent on average. The share of the European markets in South Korea's cultural exports increases further: from the share of 6.1 percent in 2017 to almost 10 percent in 2019.[4]

In the European markets, games form more than half of South Korea's total exports of cultural goods (52 percent, Appendix B). It is followed by character goods (28 percent), animation (6 percent), and content solutions (5.6 percent). While K-Pop is recently gaining popularity in Europe, the exports of musical products (recordings, scores, etc.) are yet small with a modest share of 1.6 percent (a sales figure of USD 8.5 million), given that the Korean music has relatively newly been introduced to Europe.

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[3] In particular, South Korea has a prominent position in the game industry for its lead position in the production of online and mobile phone games. Its production in the game field is the 6th largest worldwide with an annual growth rate of 6.3 percent since 2017 (UNCTAD 2017).
[4] South Korea's exports of consumption goods to Europe also take about 10 percent of its global exports with home appliances and mobile phones being the main products (61 percent).

Europe's five largest economies – Germany, the United Kingdom, France, Italy, and Spain – are the largest importers of South Korean cultural goods – taking more than a half of South Korea's cultural exports to Europe (KOTRA 2019). As Germany, the UK, and France are three of the top six economies of cultural production (the 4th, 5th and 6th, respectively, after the United States, China, and Japan), potentials of increasing cultural exports to these countries are note worthwhile. In addition, demand for South Korea's cultural goods has been growing in Eastern European countries – especially Poland, Romania, Hungary, and the Czech Republic – in recent years (KOTRA 2019).

4. Empirical Analysis

4.1. Model

The central question of the empirical analysis is whether South Korea's cultural exports can increase the exports of other goods to Europe. In this inter-industry analysis, cultural exports are regarded as enhancing cultural proximity between the exporting and importing countries, and an increase in the exports of other goods is used as a proxy to increased demand for the respective goods. This setup is designed to examine two channels of generating the effect of cultural exports. First, cultural exports can positively influence consumer preferences for consumption goods produced in the exporting country. Therefore, increasing South Korea's cultural exports to Europe are hypothesized to increase demand for its consumption goods in the European markets. Second, cultural exports are further postulated as playing a positive role in improving the country's overall economic status thus, this type of exports has an effect of increasing other exports that are not directly related to cultural goods. For instance, cultural exports may generate bolstering effects on the exports of high-technology goods because high-technology industries are often seen as a recognition of a country's economic advancement. Moreover, as South Korea has already established comparative advantages in several high-technology industries – such as smartphones, display screens, information and telecommunication technology, it would be plausible for the country to pull additional demand through raising its economic status in the global markets.

To test for this question, an empirical model is formulated based on the theoretical framework of the standard monopolistic competition trade model that assumes increasing returns to the scale and constant elasticity of substitution under imperfect competition (Dixit and Stiglitz 1977 and Krugman 1980). In this model, exports (x) from country i to country j at given year t are determined by i's product variety (n) and prices (p), trade impediments (φ), preferences of consumers (α) in j for goods produced in i, and j's expenditure (Y) and price index (P), as written below.

$$\ln x_{ijt} = \ln (n_{it}p_{it}^{1-\sigma}) + \ln \varphi_{ijt} + (\sigma-1) \ln \alpha_{ijt} + \ln (Y_{jt}P_{jt}^{\sigma-1}) \qquad (1)$$

Typically, n_{it} and Y_{jt} represent the exporter's and importer's economic sizes and p_{it} and P_{jt} their respective wealth level. φ_{ijt} is trade costs between the two countries that include transport and information components.

Geographical distances and common borders are standard measurements of transport costs, while common language and colonial links capture information costs (Disdier et al. 2010). In addition, trade policy between the countries that determines bilateral openness is incorporated as a factor of trade costs. α_{ijt} is consumer preferences that are influenced by cultural proximity. Cultural proximity is commonly proxied by shared languages and history (for instance, colonial ties), geographical and ethnic adjacency, and cultural exchange – such as cultural exports hypothesized in this analysis.

In a panel analysis, this model can be simplified by using country fixed effects (Redding and Venables 2004). Country fixed effects (FE) control for geographical, linguistic, and historical characteristics that do not vary over time (time constant-country heterogeneity). Moreover, economic sizes, wealth levels, and trade policy – time varying country characteristics – can be addressed by interacting country fixed effects with year dummies (t). Hence, the model of exports between South Korea and European countries is modified as presented below (note that the adjusted model includes the importing country's fixed effects and their interaction with year dummies but excludes the exporting country's fixed effects and the interaction term because South Korea is the sole exporter in this setup and therefore its fixed effects are treated as constant for all importing countries).

$$\ln x_{jt} = \beta \ln c_{jt-L} + FE_j + FE_j * t + t + u_{jt} \qquad (2)$$

Equation 2 is formulated as a linear regression model with logarithmic transformation of trade variables that account for elasticity changes. The dependent variable (x) is the volume of bilateral exports from South Korea to a European country j, measured by three indicators: (i) the exports of consumption goods, (ii) the exports of high-technology goods, and (iii) total exports. Consumption goods are clothes and fashion accessories, cosmetics, processed food, home appliances, and mobile phones that are consumed for daily usages. High-technology goods include automobiles, computers, and information and telecommunication (ICT) related goods. Note that home appliances and mobile phones (in which South Korea has comparative advantages in the global markets) are classified as consumption goods following the definition of the United Nations Conference on Trade and Development (UNCTAD) despite their high technological application.

The explanatory variable of main interest is the volume of the exports of cultural goods and services (c) from South Korea to a European country (j) at given year t. This analysis focuses on reproducible cultural goods that can achieve the economy of scale and product diversification. As such goods can be produced and reproduced on a massive scale, they play an important role in influencing preferences of broad ranges of consumers – thereby relevant for the scope of this paper. Accordingly, ten sub-categories are listed as cultural goods (including the form of services such as online downloads) in this paper: publishing products, music recordings, games, films, character goods, animation, comics, broadcasting programs, knowledge information, and content solution goods, following the classification of the Korea Creative Content Agency (KOCCA) under the Ministry of Culture, Sports, and Tourism (MCST). In this model, the monetary value of cultural exports is lagged up to three years (L = 1, 2, 3) in order to account for delayed feedbacks from cultural exports to consumer preferences for other goods.

Other country characteristics that determine the volumes of bilateral trade are addressed by including the importing country fixed effects (FE_j) and their interaction with year dummies (FE_j*t). Country fixed effects (FE_j) capture a country's time-invariant heterogeneity – such as bilateral distances between South Korea and European countries – so that the cross-country biases can be removed from the model. Other aspects of time-invariant country heterogeneity – such as a shared language, common borders, and colonial links – are, however, not considered in this analysis because no European country shares such ties with South Korea.

In addition, the interaction term between country fixed effects and year dummy variables (FE_j*t) is utilized to account for time-varying country characteristics. Via the interaction term, the economic size and income level of the importing country (which are proposed as key country characteristics in Equation 1) implicitly enter the model. Furthermore, controlling for time-varying country heterogeneity resolves the endogeneity of the model that arises from time-series biases as no time-varying characteristics remain unobserved. Hence, this approach of incorporating country- and time-fixed effects enables the estimation of the model free of omitted variable biases caused by time-constant and time-varying country heterogeneity (Disdier et al. 2010, Redding and Venables 2004). Moreover, the parsimony of the model that designates cultural exports as the single variable of cultural proximity (as other cultural factors are muted via country-fixed effects) minimizes multicollinearity problems in estimating the effect.

Besides, u_{jt} denotes idiosyncratic errors for which robust errors are applied to address heteroscedasticity. The robust errors are clustered at the importer country level so that similarities in patterns of unobserved characteristics within a country can be accounted for.

The model described in Equation 2 assumes homothetic preferences with a monotonic utility function by removing all country characteristics except cultural exports. However, important determinants of bilateral trade – such as an importer's income level (purchasing power) and population size (consumer pool) – may form a different relationship with the outcome variable. Therefore, the model is further modified to account for non-homothetic preferences by explicitly controlling for an importing country's key characteristics. In addition to the income level and population size, trade policy is also incorporated as a key variable in this model. The European Union-South Korea Free Trade Agreement (FTA) stands here as the major trade policy that removes considerable hurdles in bilateral trade between them. As the FTA between South Korea and the European Union (EU) was ratified in December 2015, this variable takes a value of 1 if country j is an EU member state in 2016 onwards, and 0 otherwise. Accordingly, the model is rewritten in the form below that explicitly includes these key explanatory variables instead of the interaction term between country fixed effects and year dummies. Country fixed effects (FE_j) that address time-invariant country heterogeneity remain in the model.

$$\ln x_{jt} = \beta \ln c_{jt-L} + \eta \text{GDP pc}_{jt} + \theta \text{Population}_{jt} + \lambda \text{FTA}_{jt} + FE_j + t + u_{jt} \qquad (3)$$

The model (Equations 2 and 3) has a cross-country time series structure that comprise 30 European countries including 27 EU member states (see Appendix C for the country list) during the period of main investigation from 2000 to 2019 compared with the other period of 1980–1999. Accordingly, the model is estimated by applying a linear estimation method for panel data with two-way fixed effects.

The data of cultural exports are taken from the KOCCA[5] and the data of the exports of consumption goods from the Korea International Trade Association (KITA). For the measurements of income levels and populations sizes, the World Bank's database of the World Development Indicators is utilized.

4.2. The Trade Effect of South Korea's Cultural Goods on its Exports to Europe

The results of estimating the model of cultural exports are presented in Table 1. Estimated as a change in elasticity, all five specifications report the positive lagged effect (L = 1, 2, 3) of South Korea's cultural exports on the exports of its consumption goods to Europe during the period from 2000 to 2019. The desired model of controlling for both time-varying and -invariant country heterogeneity shows that a 10-percent increase in the volume of cultural exports from South Korea to Europe results in a 1.2-percent increase in the exports of its consumption goods to the respective European country (Column 1). Replacing the three-year lagged variable of cultural exports with two- and one-year(s) lag does not alter the result (Columns 2 and 3). This constant size of the effect over time may be driven by high multicollinearity among the lagged values of the cultural export variables. Nonetheless, this finding implies that cultural exports can change consumer preferences within a short period (e.g. within a year), and at the same time, the effect does not diminish over years.

When the model addresses the non-monotonicity of preferences by directly controlling for an importer's purchasing power, maximum consumer pool, and trade policy (Column 4), the effect of cultural exports remains positive, but the size becomes larger. A 10-percent increase in the volume of cultural exports increases the exports of consumption goods by two percent. The effect in this specification increases probably because much of time-varying country heterogeneity, which shares latent values with cultural exports, is omitted.

In addition to its positive effect described above, cultural exports have a greater effect of pulling the exports of consumptions goods to Eastern Europe. The interaction effect between the volume of cultural exports and the regional dummy of Eastern Europe is positive, adding the magnitude of 0.01 to the effect of cultural exports (Column 5). This means that increasing South Korea's cultural exports by 10 percent raises its exports of consumption goods to Eastern European countries by 1.3 percent – 0.1 percent percentage (p.p.) larger than the effect on Western European countries (1.2 percent). That being said, the effect is 8.3 percent greater for Eastern Europe than the effect in Western Europe. Possibly, Eastern European consumers are more flexible with their preferences and choices given dynamic changes in their emerging markets.

The findings so far emphasize the multiplying effect of South Korea's cultural exports that shifts consumer preferences for another type of goods – i.e. daily consumption goods. Every percent increase in the volume of its cultural exports results in increasing the exports of consumption goods by more than every tenth of a percent. In contrast to its sizable effect on the exports of consumption goods, cultural exports have no effect on the exports of high-technology goods and total export (Columns 6–15). Possibly, South Korea's cultural exports yet play a significant role in promoting the country's position in technology industries or broad spectra of markets in the global economy.

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[5] KOCCA data provide advantages of collecting volumes of cultural exports in both forms of goods and services. This is important for cultural exports because considerable parts are exported as the form of services (e.g. online downloads). On the other hand, the KITA data of cultural exports comprise goods that were physically exported through the Korea Customs Service.

However, another interpretation can also be conceivable. Purchase of high-technology products is mainly determined by the quality of technology, thus its association with cultural proximity might be limited.

Considering the results of the control variables in the non-homothetic model, an importer's purchasing power (income level) and potential consumer pool (population size) have significant and sizeable effects on South Korea's exports in all investigated industries. Increasing the national income level of a European importing country by 10 percent raises South Korea's exports by 4.5 (consumption goods), 6.8 (high-technology goods), and 5.4 (total exports) percent. Increasing the population size of an importing country by the same margin increases South Korea's exports by 5.2, 4.9, and 6.1 percent, respectively. The income effect is largest for the exports of high-technology goods and the population effect for total exports. On the other hand, the free trade agreement (FTA) between South Korea and the EU has generally no effect on total exports and the exports of consumption goods, however, it increases the exports of high-technology goods to Europe by two percent although the effect is significant at a ten percent level only. Presumably, the free trade deal is used as an instrument for South Korea to maximize its comparative advantages in selected high-technology industries in the European markets.

4.3. The Role of the Korean Wave in the Trade Effect

The findings presented in Section 4.2. support the positive effect of South Korea's cultural exports on its exports of consumption goods to Europe. In this section, it is further investigated whether one can attribute this positive effect to the recent rise of the Korean Wave, or this finding should be generalized as a positive association between the exports of cultural and consumption goods. To answer this question, the model is further analyzed by breaking down the sample into two periods: 2000–2009 and 2010–2019.[6] While the Korean Wave emerged initially during the late 1990 and early 2000s, it has become an international phenomenon recognized in Europe and North America more recently – alongside K-Pop as grossing music products (for example, boybands like BTS and EXO) and the success of Korean movies in box offices and film festivals in the Western hemisphere (for example, Parasite). Thus, the exports of South Korea's cultural goods are expected to have a greater effect on consumer preferences in the European markets in more recent years. Observing this development, the effect of the cultural exports is disentangled between the initial and advanced periods of the Korean Wave with the hypothesis of a larger effect in the later period (2010–2019).

Table 2 shows the comparative findings of the two periods. From 2000 to 2009, the effect of the cultural exports was already positive, but the magnitude was smaller at a moderate significance level of 10 percent. Increasing the cultural exports by 10 percent raises the exports of consumption goods by less than one percent (Columns 1 and 2). This is about 17 percent lower than the aggregate effect reported during the period from 2000 to 2019 (see Table 1). Also, cultural exports to Eastern Europe create do not create additional effect in this earlier period, as the interaction term of *cultural export*Eastern Europe* produces no significant effect.

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6 In a similar approach, Jin (2016) distinguishes the Korean Wave (Hallyu in Korean) between Hallyu 1.0 (1997–2007) and Hallyu 2.0 (after 2008). The former is characterized as having focused on TV programs that gained polarities in Asia, while in the latter period, K-pop and K-movies penetrate in different parts of the world including Europe and North America.

In contrast, in the more recent period from 2010 to 2019, the effect of cultural exports becomes larger. A 10-percent increase in the cultural exports results in increasing the exports of consumption goods by 1.3 percent. The magnitude of the effect is 30 percent larger than the effect during the period of 2000–2009. Moreover, cultural exports to Eastern Europe add a positive effect of 0.2 percent when South Korea increases its cultural exports to this region by 10 percent. In other words, a 10-percent rise in the cultural exports to Eastern Europe increases the exports of consumption goods by 1.5 percent – that is 15 percent larger than the effect in Western Europe. On the other hand, South Korea's cultural exports remain having no effect on its exports of high-technology products and total exports in both earlier and later periods.

The decomposed results above indicate that the effect of South Korea's cultural exports on its exports of consumption goods to Europe is enlarged as the Korean Wave progresses. Whether the recent success of the Korean Wave is the driving force of this positive effect is further examined by comparing it with the effect of cultural exports prior to the emergence of the Korean Wave. Accordingly, the effect of cultural exports is estimated for the period from 1980 to 1999 before South Korea's pop culture penetrated the world. If the multiplying effect of South Korea's cultural exports is driven by the Korean Wave, the effect in the ex-ante Korean Wave should be smaller than the one after 2000. As seen in Table 3, South Korea's cultural exports produced, indeed, no effect of pulling any other types of exports to Europe during the period from 1980 to 1999.

In addition to the comparative analysis of different periods, an additional analysis is conducted to specify which types of cultural goods contribute to the positive effect of cultural exports. This decomposition analysis can reveal to what extent the key industries of the Korean Wave generate the multiplying effect. Hence, cultural goods are itemized into 10 sub-categories: publishing products, comics, music, games, films, animation, broadcasting programs, character goods, knowledge information, and content solution products following the classification of the MCST. The results of estimating genre-specific effects show that the positive effect of South Korea's cultural exports is mainly driven by the exports of representative products of the Korean Wave (see Table 4). The largest effect originates from the exports of music products as predicted through the success of K-Pop. By increasing the exports of Korean songs and recordings by 10 percent, the country's exports of consumption goods to Europe increases by 0.4 percent. Moreover, the exports of music to Eastern Europe produce a greater effect on South Korea's exports of consumption goods to this region. Increasing the exports of music to this region by 10 percent increases the exports of consumption goods by 0.45 percent, which is 12.5 percent larger than the effect on Western Europe.

Korean films are another key contributor of creating the positive effect of cultural exports. A 10-percent increase in its exports increases the exports of consumption goods by 0.3 percent (the effect is identical for all sampled European countries as no additional effect is found on Eastern Europe). The exports of games – which forms the largest share in the volume of South Korea's cultural exports to Europe – also adds a positive effect. Increasing this type of exports by 10 percent increases South Korea's exports of consumption goods to Europe by 0.2 percent. The effect of the exports of games is larger in Eastern Europe where increasing them by the same margin increases the exports of consumption goods by 0.22 percent. Additionally, an increase in the exports of publishing products by 10 percent adds a 0.1-percent increase in the exports of consumption goods to European countries.

On the other hand, the exports of South Korea's broadcast products have a positive effect in Eastern Europe only where an increase in the exports of these products by 10 percent leads to increasing the exports of consumption goods by 0.1 percent. This region-specific effect mirrors the popularities of South Korea's TV programs in several Eastern European countries – such as Romania, Hungary, and Poland. The itemized results of the decomposition analysis further underscore the importance of the Korean Wave as the findings attribute the positive effect of South Korea's cultural exports largely to the key products of the Korean Wave – namely, K-Pop, K-Movies, K-Games, and K-Dramas.

5. Discussion and Conclusion

Through the analysis of the bilateral trade data, this paper finds a sizeable effect of South Korea's cultural exports on the exports of its consumption goods to Europe. Every 10-percent increase in cultural exports contributes to an increase in the exports of consumption goods by 1.2–1.3 percent. As the exports of consumption goods comprise 10 percent of South Korea's total exports, this multiplying effect refers as 3.6 percent of the country's export growth in 2019 (that was 3.3 percent), if the result can be generalized.

This finding renders three implications. First, it suggests the Korean Wave as a time-varying factor of cultural proximity that can facilitate international trade. While cultural closeness is often regarded as pre-determined and static, the recent development of the Korean Wave highlights the dynamic relationship between cultural exposure and consumer preferences.

Second, the multiplying effect of South Korea's cultural exports indicates that its sluggish economic growth can be revitalized through the diversification of export items. As an export-oriented economy, South Korea grew fast through the development of its manufacturing sectors until the early 2000s. However, manufacturing industries are not an engine of growth anymore in recent years partly due to growing competition in the global markets and economic slowdown in advanced economies which are main clients of South Korea's industrial goods. Instead, the country's burgeoning cultural economy and its positive externalities on other industries found in this paper can offer new sources of incubating sustainable growth.

Third, in addition to the diversification of export items, the finding emphasizes the advantage of diversifying trading partners as evident in the European markets that comprise relatively small shares in South Korea's exports but demonstrate a swift shift in consumer preferences for products 'made in Korea'. In particular, the finding in Eastern Europe where South Korea's cultural exports create a greater multiplying effect proposes this region as a niche market that can provide potentially larger gains of market expansion of South Korea's cultural industries.

On the other hand, this paper finds no effect of South Korea's cultural exports on the exports of other types of products beyond consumption goods. For instance, it does not increase the exports of high-technology products, contrary to the hypothesized positive externalities through improving the country's global recognition. Whether this insignificant role of cultural exports in high-technology industries can be changed as the Korean Wave becomes more prominent in Europe (or the effect of cultural exports is limited in consumption goods only as they share similar consumer pools and criteria for purchase decisions) is to be seen in a future study that incorporates longer periods of observation.

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Figure 1.
Major Export Items of South Korea (2019)
including cultural contents and home appliances
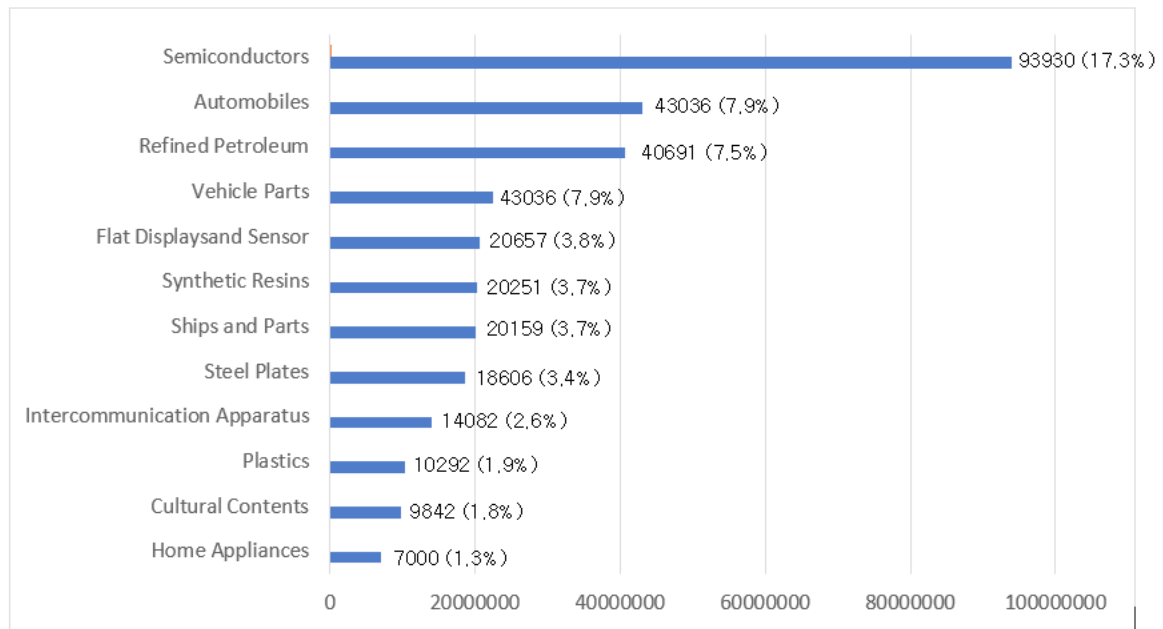
Source: Korea International Trade Association (KITA) Statistics   Unit: USD (000 000)

Figure 2.
South Korea's Exports of Cultural Products, by region
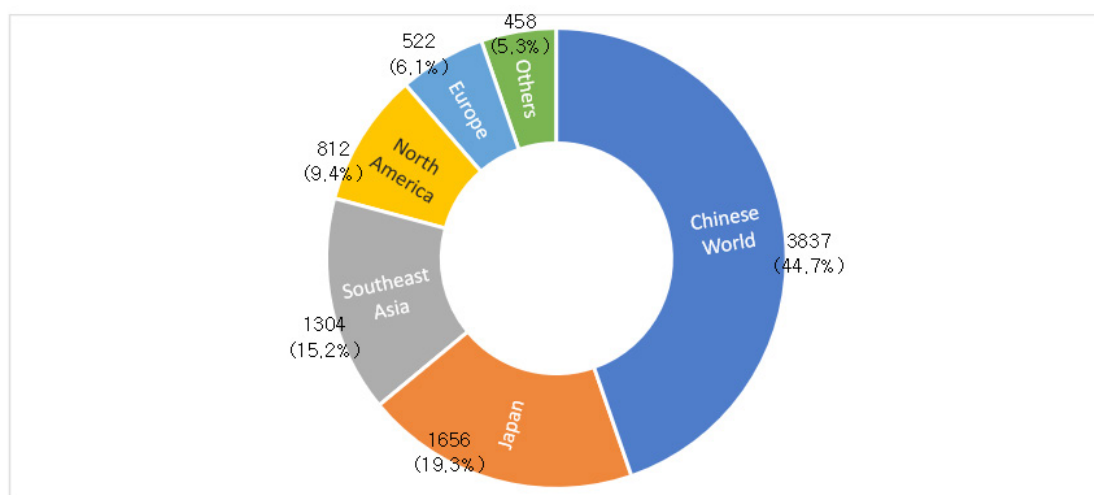
Source: Ministry of Culture, Sports, and Tourism, Republic of Korea (2010–2017)   Unit: USD (000 000)

Note: The Chinse world includes the People's Republic of China, Hong Kong, and Chinese Taipei (Taiwan).

Figure 3.
South Korea's Exports of Cultural Products to Europe

Source: Ministry of Culture, Sports, and Tourism, Republic of Korea (2010–2017)   Unit: USD (000)

Table 1.
The Effect of South Korea's Cultural Exports on the Exports of Other Goods to Europe (Panel Analysis, 2000–2019)

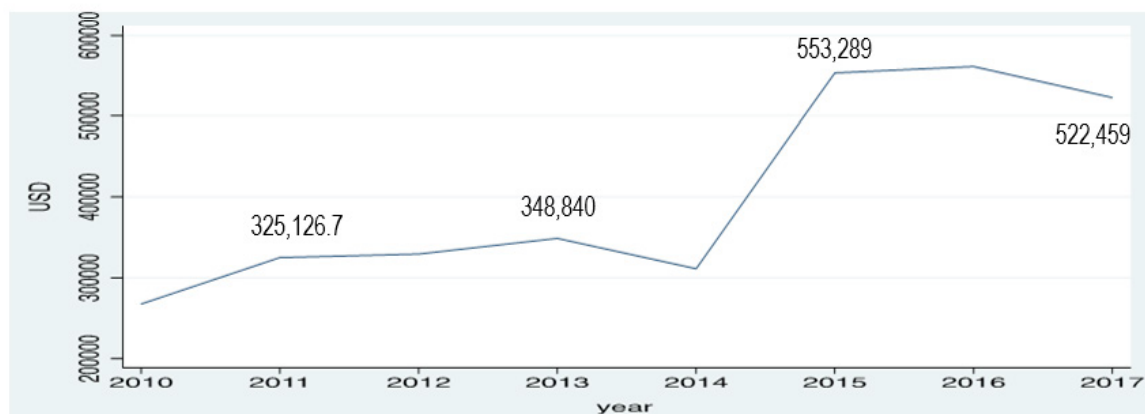| Dependent Variable	Ln (Exports of Consumption Goods)					Ln (Exports of High-Technology Goods)					Ln (Total Exports)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Ln (Cultural Exports, t-3)	0.12 (0.05)**			0.20 (0.09)**	0.12 (0.06)**	0.10 (0.14)			0.17 (0.17)	0.09 (0.15)	0.08 (0.19)			0.15 (0.24)	0.11 (0.21)
Ln (Cultural Exports, t-2)		0.12 (0.06)**					0.11 (0.15)					0.07 (0.16)			
Ln (Cultural Exports, t-1)			0.13 (0.06)**					0.11 (0.14)					0.09 (0.17)		
Ln (Cult Exp) × East				0.01 (0.006)*					0.01 (0.01)					0.01 (0.01)	
Ln (GPD pc)				0.45 (0.15)***					0.68 (0.20)***					0.54 (0.22)**	
Ln (Population)				0.52 (0.24)**					0.49 (0.21)**					0.61 (0.27)***	
FTA				0.01 (0.02)					0.02 (0.01)*					0.02 (0.012)*	
FE_i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_i × t	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R² (within)	0.55	0.56	0.56	0.23	0.57	0.60	0.60	0.62	0.31	0.63	0.53	0.55	0.55	0.27	0.58
Countries	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Observations	552	552	552	552	552	568	568	568	568	568	573	573	573	573	573

* Note: Robust standard errors (clustered at the importing country level) are in parenthesis. $p < .10$, ** $p < .05$, *** $p < .001$.

Table 2.
The Effect of South Korea's Cultural Exports on the Exports of Other Goods to Europe (Panel Analysis, 2000–2009 and 2010–2019)

Dependent Variable	Ln (Exports of Consumption Goods)				Ln (Exports of High-Technology Goods)				Ln (Total Exports)			
Period	2000–2009		2010–2019		2000–2009		2010–2019		2000–2009		2010–2019	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Ln (Cultural Exports, t-3)	0.09 (0.05)*	0.08 (0.05)*	0.13 (0.05)**	0.13 (0.06)**	0.09 (0.14)	0.10 (0.17)	0.11 (0.12)	0.11 (0.14)	0.07 (0.15)	0.07 (0.19)	0.12 (0.14)	0.11 (0.15)
Ln (Cultural Exports)×East		0.01 (0.01)		0.02 (0.01)**		0.01 (0.02)		0.01 (0.01)		0.01 (0.01)		0.02 (0.01)*
FE_i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_i × t	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R² (within)	0.49	0.49	0.53	0.53	0.56	0.55	0.59	0.59	0.54	0.54	0.52	0.52
Countries	30	30	30	30	30	30	30	30	30	30	30	30
Observations	275	275	278	278	281	281	288	288	285	285	292	292

* Note: Robust standard errors (clustered at the importing country level) are in parenthesis. $p < .10$, ** $p < .05$, *** $p < .001$.

Table 3.
The Effect of South Korea's Cultural Exports on the Exports of Other Goods to Europe (Panel Analysis, 1980–1999)

Dependent Variable	Ln (Exports of Consumption Goods)			Ln (Exports of High-Technology Goods)			Ln (Total Exports)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln (Cult Exp, t-3)	0.07 (0.06)	0.09 (0.08)	0.06 (0.06)	0.05 (0.11)	0.10 (0.12)	0.05 (0.09)	0.08 (0.13)	0.11 (0.12)	0.07 (0.15)
Ln (Cult Exp)× East			0.01 (0.02)			0.01 (0.03)			0.01 (0.06)
Ln (GPD pc)		0.51 (0.21)**			0.50 (0.26)*			0.55 (0.22)**	
Ln (Population)		0.49 (0.15)***			0.39 (0.24)			0.58 (0.21)***	
FE_i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_i × t	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R² (within)	0.48	0.21	0.48	0.45	0.17	0.44	0.39	0.21	0.39
Countries	30	30	30	30	30	30	30	30	30
Observations	452	452	452	463	463	463	469	469	469

* Note: Robust standard errors (clustered at the importing country level) are in parenthesis. $p < .10$, ** $p < .05$, *** $p < .001$. The FTA variable is excluded in this estimation because the period of investigation lies prior to the enaction of the FTA between South Korea and Europe (2015). The observations of Eastern European countries were not recorded during the period of the Cold War (1980–1990).

Table 4.
The Decomposed Effect of South Korea's Cultural Exports
on the Exports of Consumption Goods to Europe (Panel Analysis, 2000–2019)

Dep. Var.	Ln (Exports of Consumption Goods)									
t−3	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Ln (Publishing)	0.01 (0.005)**									
Ln (Comics)		0.02 (0.03)								
Ln (Music)			0.04 (0.02)**							
Ln (Game)				0.02 (0.01)**						
Ln (Film)					0.03 (0.017)*					
Ln (Animation)						0.01 (0.04)				
Ln (Broadcast)							0.01 (0.01)			
Ln (Character)								0.01 (0.01)		
Ln (Knowledge)									0.03 (0.04)	
Ln (Content)										0.05 (0.09)
Ln (Cult) × East	0.003 (0.005)	0.007 (0.008)	0.005 (0.002)**	0.002 (0.001)**	0.004 (0.003)	0.005 (0.01)	0.01 (0.005)**	0.005 (0.01)	0.004 (0.01)	0.008 (0.01)
FE$_i$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE$_i$ × t	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 (within)	0.54	0.54	0.55	0.56	0.54	0.53	0.55	0.54	0.55	0.53
Countries	30	30	30	30	30	30	30	30	30	30
Observations	552	552	552	552	552	552	552	552	552	552

* Note: Robust standard errors (clustered at the importing country level) are in parenthesis. $p < .10$, ** $p < .05$, *** $p < .001$.

Appendix A.
South Korea's Exports of Cultural Products, by category

	2010	2011	2012	2013	2014	2015	2016	2017
Total	3,048,979.9	4,146,356.7	4,459,910.48	4,750,293	5,117,369	5,462,458	5,741,660	8,589,464
Publishing	357,881	283,439	245,154	291,863	247,268	222,736	187,388	220,951
Comics	8,153	17,213	17,105	20,982	25,562	29,354	32,482	35,262
Music	83,262	196,113	235,097	277,328	335,650	381,023	442,566	512,580
Game	1,606,102	2,378,078	2,638,916	2,715,400	2,973,834	3,214,627	3,277,346	5,922,998
Films	13,583	15,829	20,175	37,071	26,378	29,374	43,894	40,726
Animation	96,827	115,941	112,542	109,845	115,652	126,570	135,622	144,870
Broadcasting	127,074.9	168,940.7	179,718.48	239,473	256,278	216,032	254,613	230,656
Character Goods	276,328	392,266	416,454	446,219	489,234	551,456	612,842	663,853
Knowledge Information	363,282	432,256	444,837	456,911	479,653	515,703	566,412	616,061
Content Solution	116,487	146,281	149,912	155,201	167,860	175,583	188,495	201,508

Source: Ministry of Culture, Sports, and Tourism, Republic of Korea (2010–2017)   Unit: USD (000)

Appendix B.
South Korea's Exports of Cultural Products, by region and category (2017)

	Total	Chinese World	Japan	Southeast Asia	North America	Europe	Others
Total	8,589,464	3,837,216	1,655,975	1,304,363	811,593	522,459	457,853
Publishing	220,951	17,402	33,606	30,047	75,917	12,304	51,665
Comics	35,262	1,367	9,742	7,094	5,036	11,093	929
Music	512,580	109,931	320,599	64,737	5,468	8,552	3,294
Games	5,922,998	3,413,471	824,036	746,298	410,366	272,311	256,516
Films	40,726	7,733	4,895	8,088	4,933	3,802	11,275
Animation	144,870	2,188	26,461	810	75,286	31,132	8,993
Broadcasting	230,656	68,435	81,952	42,076	16,980	1,315	19,902
Character Goods	663,853	132,059	45,051	86,258	175,028	146,309	79,148
Knowledge Information	616,061	58,616	244,891	282,929	18,068	6,336	5,220
Content Solution	201,508	26,014	64,742	36,026	24,511	29,305	20,910
Share (%)	100	44.7	19.3	15.2	9.4	6.1	5.3

Source: Ministry of Culture, Sports, and Tourism, Republic of Korea (2010–2017)   Unit: USD (000)

Note: The Chinse world includes the People's Republic of China, Hong Kong, and Chinese Taipei (Taiwan).

Appendix C.
List of European Countries
(30 Countries)

Austria, Belgium, Bulgaria[E], Croatia[E], Cyprus, Czech Republic[E], Denmark, Estonia[E], Finland, France, Germany, Greece, Hungary[E], Ireland, Italy, Latvia[E], Lithuania[E], Luxembourg, Malta, Netherlands, Norway, Poland[E], Portugal, Romania[E], Slovakia[E], Slovenia[E], Spain, Sweden, Switzerland, United Kingdom

* Note: The list includes EU member states and Norway, Switzerland, and the United Kingdom. [E] indicates Eastern Europe (11 countries). While Estonia, Latvia, and Lithuania are geographically located in Northern Europe, they are classified as Eastern Europe because these countries were formerly part of the Soviet Bloc sharing developmental and institutional similarities with Eastern European countries.