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DYNAMICS OF BILATERAL TRADE UNDER ECONOMIC POLICY UNCERTAINTY

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This study investigates the impact of economic policy uncertainty (EPU) on bilateral trade using a modified gravity model of Anderson and van Wincoop (2003) for 21 economies from 2003 to 2018. The analysis includes the yearly mean and standard deviation of EPUs to assess the effects of EPU levels and volatilities on trade values. Increased domestic EPU significantly reduces imports and total trade, while increased partner EPU decreases exports but increases imports. EPU volatility in both domestic and partner countries significantly reduces bilateral trade values. These findings suggest that countries turn to foreign markets to offset domestic demand decreases due to high EPU, except when EPU volatility is high, which negatively impacts all trade activities. The study emphasizes the need for stable, transparent, and rules-based policy frameworks to sustain global trade growth.

Keywords: Economic Policy Uncertainty, Trade, Extended Gravity Model, Panel Data Analysis
JEL Classification: D81, F15, F44

1. INTRODUCTION

A voluminous literature has been published on the effects of economic policy uncertainty (EPU) on macroeconomic factors in recent years. Several studies have examined the effects of EPU on stock markets, such as the returns, volatility, and correlations among financial assets (Arouri et al., 2016; Balcilar et al., 2018; Christou et al., 2017; Fang et al., 2017; Ko and Lee, 2015; Li, 2017; Li and Peng, 2017; Li et al., 2015; Liu and Zhang, 2015; Xiong et al., 2018; Yu et al., 2018). Meanwhile, other studies have been conducted on the effects of EPU on various economic factors, such as firm investment (Kang et al., 2014; Wang et al., 2014), firm cash-holding (Demir and

Ersan, 2017; Phan et al., 2019), bank credit activities (Bordo et al., 2016; Chi and Li, 2017; Gissler et al., 2016; Nodari, 2014), unemployment, inflation, and output (Caggiano et al., 2017; Duca and Saving, 2018; Fontaine et al., 2018; Horvath and Zhong, 2018), and international investment (Asamoah et al., 2016).

According to Lawson (1985), uncertainty is a situation where there is no clear basis to form any calculable probability, and thus economic agents can be very reluctant in their activities in times of uncertainty. Hooper and Kohlhagen (1978) documented a significant influence of exchange rate uncertainty on trade prices in the U.S. and Germany over the period 1965–1975. In the same vein, Grobar (1993) added that uncertainty in the real exchange rate has negative effects on manufacturing exports in Argentina, Brazil, Colombia, Greece, Malaysia, Mexico, Philippines, South Africa, Thailand, and Yugoslavia over the period 1963–1985. Baum and Caglayan (2010) found that exchange rate uncertainty has indeterminate impacts on trade flows, while having consistently and significantly positive effects on the volatility of bilateral trade in 25 OECD countries over the period 1980–1998. Meanwhile, Feng et al. (2017) provided strong evidence that the reduction in trade policy uncertainty simultaneously caused firm entries to and firm exits from export activity within fine product-level markets. The analysis was conducted based on firm–product level dataset on Chinese exports to the United States and the European Union in the years surrounding China's accession into the World Trade Organization (WTO). Crowley et al. (2018) found that Chinese firms are less likely to enter new foreign markets and more likely to exit from established foreign markets when their products are subject to increased trade policy uncertainty over the period 2000-2009. However, overall, the roles of policy uncertainty in explaining the dynamics of trade activities, especially bilateral trade, are seemingly ignored in the literature.

In the existing literature, the influential work of Nicholas Bloom (2009) and the new database of Economic Policy Uncertainty (EPU) from Baker et al. (2016) have created more room for debates on the effects of uncertainty on bilateral trade activities under the lens of policy uncertainty. According to the literature on the negative effects of EPU on economic activities in general, and the output of a country in particular (Nicholas Bloom, 2009; Cheng, 2017; Colombo, 2013), we hypothesize a negative effect of EPU on the bilateral trade between countries.

Table 1. List of Countries in the Study Sample

16 High Income Economies	Australia, Canada, Chile, France, Germany, Greece, Ireland, Italy, Japan, Korea, Netherlands, Singapore, Spain, Sweden, United Kingdom, United States
5 Upper-middle Income Economies	Brazil, China, Colombia, Mexico, Russia

Note: Income classifications are applied from World Bank income classifications (update for 2019), see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

To examine the effects of trading partners' EPUs on bilateral trade activities, this study collects the bilateral trade data of 21 economies (see Table 1 for the country list) and other economic factors in the standard gravity model, including economic size, income level, real exchange rate, the physical distance among countries, and eight multilateral resistance factors. Three equations are estimated for the full sample and each country, including the effects of EPUs on exports, imports, and total trade values. Moreover, we use yearly mean and yearly standard deviation of EPU, in terms of fluctuations in level and volatility, from each country to examine the effects of EPU on bilateral trade.

The remainder of this study is organized as follows. Section 2 provides a concise review of the literature on the determinants of bilateral trade and the impacts of uncertainty on bilateral trade activities. Section 3 presents the model, data and methodologies used in this research. Section 4 reports and discusses the empirical results. Finally, Section 5 concludes the study with policy implications.

2. LITERATURE REVIEW

2.1. The Critical Role of Trade and Determinants of Bilateral Trade

International trade is a prominent area of study in the economic literature, with numerous empirical studies examining the linkages between trade openness and growth at different levels, including firm, industry, country, region, and the world (De Loeckera, 2013; Halpern et al., 2015). Keller (1998) and Huang et al. (2018) found that international trade is a significant channel for driving R&D spillovers into productivity growth. Yanikkaya (2003) emphasized that trade openness enhances economic growth through channels such as technology transfers, economies of scale, and comparative advantage, while also having positive effects on productivity growth (Abizadeh and Pandey, 2009; Papaioannou, 2018).

Many studies have examined the drivers of bilateral trade activities (Baltagi et al., 2003; Le, 2017; Mendonça et al., 2014; Saggi and Yildiz, 2010), with the gravity model often considered the most robust model for explaining bilateral trade (Fracasso, 2014; Kabir, Salim, and Al-Mawali, 2017; Narayan and Nguyen, 2016; Zakir Saadullah Khan and Ismail Hossain, 2010). The gravity equation for bilateral trade flows was first developed in the 19th century by Ravenstein (1885), and then applied in subsequent studies such as Tinbergen (1962), and Pöyhönen (1964). The original version of the gravity model posits that the income and geographical distance between trading countries are key factors in explaining their bilateral exports. However, over the past haft-century, the theoretical and empirical literature has focused on enhancing the gravity model and identifying additional determinants of bilateral trade. Many empirical

studies have supported the effectiveness of the gravity model in explaining bilateral trade flows (Baltagi et al., 2003; Chen and Novy, 2011), while others have sought to improve its accuracy by adding augmented factors (Felbermayr and Toubal, 2010; Narayan and Nguyen, 2016).

Francois and Manchin (2013) found that trade depends not only on institutional quality, but also on exporter's and importer's access to well-developed transport and communications infrastructure. As a result, exports from developing countries, which often have low institutional and infrastructure quality, limit market access for exports from developed countries. Mendonça et al. (2014) observed that institutional differences between countries have a significant negative effect on agricultural trade in a sample of 59 countries over the period 2005-2010. Álvarez et al. (2018) indicated that institutional conditions at the destination and institutional distance between exporting and importing countries are relevant factors for bilateral trade in a sample of 186 countries over the period 1996–2012. Narayan and Nguyen (2016) emphasized that the influence of trade gravity variables depends on the characteristics of trading partners. For instance, compared to low-income nations, trade with high-income nations is more sensitive to physical distance, economic size, openness, and bilateral exchange rate with trading partners. Meanwhile, Egger and Larch (2013) found that time zone differences reduce bilateral trade by 11% on average, which is about one-sixth of the international border effect between the US and Canada.

2.2. The Impact of Uncertainty on Bilateral Trade

We have recently observed rising uncertainty around the world, which seems to be associated with prolonged economic stagnation in advanced economies, leading to growing protectionism. This has given rise to emerging studies on the relationship between uncertainty and bilateral trade across countries. For instance, Byrne et al. (2008) reported that exchange rate volatility has a robust and significantly negative effect on the volume of US trade (both exports and imports) using sectoral data. In the following paragraphs, we will look at the impacts of uncertainty on trade in general and bilateral trade in particular, through both direct and indirect channels.

2.2.1. Direct Channels

The role of policy uncertainty in determining bilateral trade flows has received more attention in recent years. Hoekman and Nicita (2011) suggested that tariffs and non-tariff measures in trade policy continue to be a significant source of trade restrictiveness for low-income countries, despite preferential access programs. According to Hornok and Koren (2015), administrative costs can be expressed as bilateral ad-valorem trade costs, in which a 50% reduction in per-shipment costs is equivalent to a 9 percentage point reduction in tariffs. Akerman and Seim (2014) documented a stable negative relationship between differences in polity and the likelihood of arms trade during the Cold War.

Interestingly, Didier (2018) suggested that diplomatic relations between Taiwan and China improve the bilateral trade flows for China, but a trade-deteriorating effect appears for Taiwan with certain ex-colonies over the period 1948-2012.

Jiang and Shi (2018) found that a one standard deviation shock to US partisan conflict is associated with a 2% increase in US exports to China and a 2% reduction in its imports from China. While political uncertainty has been shown in existing literature to be an important determinant for bilateral trade activities, economic policy uncertainty is also expected to play a critical role in explaining the evolution in trade activities since it impacts directly on economic activities and trade policy.

2.2.2. Indirect Channels

Uncertainty may affect trade through its impacts on the macroeconomy. The pioneer work of Bloom (2009) and the new database of Economic Policy Uncertainty (EPU) from Baker et al. (2016) give rise to a number of recent studies on the macroeconomic effects of EPU. However, there seems to be a lack in the literature on the influence of EPU on bilateral trade.

Many studies examine the unfavorable effects of EPU on economic activities (Bloom, 2009; Cheng, 2017; Colombo, 2013). Specifically, research has documented the negative influence of EPU on investment (Bloom et al., 2007; Drobetz et al., 2018; Kang et al., 2014; Wang et al., 2014), unemployment, output (Bloom, 2009; Cheng, 2017; Colombo, 2013; Creal and Wu, 2017; Demir and Gozgor, 2018). Kang et al. (2014) showed that EPU and firm-level uncertainty are associated with the lower investment of US firms over the period 1985-2010. Drobetz et al. (2018) indicated that EPU has the strongest impact on the investment of most firms operating in industries that depend strongly on government subsidies and government consumption, as well as in countries with high state ownership. The EPU has also been found to affect bank credit growth (Bordo et al., 2016), credit risk (Chi and Li, 2017), and the volatility of unemployment (Caggiano et al., 2017). Overall, higher policy uncertainty could present an unfavorable shock to the overall economy, thus hindering imports and exports. Furthermore, lower economic activities, along with higher unemployment, lower investment, and restricted credit access, could lead to lower demand for traded goods. This is then expected to have negative impacts on bilateral trade.

This study investigates the influence of EPUs in trading partners on the bilateral trade value and bilateral trade (export to import) ratio. Specifically, a modified version of the gravity model is employed as the baseline model to explain bilateral trade between countries. Balli et al. (2017) found that bilateral factors such as trade and common language appear to play a highly significant role in explaining the magnitude of EPU spillovers. Therefore, this study investigates the effects of changes in trading partners' EPUs on bilateral trade in terms of both trade value and trade (export to import) ratio.

3. MODEL

3.1. Model and Data

This study aims to investigate the influences of EPUs in trading partners on their bilateral trade based on a modified gravity model. Specifically, the study follows the modified gravity model framework of Anderson and van Wincoop ('AvW', 2003). As explained in detail in Anderson and van Wincoop (2003), the traditional gravity could be biased due to the problem of omitted variables. One of the main causes is trade frictions or trade costs that cannot fully be counted by the distance between two trading partners, whereas the McCallum's border puzzle is one of the most famous puzzle in the literature of gravity models (An and Puttitanun, 2009). In the AvW model, trade frictions or trade costs are accounted for by including multilateral resistance factors such as the member of a currency union – Euro currency (Mastromarco et al., 2016). Later studies have indicated that the AvW model is a good model in their empirical studies (e.g., see Koch, and LeSage (2015), Behar and Nelson (2014)), thus we base our baseline model on that model. The AvW model does take into account the possibility of reverse causality by controlling for potential multilateral resistance factors that may affect both trade flows and economic policy uncertainty. This can help mitigate the bias that arises from omitted variables and endogeneity issues.

Therefore, the baseline model of this study includes the size, income level, real exchange rates, and multilateral resistance factors that include the distance between trading partners and eight others (MR_1 to MR_2, see Table 2 for more detail) along with the EPUs in an augmented version of the gravity model as follows:

$$\begin{aligned} Tradevalue_{ijt} = {} & \alpha_0 + \beta_1 Size_{it} + \beta_2 Size_{jt} + \beta_3 Inc_{it} + \beta_4 Inc_{jt} + \beta_5 REER_{it} \\ & + \beta_6 REER_{jt} + \beta_7 Distance_{ij} + \beta_8 EPU_{it} + \beta_9 EPU_{jt} \\ & + \beta_p \sum_1^8 MRp_t + \varepsilon_{ijt}, \end{aligned} \quad (1)$$

in which: $Tradevalue_{ijt}$ is bilateral trade activities between country i and country j; $Size_i$ and $Size_j$ are the sizes of country i and country j, respectively; Inc_i and Inc_j are the income levels of country i and country j, respectively; $REER_i$ and $REER_j$ are the real effective exchange rates of country i and country j, respectively; *Distance* is the distance between country i and country j; EPU_i and EPU_j are the EPUs of i and country j, respectively. MRp is the multilateral resistance factor p. In order to investigate the effects of EPUs on bilateral trade by different perspectives, we use three different proxies of EPU including: EPU_{mi} and EPU_{mj} are Economic policy uncertainty of country i and country j - yearly mean; and EPU_{voi} and EPU_{voj} are Economic policy uncertainty of country i and country j - yearly volatility. t is year t. α, β are coefficients. ε is the error term.

In the gravity model, there are two standard ways of measuring the economic size of

a country, either by total output (total GDP) and per capita output (GDP per capita) to take into account population growth (Frankel et al., 1997). Furthermore, the literature has documented the important role of the real exchange rate in explaining bilateral trade (Baek, 2013, 2014; Bahmani-Oskooee and Goswami, 2004; Bahmani-Oskooee and Ratha, 2008; Egger, 2008; Nicita, 2013; Šimáková, 2014; Yang and Gu, 2016).

In order to have a comprehensive view on the effects of EPUs on trade activities, this study examines the effects on export values ($Export_{ij}$: exports of country i to country j), import values ($Import_{ij}$: imports of country i from country j), and trade values ($Trade_{ij}$: sum of Exports and Imports). As such, three equations are estimated as follows:

$$\begin{aligned} Export_{ijt} = {} & \alpha_0 + \beta_1 Size_{it} + \beta_2 Size_{jt} + \beta_3 Inc_{it} + \beta_4 Inc_{jt} + \beta_5 REER_{it} \\ & + \beta_6 REER_{jt} + \beta_7 Distance_{ij} + \beta_8 EPU_{it} + \beta_9 EPU_{jt} \\ & + \beta_p \sum_1^8 MRp_t + \varepsilon_{ijt}, \end{aligned} \tag{2}$$

$$\begin{aligned} Import_{ijt} = {} & \alpha_0 + \beta_1 Size_{it} + \beta_2 Size_{jt} + \beta_3 Inc_{it} + \beta_4 Inc_{jt} + \beta_5 REER_{it} \\ & + \beta_6 REER_{jt} + \beta_7 Distance_{ij} + \beta_8 EPU_{it} + \beta_9 EPU_{jt} \\ & + \beta_p \sum_1^8 MRp_t + \varepsilon_{ijt}, \end{aligned} \tag{3}$$

$$\begin{aligned} Trade_{ijt} = {} & \alpha_0 + \beta_1 Size_{it} + \beta_2 Size_{jt} + \beta_3 Inc_{it} + \beta_4 Inc_{jt} + \beta_5 REER_{it} \\ & + \beta_6 REER_{jt} + \beta_7 Distance_{ij} + \beta_8 EPU_{it} + \beta_9 EPU_{jt} \\ & + \beta_p \sum_1^8 MRp_t + \varepsilon_{ijt}, \end{aligned} \tag{4}$$

In this study, we collect data on bilateral exports and imports from the Direction of Trade (IMF), while data on other economic factors are collected from the World Development Indicators (WDI) database (the World Bank). The data on the distance between trading partners was manually collected from Google Maps (Google Inc.) (see Table 3 for the details). The data on our main variables, economic policy uncertainty was collected from www.policyuncertainty.com provided by Baker et al. (2016). From this database, we acquired EPUs of 23 countries, but data on the real exchange rates of India and Hong Kong were lacking. As a result, we came to the final sample with 21 countries, including 16 advanced economies and five emerging countries. Due to the availability of our comprehensive dataset, the study sample spans from 2003 to 2018. In a nutshell, we investigate the influences of EPUs on bilateral trade activities in 21 economies, one by one, during this period.

All the variables' definitions, calculations, and data sources are presented in Table 2. Table 3 presents the distance between countries in our sample.

Table 2. Variable Definitions, Calculations and Data Sources

Variable	Definitions	Calculation	Data Source
$Trade_{ij}$	Total Bilateral trade between country i and country j	Log[Value of Exports from i to j (FOB US Dollars) + Value of Imports from j of i (CIF US Dollars)]	DOT, IMF
$Export_{ij}$	Exports from country i and country j	Log[Value of Exports from i to j (FOB US Dollars)] + Value of Imports from j of i (CIF US Dollars)]	DOT, IMF
$Import_{ij}$	Imports of country i and country j	Log[Value of Imports from j of i (CIF US Dollars)]	DOT, IMF
$Size_i$	The size of country i	Log[GDP (constant 2010 US$) of country i]	WDI
$Size_j$	The size of country j	Log[GDP (constant 2010 US$) of country j]	WDI
Inc_i	The income level of country i	Log[GDP per capita (constant 2010 US$) of country i]	WDI
Inc_j	The income level of country j	Log[GDP per capita (constant 2010 US$) of country j]	WDI
$REER_i$	The real effective exchange rates of country i	Log[Real effective exchange rate index (2010 = 100) of country i]	WDI, IMF
$REER_j$	The real effective exchange rates of country j	Log[Real effective exchange rate index (2010 = 100) of country j]	WDI, IMF
EPU_{mi}	Economic policy uncertainty of country i - yearly mean	Log(EPU's yearly mean of country i)	
EPU_{voi}	Economic policy uncertainty of country i - yearly volatility	Log(EPU's yearly standard deviation of country i)	
EPU_{mj}	Economic policy uncertainty of country j - yearly mean	Log(EPU's yearly mean of country j)	
EPU_{voj}	Economic policy uncertainty of country j - yearly volatility	Log(EPU's yearly standard deviation of country j)	
MR_1	Multilateral resistance factor 1	Free trade agreement (FTA): If two countries have an effective FTA, MR1 is 1; otherwise, MR1 is nil.	
MR_2	Multilateral resistance factor 2	WTO memberships: If two countries both have memberships of WTO, MR2 is 1; otherwise, MR2 is nil.	
MR_3	Multilateral resistance factor 3	Land border: If two countries share the same border, MR3 is 1; otherwise, MR3 is nil.	
MR_4	Multilateral resistance factor 4	Colonial history: If two countries were colonized by the same country, MR4 is 1; otherwise, MR4 is nil.	
MR_5	Multilateral resistance factor 5	Official language: If two countries share the same official language, MR5 is 1; otherwise, MR5 is nil.	
MR_6	Multilateral resistance factor 6	Currency union: If two countries are members of the same currency union, MR6 is 1; otherwise, MR6 is nil.	
MR_7	Multilateral resistance factor 7	Religion factor: If two countries have the same major religion (a religion with more than 50% of the population as followers), MR7 is 1; otherwise, MR7 is nil.	
MR_8	Multilateral resistance factor 8	Island factor: If two countries are not islands, MR8 is nil. If one of the two is an island, MR8 is 1. If both are islands, MR8 is 2.	
$Distance$	The distance between country i and country j	Log of distance between country i and country j	Google Maps

Notes: DOT is the Direction of Trade database of the IMF; WDI is the World Development Indicators database of the World Bank.

Table 3. Distance between Countries

Distance from Capital to Capital	Australia (Sydney)	Brazil (Brasilia)	Canada (Ottawa)	Chile (Santiago de Chile)	China (Beijing)	Colombia (Bogota)	France (Paris)	Germany (Berlin)	Greece (Athens)	Ireland (Dublin)	Italy (Roma)	Japan (Tokyo)
Australia (Sydney)	0	14133.23	15862.92	11346.16	8947.76	14332.87	16959.69	16093.73	15325.8	17213.59	16320.28	7826.24
Brazil (Brasilia)	14133.23	0	7361.22	3012.89	16931.34	3674.92	8724.32	9590.79	9549.49	8652.59	8904.52	17677.68
Canada (Ottawa)	15862.92	7361.22	0	8784.2	10450.31	4529.34	5648.46	6128.14	7744.18	4898.88	6728.73	10320.59
Chile (Santiago de Chile)	11346.16	3012.89	8784.2	0	19059.07	4258.08	11648.25	12524.75	12556.89	11466.46	11909.63	17234.24
China (Beijing)	8947.76	16931.34	10450.31	19059.07	0	14938.75	8216.59	7357.2	7616.24	8218.82	8124.81	2092.29
Colombia (Bogota)	14332.87	3674.92	4529.34	4258.08	14938.75	0	8621.58	9420.95	10364.37	8128.89	9373.72	14308.18
France (Paris)	16959.69	8724.32	5648.46	11648.25	8216.59	8621.58	0	877.41	2095.75	780.84	1105.23	9711.6
Germany (Berlin)	16093.73	9590.79	6128.14	12524.75	7357.2	9420.95	877.41	0	1802.8	1316.93	1182.5	8915.69
Greece (Athens)	15325.8	9549.49	7744.18	12556.89	7616.24	10364.37	2095.75	1802.8	0	2854.75	1050.82	9504.69
Ireland (Dublin)	17213.59	8652.59	4898.88	11466.46	8218.82	8128.89	780.84	1316.93	2854.75	0	1885.65	9584.08
Italy (Roma)	16320.28	8904.52	6728.73	11909.63	8124.81	9373.72	1105.23	1182.5	1050.82	1885.65	0	9852.94
Japan (Tokyo)	7826.24	17677.68	10320.59	17234.24	2092.29	14308.18	9711.6	8915.69	9504.69	9584.08	9852.94	0
Korea Republic (Seoul)	8328.85	17541.13	10511.33	18355.41	952.28	14833.48	8965.3	8126.38	8515.31	8950.95	8965.85	1152.56
Mexico (Mexico)	12972.23	6822.7	3619.12	6589.88	12457.45	3170.58	9195.81	9726.2	11280.42	8471.51	10239.76	11305.4
Netherlands (Amsterdam)	16642.11	9113.62	5631.5	12012.27	7821.72	8844.94	429.86	357.97	2163.04	756.58	1295.94	9287.86
Russian Federation (Moskva)	14514.64	11151.31	7159.41	14107.2	5820.02	10886.99	2464.58	1587.38	2200.28	2779.74	2345.97	7507.28
Singapore (Singapore)	6320.3	16526.22	14812.84	16400.49	4469.94	19301.84	10544.99	9918.77	9051.14	11201.42	10019.87	5311.12
Spain (Madrid)	17683.81	7736.33	5689.67	10701.54	9222.04	8011.28	1052.85	1869.06	2369.45	1450.84	1364.1	10761.6
Sweden (Stockholm)	15595.44	10224.21	5993.6	13086.09	6707.97	9677.85	1543.47	810.47	2407.47	1628.17	1975.45	8168.85
UK (London)	16993.11	8791.69	5360.72	11672.22	8140.67	8490.29	343.53	931.52	2391.52	463.3	1433.7	9558.26
US (Washington DC)	15709.63	6795.94	732.67	8072	11145.06	3814.02	6164.51	6709.89	8252.27	5441.77	7216.33	10902.81

Note: The distance data was collected manually from Google Maps.

Table 3. Distance between Countries (cont')

Distance from Capital to Capital	Korea Republic (Seoul)	Mexico (Mexico)	Netherlands (Amsterdam)	Russian Federation (Moskva)	Singapore (Singapore)	Spain (Madrid)	Sweden (Stockholm)	UK (London)	US (Washington DC)
Australia (Sydney)	8328.85	12972.23	16642.11	14514.64	6320.3	17683.81	15595.44	16993.11	15709.63
Brazil (Brasilia)	17541.13	6822.7	9113.62	11151.31	16526.22	7736.33	10224.21	8791.69	6795.94
Canada (Ottawa)	10511.33	3619.12	5631.5	7159.41	14812.84	5689.67	5993.6	5360.72	732.67
Chile (Santiago de Chile)	18355.41	6589.88	12012.27	14107.2	16400.49	10701.54	13086.09	11672.22	8072
China (Beijing)	952.28	12457.45	7821.72	5820.02	4469.94	9222.04	6707.97	8140.67	11145.06
Colombia (Bogota)	14833.48	3170.58	8844.94	10886.99	19301.84	8011.28	9677.85	8490.29	3814.02
France (Paris)	8965.3	9195.81	429.86	2464.58	10544.99	1052.85	1543.47	343.53	6164.51
Germany (Berlin)	8126.38	9726.2	357.97	1587.38	9918.77	1869.06	810.47	931.52	6709.89
Greece (Athens)	8515.31	11280.42	2163.04	2200.28	9051.14	2369.45	2407.47	2391.52	8252.27
Ireland (Dublin)	8950.95	8471.51	756.58	2779.74	11201.42	1450.84	1628.17	463.3	5441.77
Italy (Roma)	8965.85	10239.76	1295.94	2345.97	10019.87	1364.1	1975.45	1433.7	7216.33
Japan (Tokyo)	1152.56	11305.4	9287.86	7507.28	5311.12	10761.6	8168.85	9558.26	10902.81
Korea Republic (Seoul)	0	12051.06	8555.82	6605.2	4668.92	9994.96	7431.47	8856.93	11163.31
Mexico (Mexico)	12051.06	0	9216.2	10723.24	16601.8	9062.22	9584.63	8928.3	3031.67
Netherlands (Amsterdam)	8555.82	9216.2	0	2128.12	10494.13	1481.32	1125.22	357.84	6189.55
Russian Federation (Moskva)	6605.2	10723.24	2128.12	0	8434.48	3440.18	1227.01	2500.42	7820.49
Singapore (Singapore)	4668.92	16601.8	10494.13	8434.48	0	11383.94	9639.26	10850.28	15536.4
Spain (Madrid)	9994.96	9062.22	1481.32	3440.18	11383.94	0	2592.91	1263.35	6087.83
Sweden (Stockholm)	7431.47	9584.63	1125.22	1227.01	9639.26	2592.91	0	1432.72	6635.42
UK (London)	8856.93	8928.3	357.84	2500.42	10850.28	1263.35	1432.72	0	5897.34
US (Washington DC)	11163.31	3031.67	6189.55	7820.49	15536.4	6087.83	6635.42	5897.34	0

Note: The distance data was collected manually from Google Maps.

3.2. Methodologies

From an econometric perspective, we run regressions for the full sample and each country in our study sample of 21 countries to analyze the effects of EPUs on their bilateral trade with the remaining 20 economies. Estimating the determinants of trade activities poses major challenges due to unobservable factors that vary by time and country, as well as concerns over serial and spatial correlation of error terms.

To address the first issue, it is important to note that the AvW model of trade suggests controlling for trade frictions in estimations to reduce these unobservable variations. Previous studies have typically controlled for one or a few factors, such as union currency or border. In this study, we account for large unobservable factors by including not only distance, but also eight multilateral resistance factors, which include common factors such as border or union currency. This helps to limit the first issue.

With regard to the second issue, Driscoll and Kraay (1998) have shown that even when error terms exhibit serial and spatial correlation, OLS estimation can still provide consistent estimates. Therefore, this study applies OLS estimation. The next section presents and discusses the main results of this study.

4. EMPIRICAL MODEL

As discussed, in our empirical estimation, we examine the impacts of EPU on three aspects of bilateral trade, namely, total bilateral trade value, export values, and import values. The first measure indicates the economic significance of the bilateral trade relationship between two countries, while the second and third measures reveal the bilateral trade activities from the aspects of each trading partner. The estimation results for the full sample are presented in Table 4 for the impacts of levels (models 1 – 3) and volatilities (models 4 – 6) of EPUs.We found that higher levels of EPU in domestic countries appear to significantly reduce total trade values and imports, while higher levels in trading partners (foreign countries) reduce exports but increase imports of home countries. Interestingly, increases in the volatility of EPUs, even in home countries or trading partners, are found to significantly reduce trade activities, including imports, exports, and total trade values.

In terms of specific countries, the summary of effects of EPUs on exports, imports, and total trade values are reported in Table 5. Increased levels of EPUs in home countries are found to have statistically and significantly positive effects on exports in Ireland and Japan. Increased levels of EPU in trading partners appear to have statistically and significantly negative impacts on i) exports of Chile, China, Greece, Ireland, Japan, and Korea, ii) imports in Canada, Singapore, Spain, and iii) total trade values in Canada, Chile, China, Ireland, Japan, Singapore, and Spain. Increased levels of EPU in trading partners are also found to have statistically and significantly positive effects on imports of Greece, Russia, and Sweden.

Table 4. Economic Policy Uncertainty and Bilateral Trade Activities

Model	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var:	$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$	$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$
$Size_i$	0.9052***	0.8906***	0.8700***	0.9166***	0.8822***	0.8703***
	[0.0124]	[0.0121]	[0.0103]	[0.0121]	[0.0119]	[0.0101]
$Size_j$	0.8572***	0.9067***	0.8521***	0.8528***	0.9204***	0.8570***
	[0.0122]	[0.0119]	[0.0102]	[0.0120]	[0.0117]	[0.0100]
Inc_i	-0.1111***	-0.0588***	-0.0994***	-0.1318***	-0.0794***	-0.1212***
	[0.0195]	[0.0190]	[0.0163]	[0.0198]	[0.0194]	[0.0165]
Inc_j	-0.0007	-0.1352***	-0.0844***	-0.0171	-0.1481***	-0.0997***
	[0.0185]	[0.0180]	[0.0154]	[0.0188]	[0.0184]	[0.0156]
$REER_i$	1.6659***	1.7087***	1.7473***	1.6812***	1.7037***	1.7517***
	[0.1127]	[0.1099]	[0.0939]	[0.1125]	[0.1098]	[0.0935]
$REER_j$	1.6252***	1.5223***	1.6551***	1.6214***	1.5354***	1.6600***
	[0.1123]	[0.1095]	[0.0936]	[0.1121]	[0.1094]	[0.0932]
$Distance$	-0.7250***	-0.6802***	-0.6747***	-0.7231***	-0.6780***	-0.6721***
	[0.0193]	[0.0188]	[0.0161]	[0.0192]	[0.0188]	[0.0160]
MR_1	0.1580***	0.1601***	0.1317***	0.1507***	0.1544***	0.1252***
	[0.0344]	[0.0335]	[0.0286]	[0.0343]	[0.0335]	[0.0285]
MR_2	0.4149***	0.4026***	0.3846***	0.4168***	0.4032***	0.3846***
	[0.0598]	[0.0583]	[0.0498]	[0.0595]	[0.0581]	[0.0495]
MR_3	0.3396***	0.3382***	0.3211***	0.3485***	0.3488***	0.3311***
	[0.0671]	[0.0655]	[0.0559]	[0.0670]	[0.0654]	[0.0557]
MR_4	0.3135***	0.6623***	0.5210***	0.3062***	0.6569***	0.5154***
	[0.0772]	[0.0752]	[0.0643]	[0.0769]	[0.0751]	[0.0640]
MR_5	0.6580***	0.4920***	0.5275***	0.6767***	0.5143***	0.5488***
	[0.0623]	[0.0607]	[0.0519]	[0.0622]	[0.0607]	[0.0517]
MR_6	0.1992***	0.1780***	0.2533***	0.2334***	0.2089***	0.2871***
	[0.0569]	[0.0554]	[0.0474]	[0.0569]	[0.0556]	[0.0473]
MR_7	-0.2543***	-0.3043***	-0.3296***	-0.2407***	-0.2894***	-0.3143***
	[0.0525]	[0.0512]	[0.0438]	[0.0524]	[0.0512]	[0.0436]
MR_8	0.3373***	0.1967***	0.2479***	0.3368***	0.1800***	0.2379***
	[0.0306]	[0.0298]	[0.0255]	[0.0304]	[0.0297]	[0.0253]
EPU_{mi}	0.0333	-0.1972***	-0.1001***			
	[0.0339]	[0.0331]	[0.0283]			
EPU_{mj}	-0.1284***	0.0884***	-0.0187			
	[0.0338]	[0.0329]	[0.0281]			
EPU_{voi}				-0.1234***	-0.0874***	-0.1093***
				[0.0229]	[0.0224]	[0.0190]
EPU_{voj}				-0.0581**	-0.0997***	-0.0830***
				[0.0229]	[0.0223]	[0.0190]
Constant	-35.085***	-35.127***	-33.144***	-34.801***	-34.861***	-32.878***
	[0.8896]	[0.8673]	[0.7413]	[0.8873]	[0.8664]	[0.7378]
Observations	5,865	5,865	5,865	5,865	5,865	5,865
R-squared	0.7427	0.7503	0.7949	0.7442	0.7508	0.7969

Notes: To save space in the manuscript, the estimated results of each country for the effects of economic policy uncertainty are briefly reported. However, the full detailed results can be provided upon request. Standard errors are indicated in square brackets, while *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Summary for the Effects of Economic Policy Uncertainty on Bilateral Trade Activities by Country

Dep. var:		$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$	$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$
Australia	EPU_{mi}	0.1801	0.1478	0.1215			
		[0.1210]	[0.1367]	[0.1179]			
	EPU_{mj}	0.1125	-0.0107	0.0630			
		[0.1266]	[0.1431]	[0.1234]			
	EPU_{voi}				0.1300*	0.1110	0.0896
					[0.0716]	[0.0807]	[0.0699]
	EPU_{voj}				0.0304	-0.1353	-0.0533
					[0.0853]	[0.0962]	[0.0832]
Brazil	EPU_{mi}	0.3670	0.3460	0.3328			
		[0.2903]	[0.2915]	[0.2607]			
	EPU_{mj}	-0.1061	-0.1066	-0.1201			
		[0.1238]	[0.1243]	[0.1112]			
	EPU_{voi}				0.1406	0.3056*	0.1963
					[0.1585]	[0.1564]	[0.1412]
	EPU_{voj}				-0.1318	-0.2693***	-0.1950***
					[0.0819]	[0.0808]	[0.0729]
Canada	EPU_{mi}	0.1423	0.2031	0.1744			
		[0.1767]	[0.2021]	[0.1784]			
	EPU_{mj}	-0.1439	-0.2809**	-0.2255*			
		[0.1192]	[0.1363]	[0.1204]			
	EPU_{voi}				0.1655**	0.2096**	0.1912**
					[0.0750]	[0.0847]	[0.0747]
	EPU_{voj}				-0.2625***	-0.4047***	-0.3565***
					[0.0740]	[0.0836]	[0.0737]
Chile	EPU_{mi}	-0.2736	0.1640	-0.0893			
		[0.3241]	[0.3844]	[0.2846]			
	EPU_{mj}	-0.2750**	-0.0892	-0.2224*			
		[0.1346]	[0.1596]	[0.1182]			
	EPU_{voi}				0.2592	0.4565**	0.3377**
					[0.1590]	[0.1853]	[0.1372]
	EPU_{voj}				-0.2549***	-0.3091***	-0.2795***
					[0.0812]	[0.0947]	[0.0701]
China	EPU_{mi}	0.1124	-0.0596	0.0397			
		[0.0928]	[0.1858]	[0.1074]			
	EPU_{mj}	-0.3887***	-0.1311	-0.2736***			
		[0.0806]	[0.1615]	[0.0933]			
	EPU_{voi}				0.0262	-0.0133	0.0061
					[0.0970]	[0.1877]	[0.1098]
	EPU_{voj}				-0.1118**	-0.1111	-0.1000
					[0.0544]	[0.1052]	[0.0615]

Notes: To save space, the estimated results of each country for the effects of economic policy uncertainty are briefly reported. However, the full detailed results can be provided upon request. Standard errors are indicated in square brackets, while *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Summary for the Effects of Economic Policy Uncertainty on Bilateral Trade Activities by Country (cont')

Dep. var:		$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$	$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$
Colombia	EPU_{mi}	0.0032	0.0248	0.0404			
		[0.1686]	[0.1509]	[0.1442]			
	EPU_{mj}	0.1199	0.1750	0.1390			
		[0.1684]	[0.1508]	[0.1441]			
	EPU_{voi}				0.0378	0.0732	0.0731
					[0.1444]	[0.1288]	[0.1232]
	EPU_{voj}				-0.0779	-0.1708*	-0.1388
					[0.1049]	[0.0936]	[0.0895]
France	EPU_{mi}	0.1060	0.0994	0.0901			
		[0.1183]	[0.1862]	[0.1294]			
	EPU_{mj}	0.0618	0.0795	0.0715			
		[0.0744]	[0.1171]	[0.0813]			
	EPU_{voi}				0.0536	0.1464	0.0872
					[0.0782]	[0.1214]	[0.0850]
	EPU_{voj}				-0.0271	-0.1955***	-0.0992*
					[0.0481]	[0.0747]	[0.0523]
Germany	EPU_{mi}	-0.0038	-0.0681	-0.0176			
		[0.1463]	[0.2182]	[0.1540]			
	EPU_{mj}	-0.0228	0.0180	-0.0255			
		[0.0707]	[0.1054]	[0.0745]			
	EPU_{voi}				0.0342	0.1077	0.0601
					[0.0571]	[0.0840]	[0.0596]
	EPU_{voj}				-0.0930**	-0.2294***	-0.1450***
					[0.0457]	[0.0673]	[0.0477]
Greece	EPU_{mi}	0.3564	-0.1439	0.0327			
		[0.2633]	[0.2923]	[0.2405]			
	EPU_{mj}	-0.3009**	0.4200***	0.1786			
		[0.1425]	[0.1582]	[0.1301]			
	EPU_{voi}				0.0825	0.0715	0.0627
					[0.1156]	[0.1292]	[0.1053]
	EPU_{voj}				-0.0945	-0.0101	-0.0537
					[0.0871]	[0.0973]	[0.0793]
Ireland	EPU_{mi}	0.3883**	0.0162	0.2744			
		[0.1628]	[0.3038]	[0.1744]			
	EPU_{mj}	-0.3580***	-0.0810	-0.2925***			
		[0.0779]	[0.1453]	[0.0834]			
	EPU_{voi}				0.2023	-0.0707	0.1347
					[0.1868]	[0.3401]	[0.1975]
	EPU_{voj}				-0.1453***	-0.0793	-0.1370***
					[0.0499]	[0.0909]	[0.0528]

Notes: To save space, the estimated results of each country for the effects of economic policy uncertainty are briefly reported. However, the full detailed results can be provided upon request. Standard errors are indicated in square brackets, while *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Summary for the Effects of Economic Policy Uncertainty on Bilateral Trade Activities by Country (cont')

Dep. var:		$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$	$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$
Italy	EPU_{mi}	0.2147	0.0361	0.0796			
		[0.1706]	[0.2508]	[0.1465]			
	EPU_{mj}	-0.1090	0.1729	0.0336			
		[0.0737]	[0.1084]	[0.0633]			
	EPU_{voi}				0.0964	0.0659	0.0703
					[0.1042]	[0.1536]	[0.0893]
	EPU_{voj}				-0.0423	0.0073	-0.0280
					[0.0480]	[0.0707]	[0.0411]
Japan	EPU_{mi}	0.3797*	0.3363	0.3429			
		[0.2158]	[0.3054]	[0.2299]			
	EPU_{mj}	-0.6672***	-0.1661	-0.4224***			
		[0.1338]	[0.1894]	[0.1426]			
	EPU_{voi}				0.0832	0.1196	0.0805
					[0.1028]	[0.1410]	[0.1073]
	EPU_{voj}				-0.2466***	-0.0867	-0.1506
					[0.0907]	[0.1244]	[0.0946]
Korea	EPU_{mi}	0.0696	-0.2010	-0.0320			
		[0.2325]	[0.3065]	[0.2254]			
	EPU_{mj}	-0.3428***	-0.2137	-0.2882**			
		[0.1290]	[0.1700]	[0.1250]			
	EPU_{voi}				0.0397	-0.0694	-0.0033
					[0.1021]	[0.1334]	[0.0988]
	EPU_{voj}				-0.1016	-0.0941	-0.0872
					[0.0867]	[0.1132]	[0.0838]
Mexico	EPU_{mi}	0.0671	-0.0573	0.0511			
		[0.2219]	[0.2760]	[0.2340]			
	EPU_{mj}	0.0489	0.0196	-0.0729			
		[0.1442]	[0.1793]	[0.1521]			
	EPU_{voi}				-0.1679	0.1036	0.0464
					[0.1300]	[0.1599]	[0.1362]
	EPU_{voj}				0.1175	-0.2751***	-0.2006**
					[0.0793]	[0.0976]	[0.0831]
Netherlands	EPU_{mi}	0.1499	0.1607	0.1587			
		[0.1177]	[0.1691]	[0.1245]			
	EPU_{mj}	-0.1032	0.0634	0.0047			
		[0.0792]	[0.1138]	[0.0838]			
	EPU_{voi}				0.1230*	0.1736*	0.1665**
					[0.0672]	[0.0977]	[0.0708]
	EPU_{voj}				-0.1840***	-0.1700**	-0.1976***
					[0.0495]	[0.0719]	[0.0521]

Notes: To save space, the estimated results of each country for the effects of economic policy uncertainty are briefly reported. However, the full detailed results can be provided upon request. Standard errors are indicated in square brackets, while *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Summary for the Effects of Economic Policy Uncertainty on Bilateral Trade Activities by Country (cont')

Dep. var:		$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$	$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$
Russia	EPU_{mi}	0.6962	-0.0556	0.4115			
		[1.0766]	[0.6495]	[0.7498]			
	EPU_{mj}	-0.1960	0.1861*	-0.0098			
		[0.1669]	[0.1007]	[0.1163]			
	EPU_{voi}				0.1871	-0.0571	0.0791
					[0.3345]	[0.2043]	[0.2334]
	EPU_{voj}				-0.2604**	-0.0457	-0.1360*
					[0.1106]	[0.0676]	[0.0772]
Singapore	EPU_{mi}	0.0810	0.1646	0.1036			
		[0.2873]	[0.2147]	[0.2033]			
	EPU_{mj}	-0.0492	-0.2958**	-0.2440**			
		[0.1589]	[0.1188]	[0.1124]			
	EPU_{voi}				-0.1794	0.0232	-0.0624
					[0.1265]	[0.0965]	[0.0916]
	EPU_{voj}				0.3061***	-0.1387*	0.0171
					[0.1042]	[0.0795]	[0.0755]
Spain	EPU_{mi}	0.0149	0.1368	0.0675			
		[0.1182]	[0.1403]	[0.1012]			
	EPU_{mj}	-0.0696	-0.3344***	-0.2138***			
		[0.0910]	[0.1079]	[0.0779]			
	EPU_{voi}				0.0474	0.1456*	0.0911
					[0.0740]	[0.0869]	[0.0631]
	EPU_{voj}				-0.0290	-0.2547***	-0.1505***
					[0.0550]	[0.0646]	[0.0469]
Sweden	EPU_{mi}	0.3548	-0.0307	0.2224			
		[0.3510]	[0.5330]	[0.3706]			
	EPU_{mj}	0.0492	0.2839**	0.1331			
		[0.0791]	[0.1200]	[0.0835]			
	EPU_{voi}				0.1338	0.1233	0.1370
					[0.0876]	[0.1344]	[0.0929]
	EPU_{voj}				-0.0175	-0.0070	-0.0167
					[0.0540]	[0.0828]	[0.0572]
UK	EPU_{mi}	-0.0470	0.0086	-0.0225			
		[0.0956]	[0.1172]	[0.0980]			
	EPU_{mj}	0.0138	-0.0366	-0.0071			
		[0.0775]	[0.0950]	[0.0795]			
	EPU_{voi}				0.0048	0.0856	0.0495
					[0.0494]	[0.0593]	[0.0500]
	EPU_{voj}				-0.0483	-0.2217***	-0.1497***
					[0.0513]	[0.0615]	[0.0519]

Notes: To save space, the estimated results of each country for the effects of economic policy uncertainty are briefly reported. However, the full detailed results can be provided upon request. Standard errors are indicated in square brackets, while *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Summary for the Effects of Economic Policy Uncertainty on Bilateral Trade Activities by Country (cont')

Dep. var:		$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$	$Export_{ij}$	$Import_{ij}$	$Trade_{ij}$
US	EPU_{mi}	0.2129	0.2621	0.2619			
		[0.2348]	[0.2815]	[0.2418]			
	EPU_{mj}	-0.0911	-0.2196	-0.1963			
		[0.1172]	[0.1406]	[0.1207]			
	EPU_{voi}				0.0967	0.2104**	0.1672*
					[0.0879]	[0.1028]	[0.0892]
	EPU_{voj}				-0.0792	-0.3723***	-0.2638***
					[0.0768]	[0.0898]	[0.0779]

Notes: To save space, the estimated results of each country for the effects of economic policy uncertainty are briefly reported. However, the full detailed results can be provided upon request. Standard errors are indicated in square brackets, while *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Increases in the volatility of EPU in the home country appear to have positive effects on trade activities in some countries such as Canada, Chile, Netherlands, and the US, while increases in the volatility of EPU in trading partners are mostly found to have negative impacts on trade activities.

Overall, the findings have an important implication that increases in EPUs (level and especially volatilities) properly constrain trade activities. The increased policy instability may hinder trade through the following two main channels. First, higher policy uncertainty reduces economic growth, thereby inhibiting import and export activities. In an uncertain policy environment, businesses can delay investment decisions, consumers cut spending, and banks raise lending costs. Investment and demand for consumer goods in developed and emerging economies tend to decrease, as companies and households continue to limit long-term expenditures in the context of major instability. This leads to sluggish growth in global trade, especially in the areas of intensive machinery and consumer goods. Second, policy uncertainty might stem from trade policy instabilities, such as the instability around new trade agreements, including the Trans-Pacific Partnership (TPP) - that has greatly contributed to the increase of general policy instability and has a direct impact on import and export activities. According to a recent WTO report, the main reason for the decline in global trade comes from the increase in trade sanctions on exports of major economies. Although there are currently no precise assessments of the direct economic impact of these measures, it is certain that they can create a negative impact on trade growth by reducing investment spending. The results imply that, in a world of increasing policy uncertainty, these countries should implement economic reform measures towards reducing dependence on exports and investment capital.

However, the results also show an interesting observation that despite the negative impacts of economic policy instability on trade activities, businesses might try to find a

way to adapt to that situation. For instance, increases in domestic EPU levels appear to have (even statistical insignificance) a positive effect on exports, which implies that businesses facing domestic economic uncertainty seem to try to explore markets at trading partners

5. CONCLUSION

This study has found that higher levels of Economic Policy Uncertainty (EPU) and its volatility have a negative impact on bilateral trade activities. The results suggest that, in an increasingly uncertain policy environment, countries should implement economic reforms aimed at reducing their dependence on exports and imports to avoid unfavorable economic impacts. However, the effects of increased EPU levels and volatility on the trade ratio (export to import) are relatively mixed. This is consistent with Milesi-Ferretti and Tille's (2011) opinion that the impact of shocks on a specific country depends on its exposure to the global economy, trade openness, international linkages, and macroeconomic conditions. It is reasonable to expect that a country that is less dependent on exports and imports could be more resilient to shocks. Therefore, countries should focus on enhancing domestic demand, reducing dependence on imported energy, materials, and technologies to build more resilient production systems over the long term.

The negative effects of both domestic and foreign policy uncertainty on trade suggest that policymakers should work on reducing uncertainty by adopting transparent policy rules and institutional frameworks. This will increase the predictability of government policy decisions for businesses, investors, and consumers. Policymakers need to adhere to well-defined, transparent, and rules-based policy frameworks. Although this requires a more disciplined approach to policymaking, it can be done at relatively little fiscal cost. Regarding foreign uncertainty, while domestic policymakers cannot affect the uncertainty generated by policy decisions abroad, they can mitigate its negative impact by responding to these events in clear and predictable ways.

At the global level, stable and long-term frameworks for national and multilateral policies are essential to create global trade growth on a more solid basis. Addressing urgent issues such as reducing trade tensions and technological competition, and clearing concerns around the uncertainty associated with trade agreements, is important. Trade and technology conflicts have not been fully resolved, geopolitical tensions have pushed energy prices up, and the uncertainty surrounding Britain leaving the European Union has become a hindrance to the world economy. Given the elevated levels of global economic policy uncertainty, including trade policy uncertainty, countries, particularly emerging markets, should consider improving their competitiveness, adaptability, and innovation in science and technology. They should also look for opportunities to promote bilateral and multilateral trade agreements to improve export market access and make the business environment less uncertain.

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