

Title: Income inequality and demand for EU luxury goods in Republic of Korea.

An attempt of empirical analysis

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Abstract

This study examines impact of income inequality on demand for EU luxury goods in Republic of Korea. We found positive and significant association between higher level of income inequality and import of luxury products from EU in Korea during 2000-2014. This relationship is dynamic by nature as current levels of inequality could affect demand for luxury goods in the future. This finding supports the presence of Veblen effect in Korea and tendency towards conspicuous consumption.

The effect of inequality seems to weaken after the Korea-EU FTA was signed in 2011. Also, we find evidence that inflow of tourists, especially from China, influenced demand for EU luxury goods during 2000-2014. These findings are important from the perspective of the business strategies as they show that not only domestic but also various international and regional factors can cause transformations of Korea's luxury market.

Key words: luxury goods, income inequality, Korea, EU, trade

I Introduction

Rise of the Asian consumerism stimulated growth of world's luxury goods sales. According to Bain & Company (2012), more than 50% of global demand for luxury is generated in Asia. Korea occupies a central place in Asian luxury market and increasingly demanding Korean consumers offer brand producers many opportunities. Since 2006 and until early 2011,

Korean luxury market was growing at an average annual rate of 12% (McKinsey, 2011). Large portion of this growth was associated with larger consumption of European luxury goods. In the following years growth accelerated. According to the estimates by Korean Ministry of Knowledge and Economy, in 2011, the year when KOR-EU FTA came into effect, sales of luxury goods were up by 19.8% y-o-y basis. Today Koreans on average spend 5% household income on luxury products, which is five times more than Japanese do. This comparison demonstrates psychological willingness of Korean consumers to allocate a bigger portion of their income on luxury products.

Despite vibrant development of Korean luxury market, research work remained to be remained limited. Existing works focus mainly on psychological motives of luxury consumption in Korea (Lee et al 2014; Song 2014; Park 2010). They provide an in-depth analysis that delves into essence of psychological processes that drive Korean consumers towards luxury goods, but do not always pay attention to economic aspects of growing luxury-indulgence. At the same time, economic processes represent core factors of luxury consumption as they tend to be closely linked to economic ability to make a purchase, in the first place. Another key consideration is difference in income between the poorest and wealthiest groups. Differential level of income is a critical factor defining structure of consumption: the more unevenly the distribution of income becomes, the higher the demand for luxury gets (Vigneron and Johnson, 1999, 2004).

In 2000-2014, Korea experienced deep economic transformation that helped country to rise its overall income level. But redistribution of benefits from this growth became increasingly unequal in favour of more affluent social groups. As a result of this growth, needs of social groups with higher income started to converge with the needs placed at the top of the Maslow

hierarchy of needs. They are usually associated with self-representation and differentiation, commonly achieved through purchase of luxury products – conventional symbol of status and belonging to the affluent social class. Existing link between consumption of luxury goods and inequality necessitates and the fact that it remains under-researched for Korea, necessitates more scholarly discussion. With this paper, we aim to bridge the existing gap by linking consumption of EU-made luxury brands with rising level of social inequality in Korea.

The rest of the paper is organised as following. Section two reviews major socio-economic trends in Korea and Korea-EU trade. Section three discusses theoretical and methodological concepts for empirical analysis; sections four and five present estimation results and discussion; conclusion sums up main findings.

This study provides evidence that unequal distribution of income induces a significantly larger increase in consumption of EU luxury goods in Korea than. Demand for luxury goods tends to be inelastic towards price, the finding that is in line with existing theory. Evidence obtained also show that in Korea, international and regional factor can affect structure of domestic demand and stimulate luxury sales. Results of the study can be useful for the purposes of formulation business strategies as well as policy-making.

II Trends in Korean economy and Korea-EU trade in luxury goods

2-1 Korea Economic Trends

In 2000-2014, growth rates of Korean economy slowed from 9% to 4% as it was entering into maturity stage (figure 1). Still, they were higher than in other advanced countries. Korea so far managed to avoid negative consequences of the World Financial Crises and remained one of the fastest growing economies in OECD. By 2014 Korea's GDP per capita grew 2.5 times at current prices comparing to its 2000 level exceeding 27 thousand USD. Per capita disposable

income, which we are going to employ later in empirical analysis, increased to fifteen thousand USD. Growing prosperity created favourable environment for consumption of luxury products, and various liberalisation initiatives by the government intensified the trend (Song 2014).

In the beginning of 2000's Korean government relaxed regulation of consumer lending in order to support domestic demand and lower export-dependence of economy. On the negative side of credit availability was rapid debt accumulation by households. In July 2014, Korea's domestic debt exceeded 512 billion USD (Joongang Daily, 2015), which equalled 163.8% of the disposable income, or 30% higher than an OECD average (Korea Times, 2014). Financial burden connected with debt service provoked greater social inequality. The share of city families in the category of 5-150% of the average income decreased from 69.7% in 2000 to 66% in 2014. In 2008 and 2009 it went as low as 62.6-62.7%. In 2000-2014, the GINI index went up from 0.279 to 0.308 (figure 2). In 2007-2010 it was even higher 0.316-0.32, affected by a sharp depreciation of Korean won against US dollar after World Financial Crisis.

While there is much controversy with regard to success of these policies in general as weak domestic consumption (figure 1) persisted and export sector remained the biggest contributor to GDP growth. they were favourable for imports of consumer goods from EU (figure 3). Total trade volume (export plus import) reached 110 billion US dollars by 2014 up from 47 billion in 2000 (figure 3). World Financial Crisis had negative but short-lived impact on the bilateral trade flows (figure 3). The post-crisis increase in the import volume from EU was particularly notable: accelerated growth rates helped import gain almost 50% by 2014 comparing to its 2010 level. In 2012 for the first time after 1997 import from EU reached the

same level as Korean exports to EU, and the next year import from EU exceeded Korean export leading to a substantial negative trade balance for Korea (figure 3).

Germany, UK, Netherlands, Italy and France, countries that make up more than 40% of Korea's total import from EU, all increased their exports to Korea. In 2014, Korea imported from Germany more than 21 billion USD worth of goods (in 2007 it was only 13.5 bln USD). Imports from UK, the next biggest source of imports from EU, grew twofold to 7.445 billion USD from 3.6 bln USD in 2007, from Italy and France grew to 6.2 billion USD (up from 3.6 bln USD in 2007) and 6.8 billion USD (up from 4 bln USD in 2007), correspondingly. The biggest increase in import volume occurred in categories of jewellery, clothes, handbags and shoes, cars. Cosmetics and perfume imports did not change but this was due to already large volume of Korean cosmetics market, one of the largest in Asia. Thus, luxury goods dominated structure of Korean imports from EU at times when both income level and income inequality were rising.

2-2 Culture and Consumption of EU Luxury Goods in Korea

As previously mentioned, demand for luxury goods in Korea intensified as country's middle class was coming to the top of Maslow (1954) hierarchy of needs, when self-actualization and desire to 'become the most that one can be, realize the fullest potential' (Maslow, A. 1954, p. 92) becomes a priority. Like in other cultures, luxury brands in Korea came to serve as a channel of self-expression and were used to display individual identity and person's underlying values (Shavitt, 1989), communicate central beliefs and social image (Katz, 1960; Bian, Forsythe, 2012).

In Korea, European products are generally associated with higher quality and social value and are often seen as attributes of affluent Western lifestyle and cosmopolitanism (Lee *et al* 2014).

Such psychological perceptions secured EU-made products high popularity in Korea. Korean consumers purchase them for the sake of making an impression on others (*Lee et al 2014*), differentiate from one social groups and show belonging to other social groups, mainly high-income, whose life they want to experience.

Here it is necessary to mention that growth of Korea's luxury market was based not only on the domestic consumption. Importantly, Korean market has become a regional trendsetter (*Bain & Company, 2014*) turning into 'distribution channel' for European goods among Asian consumers and especially Chinese, who often come to Korea for shopping. According to World Travel and Tourism Council (2015), travel and tourism industry directly contributed 2% to Korea's GDP in 2014, while the total contribution stood at 5.8%.¹ One reason to believe that Chinese influenced Korea's luxury market is the fact that they were main buyers in Korea's department stores², which so far remain major and most trusted distribution channel for luxury goods in Korea (*Kim et al. 2010*). Department stores in Korea sell not only physical products but make purchase an experience³. Korea institute of economic trends (KIET 2013) estimate that contribution of tourists from China to Korea's retail industry could be around 50%.

III Theory and methods

For purposes of the analysis, the following categories from double-digit international HS classification were taken to represent luxury products groups: 33 – cosmetics and perfumes;

¹Number of Chinese coming to Seoul went up from 1,068,000 in 2007 to 4,326,000 in 2013. Per capita spendings by Chinese tourists grew by 80% from 1,262 USD in 2008 to 2,272 USD (*Kim Jeong-pil 2014*).

²In 2014, more that 70% of the customers in centrally located Lotte Department Store in Seoul were Chinese

³ In a study by Kim et al on relationship between distribution channels for foreign luxury fashion brands and consumer loyalty to brands in the Korean market, authors found that the emotional value of purchase of a luxury products was 'highly evaluated only in case of traditional distribution channels, i.e. department stores. 'Participants felt joy when the shopped at department stores when compared with other distribution channels' (*Kim et al. 2010*).

41 and 42 – leather goods including handbags, travel goods; 43 – furs; 61- articles of apparel and clothing accessories – knitted or crocheted; 44 – furniture and wood products; 62 – articles of apparel and clothing accessories – not knitted or crocheted; 64 – footwear; 71 – precious stones and jewellery; 87 – auto-vehicles; 91 – clocks and watches. Food and wine were excluded from the analysis. Changes in their imported volume are given in figure 4.

Due to lack of scholarly works on problems of inequality and trade in luxury goods *per se* (Mitra, Trindade, 2005, p.1254), we used several groups of studies in order to lay down theoretical foundations for this work. A work by Anna Ray and Antoine Vatan (2013) on the issue of demand for luxury goods and growing worldwide income disparity was particularly helpful. Using data on French firms, authors found a positive association between higher income gap and demand for luxury goods. Ray and Vatan (2013) explain this association by higher aesthetic and quality characteristics of luxury goods.

Other sources of theoretical thought represent literature on the problem of import and income distribution (Yo et al, 2009; Mitra and Trindade, 2005; Dalgin, Mitra, Trindade, 2008). In these works, authors found evidence supporting positive impact of income inequality on imports in general. Finally, studies on import demand function provided major methodological feedback when constructing the estimation model. With respect to Korea several works were particularly useful. One is a 1991 work by Balassa (1991), the other one is an IMF working paper prepared by Giorgianni and Milesi-Ferretti (1997), two others include are more recent ones by Tang (2005) and Chang, Ho and Huang (2005).

This study contributes to theoretical discussion on the issue of inequality and consumption of luxury goods as it provides evidence in favour of positive relationship between income inequality and import of luxury goods in Korea. Analysis shows the dynamic nature of this

relationship meaning that the current level of inequality may affect future levels of imports. Finally, estimation result are line with the economic theory that says that income elasticity for luxury goods is higher than unity and their price elasticity is closer to zero.

Methods

In order to estimate relationship between demand for luxury products and levels of inequality in Korea we use an import demand function. Traditionally, import demand represents a function of income and relative price of imports adjusted for the domestic inflation rate or GDP deflator.

$$I_t = F(Y_t, R_{Pt}), \quad (1)$$

Where I_t is a volume of import at time t , Y is the domestic income levels at time t and R_{Pt} is relative price of import at time t . The log-log specification of this function takes the form

$$\ln I_t = a_0 + a_1 \ln Y_t + a_2 \ln R_{Pt} + \epsilon_t \quad (2),$$

where \ln is the natural logarithm, and ϵ_t is the error term for the period t .

Following Ray and Vatan (2013), we use level of GINI as a proxy for income. Relative price of import is a price of one unit of import. We also include competition from domestic producers into equation measured as volume of export of luxury goods by Korean produces occurred in the same HS 2-digit categories. This logic is that because domestic companies can influence buying choices of that group of consumers that prefer domestic brands over foreign. We also include variable for Chinese tourists to reflect changes in the composition of Korea's domestic demand.

Final estimated equation has the following look:

$$\ln I_{imp} = a_0 + a_1 \ln I_{exp} + a_2 \ln GINI + a_3 \ln adjprice + a_4 \ln tourists + \epsilon_t \quad (3),$$

where

Lnimp is the natural logarithm of import of luxury goods from EU. The data for import are HS 2-digit product categories taken from the Korea International Trade Association (KITA) database. We also try alternative measure of income such as per capita disposal income to check the robustness of our results;

Lnexp is the natural logarithm of luxury goods export by Korean companies to EU in the same HS 2-digit categories as import. Source for the date is KITA;

LnGINI is the natural logarithm of income inequality index Gini taken from Korea National Statistical Office;

Lnadjprice is the natural logarithm of relative price of imported luxury goods calculated as the unit price of import from KITA database adjusted for GDP deflator provided by the Bank of Korea;

LnTourists is the natural logarithm of the number of Chinese tourists coming to Korea published by the Korea Tourism Organisation.

All data are for the period 2000-2014 and measured in dollar terms; tourists are measured in thousands of people.

We expect that $a_1 < 0$; $a_2 > 0$; $a_3 < 0$ and $a_4 > 0$.

We use two types of estimation methods, them being the time series analysis and panel data analysis. Time series will help check the dynamic nature of relationship between inequality and demand for luxury products. Panel data method allows to explore whether there were any change in relationship between inequality and demand for EU luxury goods before and after Korea-EU FTA was signed

IV Results and discussion

This section presents results of empirical estimation on the relationship between income inequality and demand for EU luxury goods in Korea. As discussed earlier, demand for luxury products should grow as inequality levels rise. Results of the analysis with time series methods is followed by results from panel data estimation.

IV-1 Time series

Here we test for the dynamic relationship between level of income inequality proxied by GINI and demand for luxury goods from EU proxied by import volume. Descriptive statistics is in Table 1 in Appendix. There are several technical issues that require careful consideration. First issue is a small number of years, which may lead to biased results. However, works for short time periods became more common recently due to development of techniques allowing treatment of the bias from small number of time periods. For example, Tang (2005) estimated import demand function for Korea for a period of 21 years. Also, analysis of imports of luxury goods from EU is hardly possible for a longer period, since luxury goods became available for wider consumption in Korea only during the second half of the 1990's.

The other issue to be addressed is autocorrelation, which is common for time series data. Test procedure for unit root shows that except for *lnGINI* all variables follow AR(1) process. There are various choices on how to deal with unit root and non-stochastic behaviour of the data. Lags is one of the most frequent choice (Wilkins, 2013). The lengths of lags was determined through lag-order selections statistics that includes Akaike's information criterion, Schwarz's Bayesian information criterion and the Hannan and Quinn information criterion. All of them can be performed at the same time with Stata command *varsoc*. For the variable on the number of Chinese tourists we apply first differencing.

We estimated the model with OLS with robust standard errors in order to account for serial correlation. Estimation results are in table 1 in Appendix. All variable obtained expected signs and are statistically significant at 5% level. The variable of interest – natural logarithm of gini is positive and has a value of 9.199. Since left and right hand sides of equation have natural logarithms, results mean elasticities, i.e. 1% increase in income inequality yield a proportionate percentage change in the dependent variable. In our case, the effect of Gini on import of luxury goods is more than 9% during 2000-2014. In general, this result is consistent with Keynesian argument that income elasticity of demand for luxury goods is larger than one but still, it is a very strong economic effect. Durbin's alternative test for the first-order serial correlation in the errors do not rejects the null of no first-order serial correlation, thus, including lags of the variables removed any serial correlation in the errors. Post-estimation tests for autoregressive conditional heteroscedasticity (ARCH) in the errors does not reveal any white noise either.

Following Wooldridge (2009), we re- estimated the model with Praise-Winston regression that works better in samples with short periods (Appendix table 2). All results have smaller values and the coefficient on export becomes insignificant, but results for the $\ln gini$ are in line with the previous estimation.

We tried to estimate the model with per capita disposable income. The results are in the same direction as estimation for the gini but the coefficient on income is substantially lower. We may assume that income growth will induce demand for EU luxury good. And as Korea will grow economically, the consumption of luxury goods will grow as well. On the other hand, Combining these results with results from the previous estimation, it is possible to conclude that if economic growth in Korea leads to a more unequal distribution of income demand for

luxury goods from EU will grow. Growing import from EU can be problematic as they can lead to negative trade balance for Korea. Because lagged variable were used, the relationship between inequality and demand for luxury goods is a dynamic one and current levels of gini can influence future levels of consumption.

As a robustness check of our model, we tried to include coefficient on GDP per capita into our regression. The estimation returned the results that are very close to those obtained in other studies estimating Korea's import demand function: in Tang (2005) it is 1.80. In our case, it is 2.3⁴, which looks very probable since we are dealing with luxury goods that have higher income elasticity of demand. The coefficient for Chinese tourists is positive, both statistically and economically significant. Therefore, we can say, that demand for European luxury goods in Korea should be viewed in a larger regional context and to some extent in connection with Chinese market.

IV-2 Panel results

Time series analysis has helped to establish a positive association between demand for luxury imports from EU in Korea and level of income inequality during 2000-2014 holding such variables as competition from local producers, price levels and demand from tourists fixed. However, due to a small number of observations, time series analysis did not allow testing for the effect of income disparity during different time periods. We are particularly interested in whether effect of inequality changed after the FTA between Korea and EU was signed in 2011. This section will present results in empirical testing for the effect of inequality on demand for the luxury goods from EU before and after Korea-EU FTA had been signed.

⁴ These results are not included into the final version of the paper for considerations of space but they can be presented on demand.

In order to perform this type of test, we change the structure of data from time series to panel. Unlike in the previous section, data on the natural logarithm of import are disaggregated by double-digit HS codes, each product group represents a panel varying over time. In total, there are 12 HS two-digit codes for 15 time periods from 2000 to 2014. The descriptive statistics is in Appendix Table 3. In essence, we estimate the same import demand function discussed in the methodology section. However, to avoid bias that may result from using panel invariant observations for *lngini*, *lntourists*, *lnpgdi*, which are same for all panels in each year, we will not include the variable for tourists and will focus predominantly on the effect of gini and per capita disposable income.

First of all, we tried to apply fixed and random effect estimation method to data for the whole period and perform the Housman test to choose between the two. Housman tests returned the results that would make us to reject the null that individual effects are uncorrelated with the other regressors. However the complications was that the matrix $V_b - V_B$ was not positive definite. This is an indication towards presence of heteroscedasticity, which is confirmed through the modified Wald test for groupwise heteroscedasticity.⁵ Pesaran test also captures presence of cross-sectional dependence and contemporaneous correlation. These results make us to reject both fixed and random effect estimation models and choose pooled OLS with Driscoll-Kraay standard errors, as recommended by Woolridge (2002) and Hoechle (2007). In Stata program this can be done with the command ‘xtscc’. Estimation results are in Appendix table four.

Specification (1) is for the whole period 2000-2014, specification (2) is for the pre-FTA period 2000-2010 and specification (3) is for 2011-20014. The coefficient on *lngini* is positive

⁵ Test results are: $\chi^2(12) = 170.10$ Prob> $\chi^2 = 0.0000$

in all three specifications; it is statistically significant at 1%-level in (1) and (2), but in (3) it falls to a 10% level. Factors included into the model can explain 52% of variation in import during the whole period 2000-2014 (R-squared 0.523), 45% for the period 2000-2010 and 63.6% for the period 2011-2014.

Obtained results indicate that after FTA was signed, effect of inequality weakened. The weaker relationship between consumption of luxury good and inequality can be plausibly explained by a slight decrease in the level of gini after 2010 and change in the composition of demand. As it was found from the time series estimation, Chinese tourists had stimulated demand for European luxury goods in Korea.⁶ Finally, and perhaps more importantly, that import of luxury products was rising due to FTA effect. The agreement removed tariff and non-tariff barriers for a large spectrum of EU products making them more accessible.

Coefficient on price elasticity retained its negative sign and statistical significance in the first specification, however, in the period after FTA was signed it has lost its statistical significance. More surprisingly, coefficient on export changed its sign from negative to positive. It is hard to find plausible explanation, but perhaps this is due to effect of export on income in general. As export remained the main driving force of economic growth in Korea, it could be that export expansion stimulated income growth and higher consumption of luxury goods.

We also attempted to estimate the model with dummies for all product categories except for the cosmetics and perfumes, which is chosen as a reference group (table 4 specifications 4, for the whole period, 5 for 2000-2010, 6 for 2011-2014). In them, too, we were able to confirm the positive effect of income inequality on demand for luxury goods for the overall period and

⁶ Plugging log of per capita disposable income instead of GINI gives yields a 2.16% rise in demand for luxury goods per 1% of income growth during 2011-2014.

during 2000-2010. Coefficients on all the dummy variables are statistically significant but vary in the magnitude. Thus, it is possible to conclude that inequality has a differential impact on different categories luxury products. The highest coefficients were obtained for the handbags, shoes and clothes (codes 42 and 62), which in Korea are used to show social status and belonging to an upper class. Negative sign on *Ingini* for the period 2011-2014 also shows that its significance fall and impact of other factors increased after Korea-EU FTA was signed.

V Discussion

Based on the results of analysis the following generalization is possible. For the period 2000-2014 there is a positive, statistically and economically significant association between income inequality and demand for European luxury products in Korea. The more uneven the distribution of the growing income becomes, the higher the demand for the luxury goods gets. Therefore, we can observe conspicuous consumption, or the Veblen effect in Korea.

While Veblen effect is not unique for Korea, consumption of luxury brands in this has some peculiar characteristics that deserve to be mentioned. Purchase of luxury goods is often seen as a way to experience life of the richest members of society or to gain freedom in the Korean society where conformity with others is implied. When writing about conspicuous consumption by Koreans, Korean scholars often use an epithet 'McLuxury' (황상민, 2012). It derives its roots from two words 'Big Mac' as a symbol of readily available food for everyone with no regard for social status and 'Luxury' as a unique. In other words, through possession of a luxury product a person can experience life of the 1% of the upper class. Act of purchase makes life of the upper class as accessibility as BigMac is. More or less accessible luxury goods as

handbags and shoes can make consumers feel compensated with special treatment thus establishing indirect social contacts with their reference groups (Vigneron and Johnson, 1999, 2004).

Luxury brands are more popular with women for whom they offer an opportunity to find their own personal space in the men-dominated oriental. Korea's luxury market was developed mainly by women.⁷ Because chances to get a well-paid job for Korean women were significantly lower than for men, they were more inclined to buy luxury goods to 'attain middle class modernity' (Song, 2010). Buying a brand was psychologically akin to liberation, and together with the feeling of owning a brand gave Korean women what Song (2010) 'a sense of individualism associated with the West'.

VI Conclusion

Empirical analysis in this paper focused on the demand side of EU luxury goods import by Korea. It confirmed positive association between consumption of luxury goods from Europe and rising level of income inequality in South Korea during 2000-2014. By using different measures for income, we were able to find that growth of income has positive association with the consumption of luxury goods from EU but the magnitude of this effect is smaller.

Results of empirical tests captured that after Korea-EU FTA had been signed the relationship between income inequality and import of luxury goods weakened substantially. It is plausible that this is due to additional stimuli for import growth due to lower trade barriers. One more

⁷ In the mid-2000, a new word was coined to denote a young girl who love Western expensive brands. The word was 'toenjangnyo', or soybean paste girl. (Song, 2010)

important outcome of our study refers to the time effect of income inequality. In our analysis, we used lagged variables, which means that levels of inequality in previous periods can influence demand for luxury goods in future periods.

Korea is a late industrializer and its society is still in the process of transformation and adaptation to a capitalist society. Availability and opportunity to buy luxury products has some air of 'novelty' around it. The market is going through many transformations. However, because Korean society has always emphasized collectivism and belonging to a group, under globalization brands become a new way show differentiation from and belonging to certain social groups. Inequality and wider income gap are able to intensify this historic predisposition.

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Appendix Tables

Table 1. Descriptive statistics for time series analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
Inimp	15	15.27983	0.545771	14.426	16.29355
lnexp	15	15.78058	0.395759	15.09602	16.24918
lngini	15	-1.19403	0.043822	-1.27654	-1.13943
lnadjprice	15	-1.42998	0.213708	-1.80371	-1.01876
Intourists	15	13.98327	0.82861	13.00086	15.62819

Table 2 Estimation results with OLS with robust standard errors and Prais-Winsten regressions

Dependent variable	(1) OLS With robust standard errors	(2) Prais-Winsten	(3) Prais-Winsten
L2.lnexp	-0.701*** (0.132)	-0.684* (0.309)	-0.587** (0.212)
L.lngini	9.199*** (1.209)	8.794** (2.739)	
L2.lnadjprice	-1.170*** (0.321)	-1.093** (0.406)	0.245 (0.307)
D.Intourists	2.420*** (0.583)	2.415*** (0.585)	1.086** (0.421)
L.lnpgdi			2.468***

Constant	35.25*** (3.257)	34.63*** (7.280)	(0.568) 1.816 (4.137)
Observations	13	12	12
R-squared	0.866	0.835	0.827

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3 Descriptive statistics for panel analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
lnimp	180	11.65104	1.577917	8.46337	15.8975
lnexport	180	10.2229	2.272022	6.113682	16.20714
lngini	180	-1.19403	0.042454	-1.27654	-1.13943
lnadj_uprice	180	-2.74791	2.004337	-8.21489	1.218015

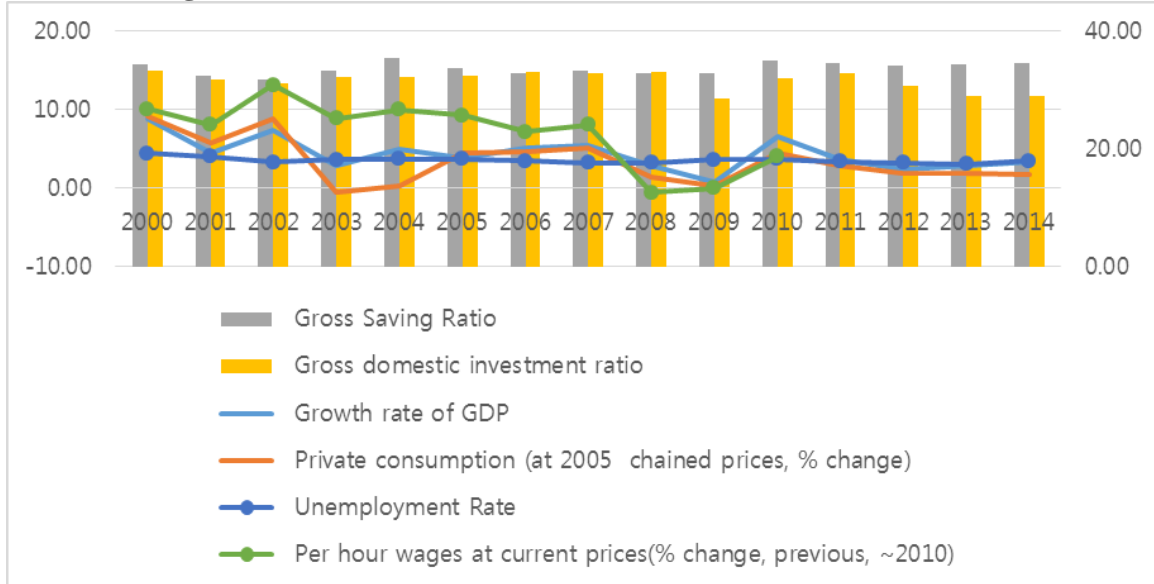
Table 4 Estimation results with xtsc command

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
lnimp	2000-2014	2000-2010	2011-2014	2000-2014	2000-2010	2011-2014
lnexport	0.488*** (0.0383)	0.452*** (0.0438)	0.565*** (0.00683)	0.0394 (0.0890)	-0.0852** (0.0318)	-0.0776 (0.0409)
lngini	6.383*** (1.771)	4.799*** (0.977)	-10.49* (4.384)	6.447*** (2.000)	4.377*** (1.140)	-17.84** (3.464)
lnadj_uprice	-0.0406** (0.0139)	-0.0313** (0.0131)	-0.0625 (0.0349)	-0.411*** (0.0469)	-0.475*** (0.0515)	-0.472*** (0.0268)
id41				0.707*** (0.169)	0.892*** (0.110)	0.410*** (0.0411)
id42				1.189*** (0.110)	1.217*** (0.172)	1.611*** (0.0341)
id43				0.499*** (0.0559)	0.498*** (0.0526)	0.528*** (0.0615)
id61				0.450*** (0.0755)	0.596*** (0.0413)	0.543*** (0.0290)
id62				0.529*** (0.0457)	0.617*** (0.0382)	0.583*** (0.0129)
id64				0.278*** (0.0248)	0.321*** (0.0367)	0.364*** (0.0103)
id87				0.520*** (0.0581)	0.620*** (0.0384)	0.678*** (0.0360)
id91				-0.0312*** (0.00703)	-0.0149*** (0.00210)	-0.00356 (0.00223)
id6970				0.0569*** (0.0154)	0.0836*** (0.0127)	0.0422** (0.00733)
id71				0.481*** (0.0613)	0.590*** (0.0242)	0.463*** (0.0155)
Constant	0 (0)	12.55*** (1.367)	-6.140 (5.168)	15.85*** (2.729)	13.94*** (1.501)	-11.45* (3.908)
Observations	180	132	48	180	132	48
R-squared	0.523	0.450	0.636	0.885	0.923	0.991
Number of groups	12	12	12	12	12	12

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

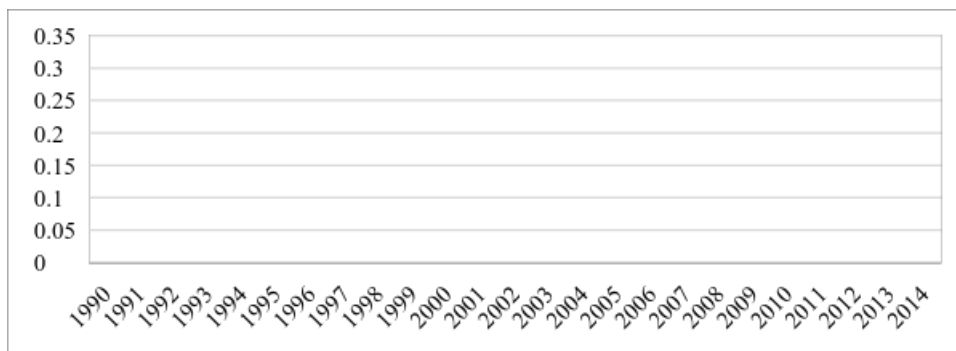
Figures

Figure 1 Main macroeconomic indicators for Korea, 2000-2014



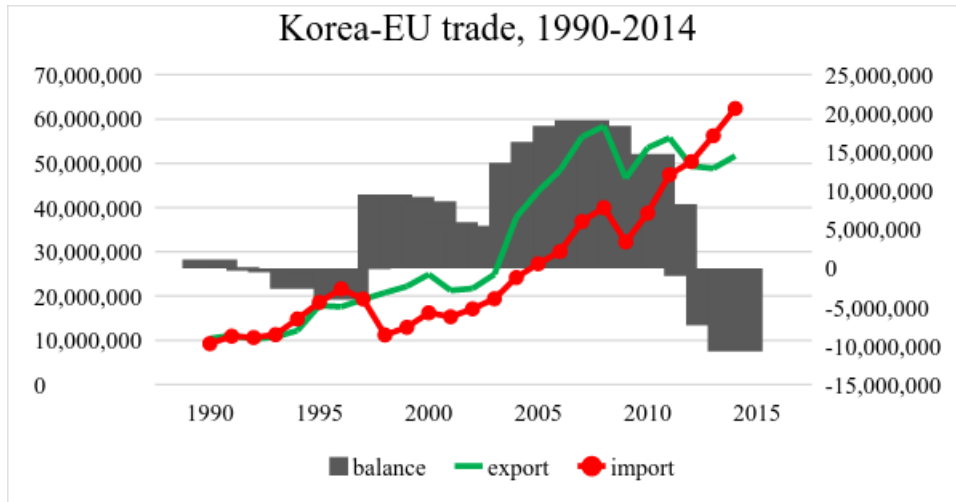
Source: Bank of Korea

Figure 2. Gini level in Korea during 2000-2014



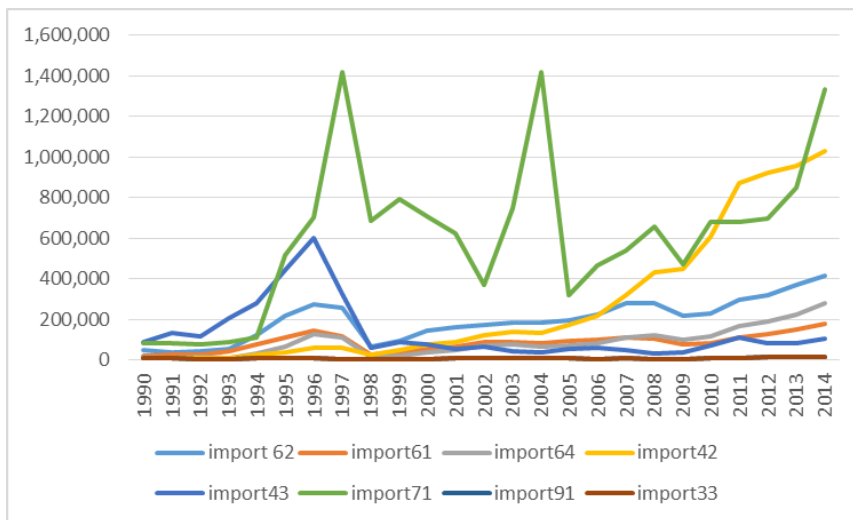
Source: Bank of Korea

Figure 3 Trends in Korea-EU trade, thousand USD



Source: Korea International Trade Association

Figure 4 Imports from EU by HS 2-digit product categories, thousand USD



Source: Korea International Trade Association