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Whose Policy Uncertainty Matters in the Trade between Korea and the U.S.?

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Abstract: Since the introduction of the news-based policy uncertainty measure, a few studies have looked at its impact on trade flows by using panel models and aggregate trade data. In this paper we consider the short-run and long-run response of 61 2-digit U.S. exporting industries to Korea and 49 2-digit Korean exporting industries to the U.S. to policy uncertainty measures of the U.S. and Korea. We find that both measures have short-run effects on exports of almost one-third of industries in either direction. In the long run, however, while nine U.S. exporting industries (with a trade share of 9%) are negatively affected by the Korean uncertainty measure, only five industries (with 6% export share) are affected by the U.S. uncertainty measure. As for the Korean exporting industries, we find that three industries with a 31% export share are affected positively by the Korean uncertainty measure and six industries with a 7% export share are affected positively by the U.S. uncertainty measure.

Keywords: economic policy uncertainty; the U.S.; Korea; industry trade

JEL Classification: F14; F40; F50

1. Introduction

When the international monetary system shifted from fixed to relatively more flexible exchange rates in March 1973, a new area in international economics began emerging where researchers became interested in the impact of exchange rate uncertainty or volatility on trade flows among countries. Bahmani-Oskooee and Hegerty (2007) is the latest review article on the topic. However, exchange rate uncertainty is not the only factor that may hurt trade flows. Exchange rate uncertainty or volatility could coincide with other uncertain factors that could hurt trade flows at the same time. One such measure is nothing but economic policy uncertainty, which is news-based. The measure introduced by Baker et al. (2016) captures the effects of all uncertain factors. In every country for which the measure is constructed, they search highly circulated news associated with policy uncertainty issues. Some examples of the terms searched for are: "policy", "tax", "spending", "regulation", "central bank", "budget", "deficit", "trade", "terrorism", etc. The terms such as "uncertain" or "uncertainty" are included in all searches. From the volume of the terms collected, a normalized index of uncertainty known as "Policy Uncertainty" is constructed. To learn about the path of this measure for the U.S. and Korea, we plot them in Figure 1. The spark towards the end of our study period reflects the appearance of the Covid-19 pandemic in both countries.
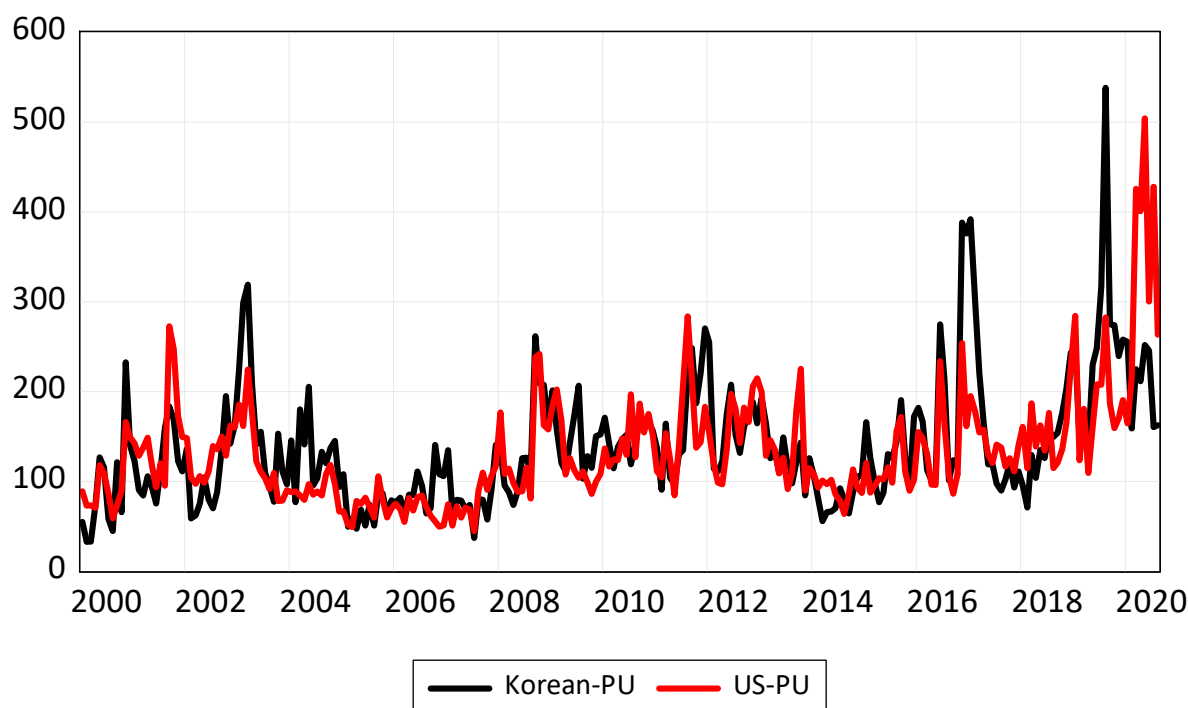
Figure 1. Monthly economic policy uncertainty indices.

Since the introduction of the policy uncertainty measure, researchers have begun to assess its impact on different macro variables. To cite some, Baker et al. (2016) themselves assessed its impact on domestic economic activity to show its adverse impact. Wang et al. (2014) assessed the response of corporate investment to the new uncertainty measure. On the other hand, Pastor and Veronesi (2013), Ko and Lee (2015), and Brogaard and Detzel (2015) investigated the response of risk premium and market returns to policy uncertainty, Kang and Ratti (2013), as well as Bahmani-Oskooee et al. (2018) and Istiak and Alam (2019), investigated the response of oil prices to the policy uncertainty measure. Furthermore, while Bahmani-Oskooee et al. (2016) assessed the impact of policy uncertainty on the demand for money in the U.S., Bahmani-Oskooee and Ghodsi (2017) considered the response of house prices in each state of the U.S., and Bahmani-Oskooee and Hasanzade (2021) looked at its impact on income distribution in each state in the U.S. To see more, one could consult the review article by Al-Thaqeb and Algharabali (2019).[1]

As far as the response of trade flows to the policy uncertainty measure is concerned, the literature is in its infancy and includes only Armelius et al. (2014), Han et al. (2016), and Tam (2018). Armelius et al. (2014) showed that U.S. economic policy uncertainty hurts aggregate global trade. Similarly, using a panel model that included trade data from 31 countries over the period 1999–2012, Han et al. (2016) discovered adverse effects of U.S. economic policy uncertainty. Finally, Tam (2018) employed a global vector autoregressive (GVAR) trade model, which is a panel model that included a total of 45 countries. By relying upon impulse response functions, the author finds that US policy uncertainty affects global trade flows significantly and strongly, largely due to its indirect trade linkages with the rest of the world. By contrast, China's economic policy uncertainty shock exhibits statistically significant impacts on exports and imports of its own as well as other economies, although not as pronounced as those arising from US economic policy shock.

Our main purpose in this paper is to consider trade flows between Korea and the U.S. and to try to determine whose policy uncertainty affects their trade flows more. To reduce aggregation bias embodied in the above studies, we adhere to time-series data between Korea and the U.S. To reduce the aggregation bias further, we use data at the industry level. Monthly data from 61 2-digit U.S. exporting industries to Korea and 49 2-digit Korean

industries exporting to the U.S. over the period 2000M1–2020M7 are used to carry out the empirical exercise. The rest of the study is organized in the following manner: In Section 2 we introduce the models and estimation method, which is followed by our empirical results in Section 3. We then provide a summary in Section 4 that is followed by an Appendix A in which we provide sources of the data and definition of the variables.

2. The Models and Methods

A common practice in the literature to formulate a country's export and import demand model is to include a measure of economic activity and a measure of relative prices as two major determinants of a trade flow model. Indeed, such models are used to estimate the so-called Marshall-Lerner Condition.[2] As such we borrow those models and after adding the two policy uncertainty measures, we begin with the following specifications:

$$LnX_{i,t}^{US} = \alpha + \alpha_1 LnY_t^{KOR} + \alpha_2 LnREX_t + \alpha_3 LnPU_t^{US} + \alpha_4 LnPU_t^{KOR} + \varepsilon_t \qquad (1)$$

$$LnM_{i,t}^{US} = \beta + \beta_1 LnY_t^{US} + \beta_2 LnREX_t + \beta_3 LnPU_t^{US} + \beta_4 LnPU_t^{KOR} + \mu_t \qquad (2)$$

Equation (1) outlines determinants of the U.S. export of commodity *i* to Korea denoted by X_i^{US}. As can be seen, the level of economic activity in Korea (Y^{KOR}), the real won-dollar rate (*REX*), the U.S. economic policy uncertainty (PU^{US}), and the Korean economic policy uncertainty (PU^{KOR}) are included to be the main determinants of the U.S. exports to Korea. As the Korean economy grows, we expect Korea to import more from the U.S.; hence, we expect an estimate of α_1 to be positive. Finally, the real bilateral exchange rate is defined as *REX* = (NEX*CPI^{US})/CPI^{KOR} where *NEX* is the nominal exchange rate defined as the number of won per US dollar, CPI^{US} is the price level in the United States and CPI^{KOR} is the price level in Korea. Thus, a decline in REX reflects a real depreciation of the US dollar. If dollar depreciation is to boost the U.S. exports to Korea, we expect an estimate of α_2 to be negative. Finally, if an increase in either measure of policy uncertainty is to hurt the U.S. export, estimates of α_3 and α_4 are expected to be negative.

Following the above logic and reasoning, we identify determinants of the U.S. import of commodity *i* from Korea, M_i^{US}, (or Korean export of commodity *i* to the U.S.) in Equation (2). These determinants are the level of economic activity in the U.S. (Y^{US}), the *REX*, and two policy uncertainty measures. As the U.S. economy grows, since it imports more from Korea, an estimate of β_1 is expected to be positive, and if dollar depreciation is to reduce U.S. imports of commodity ii from Korea, an estimate of β_2 is expected to be positive. Finally, if either uncertainty measure is to hurt Korean exports to the U.S., estimates of β_3 and β_4 are expected to be negative.

The next step in our modeling approach is to convert (1) and (2) to an error-correction format so that we can also estimate the short-run effects of all exogenous variables on the dependent variables. Pesaran et al.'s (2001) ARDL bounds testing approach has a unique advantage of estimating the short-run and long-run effects in one step. We follow their approach and rely upon the following error-correction models:

$$\Delta LnX_{i,t}^{US} = a_1 + \sum_{j=1}^{n1} a_{2j}\Delta LnX_{i,t-j}^{US} + \sum_{j=0}^{n2} a_{3j}\Delta LnY_{t-j}^{KOR} + \sum_{j=0}^{n3} a_{4j}\Delta LnREX_{t-j} +$$
$$\sum_{j=0}^{n4} a_{5j}\Delta LnPU_{t-j}^{US} + \sum_{j=0}^{n5} a_{6j}\Delta LnPU_{t-j}^{KOR} + \theta_0 LnX_{i,t-1}^{US} + \theta_1 LnY_{t-1}^{KOR} + \qquad (3)$$
$$\theta_2 LnREX_{t-1} + \theta_3 LnPU_{t-1}^{US} + \theta_4 LnPU_{t-1}^{KOR} + \psi_t$$

$$\Delta LnM_{i,t}^{US} = b_1 + \sum_{j=1}^{n5} b_{2j}\Delta LnM_{i,t-j}^{US} + \sum_{j=0}^{n6} b_{3j}\Delta LnY_{t-j}^{US} + \sum_{j=0}^{n7} b_{4j}\Delta LnREX_{t-j} +$$
$$\sum_{j=0}^{n8} b_{5j}\Delta LnPU_{t-j}^{US} + \sum_{j=0}^{n9} b_{6j}\Delta LnPU_{t-j}^{KOR} + \rho_0 LnM_{i,t-1}^{US} + \rho_1 LnY_{t-1}^{US} + \qquad (4)$$
$$\rho_2 LnREX_{t-1} + \rho_3 LnPU_{t-1}^{US} + \rho_4 LnPU_{t-1}^{KOR} + \phi_t$$

Once (3) and (4) are estimated by the OLS technique, short-run effects of any of the exogenous variables are judged by the estimates of coefficients attached to first-differenced variables, and long-run effects are inferred by the estimates of θ_1–θ_4 normalized on $-\theta_0$ in (3) and estimates of $\rho_1 - \rho_4$ normalized on $-\rho_0$ in (4). To validate the long-run estimates,

Pesaran et al. (2001) introduce two cointegration tests. The *F* test is proposed to establish the joint significance of lagged level variables and the *t*-test is suggested to establish the significance of θ_0 in (3) and ρ_0 in (4).[3] Pesaran et al. (2001) demonstrate that the distribution of both tests is non-standard; hence, they tabulate new critical values for both tests. Since the critical values account for integrating properties of the variables, there is no need for pre-unit-root testing and variables could be a combination of I(0) and I(1), which are the properties of the majority of macro variables, and this is another advantage of this approach.[4]

3. Empirical Results

In this section, we estimate model (3) for each of the 61 2-digit U.S. exporting industries to Korea and model (4) for each of the 49 2-digit Korean exporting industries to the U.S. by using monthly data over the period 2000M1–2020M7. A maximum of eight lags are imposed on each first-differenced variable and Akaike's information criterion (AIC) is used to select an optimum specification in each case. Since the study period includes the global financial crisis of 2008, a dummy variable is included to account for it. Industries in which the dummy is significant are identified in the tables. Additionally, we have collected all required critical values in the notes to each table and used them to identify significant estimates and diagnostic statistics. We first report estimates of the U.S. export demand model to Korea in Tables 1–4.

Table 1. Short-run coefficient estimates of Korean economic uncertainty on U.S. exports to Korea.

Code	# Lags on ΔPU^{KOR}							
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
00 Live animals	0.063							
01 Meat and preparations	−0.142 **							
02 Dairy products and birds' eggs	−0.162 **	−0.153 **	−0.169 **					
03 Fish, crustacean, and molluscs, and preparations thereof	−0.222 *							
04 Cereals and cereal preparations	−0.005							
05 Vegetables and fruit	−0.170 **	−0.055	−0.018	0.026	0.062	0.116 **	0.129 **	
06 Sugar, sugar preparations, and honey	−0.029							
07 Coffee, tea, cocoa, spices, and manufactures thereof	−0.015							
08 Feeding stuff for animals (not including unmilled cereals)	0.014							
09 Miscellaneous edible products and preparations	−0.067							
11 Beverages	0.059	−0.188 **	−0.099 *					
21 Hides, skins and furskins, raw	0.054							
22 Oil seeds and oleaginous fruit	0.343	−0.602 **						
23 Crude rubber (including synthetic and reclaimed)	−0.038	0.259 **						
24 Cork and wood	−0.034							
25 Pulp and waste paper	−0.031	−0.060 *						
26 Textile fibers (not wool tops) and their wastes (not in yarn)	0.005							
27 Crude fertilizer and crude minerals	−0.053							
28 Metalliferous ores and metal scrap	0.061							
29 Crude animal and vegetable materials, nes	−0.022							
33 Petroleum, petroleum products, and related materials	0.015							
41 Animal oils and fats	−0.203							
42 Fixed vegetable oils and fats	−0.388	0.341	0.757 **	0.909 **				
43 Animal and vegetable oils and fats, processed and waxes	0.030							
51 Organic chemicals	0.075 *	−0.007	−0.066	−0.153 **	−0.076 *	−0.102 **		
52 Inorganic chemicals	0.102							
53 Dyeing, tanning, and coloring materials	−0.033							
54 Medicinal and pharmaceutical products	−0.070							
55 Oils and perfume materials; toilet and cleansing preparations	−0.038							
56 Fertilizers, manufactured	0.119							
57 Explosives and pyrotechnic products	−0.005							
58 Artificial resins and plastic materials, and cellulose esters, etc	−0.101 **							
59 Chemical materials and products, nes	−0.048	−0.089 **	−0.012	0.066 *				

Table 1. *Cont.*

Code	# Lags on ΔPU^{KOR}							
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
61 Leather, leather manufactures, nes, and dressed furskins	−0.185 *							
62 Rubber manufactures, nes #	0.031							
63 Cork and wood, cork manufactures	0.009							
64 Paper, paperboard, and articles of pulp, of paper, or of paperboard	−0.051 *							
65 Textile yarn, fabrics, made-up articles, nes, and related products	−0.036							
66 Non-metallic mineral manufactures, nes	0.014							
67 Iron and steel	0.069	−0.113 *						
68 Non-ferrous metals.	−0.025							
69 Manufactures of metals, nes	−0.091 **	0.085 **	0.043	0.069 **	0.076 **	0.058 *	0.115 **	0.067 **
71 Power generating machinery and equipment	−0.087							
72 Machinery specialized for particular industries	−0.068							
73 Metalworking machinery	0.009							
74 General industrial machinery and equipment, nes, and parts of, nes	−0.049							
75 Office machines and automatic data processing equipment	0.008							
76 Telecommunications, sound recording, and reproducing equipment	−0.055	−0.168 **	−0.265 **	−0.062	0.015	0.103	0.227 **	0.157 **
77 Electric machinery, apparatus and appliances, nes, and parts, nes	0.012							
78 Road vehicles	−0.010							
79 Other transport equipment	−0.045	0.415 **						
81 Sanitary, plumbing, heating, lighting fixtures, and fittings, nes	−0.041							
82 Furniture and parts thereof	0.042	0.048	0.016	0.093	0.195 **	0.155 **	0.132 **	0.104 **
83 Travel goods, handbags, and similar containers	0.184 **							
84 Articles of apparel and clothing accessories	−0.037	−0.108	−0.125 *	−0.275 **	−0.191 **	0.069	−0.139 **	
85 Footwear	0.086							
87 Professional, scientific, controlling instruments, apparatus, nes	−0.064 *	−0.101 **	−0.096 **	−0.048	−0.026	0.007	0.064 **	0.069 **
88 Photographic equipment and supplies, optical goods, watches, etc	−0.014	0.012	−0.083 **					
89 Miscellaneous manufactured articles, nes	−0.068							
93 Special transactions, commodity not classified according to class	−0.158 **							
99 Estimate of non-Canadian low-value shipments	0.009							

Notes: ** and * indicate significance at 10% and 5% levels, respectively. The critical values of standard *t*-distribution, i.e., 1.64 and 1.96 are used to arrive at ** and *. The *t*-ratios themselves are not reported due to space constraints but they are available upon request. nes = not elsewhere specified. # next to an industry's name indicates that the global financial crisis dummy was significant.

Table 2. Short-Run coefficient estimates of US economic policy uncertainty on U.S. exports to Korea.

Code	# Lags on ΔPU^{US}							
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
00 Live animals	0.251							
01 Meat and preparations	0.078							
02 Dairy products and birds' eggs	0.109 *							
03 Fish, crustacean and molluscs, and preparations thereof	−0.250 *	−0.128	0.076	−0.139	−0.388 **			
04 Cereals and cereal preparations	−0.196 *	0.202 *						
05 Vegetables and fruit	0.068							
06 Sugar, sugar preparations, and honey	0.001							
07 Coffee, tea, cocoa, spices, and manufactures thereof	0.079							
08 Feeding stuff for animals (not including unmilled cereals)	0.037							
09 Miscellaneous edible products and preparations	−0.008							
11 Beverages	−0.102							
21 Hides, skins and furskins, raw	−0.116 **							
22 Oil seeds and oleaginous fruit	−0.334							
23 Crude rubber (including synthetic and reclaimed)	−0.018	−0.266 **	0.117	0.095	−0.133			
24 Cork and wood	−0.028							
25 Pulp and waste paper	0.068							
26 Textile fibers (not wool tops) and their wastes (not in yarn)	−0.137 *	−0.122	−0.108	−0.016	0.062	−0.030	0.183 **	
27 Crude fertilizer and crude minerals	0.015							
28 Metalliferous ores and metal scrap	−0.042	−0.283 **	−0.342 **	−0.267 **	−0.338 **	−0.198 **	−0.233 **	
29 Crude animal and vegetable materials, nes	0.037	−0.189 **	−0.287 **	−0.265 **	−0.274 **	−0.211 **	−0.161 **	
33 Petroleum, petroleum products, and related materials	−0.252 *	−0.331 **	−0.318 **					
41 Animal oils and fats	0.003	−0.353 **	−0.215	0.101	−0.391 **			
42 Fixed vegetable oils and fats	0.198							
43 Animal and vegetable oils and fats, processed and waxes	−0.129							
51 Organic chemicals	−0.054							
52 Inorganic chemicals	−0.013							
53 Dyeing, tanning, and coloring materials	−0.014							
54 Medicinal and pharmaceutical products	0.019							
55 Oils and perfume materials; toilet and cleansing preparations	−0.004							
56 Fertilizers, manufactured	0.085							
57 Explosives and pyrotechnic products	−0.006							
58 Artificial resins and plastic materials, and cellulose esters, etc	0.089 **							
59 Chemical materials and products, nes	0.057							

Table 2. *Cont.*

Code	# Lags on ΔPU^{US}							
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
61 Leather, leather manufactures, nes, and dressed furskins	0.092							
62 Rubber manufactures, nes #	−0.087							
63 Cork and wood, cork manufactures	−0.200 **	−0.094	−0.176 **	−0.083	−0.096	0.128	−0.004	0.163 **
64 Paper, paperboard, and articles of pulp, of paper, or of paperboard	0.019							
65 Textile yarn, fabrics, made-up articles, nes, and related products	−0.015							
66 Non-metallic mineral manufactures, nes	−0.016							
67 Iron and steel	−0.131 *	0.049	−0.141 **					
68 Non-ferrous metals.	−0.087							
69 Manufactures of metals, nes	0.051							
71 Power generating machinery and equipment	0.131 *	0.079	0.107	0.211 **				
72 Machinery specialized for particular industries	0.033							
73 Metalworking machinery	−0.103	0.209 **						
74 General industrial machinery and equipment, nes, and parts of, nes	−0.023							
75 Office machines and automatic data processing equipment	−0.071							
76 Telecommunications, sound recording, and reproducing equipment	−0.026	0.299 **	0.287 **	0.182 **	0.228 **	0.033		
77 Electric machinery, apparatus and appliances, nes, and parts, nes	−0.033							
78 Road vehicles	−0.073	−0.116 *						
79 Other transport equipment	0.040	−0.474 **						
81 Sanitary, plumbing, heating, lighting fixtures, and fittings, nes	−0.170							
82 Furniture and parts thereof	0.009							
83 Travel goods, handbags, and similar containers	−0.107							
84 Articles of apparel and clothing accessories	−0.030	0.027	0.250 **	0.233 **	0.194 **	0.071	0.194 **	
85 Footwear	−0.115							
87 Professional, scientific, controlling instruments, apparatus, nes	0.067	0.137 **	0.189 **	0.149 **				
88 Photographic equipment and supplies, optical goods, watches, etc	0.017							
89 Miscellaneous manufactured articles, nes	−0.007							
93 Special transactions, commodity not classified according to class	0.039							
99 Estimate of non-Canadian low-value shipments	−0.003							

Notes: ** and * indicate significance at 10% and 5% levels, respectively. The critical values of standard *t*-distribution, i.e., 1.64 and 1.96 are used to arrive at ** and *. The *t*-ratios themselves are not reported due to space constraints but they are available upon request. # next to an industry's name indicates that the global financial crisis dummy was significant.

Table 3. Long-run coefficient estimates of U.S. export models.

Industries	Share [c]	Constant	Ln Y_t^{KOR}	Ln REX_t	Ln PU_t^{KOR}	Ln PU_t^{US}
00 Live animals #[a]	0.045%	10.571 (5.291) **	1.363 (4.093) **[a]	−0.743 (0.807) [b]	0.067 (0.339)	0.267 (1.157)
01 Meat and preparations	4.343%	−0.430 (3.411) **	2.197 (2.120) **	1.408 (0.471)	−0.232 (0.355)	0.828 (1.173)
02 Dairy products and birds' eggs #	0.532%	2.283 (4.651) **	2.773 (6.204) **	−1.132 (0.870)	−0.169 (0.568)	0.488 (1.716) *
03 Fish, crustacean and molluscs, and preparations thereof #	0.906%	15.737 (6.081) **	0.132 (0.478)	0.033 (0.041)	−0.238 (1.591)	0.111 (0.488)
04 Cereals and cereal preparations #	1.561%	3.565 (6.644) **	1.731 (3.060) **	0.041 (0.026)	−0.423 (1.065)	−0.055 (0.127)
05 Vegetables and fruit #	1.745%	1.387 (4.347) **	2.147 (7.541) **	0.565 (0.720)	−0.385 (1.787) *	0.234 (1.336)
06 Sugar, sugar preparations, and honey #	0.076%	3.629 (3.696) **	0.892 (1.874) *	−0.971 (0.715)	−0.148 (0.521)	0.007 (0.021)
07 Coffee, tea, cocoa, spices, and manufactures thereof #	0.314%	1.499 (5.324) **	2.051 (11.650) **	0.440 (0.894)	−0.029 (0.266)	0.153 (1.253)
08 Feeding stuff for animals (not including unmilled cereals)	1.282%	0.629 (6.418) **	2.396 (11.109) **	0.657 (1.098)	0.028 (0.219)	0.075 (0.514)
09 Miscellaneous edible products and preparations #	1.078%	−1.059 (3.775) **	1.962 (4.131) **	2.389 (1.749) *	−0.409 (1.431)	−0.051 (0.167)
11 Beverages	0.190%	5.212 (3.173) **	−0.341 (0.255)	−5.161 (1.314)	1.065 (1.188)	0.639 (0.840)
21 Hides, skins and furskins, raw	0.266%	−1.486 (2.962) **	−1.273 (0.952)	−1.231 (0.328)	−0.974 (0.929)	2.096 (1.099)
22 Oil seeds and oleaginous fruit #	0.792%	21.274 (9.667) **	−0.579 (1.872) *	0.041 (0.047)	0.251 (1.185)	0.306 (1.327)
23 Crude rubber (including synthetic and reclaimed)	0.111%	6.626 (5.215) **	0.926 (2.217) **	−0.893 (0.739)	−0.308 (1.152)	0.111 (0.302)
24 Cork and wood #	0.142%	5.761 (3.120) **	−0.437 (0.875)	−0.525 (0.380)	−0.136 (0.455)	−0.112 (0.320)
25 Pulp and waste paper	0.511%	6.063 (5.901) **	0.049 (0.244)	−0.221 (0.404)	−0.264 (1.944) *	0.209 (1.561)
26 Textile fibers (not wool tops) and their wastes (not in yarn) #	0.385%	5.865 (4.919) **	0.240 (0.682)	−0.076 (0.076)	0.013 (0.074)	0.109 (0.359)
27 Crude fertilizer and crude minerals #	0.114%	8.664 (7.621) **	−0.122 (1.147)	0.104 (0.351)	−0.096 (1.531)	0.027 (0.366)
28 Metalliferous ores and metal scrap #	2.678%	12.162 (6.174) **	0.549 (1.265)	−2.771 (2.244) **	0.162 (0.781)	0.487 (1.338)
29 Crude animal and vegetable materials, nes #	0.188%	8.871 (9.292) **	0.639 (3.431) **	−0.668 (1.251)	−0.233 (2.285) **	0.649 (4.058) **
33 Petroleum, petroleum products, and related materials #	17.503%	1.632 (1.293)	1.589 (0.376)	−3.495 (0.280)	0.272 (0.122)	1.194 (0.356)
41 Animal oils and fats	0.086%	3.226 (2.321) **	0.097 (0.050)	−1.168 (0.208)	0.571 (0.542)	−0.261 (0.157)
42 Fixed vegetable oils and fats	0.473%	−6.639 (4.517) **	1.695 (0.848)	3.426 (0.611)	0.202 (0.153)	0.643 (0.533)
43 Animal and vegetable oils and fats, processed and waxes	0.012%	5.726 (4.524) **	0.394 (0.635)	−0.338 (0.196)	0.077 (0.207)	−0.334 (0.766)
51 Organic chemicals	4.545%	7.253 (4.774) **	−0.007 (0.021)	−1.808 (1.983) **	0.684 (2.796) **	−0.217 (1.034)
52 Inorganic chemicals #	1.145%	17.387 (15.138) **	0.838 (6.083) **	−0.716 (1.826) *	0.108 (1.356)	−0.014 (0.147)
53 Dyeing, tanning, and coloring materials #	0.549%	1.536 (6.511) **	1.281 (6.851) **	1.022 (1.925) *	−0.096 (0.884)	−0.040 (0.312)
54 Medicinal and pharmaceutical products	1.922%	−2.337 (5.281) **	2.658 (13.398) **	1.615 (2.883) **	−0.156 (1.336)	0.042 (0.301)
55 Oils and perfume materials; toilet and cleansing preparations #	1.093%	0.811 (4.018) **	1.605 (8.668) **	1.093 (2.078) **	−0.148 (1.322)	−0.015 (0.122)
56 Fertilizers, manufactured	0.264%	22.819 (4.497) **	−1.450 (2.398) **	−2.651 (1.499)	0.207 (0.558)	0.147 (0.359)
57 Explosives and pyrotechnic products #	1.927%	9.900 (7.572) **	0.972 (12.307) **	−0.668 (3.057) **	−0.008 (0.182)	−0.012 (0.219)
58 Artificial resins and plastic materials, and cellulose esters, etc #	0.400%	11.822 (8.409) **	0.445 (5.721) **	−0.260 (1.197)	−0.141 (2.933) **	0.125 (2.301) **
59 Chemical materials and products, nes	2.475%	7.103 (7.389) **	1.302 (10.535) **	−0.089 (0.258)	−0.0004 (0.004)	0.099 (1.263)
61 Leather, leather manufactures, nes, and dressed furskins	0.007%	2.924 (2.431) **	−1.815 (0.594)	−3.637 (0.406)	−3.581 (1.093)	1.782 (0.667)
62 Rubber manufactures, nes #	0.263%	0.077 (3.811) **	2.093 (4.015) **	1.052 (0.749)	0.196 (0.647)	−0.550 (1.315)
63 Cork and wood, cork manufactures #	0.046%	7.012 (5.319) **	−0.713 (1.548)	−0.935 (0.712)	0.032 (0.143)	0.031 (0.078)
64 Paper, paperboard, and articles of pulp, of paper, or of paperboard #	0.497%	4.988 (4.753) **	0.557 (4.435) **	0.281 (0.813)	−0.129 (1.585)	0.048 (0.566)
65 Textile yarn, fabrics, made-up articles, nes, and related products	0.269%	0.816 (3.935) **	0.633 (1.851) *	1.461 (1.391)	−0.207 (1.158)	−0.084 (0.415)

Table 3. *Cont.*

Industries	Share [c]	Constant	Ln Y_t^{KOR}	Ln REX_t	Ln PU_t^{KOR}	Ln PU_t^{US}
66 Non-metallic mineral manufactures, nes #	0.648%	7.629 (7.263) **	0.859 (7.421) **	−0.467 (1.404)	0.030 (0.461)	0.099 (1.183)
67 Iron and steel #	0.319%	3.906 (4.303) **	0.916 (1.238)	−2.269 (1.036)	1.315 (1.988) **	−0.691 (1.254)
68 Non-ferrous metals #	1.178%	9.945 (4.706) **	0.749 (2.343) **	−2.034 (2.183) **	−0.071 (0.409)	0.119 (0.529)
69 Manufactures of metals, nes	1.000%	2.110 (5.470) **	1.575 (10.064) **	0.863 (2.011) **	−0.405 (3.310) **	0.133 (1.346)
71 Power generating machinery and equipment	1.811%	10.889 (6.889) **	0.589 (3.099) **	−0.050 (0.092)	−0.135 (1.402)	−0.104 (0.685)
72 Machinery specialized for particular industries	6.437%	2.289 (5.321) **	1.899 (5.172) **	0.491 (0.495)	−0.228 (1.102)	0.113 (0.457)
73 Metalworking machinery	0.178%	9.253 (4.454) **	−1.604 (2.492) **	−1.557 (0.826)	0.038 (0.107)	−0.935 (2.003) **
74 General industrial machinery and equipment, nes, and parts of, nes	2.554%	3.319 (4.233) **	0.962 (4.198) **	0.515 (0.799)	−0.174 (1.278)	−0.081 (0.501)
75 Office machines and automatic data processing equipment	1.177%	3.524 (3.676) **	−0.679 (0.889)	0.065 (0.039)	0.052 (0.153)	−0.446 (0.963)
76 Telecommunications, sound recording, and reproducing equipment	1.042%	4.654 (4.796) **	−0.245 (0.584)	0.983 (0.839)	0.187 (0.663)	−0.641 (1.820) *
77 Electric machinery, apparatus and appliances, nes, and parts, nes #	8.815%	6.702 (4.565) **	−0.693 (3.915) **	−1.279 (2.566) **	0.056 (0.565)	0.013 (0.106)
78 Road vehicles #	3.962%	6.102 (6.399) **	1.695 (4.812) **	−1.435 (1.434)	−0.033 (0.172)	0.155 (0.586)
79 Other transport equipment	4.564%	4.593 (5.299) **	0.932 (1.958) *	1.335 (0.979)	−0.622 (1.839) *	−0.017 (0.045)
81 Sanitary, plumbing, heating, lighting fixtures, and fittings, nes	0.130%	−1.593 (4.188) **	1.076 (1.840) *	2.704 (1.688) *	−0.144 (0.437)	−0.593 (1.364)
82 Furniture and parts thereof	0.130%	−1.068 (3.575) **	1.963 (2.301) **	2.694 (1.133)	−1.188 (1.762) *	0.061 (0.143)
83 Travel goods, handbags, and similar containers	0.031%	9.379 (3.416) **	−1.758 (2.113) **	−3.003 (1.435)	0.822 (1.583)	−0.479 (0.986)
84 Articles of apparel and clothing accessories	0.186%	5.342 (4.639) **	1.349 (4.237) **	−0.749 (0.833)	0.334 (1.544)	−0.378 (1.376)
85 Footwear	0.067%	5.134 (3.753) **	−1.691 (0.353)	−11.662 (0.931)	1.795 (0.838)	−2.416 (0.957)
87 Professional, scientific, controlling instruments, apparatus, nes	4.707%	5.523 (5.084) **	0.985 (3.605) **	−0.643 (0.581)	0.329 (1.562)	−0.574 (1.951) *
88 Photographic equipment and supplies, optical goods, watches, etc #	0.802%	8.179 (4.641) **	−0.523 (1.342)	−2.599 (2.416) **	0.176 (0.802)	0.075 (0.302)
89 Miscellaneous manufactured articles, nes	2.359%	8.434 (4.614) **	0.544 (2.572) **	−0.075 (0.131)	−0.138 (1.039)	−0.015 (0.103)
93 Special transactions, commodity not classified according to class #	0.557%	−2.618 (5.249) **	1.334 (3.921) **	2.762 (2.746) **	−0.435 (1.926) *	0.199 (0.499)
99 Estimate of non-Canadian low-value shipments	0.946%	1.807 (3.740) **	0.675 (2.467) **	0.067 (0.091)	0.067 (0.429)	−0.019 (0.103)

Notes: [a]—# next to an industry's name indicates that the global financial crisis dummy was significant. [b]—Numbers inside the parentheses are the absolute value of *t*-ratios. * and ** indicate significance at 5% levels and 10% levels respectively. [c] Share represents % share of each industry's total U.S. exports to Korea.

Table 4. Diagnostic statistics associated with U.S. export models.

Industries	Diagnostics						
	F Stat [a]	$\hat{\theta}_0$ (t-Test) [b]	LM [c]	RESET [d]	CUSUM	CUSUMSQ	Adj. R^2
00 Live animals	5.50 **	−0.941 (5.292) **	0.129	0.785	S	S	0.63
01 Meat and preparations	2.34	−0.094 (3.446)	0.349	0.073	S	US	0.08
02 Dairy products and birds' eggs	4.13 **	−0.223 (4.586) **	0.309	3.200 *	S	S	0.27
03 Fish, crustacean and molluscs, and preparations thereof	7.20 **	−0.933 (6.057) **	5.774 **	0.311	S	S	0.71
04 Cereals and cereal preparations	8.69 **	−0.288 (6.649) **	0.012	0.837	S	S	0.20
05 Vegetables and fruit	3.63*	−0.290 (4.297) **	4.98 **	2.61	US	S	0.59
06 Sugar, sugar preparations, and honey	2.67	−0.196 (3.687) *	0.466	0.144	S	S	0.36
07 Coffee, tea, cocoa, spices, and manufactures thereof	5.42 **	−0.519 (5.254) **	9.979 **	1.771	S	S	0.35
08 Feeding stuff for animals (not including unmilled cereals)	8.43 **	−0.495 (6.549) **	0.086	1.448	S	US	0.39
09 Miscellaneous edible products and preparations	2.90	−0.163 (3.841) *	0.314	10.159 **	S	S	0.35
11 Beverages	1.94	−0.115 (3.146)	0.179	2.721 *	S	S	0.36
21 Hides, skins and furskins, raw	1.66	0.055 (2.908)	0.059	12.690 **	S	S	0.35
22 Oil seeds and oleaginous fruit	18.38 **	−1.312 (9.673) **	0.020	7.955 **	S	S	0.43
23 Crude rubber (including synthetic and reclaimed)	5.35 **	−0.358 (5.216) **	0.092	2.439	S	S	0.45
24 Cork and wood	1.93	−0.252 (3.134)	0.293	0.029	S	S	0.54
25 Pulp and waste paper	6.90 **	−0.324 (5.928) **	0.528	0.012	S	S	0.45
26 Textile fibers (not wool tops) and their wastes (not in yarn)	4.77 **	−0.379 (4.929) **	0.703	0.275	S	S	0.30
27 Crude fertilizer and crude minerals	11.44 **	−0.553 (7.631) **	1.619	8.018 **	S	S	0.33
28 Metalliferous ores and metal scrap	7.47 **	−0.377 (6.168) **	1.057	1.505	S	S	0.31
29 Crude animal and vegetable materials, nes	16.86 **	−0.574 (9.298) **	0.017	1.245	S	S	0.46
33 Petroleum, petroleum products, and related materials	0.32	−0.056 (1.269)	0.011	5.476 **	S	S	0.26
41 Animal oils and fats	1.06	−0.158 (2.320)	0.224	0.301	S	S	0.32
42 Fixed vegetable oils and fats	4.00*	−0.307 (4.512) **	0.816	0.072	S	S	0.44
43 Animal and vegetable oils and fats, processed and waxes	4.01 **	−0.388 (4.516) **	0.439	4.465 **	S	S	0.39
51 Organic chemicals	4.49 **	−0.247 (4.779) **	0.864	0.029	S	S	0.39
52 Inorganic chemicals	45.09 **	−0.945 (15.141) **	4.470 **	0.422	S	US	0.48
53 Dyeing, tanning, and coloring materials	8.29 **	−0.347 (6.491) **	0.194	2.916 *	S	S	0.25
54 Medicinal and pharmaceutical products	5.59 **	−0.449 (5.332) **	1.932	0.142	S	S	0.48
55 Oils and perfume materials; toilet and cleansing preparations	3.11	−0.255 (−3.981) *	0.424	0.441	S	S	0.45
56 Fertilizers, manufactured	3.98*	−0.577 (4.499) **	0.292	10.609 **	S	S	0.53
57 Explosives and pyrotechnic products	11.28 **	−0.537 (7.577) **	1.658	0.073	S	S	0.41
58 Artificial resins and plastic materials, and cellulose esters, etc	13.90 **	−0.714 (8.413) **	0.389	2.359	S	S	0.39
59 Chemical materials and products, nes	10.69 **	−0.576 (7.376) **	1.759	4.636 **	S	S	0.46
61 Leather, leather manufactures, nes, and dressed furskins	1.19	−0.052 (2.457)	1.030	0.008	S	US	0.25
62 Rubber manufactures, nes	3.81*	−0.158 (4.401) **	4.721 **	9.169 **	S	S	0.23
63 Cork and wood, cork manufactures	5.56 **	−0.289 (5.322) **	1.375	1.095	S	S	0.28
64 Paper, paperboard, and articles of pulp, of paper, or of paperboard	4.43 **	−0.392 (4.747) **	4.193 **	1.557	S	S	0.34
65 Textile yarn, fabrics, made-up articles, nes, and related products	3.12	−0.175 (3.986) *	0.488	0.257	S	S	0.31

Table 4. *Cont.*

| Industries | | Diagnostics | | | | | |
	F Stat [a]	$\hat{\theta}_0$ (*t*-Test) [b]	LM [c]	RESET [d]	CUSUM	CUSUMSQ	Adj. R^2
66 Non-metallic mineral manufactures, nes	10.37 **	−0.483 (7.263) **	0.091	0.486	S	S	0.35
67 Iron and steel	3.65*	−0.155 (4.313) **	0.034	0.011	S	S	0.41
68 Non-ferrous metals.	4.34 **	−0.349 (4.699) **	6.302 **	0.002	S	S	0.43
69 Manufactures of metals, nes	5.92 **	−0.386 (5.489) **	0.000	1.777	S	S	0.41
71 Power generating machinery and equipment	9.32 **	−0.641 (6.887) **	2.796 *	0.322	S	S	0.45
72 Machinery specialized for particular industries	5.61 **	−0.296 (5.341) **	1.039	2.238	S	S	0.27
73 Metalworking machinery	3.91 *	−0.237 (4.460) **	0.055	4.731 **	S	S	0.26
74 General industrial machinery and equipment, nes, and parts of, nes	3.53 *	−0.281 (4.235) **	0.145	1.237	S	S	0.36
75 Office machines and automatic data processing equipment	2.69	−0.159 (3.701) *	0.881	1.255	S	S	0.48
76 Telecommunications, sound recording, and reproducing equipment	4.56 **	−0.327 (4.824) **	0.016	5.949 **	S	S	0.37
77 Electric machinery, apparatus and appliances, nes, and parts, nes	4.10 **	−0.212 (4.568) **	0.386	0.006	S	S	0.28
78 Road vehicles	8.00 **	−0.302 (6.383) **	0.019	0.027	S	S	0.20
79 Other transport equipment	5.57 **	−0.534 (5.326) **	1.059	0.903	S	S	0.52
81 Sanitary, plumbing, heating, lighting fixtures, and fittings, nes	3.50	−0.287 (4.223) **	0.029	2.593	S	S	0.37
82 Furniture and parts thereof	2.48	−0.149 (3.557)	0.533	0.014	S	S	0.44
83 Travel goods, handbags, and similar containers	2.30	−0.223 (3.423)	1.088	0.005	S	S	0.47
84 Articles of apparel and clothing accessories	4.21 **	−0.355 (4.637) **	1.488	3.126 *	S	S	0.47
85 Footwear	2.77	−0.048 (3.752) *	5.070 **	1.928	S	S	0.35
87 Professional, scientific, controlling instruments, apparatus, nes	5.06 **	−0.274 (5.079) **	1.220	0.309	S	S	0.58
88 Photographic equipment and supplies, optical goods, watches, etc	4.23 **	−0.223 (4.638) **	7.025 **	0.169	S	S	0.24
89 Miscellaneous manufactured articles, nes	4.20 **	−0.492 (4.621) **	0.287	2.850 *	S	S	0.47
93 Special transactions, commodity not classified according to class	5.35 **	−0.363 (5.217) **	1.012	0.053	S	S	0.40
99 Estimate of non-Canadian low-value shipments	2.76	−0.134 (3.746) *	1.847	0.015	S	S	0.27

Notes: [a]—At the 5% (10%) significance level when there are four exogenous variables (*k* = 4), the upper bound critical value of the *F* test is 4.01 (3.52). These come from Pesaran et al. (2001, Table CI-Case III, page 300). [b]—Number inside the parenthesis next to $\hat{\theta}_0$ is the absolute value of the *t*-ratio for cointegration. The upper bound critical value at the 5% (10%) significance level is −3.99 (−3.66) when k = 4 and these come from Pesaran et al. (2001, Table CII-Case III, page 303). [c]—LM is the Lagrange multiplier test of residual serial correlation. It is distributed as χ^2 with one degree of freedom (first-order). Its critical value at 5% (10%) significance level is 3.84 (2.77). [d]—RESET is Ramsey's test for misspecification. It is distributed as χ^2 with one degree of freedom. **, and * show a level of significance at 5% and 10%, respectively.

Due to the volume of the short-run estimates, we restrict ourselves to reporting short-run estimates attached to economic policy uncertainty variables. Those attached to $\Delta LnPU^{KOR}$ are reported in Table 1 and estimates attached to $\Delta LnPU^{US}$ in Table 2. From Table 1 we gather that the Korean uncertainty measure carries at least one lagged significant coefficient in a total of 24 industries, implying that it has significant short-run effects. The comparable number for the U.S. policy uncertainty measure in Table 2 is 20. Thus, it appears that the Korean policy uncertainty measure has relatively more significant short-run effects on the U.S. exports to Korea than the U.S.'s own uncertainty measure. In how many industries do short-run effects translate into the long run? The answer is provided by Table 3 where we learn that the the Korean policy uncertainty measure carries a significant coefficient in 9 industries coded 05, 25, 29, 51, 58, 67, 69, 79, and 93.[5] While in two industries (51 and 67) the coefficient estimate is positive, in the remaining seven industries it is negative. The aggregate trade share of these seven industries from Table 3 happens to be almost 9%, implying that only 9% of the U.S. exports to Korea is hurt by increased policy uncertainty in Korea. As for the long-run effects of the U.S. policy uncertainty, it carries a significant coefficient in industries coded as 02, 29, 58, 73, 76, and 87. While in the first three industries the estimate is positive, in the last three industries it is negative. One of the large industries, i.e., 87 (professional, scientific, controlling instruments, apparatus, n.e.s. with 4.707% trade share) is in the last group. In this case, the aggregate share of the three industries that are hurt is almost 6%. Therefore, even in the long run, an increase in Korean policy uncertainty is relatively more harmful to the U.S. exports to Korea, though the affected trade is small and marginal.[6]

Reported in Table 4 are a few additional diagnostic statistics. To make sure that the residuals in each model do not suffer from first-order serial correlation, we report the Lagrange multiplier test as *LM*, which is distributed as χ^2 with one degree of freedom. As can be seen, it is insignificant in most industries, supporting autocorrelation-free residuals. The Ramsey RESET test is also reported as RESET and is used to identify misspecified models. This statistic is also distributed as χ^2 with one degree of freedom. Again, since it is insignificant in most industries, the majority of optimum models are correctly specified. To establish stability of short-run and long-run coefficient estimates we apply the CUSUM and CUSUMSQ tests to the residuals of each model. Stable estimates are indicated by "*S*" and unstable ones by "*US*". As can be seen, there are hardly any unstable estimates. Finally, we report the size of adjusted R^2 to judge the goodness of the fit in each model.

Next, we consider estimates of the U.S. import demand model (4) or the Korean exports to the U.S. Again, results are reported in Tables 5–8. From Tables 5 and 6 we gather that the Korean economic policy uncertainty has significant short-run effects on exports of 26 Korean industries exporting to the U.S., whereas the U.S. policy uncertainty has significant effects only in 16 industries. Thus, it appears that Korea's own uncertainty measure has significant short-run effects in relatively more industries than the U.S. uncertainty measure. From Tables 7 and 8, however, we learn that short-run effects of the Korean policy uncertainty last into the long run only in industries 72 (machinery specialized for particular industries with 3.804% trade share), 78 (road vehicles with 27.34% trade share), and 88 (photographic equipment and supplies, optical goods, watches, etc. with 0.215% trade share). In the first two industries, the coefficient is positive, implying that an increase in Korean policy uncertainty boosts a total of 31.14% of Korean exports to the U.S. This could be the case if increased uncertainty in Korea makes U.S. importers more concerned for the future; hence, they import more today to avoid any future delay in delivery, production, and distribution. As for the U.S. policy uncertainty, it carries a significant coefficient in industries coded as 05, 28, 51, 71, 73, and 87. While in industry 28 (metalliferous ores and metal scrap with 0.021% trade share) the estimate is negative, in the reaming five industries it is positive. Since the aggregate trade share of these remaining five industries is 7.1%, increased uncertainty in the U.S. will boost almost 7% of Korean exports to the U.S.[7]

Table 5. Short-run coefficient estimates of Korea economic policy uncertainty on U.S. imports from Korea.

Code	# Lags on ΔPU^{KOR}							
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
02 Dairy products and birds' eggs	0.005	−0.365 **	−0.229 **	−0.225 **	−0.166 *			
03 Fish, crustacean and molluscs, and preparations thereof	0.049	−0.146 **	−0.147 **					
04 Cereals and cereal preparations	−0.033							
05 Vegetables and fruit	0.084	0.156 **						
06 Sugar, sugar preparations, and honey	−0.088							
07 Coffee, tea, cocoa, spices, and manufactures thereof	0.049							
09 Miscellaneous edible products and preparations	−0.019							
11 Beverages	0.010	−0.077 *	−0.136 **	−0.092 **	−0.156 **	−0.069 *		
12 Tobacco and tobacco manufactures	−0.049							
26 Textile fibers (not wool tops) and their wastes (not in yarn)	0.059							
27 Crude fertilizer and crude minerals	−0.005	−0.23	−0.092	−0.059	−0.081	0.152 **		
28 Metalliferous ores and metal scrap	0.090							
29 Crude animal and vegetable materials, nes	−0.026							
33 Petroleum, petroleum products, and related materials	0.008	−0.319 **	−0.316 **	−0.091	−0.308 **			
34 Gas, natural and manufactured	−0.349 **							
51 Organic chemicals	−0.190 **							
52 Inorganic chemicals	−0.113	−0.086	−0.205 **					
54 Medicinal and pharmaceutical products	0.099	0.010	0.033	−0.019	−0.454 **			
55 Oils and perfume materials; toilet and cleansing preparations	−0.004							
57 Explosives and pyrotechnic products	−0.125 **	−0.090 **						
58 Artificial resins and plastic materials, and cellulose esters, etc	−0.031							
59 Chemical materials and products, nes	−0.015	−0.143 **	−0.110 **	−0.085 **	−0.115 **	−0.112 **		
61 Leather, leather manufactures, nes, and dressed furskins	−0.028							
62 Rubber manufactures, nes #	0.027							
63 Cork and wood, cork manufactures	−0.082							
64 Paper, paperboard, and articles of pulp, of paper, or of paperboard	−0.044 *							
65 Textile yarn, fabrics, made-up articles, nes, and related products	−0.032 *	−0.051 **	−0.044 **	−0.047 **	−0.037 **	−0.039 **		
67 Iron and steel	−0.171 **							
68 Non-ferrous metals	0.027							
69 Manufactures of metals, nes	0.006							

Table 5. *Cont.*

Code	# Lags on ΔPU^{KOR}							
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
71 Power generating machinery and equipment	−0.152 **	−0.057	0.018	0.018	−0.135 **			
72 Machinery specialized for particular industries	0.058	−0.155 **	−0.211 **	−0.087 **	−0.059	−0.118 **		
73 Metalworking machinery	−0.065	−0.138 **						
74 General industrial machinery and equipment, nes, and parts of, nes	−0.038	−0.115 **	−0.047	−0.065 **				
75 Office machines and automatic data processing equipment	−0.027							
76 Telecommunications, sound recording, and reproducing equipment	−0.049							
77 Electric machinery, apparatus and appliances, nes, and parts, nes	−0.033							
78 Road vehicles	0.148 **	−0.021	0.030	−0.075 **	−0.141 **			
79 Other transport equipment	−0.122	−0.165	−0.263 **					
81 Sanitary, plumbing, heating, lighting fixtures, and fittings, nes	0.130 *							
82 Furniture and parts thereof	−0.008							
83 Travel goods, handbags, and similar containers	−0.065							
84 Articles of apparel and clothing accessories	−0.016	0.039	0.076 *	0.021	−0.042	−0.101 **	−0.064 **	
85 Footwear	0.014							
87 Professional, scientific, controlling instruments, apparatus, nes	0.009	−0.060	−0.042	0.104 **	0.039	−0.029	0.048	
88 Photographic equipment and supplies, optical goods, watches, etc	0.032	0.095 **	0.027	0.094 **	0.086 **	0.035	0.088 **	0.139 **
89 Miscellaneous manufactured articles, nes	−0.022	−0.061 **	−0.014	−0.034	−0.048 **	−0.029	0.045 **	
93 Special transactions, commodity not classified according to class	0.005							
98 Estimate of import items valued under $251 and others	0.009							

Notes: ** and * indicate significance at 10% and 5% levels, respectively. The critical values of standard *t*-distribution, i.e., 1.64 and 1.96 are used to arrive at ** and *. The *t*-ratios themselves are not reported due to space constraints but they are available upon request.

Table 6. Short-run coefficient estimates of U.S. economic policy uncertainty on U.S. imports from Korea.

Code	# Lags on ΔPU^{US}							
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
02 Dairy products and birds' eggs	0.112							
03 Fish, crustacean and molluscs, and preparations thereof	0.012							
04 Cereals and cereal preparations	0.006							
05 Vegetables and fruit	0.196 **	−0.279 **						
06 Sugar, sugar preparations, and honey	−0.091							
07 Coffee, tea, cocoa, spices, and manufactures thereof	0.113							
09 Miscellaneous edible products and preparations	0.066 *							
11 Beverages	0.047							
12 Tobacco and tobacco manufactures	0.036							
26 Textile fibers (not wool tops) and their wastes (not in yarn)	−0.068							
27 Crude fertilizer and crude minerals	0.089							
28 Metalliferous ores and metal scrap	−0.101	0.580 **						
29 Crude animal and vegetable materials, nes	0.016	−0.226 **						
33 Petroleum, petroleum products, and related materials	0.278	0.254	0.238	0.165	0.715 **			
34 Gas, natural and manufactured	0.181							
51 Organic chemicals	0.214 **							
52 Inorganic chemicals	0.093	0.155	0.334 **	0.250 **	0.057	−0.145	0.148 *	
54 Medicinal and pharmaceutical products	−0.089							
55 Oils and perfume materials; toilet and cleansing preparations	0.034							
57 Explosives and pyrotechnic products	0.129 **	0.073 *						
58 Artificial resins and plastic materials, and cellulose esters, etc	0.009							
59 Chemical materials and products, nes	0.086	0.097	0.128 **					
61 Leather, leather manufactures, nes, and dressed furskins	−0.103							
62 Rubber manufactures, nes #	−0.020							
63 Cork and wood, cork manufactures	0.094							
64 Paper, paperboard, and articles of pulp, of paper, or of paperboard	0.035							
65 Textile yarn, fabrics, made-up articles, nes, and related products	0.012							
67 Iron and steel	0.236 **							
68 Non-ferrous metals	−0.009							
69 Manufactures of metals, nes	0.029							

Table 6. *Cont.*

Code	# Lags on ΔPU^{US}							
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
71 Power generating machinery and equipment	0.132 **							
72 Machinery specialized for particular industries	−0.040							
73 Metalworking machinery	0.117							
74 General industrial machinery and equipment, nes, and parts of, nes	0.036							
75 Office machines and automatic data processing equipment	0.001	−0.087 **						
76 Telecommunications, sound recording, and reproducing equipment	−0.036							
77 Electric machinery, apparatus and appliances, nes, and parts, nes	0.029							
78 Road vehicles	−0.141 **							
79 Other transport equipment	0.113							
81 Sanitary, plumbing, heating, lighting fixtures, and fittings, nes	0.144 *							
82 Furniture and parts thereof	0.023							
83 Travel goods, handbags, and similar containers	0.148 **							
84 Articles of apparel and clothing accessories	0.056	0.045	−0.052	−0.056	0.068			
85 Footwear	−0.062							
87 Professional, scientific, controlling instruments, apparatus, nes	0.082 *	−0.014	0.089 *	−0.122 **				
88 Photographic equipment and supplies, optical goods, watches, etc	0.019							
89 Miscellaneous manufactured articles, nes	0.035							
93 Special transactions, commodity not classified according to class	−0.112							
98 Estimate of import items valued under $251 and others	−0.012							

Notes: ** and * indicate significance at 10% and 5% levels, respectively. The critical values of standard *t*-distribution, i.e., 1.64 and 1.96 are used to arrive at ** and *. The *t*-ratios themselves are not reported due to space constraints but they are available upon request.

Table 7. Long-run coefficient estimates of U.S. import models.

Industries	Share [c]	Constant	Ln Y_t^{US}	Ln REX_t	Ln PU_t^{KOR}	Ln PU_t^{US}
02 Dairy products and birds' eggs #[a]	0.013%	4.959 (4.628) **	3.828 (2.095) **	−3.048 (2.236) **	0.325 (1.012) [b]	0.305 (1.015)
03 Fish, crustacean and molluscs, and preparations thereof #	0.207%	2.381 (2.672) **	1.673 (0.987)	−0.509 (0.399)	0.293 (1.115)	0.050 (0.199)
04 Cereals and cereal preparations #	0.162%	0.476 (1.506)	0.614 (0.004)	−17.538 (0.056)	−14.159 (0.057)	2.529 (0.063)
05 Vegetables and fruit#	0.264%	−7.136 (5.353) **	7.973 (5.626) **	−0.241 (0.239)	−0.156 (0.625)	1.105 (3.706) **
06 Sugar, sugar preparations, and honey #	0.006%	−4.945 (6.838) **	1.690 (1.655) *	2.135 (2.948) **	−0.155 (1.058)	−0.160 (0.959)
07 Coffee, tea, cocoa, spices, and manufactures thereof #	0.023%	0.376 (2.873) **	4.197 (1.573)	−1.582 (0.845)	0.216 (0.602)	0.499 (1.211)
09 Miscellaneous edible products and preparations#	0.276%	−2.239 (2.444) **	3.579 (0.605)	−8.899 (0.874)	0.470 (0.509)	0.766 (0.634)
11 Beverages	0.147%	1.498 (2.245) **	2.804 (0.807)	−2.679 (1.086)	0.338 (0.607)	0.538 (1.018)
12 Tobacco and tobacco manufactures #	0.108%	−8.897 (4.623) **	8.999 (3.972) **	2.459 (1.528)	−0.243 (0.759)	0.177 (0.507)
26 Textile fibers (not wool tops) and their wastes (not in yarn) #	0.256%	9.135 (9.445) **	1.239 (2.504) **	−0.829 (2.381) **	0.107 (1.526)	−0.122 (1.517)
27 Crude fertilizer and crude minerals #	0.025%	−6.919 (4.872) **	5.109 (3.492) **	1.237 (1.248)	−0.021 (0.084)	0.259 (1.090)
28 Metalliferous ores and metal scrap #	0.021%	26.479 (14.544) **	0.468 (0.238)	−2.019 (1.448)	0.099 (0.388)	−0.744 (2.329) **
29 Crude animal and vegetable materials, nes#	0.052%	6.505 (5.944) **	2.247 (2.431) **	−1.602 (2.489) **	0.205 (1.377)	0.137 (0.781)
33 Petroleum, petroleum products, and related materials #	4.354%	2.345 (4.022) **	7.067 (2.278) **	−3.384 (1.512)	1.171 (1.604)	−1.149 (1.119)
34 Gas, natural and manufactured	0.021%	−1.798 (2.153) **	5.596 (0.876)	−1.144 (0.254)	0.127 (0.126)	1.028 (0.980)
51 Organic chemicals	1.732%	13.939 (6.032) **	1.719 (0.899)	−4.796 (3.524) **	−0.040 (0.158)	0.629 (2.27) **
52 Inorganic chemicals #	0.159%	−2.841 (2.951) **	6.424 (1.713) *	0.587 (0.224)	0.272 (0.448)	−0.271 (0.304)
54 Medicinal and pharmaceutical products	2.833%	−16.874 (3.150) **	31.559 (3.389) **	3.271 (0.542)	0.822 (0.570)	−0.816 (0.562)
55 Oils and perfume materials; toilet and cleansing preparations #	0.828%	3.521 (2.639) **	16.423 (2.108) **	5.391 (0.922)	2.408 (1.337)	−1.029 (0.647)
57 Explosives and pyrotechnic products #	1.522%	2.063 (1.687) *	85.955 (0.117)	17.065 (0.096)	2.092 (0.102)	−0.828 (0.053)
58 Artificial resins and plastic materials, and cellulose esters, etc #	1.087%	−4.139 (2.914) **	−8.386 (0.529)	−9.540 (0.732)	0.909 (0.701)	−0.255 (0.294)
59 Chemical materials and products, nes	0.720%	2.529 (2.720) **	3.406 (1.412)	−2.981 (1.479)	−0.093 (0.214)	0.862 (1.646)
61 Leather, leather manufactures, nes, and dressed furskins	0.006%	11.891 (3.479) **	−5.549 (3.245) **	0.611 (0.501)	−0.088 (0.360)	−0.318 (1.067)
62 Rubber manufactures, nes #	2.146%	2.073 (3.176) **	−10.243 (0.614)	−0.453 (0.090)	0.903 (0.719)	−0.662 (0.426)
63 Cork and wood, cork manufactures #	0.006%	−6.161 (3.089) **	3.972 (1.124)	3.701 (1.468)	−0.429 (0.875)	0.489 (0.769)
64 Paper, paperboard, and articles of pulp, of paper, or of paperboard #	0.849%	1.342 (4.451) **	1.821 (2.084) **	0.371 (0.615)	0.073 (0.529)	−0.101(0.524)
65 Textile yarn, fabrics, made-up articles, nes, and related products	1.231%	0.734 (2.810) **	−0.277 (0.161)	1.595 (1.318)	−0.358 (1.242)	0.149 (0.517)
67 Iron and steel #	3.506%	7.709 (3.961) **	0.319 (0.114)	−4.981 (2.540) **	0.193 (0.474)	0.514 (1.106)
68 Non-ferrous metals #	1.095%	7.664 (3.845) **	4.228 (1.248)	−7.151 (2.812) **	0.151 (0.358)	0.839 (1.564)
69 Manufactures of metals, nes	2.430%	−0.625 (3.623) **	3.864 (7.068) **	0.286 (0.741)	0.021 (0.274)	0.099 (1.096)
71 Power generating machinery and equipment	3.256%	−1.337 (3.786) **	5.493 (2.312) **	0.025 (0.016)	−0.555 (1.439)	0.866 (2.372) **
72 Machinery specialized for particular industries	3.804%	10.219 (5.099) **	−4.756 (1.177)	−10.609 (3.657) **	1.994 (2.96) **	−0.419 (0.799)
73 Metalworking machinery	0.832%	11.321 (5.779) **	2.163 (1.151)	−5.239 (3.718) **	0.175 (0.674)	0.424 (1.628) *
74 General industrial machinery and equipment, nes, and parts of, nes	5.144%	0.339 (2.322) **	4.419 (2.059) **	−1.059 (0.703)	0.265 (0.812)	0.325 (1.029)
75 Office machines and automatic data processing equipment	6.193%	−1.250 (3.599) **	1.311 (0.546)	3.769 (2.245) **	−0.268 (0.801)	0.228 (0.513)
76 Telecommunications, sound recording, and reproducing equipment	5.641%	10.912 (5.509) **	−3.595 (3.151) **	−0.103 (0.130)	−0.178 (1.071)	−0.128 (0.691)
77 Electric machinery, apparatus and appliances, nes, and parts, nes #	11.154%	1.103 (5.232) **	1.807 (2.937) **	0.987 (2.263) **	−0.143 (1.571)	0.130 (1.239)
78 Road vehicles #	27.347%	−0.411 (4.904) **	4.388 (4.925) **	0.248 (0.395)	0.359 (2.173) **	−0.283 (1.557)
79 Other transport equipment	1.093%	6.521 (3.919) **	2.965 (1.133)	−2.528 (1.399)	0.364 (0.864)	0.313 (0.764)

Table 7. *Cont.*

Industries	Share [c]	Constant	Ln Y_t^{US}	Ln REX_t	Ln PU_t^{KOR}	Ln PU_t^{US}
81 Sanitary, plumbing, heating, lighting fixtures, and fittings, nes	0.183%	−11.502 (3.688) **	11.859 (4.000) **	3.493 (1.744) *	−0.596 (1.264)	0.821 (1.578)
82 Furniture and parts thereof	0.329%	1.424 (1.331)	0.001 (0.001)	−2.336 (0.583)	−0.173 (0.239)	0.513 (0.616)
83 Travel goods, handbags, and similar containers	0.106%	−5.251 (3.508) **	10.232 (2.100) **	2.907 (0.742)	−0.714 (1.001)	1.616 (1.518)
84 Articles of apparel and clothing accessories	0.320%	−2.256 (2.329) **	4.049 (0.334)	14.958 (1.547)	−1.954 (0.882)	0.789 (0.268)
85 Footwear	0.074%	−5.997 (4.117) **	9.519 (1.614) *	5.621 (1.581)	1.390 (1.182)	−0.744 (0.856)
87 Professional, scientific, controlling instruments, apparatus, nes	1.022%	3.837 (4.242) **	2.336 (1.139)	−4.459 (2.810) **	−0.462 (1.001)	1.252 (2.572) **
88 Photographic equipment and supplies, optical goods; watches, etc #	0.215%	0.866 (3.806) **	1.261 (1.194)	1.164 (1.573)	−0.340 (1.827) *	0.079 (0.478)
89 Miscellaneous manufactured articles, nes	4.262%	−3.116 (3.697) **	10.327 (2.502) **	1.889 (1.091)	0.316 (0.654)	0.529 (1.118)
93 Special transactions, commodity not classified according to class #	1.476%	−13.649 (9.581) **	4.394 (7.344) **	1.869 (4.444) **	0.005 (0.079)	−0.124 (1.544)
98 Estimate of import items valued under $251 and others #	0.454%	3.025 (4.319) **	0.906 (1.133)	−0.210 (0.393)	0.041 (0.390)	−0.058 (0.465)

Notes: [a]—# next to an industry's name indicates that the global financial crisis dummy was significant. [b]—Numbers inside the parentheses are the absolute value of *t*-ratios. * and ** indicate significance at 5% levels and 10% levels respectively. [c]—Share represents % share of each industry's total U.S. imports from Korea.

Table 8. Diagnostic statistics associated with U.S. import models.

Industries	Diagnostics						
	F Stat [a]	$\hat{\rho}_0$ (*t*-Test) [b]	LM [c]	RESET [d]	CUSUM	CUSUMSQ	Adj. R^2
02 Dairy products and birds' eggs	4.13 **	−0.367 (4.585) **	2.570	0.015	US	S	0.42
03 Fish, crustacean and molluscs, and preparations thereof	1.39	−0.234 (2.662)	1.340	0.012	S	S	0.43
04 Cereals and cereal preparations	0.39	−0.002 (1.409)	3.092 *	1.188	S	S	0.39
05 Vegetables and fruit	5.66 **	−0.293 (5.370) **	22.259 **	1.188	US	S	0.45
06 Sugar, sugar preparations, and honey	9.19 **	−0.570 (6.839) **	1.974	0.221	S	S	0.44
07 Coffee, tea, cocoa, spices, and manufactures thereof	1.57	−0.226 (2.827)	0.524	0.143	S	S	0.42
09 Miscellaneous edible products and preparations	1.22	0.041 (2.493)	4.530 **	0.325	S	S	0.40
11 Beverages	0.95	−0.087 (2.195)	0.362	1.315	S	S	0.32
12 Tobacco and tobacco manufactures	4.25 **	−0.204 (4.649) **	0.013	0.136	S	S	0.41
26 Textile fibers (not wool tops) and their wastes (not in yarn)	17.51 **	−0.553 (9.441) **	0.332	0.936	S	S	0.37
27 Crude fertilizer and crude minerals	4.67 **	−0.346 (4.873) **	0.313	0.009	S	S	0.42
28 Metalliferous ores and metal scrap	41.66 **	−0.917 (14.558) **	0.003	0.123	S	US	0.46
29 Crude animal and vegetable materials, nes	6.89 **	−0.469 (5.922) **	2.139	0.926	S	S	0.46
33 Petroleum, petroleum products, and related materials	3.06	−0.249 (3.950) *	0.635	4.598 **	S	S	0.46
34 Gas, natural and manufactured	0.94	−0.176 (2.184)	0.466	2.605	S	US	0.38

Table 8. *Cont.*

Industries	Diagnostics						
	F Stat [a]	$\hat{\rho}_0$ (*t*-Test) [b]	*LM* [c]	*RESET* [d]	*CUSUM*	*CUSUMSQ*	*Adj. R²*
51 Organic chemicals	7.13 **	−0.340 (6.024) **	0.048	2.158	S	S	0.27
52 Inorganic chemicals	1.72	−0.154 (2.963)	1.876	2.436	S	S	0.38
54 Medicinal and pharmaceutical products	1.96	−0.109 (3.156)	0.059	0.387	S	US	0.29
55 Oils and perfume materials; toilet and cleansing preparations	1.32	0.033 (2.599)	1.103	0.786	US	S	0.41
57 Explosives and pyrotechnic products	0.55	0.004 (1.672)	1.888	0.096	S	S	0.33
58 Artificial resins and plastic materials, and cellulose esters, etc	1.68	0.034 (2.927)	8.993 **	0.859	S	S	0.37
59 Chemical materials and products, nes	1.41	−0.136 (2.684)	0.030	14.499 **	S	S	0.33
61 Leather, leather manufactures, nes, and dressed furskins	2.39	−0.324 (3.489)	0.642	5.063 **	S	S	0.47
62 Rubber manufactures, nes.	1.94	−0.030 (3.150)	1.340	2.107	S	S	0.38
63 Cork and wood, cork manufactures	1.88	−0.192 (3.091)	0.088	2.057	S	S	0.37
64 Paper, paperboard, and articles of pulp, of paper, or of paperboard	3.90 *	−0.209 (4.454) **	0.356	0.089	S	S	0.38
65 Textile yarn, fabrics, made-up articles, nes, and related products	1.53	−0.079 (2.792)	2.831 *	0.279	S	S	0.46
67 Iron and steel	3.08	−0.157 (3.962) *	0.397	0.200	S	S	0.41
68 Non-ferrous metals	2.89	−0.177 (3.834) *	0.056	0.005	S	S	0.37
69 Manufactures of metals, nes	2.62	−0.293 (3.651)	0.003	1.667	S	S	0.49
71 Power generating machinery and equipment	2.90	−0.153 (3.841) *	0.029	2.541	S	S	0.44
72 Machinery specialized for particular industries	5.07 **	−0.094 (5.083) **	0.000	9.702 **	S	S	0.39
73 Metalworking machinery	6.54 **	−0.275 (5.771) **	1.246	0.895	S	S	0.31
74 General industrial machinery and equipment, nes, and parts of, nes	1.02	−0.111 (2.279)	0.645	0.026	US	S	0.27
75 Office machines and automatic data processing equipment	3.00	−0.102 (3.904) *	1.027	0.007	S	S	0.19
76 Telecommunications, sound recording, and reproducing equipment	5.97 **	−0.278 (5.512) **	0.689	0.128	S	S	0.30
77 Electric machinery, apparatus and appliances, nes, and parts, nes	5.40 **	−0.229 (5.245) **	0.129	3.551 *	S	S	0.31
78 Road vehicles	5.24 **	−0.242 (5.165) **	0.256	0.222	S	S	0.35
79 Other transport equipment	3.01	−0.360 (3.916) *	2.526	0.808	US	S	0.45
81 Sanitary, plumbing, heating, lighting fixtures, and fittings, nes	2.68	−0.176 (3.696) *	3.024 *	1.387	S	S	0.31
82 Furniture and parts thereof	0.34	−0.045 (1.319)	0.024	0.007	US	S	0.40
83 Travel goods, handbags, and similar containers	2.41	−0.092 (3.503)	5.433 **	0.209	S	S	0.26
84 Articles of apparel and clothing accessories	1.04	−0.022 (2.305)	7.209 **	3.453 *	S	S	0.44
85 Footwear	3.31	−0.083 (4.104) **	1.363	0.337	S	S	0.39
87 Professional, scientific, controlling instruments, apparatus, nes	3.52 *	−0.112 (4.237) **	2.336	0.448	S	S	0.48
88 Photographic equipment and supplies, optical goods, watches, etc	2.91	−0.246 (3.853) *	0.006	2.376	S	S	0.44
89 Miscellaneous manufactured articles, nes	2.71	−0.067 (3.716) *	1.012	15.944 **	S	S	0.28
93 Special transactions, commodity not classified according to class	18.06 **	−0.903 (9.589) **	0.014	0.647	S	S	0.54
98 Estimate of import items valued under $251 and others	3.66 *	−0.212 (4.313) **	0.004	0.004	S	S	0.27

Notes: [a]—At the 5% (10%) significance level when there are four exogenous variables (k = 4), the upper bound critical value of the F test is 4.01 (3.52). These come from Pesaran et al. (2001, Table CI-Case III, page 300). [b]—Number inside the parenthesis next to $\hat{\rho}_0$ is the absolute value of the *t*-ratio for cointegration. The upper bound critical value at the 5% (10%) significance level is −3.99 (−3.66) when k = 4 and these come from Pesaran et al. (2001, Table CII-Case III, page 303). [c]—LM is the Lagrange multiplier test of residual serial correlation. It is distributed as χ^2 with one degree of freedom (first-order). Its critical value at 5% (10%) significance level is 3.84 (2.77). [d]—RESET is Ramsey's test for misspecification. It is distributed as χ^2 with one degree of freedom. **, and * show a level of significance at 5% and 10%, respectively.

4. Summary and Conclusions

The most comprehensive measure of uncertainty in every country is said to be the new policy uncertainty measure introduced by Baker et al. (2016). This news-based measure captures all uncertainties associated with economic or political factors, and since its introduction, researchers have tried to assess its impact on different macro variables such as stock returns, oil prices, domestic investment, capital flows, demand for money, the housing market, etc.

In this paper, we consider the trade flows between Korea and the U.S. and try to find out whose policy uncertainty measure has relatively more effects on each country's exports to the other. Depending on the availability of the data, we include 61 2-digit U.S. exporting industries to Korea and 49 2-digit Korean exporting industries to the U.S. Monthly data over the period 2000M1—2020M7 are used to carry out the empirical analysis. Our results could be best summarized by saying that both uncertainty measures had significant short-run negative effects on 1/3rd of the industries exporting from the U.S. to Korea and from Korea to the U.S. However, short-run effects lasted into the long run in a limited number of industries. More precisely, Korean policy uncertainty had significantly negative long-run effects on 9 U.S. exporting industries which engaged in 9% of exports whereas, the U.S. policy uncertainty had negative effects in five industries which engaged in only 6% of exports. As for the effects of both uncertainty measure on the U.S. imports from Korea or Korean exports to the U.S., we found that again, both measures had significant short-run effects in almost one-third of the industries. Short-run effects were translated into the long run in three industries as far as the effects of the Korean uncertainty is concerned and in six industries as far as the U.S. policy uncertainty measure is concerned. An interesting finding is that both uncertainty measures had positive effects on Korean exports to the U.S., and while the total share of industries affected by the Korean uncertainty measure was 31%, that of the industries affected by the U.S. uncertainty measure was 7%. Thus, increase uncertainty in Korea induces the U.S. importers to import more. This could be the case if the U.S. importers expect political and economic situations in Korea to get worse as a result of increased uncertainty. For example, a small threat by North Korea will make the South Korean policy uncertainty measure rise. If this is perceived by the U.S. importers as a serious long-lasting threat, they will import more in order not to experience disturbance in their sales, delivery, and production. It should be noted that in the exchange rate uncertainty trade literature, the new direction is to assess the possibility of an asymmetric response of trade flows to a measure of exchange rate uncertainty advanced by Bahmani-Oskooee and Aftab (2017). Future research should investigate the possibility of asymmetric effects of policy uncertainty on trade flows.

Appendix A. Data Definitions and Sources

Monthly data over 2000M1–2020M7 are used to carry out the empirical analysis. The data sources are as follows:

a.   U.S. International Trade Commission (USITC).
b.   International Financial Statistics of the IMF (www.imfstatistics.org). (accessed on 15 February 2021)
c.   Economic Policy Uncertainty Group: https://www.policyuncertainty.com/. (accessed on 15 February 2021)

Variables

X_i^{US} = Volume of exports of commodity i by the U.S. to Korea. Export value data in U.S. dollars for each industry come from source a. In the absence of export prices at the commodity level, we follow Bahmani-Oskooee and Hegerty (2009) and use the aggregate export price index of the U.S. to deflate the nominal exports of each commodity. The aggregate export price index comes from source b.

M_i^{US} = Volume of imports of commodity i by the U.S. from Korea. Import value data in U.S. dollars for each industry come from source a. Again, we use the aggregate import price index of the U.S. to deflate the nominal imports of each commodity. The aggregate import price index comes from source b.

Y^{US} = Measure of U.S. economic activity. Since data are monthly, we follow Bahmani-Oskooee and Ardalani (2006) and Bahmani-Oskooee and Aftab (2017) and use the Industrial Production Index, which is available monthly from source b.

Y^{KOR} = Measure of Korea's economic activity, also proxied by the industrial production index from source b.

REX = Real bilateral exchange rate between US dollar and Korean won. It is defined as $(NEX*CPI^{US})/CPI^{KOR}$ where NEX_i is the nominal exchange rate defined as the number of won per US dollar, CPI^{US} is the price level in the United States and CPI^{KOR} is the price level in Korea. Thus, a decline in REX reflects a real depreciation of the USD. All data come from Source b.

PU^{US} = Measure of Economic Policy Uncertainty in the U.S., proxied by the economic policy uncertainty index from source c.

PU^{KOR} = Measure of Economic Policy Uncertainty in Korea, also proxied by the economic policy uncertainty index from source c.

Notes

[1] The policy uncertainty measure is now constructed for more than 20 countries by the Policy Uncertainty Group. For more details visit www.policyuncertainty.com (accessed on 4 March 2021).

[2] A few examples are Bahmani-Oskooee (1986), Bahmani-Oskooee and Niroomand (1998), and Bahmani-Oskooee and Kara (2005). Bahmani-Oskooee et al. (2013) is the latest review article.

[3] Note that estimates of θ_0 and ρ_0 in this context are the same as an estimate of the coefficient attached to the lagged error-correction term in Engle and Granger's (1987) approach. Hence, these estimates must be negative, and they measure the speed of adjustment. For proof, see Banerjee et al. (1998) and Bahmani-Oskooee and Ghodsi (2018).

[4] For some other applications of this approach, see Halicioglu (2007), Durmaz (2015), Al-Shayeb and Hatemi-J (2016), Aftab et al. (2017), Arize et al. (2017), and Hajilee and Niroomand (2019).

[5] By meaningful we mean cointegration is supported either by the *F* or the *t*-test that is reported in the diagnostics in Table 4. Note that in industry 82, although the Korean policy uncertainty measure carries a significant coefficient, this industry is not included in the list since neither the F nor the *t*-test is significant.

[6] As for the long-run effects of the income and exchange rate, while the exchange rate is significant in limited number of industries, Korean income or economic activity is significant in most industries.

[7] Other diagnostics in Table 7 are similar to those in Table 4 and need no repeat. Furthermore, in most models the level of economic activity in the U.S. seems to be a significant long-run determinant of the U.S. imports from Korea.

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