Cultural Preferences in International Trade: Evidence from the Globalization of Korean Pop Culture

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Motivation

"The booming South Korean presence on television and in the movies has spurred Asians to buy up South Korean goods and to travel to South Korea, traditionally not a popular tourist destination. The images that Asians traditionally have associated with the country — violent student marches, the demilitarized zone, division — have given way to trendy entertainers..."

— *The New York Times, June 2005 (by Norimitsu Onishi)*

Introduction

- Are cultural preferences important in international trade flows?
- Typical cultural factors — language, ethnicity, and religion, for example — evolved over a long time and are strongly correlated with geographical factors.
- This paper uses the phenomenon whereby the Korean pop culture globally spread in a short period of time.
- Three key variations of our data:

  The cultural flows exhibit substantial variations over time and across countries, and their effects on consumer preferences vary across products.
- These rich variations allow us to demonstrate the causality where cultural shocks to the demand side affect international trade.

Background

- Korean Wave

  Over the past 15 years, Korean popular culture has become immensely popular across the globe.

- In many countries, the Korean wave started suddenly and unexpectedly.

  (1) China (1997, *What is Love All About?*, 15% audience rating), Japan (2003, *Winter Sonata*, 22.5%), Thailand (2003, *Autumn in My Heart* was broadcast three times)

  (2) popular even in distant Asian/Central Asian countries, e.g., Vietnam, Singapore, Taiwan, Malaysia, Indonesia, Kazakhstan, Mongolia, Philippines, Uzbekistan, Myanmar, Cambodia, Brunei

- The Korean wave has surpassed physical distance, language barriers, ethnicity and religion.

  (1) Cuba (2012, *Take Care of My Lady*, 80% audience rating), Ecuador (2009, *Stairways to Heaven*, 55%), Iran (2007, *Jewel in the Palace*, 57%)

Mechanism

Two channels through which the Korean wave affects Korea's exports:

(1) Diffusion of preferences: The Korean media contents can lead viewers to imitate the behavior of the stars and develop preferences for Korean products and services, which are depicted in use by the stars on the screen.

(2) Advertising based on the Korean wave: Korean exporting firms actively hire the associated celebrities to advertise their products.

- The recent empirical studies about economic and social impacts of the media suggest that media portrayal of a role model could lead to powerful imitative behavior, affecting a wide range of economic outcomes

  (Bursztyn and Cantoni, 2016; Jensen and Oster, 2009; Chong and Ferrara, 2009; Kearney and Levine, 2015; Olken, 2009; Ferrara et al., 2012).

Survey results by KOFICE (2015)

Question:

What Korean products do you wish to purchase, after experiencing Korean pop culture (TV shows, K-pop music, and movies)?

Responses:

Want to eat Korean food (55%)
Want to visit Korea (52%)
Want to purchase Korean manufactured foods (51%)
Want to purchase Korean mobile phones (47%)
Want to purchase Korean products in general (45%)
Want to purchase Korean home appliances (42%)
Want to purchase Korean beauty products (41%)
Want to purchase Korean clothes (40%)
Want to purchase Korean jewelry and accessories (37%)
Want to experience Korean traditions (36%)
Want to learn Korean language (33%)
Want to purchase Korean cars (30%)
Want to learn Tae Kwon Do (28%)
Want to have a health/medical service in Korea (26%)
Want to buy Korean alcoholic beverages (25%)

Notes: Total 6500 foreign respondents residing in the following countries: Australia (400), Brazil (400), China (600), France (400), Indonesia (400), Japan (600), Malaysia (600), Russia (400), South Africa (400), Taiwan (600), Thailand (400), UAE (400), UK (400), and USA (500).

This Paper

- Provides econometric analysis showing that more exposure to Korean pop culture changes foreign consumers' preferences for Korean goods, and increases South Korea's exports in relevant industries.

- Three empirical strategies to ensure the causality through the channel of consumer preferences:

  (1) Gender-biased preferences: heterogeneous effects on female versus male visitors, women's versus men's clothing, and cosmetics

  (2) Consumer versus non-consumer goods

  (3) Diffusion of preferences: effects on goods that are rarely advertised through the mass media

Literature and Contributions

Literature on the cultural aspects of international trade:

- Guiso et al. (2009) show that lower bilateral trust reduces bilateral trade across countries.
- Felbermayr and Toubal (2010), Disdier and Mayer (2007), Disdier et al. (2010), and Egger and Lassmann (2015) construct alternative proxies for cultural proximity and document their positive effects on trade volumes.

  These papers, however, do not differentiate whether the mechanism works through the demand or supply side.
- Melitz (2008), and Melitz and Toubal (2014) focus on the supply side and study the role of common language in lowering communication costs.

Literature and Contributions

- In this literature, there have not been systematic econometric studies that provide robust evidence on the demand-side mechanism.

  This is either because the studies depend on cultural variables that have evolved over a long period of time — thus highly associated with history, proximity and historical trade routes — or because the source of the shocks and the mechanism are not clear.

- In contrast, this paper uses a cultural shock which evolved in a relatively short time, with sharp and discontinuous shifts in its exposure, and surpassing boundaries given by conventional cultural proximity measures.

- Using the unique properties of this cultural phenomenon, our paper demonstrates the importance of the demand-side mechanism.

Data

- A cross-country panel dataset on South Korea's TV show exports to 136 countries for the period 2001–2014 (Source: *Korea Communications Commission*).

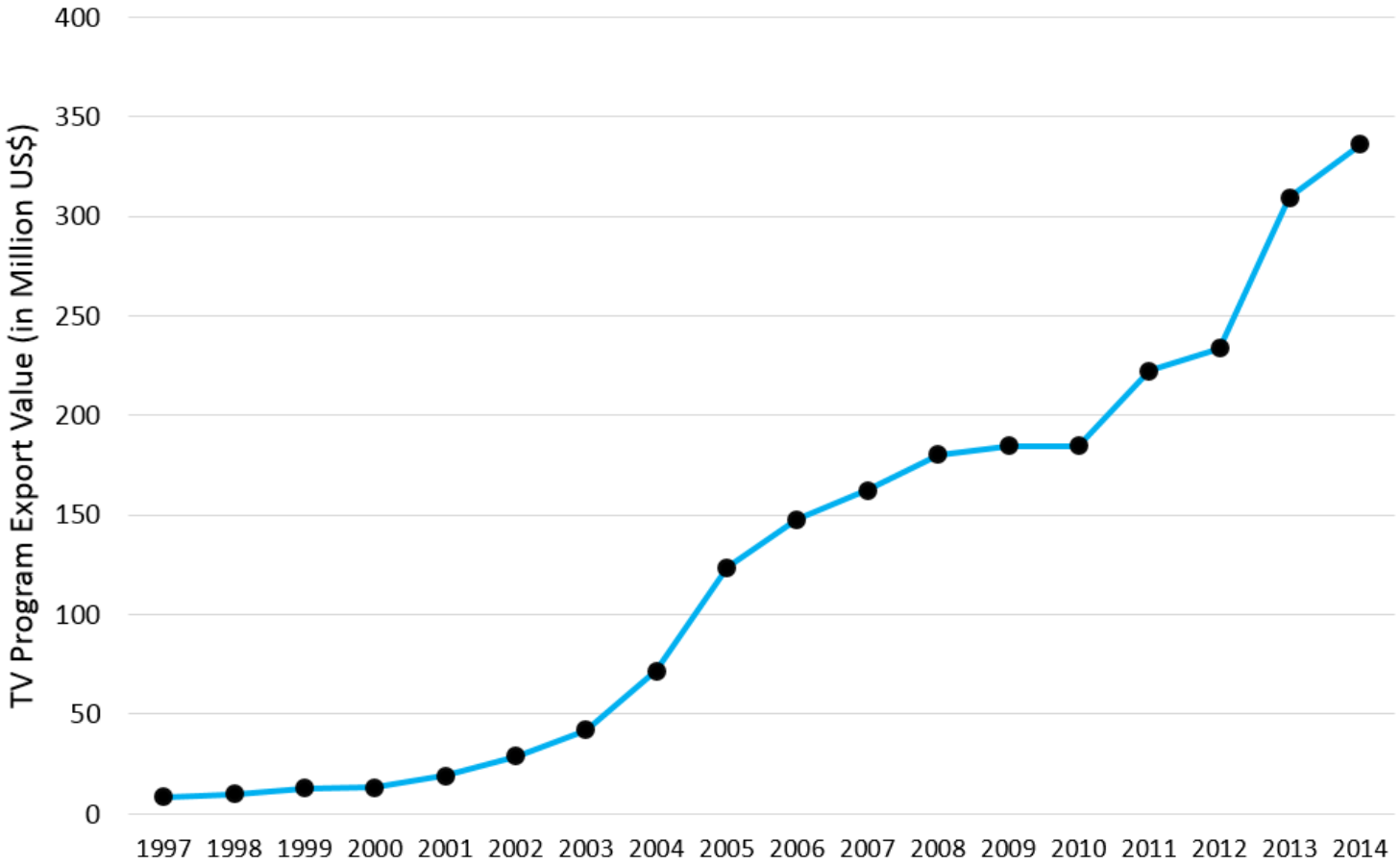
- Three sets of cross-country panel data:

  1. Korea's bilateral exports (HS 4-digit) for the period 1991–2015 from the UN Comtrade Database.

  3. Number of foreign visitors to Korea (2003–2015) provided by Korea Tourism Organization.

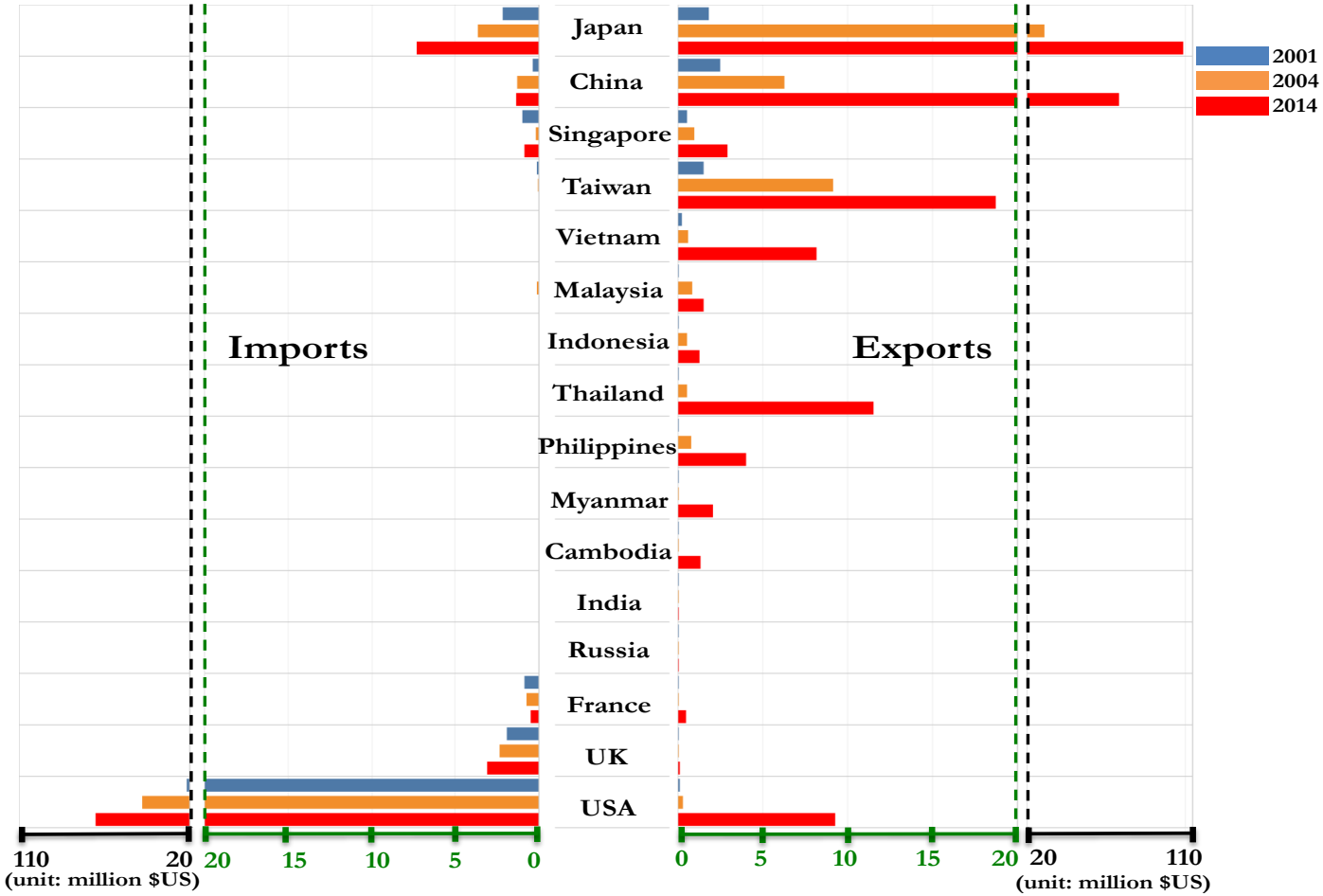
  2. Korea's outward FDI flows for the period 1991–2015 from the Export-Import Bank of Korea.

South Korea's TV Program Exports



- They grew strongly from US$8 to US$336 million during the period 1997–2014.
- On the other hand, imports only slightly increased from US$57 to US$64 million.

South Korea's TV Program Exports across Selected Destinations



- The TV show export data exhibit significant variations over time and across countries.
- Patterns are highly asymmetric between imports and exports, implying the fast increases in Korea's TV show exports are not driven by some improved bilateral trade relationships.

Motivating exercises: Cosmetics

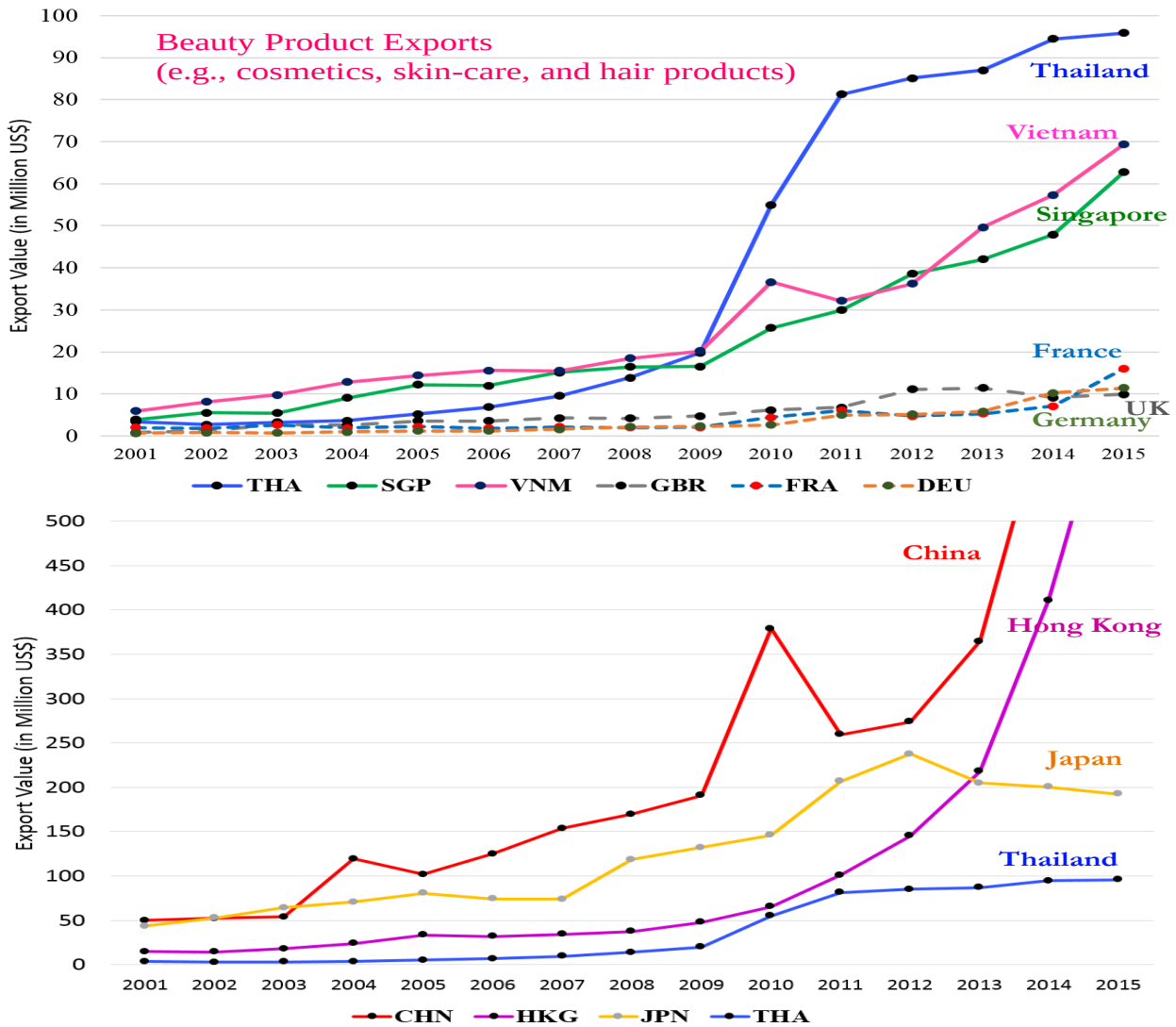
- It is a well-documented fact that women tend to have stronger preferences for Korean soap operas and K-pop music.

  For example, the largest online Chinese video website, *Iqiyi*, reports the gender composition of viewers for each video, and more than 70% of the viewers are female for most Korean TV soap operas.

- Korea's exports of cosmetic products, predominantly purchased by women, grew substantially in destinations where Korean pop culture became very popular.

  In contrast, the exports stayed relatively flat to the UK, Germany, and France, where Korean pop culture is not popular.

South Korea's Export Growth in Beauty Products to Selected Destinations



Gender-biased Preferences: Cosmetic Exports and Female Visitors to Korea

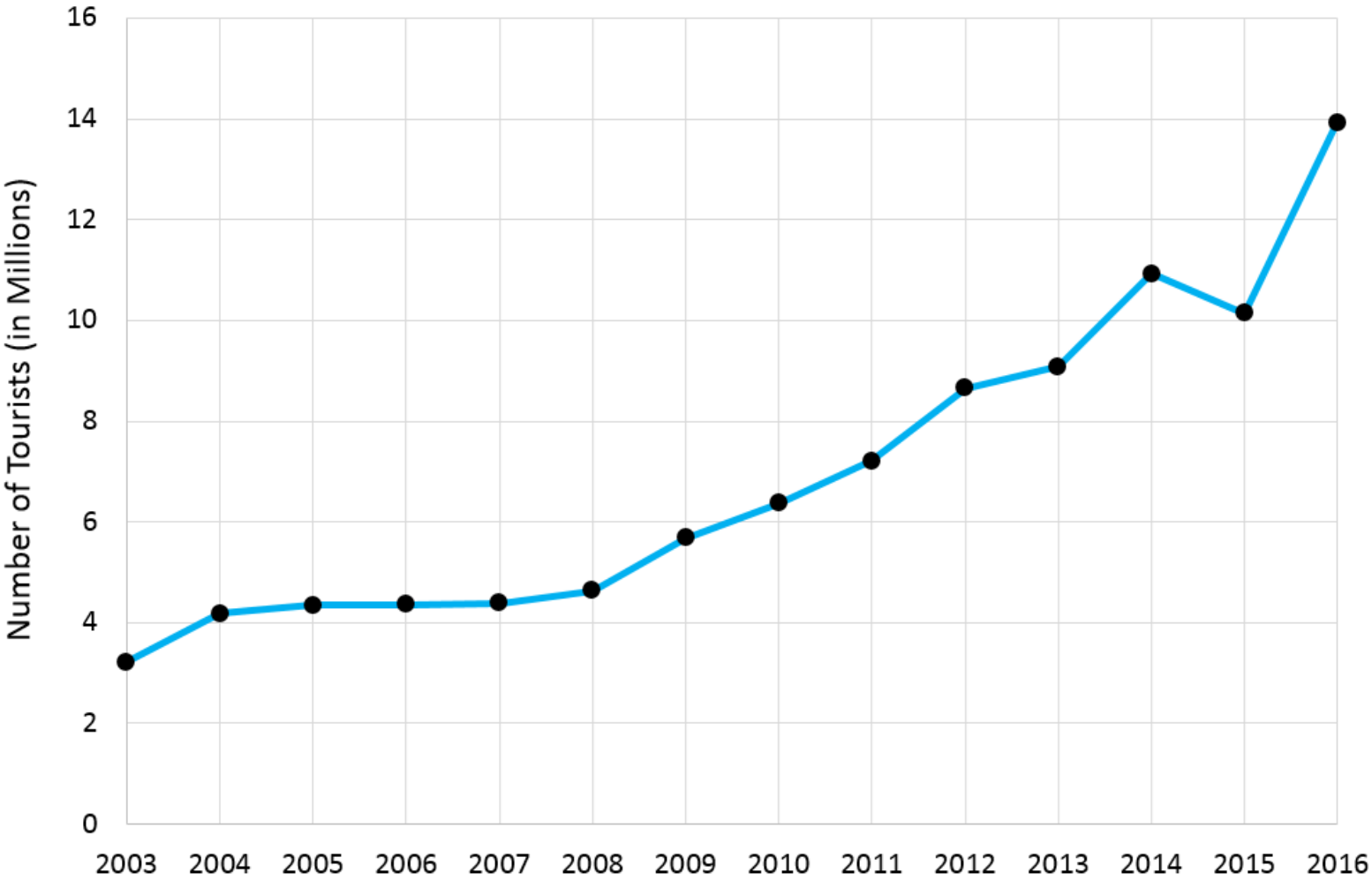
	Cosmetic product exports			Percentage of Female visitors		
	(1)	(2)	(3)	(4)	(5)	(6)
	year-FE	country-FE	country-FE *k-wave destinations*	year-FE	country-FE	country-FE *k-wave destinations*
ln $TVshowExp_{c,t-1}$	0.409***	0.235***	0.413***	0.0598***	0.00934*	0.0410***
	(0.0878)	(0.0737)	(0.0855)	(0.0173)	(0.00530)	(0.0115)
ln $GDP_{c,t}$	0.273***	1.750***	1.409***	-0.155***	0.178***	0.200***
	(0.0828)	(0.274)	(0.256)	(0.0280)	(0.0159)	(0.0330)
ln $Dist_c$	-0.0993			-0.0740		
	(0.157)			(0.0470)		
$RTA_{c,t}$	-0.458	0.465***	0.328***	0.00526	0.0816***	-0.0153
	(0.427)	(0.0938)	(0.118)	(0.0476)	(0.0160)	(0.0159)
$Embassy_{c,t}$	0.602	0.290	-4.428**	-0.146	0.0405	
	(0.678)	(0.363)	(1.986)	(0.106)	(0.0890)	
ln $Koreans_{c,t}$	-0.0806	-0.0775	-0.120	0.0617***	0.0403	-0.120***
	(0.112)	(0.236)	(0.278)	(0.0237)	(0.0309)	(0.0183)
ln $ExRate_{c,t}$		-0.117	0.291		0.0552	0.162***
		(0.426)	(0.385)		(0.0857)	(0.0374)
cons.	3.189*	-27.04***	-22.15***	6.901***	0.149	-0.537
	(1.698)	(3.855)	(3.979)	(0.808)	(0.269)	(0.599)
Obs.	1604	1383	195	403	391	103
R^2	0.671	0.869	0.880	0.748	0.973	0.924

Motivating exercises: Tourism

- Tourism is another iconic industry that is known to be highly sensitive to the overseas popularity of Korean pop culture.
- As suggested by Onishi (2005) in the *New York Times*, Korea had been one of the least popular tourist destinations until around 2002, but the trend has since shifted due to the Korean wave:

  tourists to South Korea more than quadrupled during 2003–2016.
- The fact that women have stronger affinity for the Korean pop culture and that tourism is highly influenced by the Korean wave suggest the testable hypothesis: The Korean wave has attracted more female visitors than the male visitors.
- Table of Cosmetics and Tourism

South Korea—Growth in the Number of Foreign Tourists



Empirical Framework

- Assuming the model of Armington (1969) and allow foreign consumers' exposure to Korean pop culture to affect their preference parameters for goods from Korea yields the following gravity equation in log-linear form:

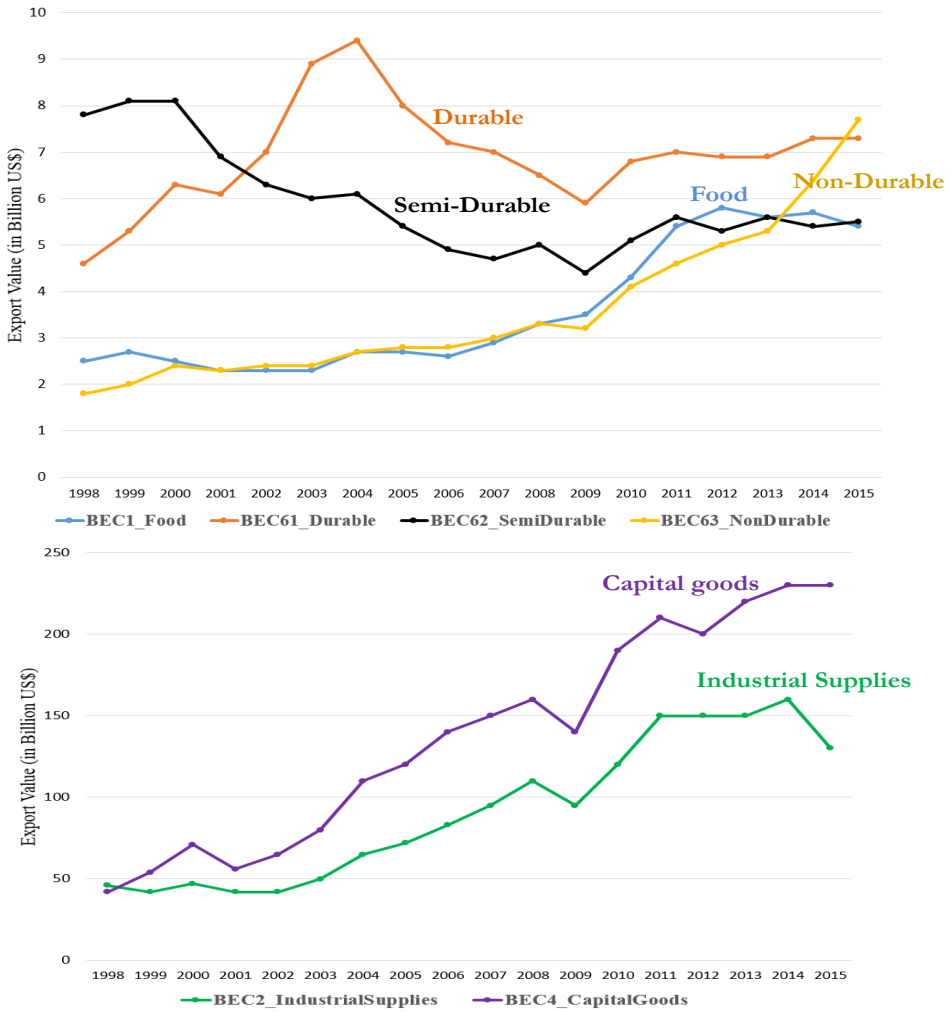
$$\ln Exp_{ci,t} = \theta_i \cdot \ln TVshowExp_{c,t-1} + \delta \ln GDP_{c,t} + X_{c,t} + u_{ci,t}, \qquad (1)$$

where c denotes a destination country; i an industry; $\ln TVshowExp_{c,t-1}$ lagged TV show exports; $X_{c,t}$ a linear combination of trade-cost proxies.

- One of the challenges facing our estimation: exports of Korean goods exhibit different time trends across industries for reasons unrelated to the Korean wave.

  These confound the identification of the Korean-wave effect because Korea's TV show exports grew dramatically over the same time period.

South Korea—Export Trends in Selected BEC Categories



- Korea's exports of semi-durable goods — which consist mostly of clothing — decreased by more than 30% during 2000–2015, because many plants in the industry moved to nearby low-wage countries during the period.
- Meanwhile, exports of intermediate and capital goods grew substantially, as South Korea's specialization moved to upstream industries.

Time-Differenced Framework: Consumer Goods Effects

- We pool the observations across HS 4-digit industries and take first-differences of equation (1) over a period of time.

  For example, $\Delta \ln Exp_{ci} \equiv \ln Exp_{ci,2015} - \ln Exp_{ci,2002}$ if the period of interest is 2002–2015, and similarly $\Delta u_{ci} \equiv u_{ci,2015} - u_{ci,2002}$.

$$\begin{aligned} \Delta \ln Exp_{ci} = \chi_i \quad &+ \quad \beta_1 \cdot ConsumerGoods_i \cdot \Delta \ln TVshowExp_c \\ &+ \quad \beta_2 \cdot \Delta \ln TVshowExp_c \\ &+ \quad \delta \, \Delta \ln GDP_c + \Delta X_c + \Delta u_{ci} \ , \end{aligned} \tag{2}$$

- This removes destination-industry specific effects that are time invariant.
- In addition, we control for industry fixed effects χ_i in this time-differenced framework to control for Korea's industry-specific export trends.
- With the pooled sample, we test a natural hypothesis that the effect can be stronger on consumer goods compared to capital or intermediate goods. ▸ Table of BEC

UN Broad Economic Categories

1 - Food and beverages
  11 - Primary
    111 - Mainly for industry
    112 - Mainly for household consumption
  12 - Processed
    121 - Mainly for industry
    122 - Mainly for household consumption
2 - Industrial supplies not elsewhere specified
  21 - Primary
  22 - Processed
3 - Fuels and lubricants
  31 - Primary
  32 - Processed
    321 - Motor spirit
    322 - Other
4 - Capital goods (except transport equipment), and parts and accessories thereof
  41 - Capital goods (except transport equipment)
  42 - Parts and accessories
5 - Transport equipment and parts and accessories thereof
  51 - Passenger motor cars
  52 - Other
    521 - Industrial
    522 - Non-industrial
  53 - Parts and accessories
6 - Consumer goods not elsewhere specified
  61 - Durable
  62 - Semi-durable
  63 - Non-durable
7 - Goods not elsewhere specified
99 - All categories

Note: Consumer goods are highlighted in boldface.

Time-Differenced Framework: Gender-Biased Preferences

- In the HS classification of goods, only clothing industries are given different HS codes (at the 4-digit level) depending on the gender of their consumers. ▸ Table of HS

- Unlike the previous case, we now pool over only the industries that are highly associated with clothing, which is 'Section XI — Textiles and Textile Articles' as classified by the UN.

$$\begin{aligned}\Delta \ln Exp_{ci} = \chi_i &+ \beta_1 \cdot WomensClothing_i \cdot \Delta \ln TVshowExp_c \\ &+ \beta_2 \cdot MensClothing_i \cdot \Delta \ln TVshowExp_c \\ &+ \beta_3 \cdot \Delta \ln TVshowExp_c \\ &+ \delta \, \Delta \ln GDP_c + \Delta X_c + \Delta u_{ci}. \end{aligned} \tag{3}$$

- We expect the estimate of β_1 to be positive and larger than that of β_2 (due to the gender-biased effect), and both of them to be larger than β_3 (due to the consumer goods effect).

Harmonized System (HS) Classification Codes for Selected Industries

Panel A. *Korean Wave Goods* ***

HS code	Description
16	Meat, fish and seafood food preparations nes
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Cereal, flour, starch, milk preparations and products
20	Vegetable, fruit, nut, etc., food preparations
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
3304	Beauty, make-up and skin care preparations
3305	Hair preparations
3307	Shaving and toilet preparations nes, deodorizers
3402	Organic surface active agent, preparation, except soap
4202	Trunks, suit-cases, camera cases, handbags, etc.
4203	Clothing, accessories of leather, composition leather
61	Articles of apparel, accessories, knitted or crocheted
62	Articles of apparel, accessories, not knitted or crocheted
7113	Jewelry and parts, containing precious metal
7117	Imitation jewelry
8415	Air conditioning equipment, machinery
8418	Refrigerators, freezers and heat pumps nes
8450	Household, laundry-type washing machine, washer-dryer
8517	Electric apparatus for line telephony, telegraphy
8528	Television receivers, video monitors, projectors
8703	Motor vehicles for transport of persons (except buses)

***The HS 4-digit industries that fall under the above clusters and that are also consumer goods.

Panel B. Textiles and Textile Articles (UN Classification, Section XI)

HS code	Description
50	Silk
51	Wool, animal hair, horsehair yarn and fabric thereof
52	Cotton
53	Vegetable textile fibres nes, paper yarn, woven fabric
54	manmade filaments
55	manmade staple fibres
56	Wadding, felt, nonwovens, yarns, twine, cordage, etc.
57	Carpets and other textile floor coverings
58	Special woven or tufted fabric, lace, tapestry, etc.
59	Impregnated, coated or laminated textile fabric
60	Knitted or crocheted fabric
61	*Articles of apparel, accessories, knitted or crocheted*
62	*Articles of apparel, accessories, not knitted or crocheted*
63	Other made textile articles, sets, worn clothing, etc.

Panel C. Women's and Men's Clothing (HS 61 & 62)

HS code	Description
6102	Women's or girls' overcoats, capes, wind-jackets, etc., knitted or crocheted
6104	Women's or girls' suits, dresses, skirts, etc., knitted or crocheted
6106	Women's or girls' blouses, shirts, etc., knitted or crocheted
6108	Women's or girls' underwear, nightwear, etc., knitted or crocheted
6202	Women's or girls' overcoats, capes, wind-jackets, etc., not knitted or crocheted
6204	Women's or girls' suits, dresses, skirts, etc., not knitted or crocheted
6206	Women's or girls' blouses, shirts, etc., not knitted or crocheted
6208	Women's or girls' underwear, nightwear, etc., not knitted or crocheted
6101	Men's or boys' overcoats, capes, wind-jackets, etc., knitted or crocheted
6103	Men's or boys' suits, jackets, trousers, etc., knitted or crocheted
6105	Men's or boys' shirts, knitted or crocheted
6107	Men's or boys' underwear, nightwear, etc., knitted or crocheted
6201	Men's or boys' overcoats, capes, wind-jackets, etc., not knitted or crocheted
6203	Men's or boys suits, jackets, trousers, etc., not knitted or crocheted
6205	Men's or boys' shirts, not knitted or crocheted
6207	Men's or boys' underwear, nightwear, etc., not knitted or crocheted

Threats to Identification

1. The increased popularity of Korean culture in some destination countries may be correlated with some unobserved factors that improved Korea's trade relationship with those countries.

$\Rightarrow$ We add country fixed effects ζ_c to equations (2) and (3), to control for such destination-specific shocks to the trends of the Korean TV program and merchandise exports.

$$\Delta \ln Exp_{ci} = \chi_i + \zeta_c + \beta_1 \cdot ConsumerGoods_i \cdot \Delta \ln TVshowExp_c + \Delta u_{ci}, \quad (4)$$

$$\Delta \ln Exp_{ci} = \chi_i + \zeta_c + \beta_1 \cdot WomensClothing_i \cdot \Delta \ln TVshowExp_c + \beta_2 \cdot MensClothing_i \cdot \Delta \ln TVshowExp_c + \Delta u_{ci}. \quad (5)$$

Threats to Identification (cont.)

2. The results may be driven by the possibility that the overall domestic demand for consumer goods and women's clothing, regardless of the origins of the goods, happened to increase sharply in the countries highly influenced by the Korean wave.

$\Rightarrow$ We replace the dependent variables in our main specifications (2)–(5) with changes in the destination's Korean *import shares* out of its total imports in industry i.

3. Some may suspect that the increase in exports of Korean merchandise and entertainment programs are driven by some unobserved long-run common causal factors.

$\Rightarrow$ To rebut this, we perform falsification tests (Autor et al., 2013) by regressing *past* (in the 1990s) decadal changes in goods exports on *future* (in the 2000s) decadal changes in TV program exports, and verify that there are no such spurious effects.

Threats to Identification (cont.)

4. People may argue, to the contrary, that it is Korea's exports of goods/services that caused the Korean wave.

$\Rightarrow$ As will be shown below, the Korean wave effects differ across genders and types of goods, which is difficult to reconcile with such a reverse causality argument.

$\Rightarrow$ To illustrate, it is highly unlikely that the quality of women's clothing (originated from Korea) improved more than men's, only in certain countries and not in others, and led women in those countries to have stronger preferences for Korean TV shows.

Threats to Identification (cont.)

5. The estimation results could be driven by shocks to the supply side such as productivity growth, possibly synchronized with the growth of the Korean wave.

$\Rightarrow$ However, as can be seen in Figure of BEC, it is the intermediate and capital goods whose actual productivity and exports increased strongly during the same time period as the Korean wave, while consumer goods exports exhibited mainly downward trends.

Estimation Strategies: Summary

To demonstrate that more exports of Korean TV shows induce more exports of Korean goods/services by changing foreign consumers' preferences:

1. Gender-biased preferences: Given the fact that women spend more time watching Korean TV shows than men, we test whether the Korean wave has larger effects on women's than on men's clothing.

2. Consumer versus non-consumer goods: We estimate equation (2) in two different versions: one with the general consumer goods dummy and another one with the dummy indicating *Korean wave goods*. Table of HS

3. Diffusion of preferences: We look at products/services that are rarely advertised by Korean firms through the mass media.

Korea's Exports of Women's versus Men's Clothing

Dependent variable: decadal changes in exports in HS 4-digit textile and textiles article industries (in log)

	Panel A. For period of exposure				Panel B. Falsification tests for period before exposure			
	2002–2015		stacked (2002–2007, 2007–2015)		1991–2001		stacked (1991–1996, 1996–2001)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$WomensClothing_i$	0.345**	0.227***	0.275***	0.208***	0.0531	0.0627	-0.0193	-0.0186
$\times \Delta \ln TVshowExp_c$	(0.137)	(0.0562)	(0.0734)	(0.0486)	(0.126)	(0.0962)	(0.0612)	(0.0474)
$MensClothing_i$	0.272***	0.186***	0.132*	0.147***	-0.192	-0.189	0.0181	-0.00674
$\times \Delta \ln TVshowExp_c$	(0.0895)	(0.0533)	(0.0759)	(0.0543)	(0.216)	(0.127)	(0.0583)	(0.0441)
$\Delta \ln TVshowExp_c$	0.0497		0.0292		-0.0157		0.0662**	
	(0.0486)		(0.0355)		(0.0598)		(0.0279)	
$\Delta \ln GDP_c$	0.922***		1.126***		0.769*		1.088***	
	(0.224)		(0.230)		(0.381)		(0.240)	
$\Delta \ln ExRate_c$	0.0715		0.267		-0.106*		-0.348***	
	(0.249)		(0.198)		(0.0534)		(0.0867)	
$\Delta \ln Koreans_c$	0.112		0.130		0.0493		0.0339	
	(0.156)		(0.0799)		(0.112)		(0.102)	
cons.	-2.232***	-0.263	-0.629	1.115	-2.860***	-3.561***	-2.190***	-1.914***
	(0.190)	(0.272)	(0.634)	(0.865)	(0.243)	(0.367)	(0.407)	(0.369)
Obs.	2768	3888	7215	8453	1527	1528	4548	4581
R^2	0.184	0.256	0.123	0.126	0.207	0.241	0.150	0.180
Industry FE	Y	Y			Y	Y		
Industry × Period FE			Y	Y			Y	Y
Country FE	N	Y	N	Y	N	Y	N	Y

Destinations' Korean Import Shares in Women's versus Men's Clothing

Dependent variable: decadal changes in import shares in HS 4-digit textile and textiles article industries (in log)

	Panel A. For period of exposure				Panel B. Falsification tests for period before exposure			
	2002–2015		stacked (2002–2007, 2007–2015)		1991–2001		stacked (1991–1996, 1996–2001)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$WomensClothing_i$	0.212**	0.135***	0.151**	0.112**	-0.101	-0.0853	-0.0305	-0.0409
$\times \Delta \ln TVshowExp_c$	(0.102)	(0.0491)	(0.0678)	(0.0457)	(0.0727)	(0.0665)	(0.0488)	(0.0427)
$MensClothing_i$	0.0858	0.0544	0.0420	0.0587	-0.283*	-0.265**	-0.0435	-0.0523
$\times \Delta \ln TVshowExp_c$	(0.0932)	(0.0571)	(0.0786)	(0.0547)	(0.148)	(0.111)	(0.0517)	(0.0428)
$\Delta \ln TVshowExp_c$	0.0213		0.0650***		-0.00679		0.0283	
	(0.0298)		(0.0211)		(0.0421)		(0.0197)	
$\Delta \ln ExRate_c$	0.742**		0.542***		0.119***		-0.0128	
	(0.285)		(0.175)		(0.0389)		(0.0655)	
$\Delta \ln Koreans_c$	0.0600		0.0737		0.201*		0.145	
	(0.109)		(0.0677)		(0.117)		(0.0967)	
cons.	-1.544***	-0.596**	-0.0307	1.150	-3.290***	-2.966***	-1.272***	-1.025***
	(0.115)	(0.245)	(0.497)	(0.862)	(0.248)	(0.331)	(0.152)	(0.296)
Obs.	2824	3888	7329	8453	1528	1528	4581	4581
R^2	0.158	0.224	0.101	0.116	0.237	0.273	0.137	0.171
Industry FE	Y	Y			Y	Y		
Industry × Period FE			Y	Y			Y	Y
Country FE	N	Y	N	Y	N	Y	N	Y

Gender-biased Preferences: Women's versus Men's Clothing

- Overall, the results in this section provide strong evidence of the demand-side driven mechanism that the Korean wave has changed consumers' preferences and their consumption behaviors.
- That the effects are stronger for products used by women is especially revealing of this preference mechanism, because such gender-biased trade effects within a fine product category is difficult to reconcile with supply-side explanations as well as the reverse causality argument.

Korea's Exports of Consumer versus Non-consumer Goods

Dependent variable: decadal changes in exports in all HS 4-digit industries (in log)

	Panel A. For period of exposure				Panel B. Falsification tests for period before exposure			
	2002–2015		stacked (2002–2007, 2007–2015)		1991–2001		stacked (1991–1996, 1996–2001)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ConsumerGoods_i$	0.165***	0.112***	0.0831***	0.0684***	0.0286	0.0194	0.00177	-0.00548
$\times \Delta \ln TVshowExp_c$	(0.0393)	(0.0145)	(0.0283)	(0.0126)	(0.0490)	(0.0325)	(0.0220)	(0.0138)
$\Delta \ln TVshowExp_c$	-0.00132		-0.0203		-0.0365		0.0386	
	(0.0315)		(0.0266)		(0.0458)		(0.0266)	
$\Delta \ln GDP_c$	0.752***		1.051***		0.609*		0.988***	
	(0.159)		(0.183)		(0.337)		(0.173)	
$\Delta \ln ExRate_c$	-0.461***		0.0761		0.0208		-0.0202	
	(0.167)		(0.135)		(0.0614)		(0.0687)	
$\Delta \ln Koreans_c$	0.229**		0.178**		-0.0388		-0.0307	
	(0.109)		(0.0743)		(0.113)		(0.0766)	
cons.	3.856***	4.613***	-0.708	0.189	1.170***	1.229***	-0.0982	-1.351***
	(0.0968)	(0.379)	(0.936)	(0.881)	(0.213)	(0.148)	(0.0947)	(0.302)
Obs.	17088	23244	44694	52153	8434	8441	25374	25549
R^2	0.244	0.276	0.152	0.150	0.294	0.313	0.176	0.189
Industry FE	Y	Y			Y	Y		
Industry $\times$ Period FE			Y	Y			Y	Y
Country FE	N	Y	N	Y	N	Y	N	Y

Destinations' Korean Import Shares in Consumer versus Non-consumer

Dependent variable: decadal changes in import shares in all HS 4-digit industries (in log)

	Panel A. For period of exposure				Panel B. Falsification tests for period before exposure			
	2002–2015		stacked (2002–2007, 2007–2015)		1991–2001		stacked (1991–1996, 1996–2001)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ConsumerGoods_i$	0.104**	0.0796***	0.0502**	0.0520***	-0.0400	-0.0450	-0.00342	-0.0161
$\times \Delta \ln TVshowExp_c$	(0.0396)	(0.0142)	(0.0249)	(0.0124)	(0.0412)	(0.0305)	(0.0180)	(0.0133)
$\Delta \ln TVshowExp_c$	-0.0203		0.00589		-0.0341		0.0108	
	(0.0212)		(0.0179)		(0.0461)		(0.0160)	
$\Delta \ln ExRate_c$	0.00644		0.236*		0.0754**		0.107	
	(0.168)		(0.120)		(0.0306)		(0.0700)	
$\Delta \ln Koreans_c$	0.105		0.0998		0.0273		0.0253	
	(0.0772)		(0.0678)		(0.0870)		(0.0633)	
cons.	3.675***	3.532***	-0.440	-0.293	1.177***	1.126***	0.243***	-1.240***
	(0.0342)	(0.400)	(0.744)	(0.742)	(0.131)	(0.111)	(0.0442)	(0.296)
Obs.	17345	23244	45311	52153	8441	8441	25549	25549
R^2	0.191	0.223	0.117	0.121	0.288	0.306	0.159	0.175
Industry FE	Y	Y			Y	Y		
Industry $\times$ Period FE			Y	Y			Y	Y
Country FE	N	Y	N	Y	N	Y	N	Y

Korea's Exports in *Korean Wave Goods* versus the Rest

Dependent variables: decadal changes in exports in all HS 4-digit industries (in log)

	Panel A. For period of exposure				Panel B. Falsification tests for period before exposure			
	2002–2015		stacked (2002–2007, 2007–2015)		1991–2001		stacked (1991–1996, 1996–2001)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$KoreanWaveGoods_i$	0.263***	0.181***	0.144***	0.108***	0.0140	-0.00269	0.00497	-0.00355
$\times \Delta \ln TVshowExp_c$	(0.0597)	(0.0207)	(0.0376)	(0.0191)	(0.0608)	(0.0504)	(0.0361)	(0.0198)
$\Delta \ln TVshowExp_c$	0.0128		-0.0142		-0.0308		0.0385	
	(0.0289)		(0.0249)		(0.0428)		(0.0258)	
$\Delta \ln GDP_c$	0.754***		1.051***		0.613*		0.988***	
	(0.159)		(0.183)		(0.337)		(0.173)	
$\Delta \ln ExRate_c$	-0.465***		0.0747		0.0203		-0.0202	
	(0.166)		(0.135)		(0.0613)		(0.0687)	
$\Delta \ln Koreans_c$	0.230**		0.178**		-0.0396		-0.0307	
	(0.109)		(0.0741)		(0.112)		(0.0766)	
cons.	3.837***	4.584***	-0.723	0.181	1.157***	1.230***	-0.0980	-1.349***
	(0.0963)	(0.381)	(0.940)	(0.882)	(0.205)	(0.147)	(0.0924)	(0.302)
Obs.	17088	23244	44694	52153	8434	8441	25374	25549
R^2	0.245	0.276	0.152	0.150	0.294	0.313	0.176	0.189
Industry FE	Y	Y			Y	Y		
Industry × Period FE			Y	Y			Y	Y
Country FE	N	Y	N	Y	N	Y	N	Y

Destinations' Korean Import Shares in *Korean Wave Goods* versus the Rest

Dependent variable: decadal changes in import shares in all HS 4-digit industries (in log)

	Panel A. For period of exposure				Panel B. Falsification tests for period before exposure			
	2002–2015		stacked (2002–2007, 2007–2015)		1991–2001		stacked (1991–1996, 1996–2001)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$KoreanWaveGoods_i$	0.179***	0.128***	0.102***	0.0772***	-0.0790*	-0.0974**	-0.0163	-0.0299
$\times \Delta \ln TVshowExp_c$	(0.0616)	(0.0205)	(0.0345)	(0.0190)	(0.0440)	(0.0453)	(0.0235)	(0.0191)
$\Delta \ln TVshowExp_c$	-0.0128		0.00844		-0.0361		0.0116	
	(0.0194)		(0.0167)		(0.0424)		(0.0146)	
$\Delta \ln ExRate_c$	0.00422		0.235*		0.0752**		0.107	
	(0.168)		(0.120)		(0.0307)		(0.0700)	
$\Delta \ln Koreans_c$	0.106		0.0996		0.0274		0.0253	
	(0.0765)		(0.0676)		(0.0874)		(0.0634)	
cons.	3.665***	3.511***	-0.446	-0.300	1.181***	1.126***	0.241***	-1.238***
	(0.0328)	(0.402)	(0.746)	(0.742)	(0.124)	(0.111)	(0.0416)	(0.296)
Obs.	17345	23244	45311	52153	8441	8441	25549	25549
R^2	0.192	0.223	0.117	0.121	0.288	0.306	0.159	0.175
Industry FE	Y	Y			Y	Y		
Industry $\times$ Period FE			Y	Y			Y	Y
Country FE	N	Y	N	Y	N	Y	N	Y

Consumer Goods Effects

- Overall, the results in this section demonstrate the presence of significantly positive effects of the Korean wave on exports of consumer goods as opposed to capital or intermediate goods.

  This highlights the important role of the demand-side mechanism.

- It is also worthwhile to note that during the 2002–2015 period, Korea's exports of consumer goods in general declined relative to its exports of capital and intermediate goods.

  This makes the finding of positive cultural effects on exports of consumer goods even more compelling.

- To a certain extent, the Korean wave helped buck the downward trend of consumer goods exports, particularly with *Korean wave goods* leading the way.

Diffusion of Preferences

- (i) diffusion of preferences, and (ii) advertising based on the Korean wave.
- We could argue that without the diffusion of preferences, the advertising efforts cannot lead to such phenomenal impacts.
- To illustrate, despite substantial efforts by Korean cosmetic firms to penetrate lucrative markets, such as France, UK, Germany and Canada, where Korean pop culture is not popular, they have failed to enlarge their market shares.
- In contrast, in the destination markets where Korean soap operas are highly popular, they find it extremely lucrative to ride on the Korean wave by involving Korean stars in marketing activities.
- Thus, conceptually, the diffusion of preferences stemming from Korean pop culture develops first before the advertising channel becomes effective.

Diffusion of Preferences: Clothing

To support this argument, we look at products/services that are rarely advertised by Korean firms through the mass media.

- Korean clothing is rarely advertised in foreign countries.
- Rather, it appears that a 'made in Korea' or 'Korean style' label is an important factor to spur sales in foreign countries, thus associated with the diffusion of preferences channel (Obermiller and Spangenberg, 1989; Verlegh and Steenkamp, 1999).
- Indeed, as demonstrated in ▸ Table of Cloth and ▸ Table of Cloth in Share , the growth in Korean TV show exports has significantly positive effects on the growth in Korean clothing exports.

Diffusion of Preferences: FDI

- Using cross-country panel data on South Korea's outward FDI, we examine the Korean wave impacts on services that are not advertised through the mass media in foreign countries.
- As in the case of *Korean wave goods*, there are particular service sectors whose sales have reputedly benefited from the Korean wave.
- Table ▸ Table of survey indicates that more than 25% of foreigners surveyed wanted to have Korean medical services and learn the Korean language, and more than 50% of them wanted to eat and purchase Korean foods, after experiencing Korean pop culture.
- Using the same sources of information that helped define the *Korean wave goods*, we similarly classify Korea's FDI sectors into the *Korean wave service* sectors and *non-Korean wave service* ones. ▸ Table of FDI

Korea's FDI Sectors

	Korean wave service sectors
Restaurant	Restaurants and accommodation business
Retail and Wholesale	Grocery stores, retail/wholesale business
Entertainment and Leisure	Concerts, performances, arts, leisure services
Broadcasting	Broadcasting, publishing, communication and information services
Medical	Medical clinics
Education Services	Educational services
Personal Services	Personal services such as hair salons
	Non-Korean wave service sectors
Agriculture	Agriculture, forestry, fisheries
Business management	Business facilities management, business support services
Construction	Construction
Finance	Finance, insurance
International Institutions	International, foreign institutions
Manufacturing	Manufacturing industries
Mining	Mining industries
Public Administration	Public, defense, social security administration
Science and Technology	Services associated with science and technology
Shipping	Shipping, transportation
Leasing and Real Estate	Leasing, real estate business
Electricity and Gas	Electricity, gas, water supply
Waste Management	Waste treatment, environmental restoration

Diffusion of Preferences: FDI

- If the Korean wave has induced the diffusion of foreign consumers' preferences, we expect Korea's FDI in the *Korean wave service* sectors to be positively affected by the Korean TV show exports.
- To test this, we pool observations across sectors and allow the Korean wave effect to differ across the set of *Korean wave service* sectors and the set of *non-Korean wave service* sectors.
- Unlike the previous analysis for merchandise trade, we do not apply the time-differenced framework in this case.

  This is because Korea's FDI data at the sectoral level across destinations are sparse with many zero entries, so taking log difference across two years leads to a large drop in the sample size.
- Instead, we run the FDI regression in levels, but control for sector-year and destination FEs.

Korea's outward FDI — *Korean wave service* sectors versus the rest

	FDI 2002–2015		Falsification tests: FDI 1991–2001		
	(1)	(2)		(3)	(4)
$KoreanWaveService_i$	0.110***	0.113***	$KoreanWaveService_i$	0.00160	0.00173
$\times \ln TVshowExp_{c,t-1}$	(0.0204)	(0.0201)	$\times \ln TVshowExp_{c,t+12}$	(0.0405)	(0.0418)
$\ln TVshowExp_{c,t-1}$	0.0225	0.0276	$\ln TVshowExp_{c,t+12}$	-0.0597	-0.0673
	(0.0328)	(0.0352)		(0.146)	(0.165)
$\ln GDP_{c,t}$	-0.588***	-0.456***	$\ln GDP_{c,t}$	-0.0708	-0.0562
	(0.157)	(0.143)		(0.405)	(0.424)
$\ln ExRate_{c,t}$	0.302	-0.0174	$\ln ExRate_{c,t}$	0.153	0.136
	(0.374)	(0.379)		(0.113)	(0.109)
$RTA_{c,t}$	-0.0000652	0.0666	$RTA_{c,t}$		
	(0.0873)	(0.0808)			
$Embassy_{c,t}$	-2.249***		$Embassy_{c,t+12}$	-2.627***	
	(0.538)			(0.539)	
$\ln Koreans_{c,t}$	0.554***		$\ln Koreans_{c,t+12}$	0.526	
	(0.129)			(0.364)	
cons.	18.43***	15.84***	cons.	10.21	8.163
	(3.332)	(3.148)		(6.798)	(7.486)
Obs.	16628	16628	Obs.	9531	9531
R^2	0.497	0.491	R^2	0.661	0.653
Sector × Year FE	Y	Y	Sector × Year FE	Y	Y
Country FE	Y	Y	Country FE	Y	Y

Diffusion of Preferences: FDI

- This section demonstrates that even goods and services that are rarely advertised through the mass media can be highly influenced by the Korean wave (clothing, Korean grocery stores, hair salons, etc.).
- Our findings on the significantly positive effects of TV show exports on the *Korean wave service* FDI sectors especially reinforce the evidence for diffusion of preferences.

Overall Economic Impacts of the Korean Wave

- The increased Korean TV show exports during 2001–2014 increased Korea's exports of consumer goods by \$18.81 billion.

  (A 10% increase in TV show exports increase the exports of Korean consumer goods by 1.65%. The Korean TV show exports increased from \$18.92 to \$336.019 million during 2001–2014. The Korea's export value of consumer goods was \$31.443 billion in 2002.)

- So, by merchandise trade alone, the Korean wave contributed to South Korea's economy by about 3.1% of GDP in 2002.

- The actual impact of the Korean wave may be much larger if we consider the exports of music, movies, and revenues earned by K-pop performances abroad, medical tourism, FDIs, and so on.

Concluding Remarks

- Culture tends to develop slowly over time and thus being highly correlated with geographic factors.
- On the other hand, the Korean pop culture dramatically spread across many countries in a short time frame.
- Evidence that: increased exposure to Korean pop culture has changed foreign consumers' preferences for Korean goods/services:
  1. The impact is stronger for products/services for women.
  2. The effects are significantly positive for consumer goods but insignificant for capital or intermediate goods.
  3. The effects are significant even for the goods and services which are rarely advertised through the mass media.

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