Economic Policy Uncertainty and International Trade: A Gravity Model Approach

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Economic Policy Uncertainty and International Trade: A Gravity Model Approach

Charles Kodjo Mawusi*

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Abstract

Considering the increasing exposure of firms to global policy shocks, this paper study the bilateral trade adjustments to the increases in economic policy uncertainty (EPU) of 126 countries over the period 1996-2014. We employ a gravity model and a robust Poisson Pseudo Maximum Likelihood (PPML) estimator that mitigates the problem of heteroscedasticity and zero trade flows. The results show that large variations in bilateral trade can be explained by the changes in economic policy uncertainty. Whereas heightened EPU from partner countries has a positive spillover effect on imports to the reporting country, we find a negative and statistically significant effect of domestic EPU on exports.

JEL: D8, F1, F4, F68

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1. Introduction

International trade experienced a dramatic collapse in the wake of the 2007/2008 global financial crises. This trade decline is the largest and most severe since WWII. While world output declined by 0.7%, global trade contracted by as much as 11% in 2009 (International Monetary Fund, 2011). Economists have attributed this trade collapse to credit constraints, and rising protectionism (Amiti and Weinstein, 2011). Recent economic theory, however, suggests the plausible role of policy uncertainty in influencing international trade. Besides, it is quite evident that the ongoing coronavirus (Covid-19) pandemic and the ensuing global trade decline has reinforced research interest in the trade implications of economic policy uncertainty (EPU) ¹.

Theoretically, EPU can have both positive and negative effect on international trade. For instance, by increasing the risk and sunk cost associated with irreversible investments, economic policy uncertainty creates a real option value that prompts firms to adopt precautionary approach to investment (Bernanke, 1983). Indeed, empirical analysis at the firm level show that heightened economic uncertainty discourage investments in physical capital (Novy and Taylor, 2014), increases firms' cash holdings (Phan et al., 2019), and dampens trade credit (D'Mello and Toscano, 2020). This could consequently affect employment and output as in (Baker et al., 2016), firms' entry and exit in new and existing markets (Crowley et al., 2018; Handley and Limão, 2015), and hence, impede trade.

Conversely, economic policy uncertainty could motivate trade indirectly via the exchange rate channel. Uncertainty increases exchange rate volatility and firms respond by forming adaptive expectations of the future. A risk averse firm with a pessimistic expectation of future economic conditions and exchange rate fluctuations could increase exports to hedge against potential revenue loss. Exchange rate risks therefore motivates exports (see, Tunc et al., 2018). Heightened uncertainty could also reduce trade indirectly via its adverse effect on production and economic growth. This growth reducing effect of uncertainty could lead to high funding cost of banks, lower investments in trade and trade related activities, and a reduction in consumption expenditures. This consequently affects the demand and supply of goods and hence trade. A recent study by Nilavongse et al. (2020), find that domestic EPU shocks led to the depreciation of the British pound while domestic industrial production decline in response to global EPU shocks.

This paper examines the impact of EPU on bilateral trade between 126 countries spanning 1996-2014. While most of the studies on international trade consider economic policy to be deterministic, we argue in line with new economic theory that it can be quite uncertain. We contribute to the literature in two main ways. First, we examine the effect of EPU on both imports and exports while taking into consideration the potential spillover effects to and from partner. Secondly, we address the problems of heteroscedasticity and zero trade flows while taking into account factors such as, the macroeconomic condition, population, common language, common border, and distance. We find that economic policy uncertainty has

¹ Economic Policy Uncertainty (EPU) can be broadly defined as the lack of clarity on future macroeconomic policies including monetary, regulatory, and fiscal reforms (Baker *et al.*, 2016).

differential effects on Trade. On the one hand, domestic economic policy uncertainty is found to have adverse effect of exports, and on the other hand, the EPU from partner countries induces a positive effect on imports.

The rest of the paper is organized as follow: Section 2 introduces a brief literature on the uncertainty and trade nexus. Section 3 comprises the data and research methodology. Section 4 provides the research results and discussions while section 5 concludes.

2. Economic Policy Uncertainty and Trade (Theory and Empirics)

The theoretical literature provides several channels through which economic policy uncertainty can impact international trade. For instance, by increasing the risk associated with irreversible investments (Bernanke, 1983), economic policy uncertainty creates a real option value of waiting and conservatism. This induces exporting firms to lower investments in existing markets while delaying investments in new markets (Wang et al., 2014). For prospective firms, uncertainty about future prices and consumer demand can serve as a barrier of entry and hence limit the extensive margins of trade. Greenland et al., (2019), find that firms delay market entry amid heighten uncertainty to avoid high sunk entry cost. Similarly, Crowley et al., (2018) find that firms are more likely to exit markets, and less likely to enter new markets in which their products are subject to high degree of policy uncertainty.

Economic policy uncertainty can also limit imports from foreign markets as it increases the real option value of future expenditure in foreign markets. For example, while considering an open economy framework where firms can order intermediate inputs from foreign and domestic markets, Novy and Taylor (2014), observed a major cut in foreign inputs purchases in response to high policy uncertainty. Accordingly, heightened uncertainty increases the sunk cost associated with imports. Similarly, high levels of uncertainty could induce consumers (producers) to postpone the acquisition of irreversible durable goods as they are unsure of their future income (profits) (Romer, 1990). This could increase cash holdings, depress overall spending, and hamper trade. Phan et al., (2019) argue that firms adopt cash holding as a strategy to mitigate the adverse effect of policy uncertainty and to ensure the sustainability of their operations.

Economic policy uncertainty has also been documented to increase credit constraints (Gilchrist et al., 2014), shrink production (Nilavongse et al., 2020; Wind and Grabska, 2016), and depress employment and output (Baker et al., 2016). These negative economic outcomes do not only hinder economic growth, but also, dampens the extensive and intensive margins of trade.

Theoretical and empirical evidence also show that uncertainty can impact international trade through the exchange rate channel. The direction of impact is however ambiguous. Policy uncertainty can contribute to exchange rate volatility as in Bartsch (2019), and lead to firms forming adaptive expectations which often results in forecast errors (Beckmann and Czudaj, 2017). A risk-averse firm with a pessimistic view of exchange rates in foreign markets will adopt measures to avoid risk exposure, thereby, impeding trade. Uncertainty may also limit

the pass through effect of real exchange rates to exports, resulting in poor export performance (Hlatshwayo and Saxegaard, 2016).

Conversely, uncertainty of exchange rate could induce positive trade effects. As indicated in Goldstein and Khan (1985), risks can have both income and substitution effects which determines the direction of trade. On the one hand, exchange rate volatility decreases the expected utility or the attractiveness of risky activities, prompting risk-averse firms to lower exports as aforementioned. On the other hand, a very risk-averse firm could be motivated by income effects to increase exports in order to hedge against potential revenue losses. If the substitution effect dominates the income effect, higher exchange rate risk leads to lower export activity and vice versa. Empirically, Tunc et al., (2018) examine the bilateral trade effects of external exchange risks and find that exchange rate risk motivates export to destination countries, with effects more pronounced in advanced destination countries.

Most of the studies on the trade consequences of economic policy uncertainty have focused on theoretical assertions. The few available empirical studies are limited to single country analysis with no consideration for potential policy spillover effects from partner countries. This study employs a gravity model to analyze the effect of economic policy uncertainty of both imports and exports. This study considers not only the effect of the domestic EPU but also, the EPU from partner countries.

3. Data and Empirical Specification

3.1 Data and Data sources

Data on bilateral trade flows were obtained from the United Nations Comtrade database. Information on population, and gross domestic product were compiled from the World Development Database (WDI). Data on common border, bilateral distance, common language, and colonial ties were obtained from the Centre d'Etudes Prospective et d'Informations Internationales (CEPII) database. The economic policy uncertainty, our variable of interest, was obtained from the uncertainty index developed by Ahir et al. (2018). The overall sample used in our study consist of 126 countries and span 1996-2014.

The uncertainty index was constructed from the Economics Intelligence Unit (EIU) reports from 1996-2018, and comprises 143 countries. The index capture the average frequency of uncertainty related to key economic and political developments as reported in the EIU report. In contrast to other measures of economic policy uncertainty this index follows a single source topic coverage (economic and political development) which mitigates issues relating measurement error. Moreover, the reports follow a standardize approach and structure hence, ensuring consistency. The main limitation of the index however stems from the sampling noise which may arise due to the low frequency of the EIU report per year and by country. A high index means greater levels of economic policy uncertainty and vice versa.

3.2 Analytical Framework and Econometric model

In this paper, we employ the widely used gravity model to examine the international trade implications of economic policy uncertainty. The basic premise of the traditional gravity model is that trade between two countries i and j is a function of the income of the trading countries and the distance between the two countries. More specifically, bilateral trade is directly proportional to the income of the two countries, and inversely proportional to the distance between the two countries. The basic gravity model can be represented in the multiplicative form as follows:

$$X_{ij} = \frac{\alpha Y_i Y_j}{Dist_{ij}} \quad (1)$$

where, α is a constant, X_{ij} represents the value of trade between country i and j , Y_i represents the gross domestic product (GDP) of country i and j respectively, while $Dist_{ij}$ represents the distance between country i and j .

Equation (1) can be transformed into a linear form by taking the natural log of both sides of the equation. The transformed model can be specified as:

$$\ln X_{ij} = \beta_0 + \beta_1 \ln Y_i + \beta_2 \ln Y_j + \beta_3 \ln Dist_{ij} + \mu_{ij} \quad (2)$$

where $\ln X_{ij}$, $\ln Y_i$, $\ln Y_j$, and $\ln Dist_{ij}$ denotes the natural logs of X_{ij} , Y_i , Y_j and $Dist_{ij}$ respectively. $\beta_0, \beta_1, \beta_2$, and β_3 represents the regression coefficients of the various variables.

μ_{ij} denotes the idiosyncratic error term. Equation (2) can be augmented to include other important determinants of trade. As suggested in the previous literature we control for factors such as, the consumption capacity of both importing and exporting countries expressed as population, common language, common border, and colonial ties. We also include the economic policy uncertainty for both importing and exporting counties. For the sake of clarity we replace Y_i and Y_j with GDP_i and GDP_j respectively. The augmented log-linearized gravity model can be specified in a panel form as follows:

$$\ln X_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Dist_{ij} + \beta_4 \ln Pop_{it} + \beta_5 \ln Pop_{jt} + \beta_6 \ln(1 + EU_{it}) + \beta_7 \ln(1 + EU_{jt}) + \beta_8 Comlang_{ij} + \beta_9 Border_{ij} + \beta_{10} Col_{ij} + \delta_{ij} + \delta_i + \delta_j + \delta_t + \mu_{ijt} \quad (3)$$

The dependent variable ($\ln X_{ijt}$) is the natural log of the value of trade between country i and j at time t , Pop_{it} and Pop_{jt} represent the population in country i and j at time t , EU_{it} and EU_{jt} denote the economic policy uncertainty in country i and j at time t , $Comlang_{ij}$, $Border_{ij}$, Col_{ij} are dummies for common language, shared border, and colonial ties respectively. δ_{ij} denote country-pair fixed effects, δ_i represents exporters' fixed effects, δ_j capture the importers' fixed effect, δ_t represents the time fixed effects, and μ_{ijt} is the idiosyncratic error term. The time fixed effect (δ_t) capture the time trend and other shocks that may influence global trade while the country-pair fixed effect (δ_{ij}) controls for the multilateral trade resistance, as defined by Anderson and van Wincoop (2003).

3.2.1 Dealing with heteroscedasticity and zero trade flows

The log-linear regression model (3) can be estimated using the ordinary least square (OLS) approach. However, these estimates may be biased due to the combination of heteroscedastic errors and the omission of zero trade flow as the logarithm of zero is undefined. The log-linear regression model is thus valid only when $X_{ijt} > 0$.

Given the potential problem of zero trade and heteroscedasticity, the Poisson Pseudo-Maximum Likelihood (PPML) approach has been widely suggested in the literature as the most preferred estimator of bilateral trade (Anderson and Yotov, 2012; Anderson, Larch, and Yotov, 2018; Westerlund and Wilhelmsson, 2011). The PPML approach mitigates the problems associated with zero trade flow and heteroscedasticity, and is also applicable in small samples (see, Westerlund and Wilhelmsson, 2011; Santos Silva and Tenreyro, 2006). The PPML model can be specified as follows:

$$X_{ijt} = \exp \left\{ \begin{aligned} &\beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Dist_{ij} + \beta_4 \ln Pop_{it} + \beta_5 \ln Pop_{jt} + \\ &\beta_6 \ln(1 + EU_{it}) + \beta_7 \ln(1 + EU_{jt}) + \beta_8 Comlang_{ij} + \beta_9 Border_{ij} + \beta_{10} Col_{ij} + \delta_{ij} + \delta_i + \delta_j + \\ &\delta_t \end{aligned} \right\} + \mu_{ijt} \quad (4)$$

where, X_{ijt} is the value of trade between country i and j at time t , and μ_{ijt} is the remainder error term. All other variables remain the same as discussed in equation (3).

Table 1.0 in the appendix presents a detailed description of variables while table 2.0 presents the summary statistics.

4. Results and Discussions

4.1 The effect of Economic Policy Uncertainty on imports (OLS and PPML)

The naïve estimation of the gravity model (equation 3) using the ordinary least square (OLS) method is presented in Table 4.0 along with estimates from the robust Poisson Pseudo-Maximum Likelihood (PPML). The table specifically capture the effect of economic uncertainty on imports with different specifications and controls. We include time effects (column 1), exporter and importer fixed effects (column 2), and country pair fixed effects (column 3) to capture time trends and other unobserved country and country pair characteristics.

Given the significant biases associated with the OLS estimation of gravity models, as evident in the variations in our results in Table 4.0, this paper considers estimates from the PPML as the most reliable. This decision stems from several suggestions from the extant literature. First, the PPML method mitigates the problem of heteroscedasticity, and take into account zero trade values (Santos-Silva and Tenreyro, 2006). Secondly, and as noted by Fally (2015), it takes into account the inward and outward multilateral resistance problem raised by Anderson and

van Wincoop (2003). Finally, it provides the most consistent gravity estimations available in the literature (Kabir et al., 2017).

The estimates from the PPML model with only time fixed effects indicates that the GDP and population of both the importer and partner country, bilateral distance, common language, and colonial ties are important determinants of imports. The model with both importer and exporter fixed effects (column 2), and both time and country pair effects (column 3), however, shows a reversal in the significance of the reporting country's population effect, the bilateral distance, common language, and the effect of colonial ties. The effect of the partner country's GDP and population is positive and statistically significant, thus suggesting that countries import more from countries with large population and market size. Importing from countries with large population may be attractive due to low cost advantages. Largely populated countries could benefit from economies of scale which makes their outputs globally competitive and attractive for import. The positive impact of a partner country's GDP on imports highlights the trade influence of large economies. It is also consistent with the global trade dominance of wealthy nations. These results are consistent with the findings from Kabir et al. (2017).

Our variable of interest, the economic policy uncertainty (EPU) of both reporting and partner countries have deferring effects on imports. While the domestic economic policy uncertainty appears to have no effect on imports, we find a positive and significant spillover effects from the EPU of the partner country across all specifications. Specifically, a 1% increase in the economic policy uncertainty of a partner country is associated with at least 0.21% increase in domestic imports. A plausible explanation to the import enhancing effect of international policy uncertainty relates the fact that uncertainty in international markets creates pessimistic expectations of future trade and economic conditions. In such situations international uncertainty could create immediate speculative opportunities that drives imports. Moreover, by weakening the economies of partner countries, EPU could weaken the value of foreign currencies, making imports relatively cheaper (see, Nilavongse et al., 2020). The result is consistent with the short run findings of Sharma and Paramati (2021) who employ the Augmented Distributed Lag framework to study the impact of economic policy uncertainty on the Indian commodity imports.

4.1 The effect of Economic Policy Uncertainty on exports (OLS and PPML)

Table 5.0 presents the results from the OLS and PPML estimates of the effect of EPU on exports. Column (1) compares the results from both estimators with only time fixed effects, column (2) includes time fixed effects and both importer and exporter fixed effects while column (3) includes the time and country pair fixed effects. The OLS estimates suggest domestic population, domestic GDP, and common language, as important determinants of exports. In terms of the direction of impact, both the OLS and PPML estimates are consistent in all but for the exporting country's population effect. Whereas the OLS estimate suggest a negative effect of domestic population on exports, the PPLM estimates indicate a positive and statistically significant effect with coefficients ranging from 0.074 to 0.48. Considering only the PPML estimates, the positive effects of population and GDP highlights the importance of size

Table 4.0: Effect of Economic Policy Uncertainty on imports (OLS and PPML estimates)

	(1)		(2)		(3)	
	Time but no country fixed effects		Time, importer, and exporter fixed effects		Time and country pair fixed effects	
	OLS	PPML	OLS	PPML	OLS	PPML
$\ln(Pop_i)$	0.001 (0.003)	0.004*** (0.001)	0.005 (0.015)	0.001 (0.006)	0.004 (0.016)	0.000 (0.006)
$\ln(Pop_j)$	-0.111*** (0.003)	-0.13*** (0.002)	0.107*** (0.015)	0.063*** (0.007)	0.107*** (0.015)	0.063*** (0.007)
$\ln(GDP_i)$	-0.001 (0.003)	-0.005*** (0.001)	0.0001 (0.004)	0.0001 (0.002)	0.0001 (0.004)	0.0001 (0.002)
$\ln(GDP_j)$	0.927*** (0.004)	0.898*** (0.001)	0.539*** (0.005)	0.692*** (0.003)	0.539*** (0.005)	0.692*** (0.003)
$\ln(Dist)$	-0.04*** (0.006)	-0.047*** (0.002)	-0.001*** (0.000)	-0.001 (0.001)		
Col	-0.029 (0.027)	-0.081*** (0.007)	-0.001 (0.001)	-0.001 (0.002)		
$Comlang$	0.052*** (0.015)	0.075*** (0.005)	0.001** (0.000)	0.000 (0.002)		
$Border$	-0.12*** (0.044)	0.019 (0.012)	-0.001 (0.001)	0.001 (0.003)		
$\ln(1 + EU_i)$	0.028 (0.057)	0.031 (0.049)	0.004 (0.018)	0.001 (0.012)	0.005 (0.019)	0.001 (0.012)
$\ln(1 + EU_j)$	0.152*** (0.047)	0.765*** (0.055)	0.001 (0.02)	0.214*** (0.011)	0.001 (0.021)	0.214*** (0.011)
Constant	1.845*** (0.101)	3.316*** (0.044)	9.151*** (0.14)	6.452*** (0.106)	8.411*** (0.207)	6.451*** (0.108)
Observations	302,154	302,154	302,154	302,154	302,154	302, 154
R-Squared	0.92	0.93	.0.96	0.97	0.96	0.97

Standard errors are in parentheses

Table 5.0: Effect of Economic Policy Uncertainty on exports (OLS and PPML estimates)

	(1)		(2)		(3)	
	Time but no country fixed effects		Time, importer, and exporter fixed effects		Time and country pair fixed effects	
	OLS	PPML	OLS	PPML	OLS	PPML
$\ln(Pop_i)$	-0.136*** (0.004)	0.074*** (0.002)	-0.10*** (0.024)	0.489*** (0.005)	-0.098*** (0.024)	0.489*** (0.005)
$\ln(Pop_j)$	0.001 (0.004)	0.004** (0.002)	0.001 (0.02)	0.0005 (0.007)	0.001 (0.021)	0.001 (0.007)
$\ln(GDP_i)$	1.115*** (0.004)	0.903*** (0.002)	0.773*** (0.007)	0.629*** (0.002)	0.773*** (0.007)	0.629*** (0.002)
$\ln(GDP_j)$	0.001 (0.004)	0.006*** (0.001)	0.0001 (0.006)	0.0001 (0.002)	0.0001 (0.006)	0.0001 (0.002)
$\ln(Dist)$	-0.02*** (0.008)	-0.032*** (0.003)	-0.0002 (0.0002)	0.0001 (0.001)		
<i>Col</i>	-0.243*** (0.042)	-0.263*** (0.009)	-0.001 (0.001)	-0.001 (0.003)		
<i>Comlang</i>	0.043** (0.017)	0.08*** (0.006)	0.001* (0.0005)	0.001 (0.002)		
<i>Border</i>	0.075 (0.05)	0.117*** (0.014)	0.0001 (0.001)	0.001 (0.003)		
$\ln(1 + EU_i)$	-0.86*** (0.073)	-0.154*** (0.053)	-0.129*** (0.025)	-0.426*** (0.01)	-0.129*** (0.026)	-0.423*** (0.01)
$\ln(1 + EU_j)$	-0.004 (0.078)	0.007 (0.057)	-0.005 (0.026)	0.0002 (0.013)	-0.005 (0.027)	0.000 (0.013)
Constant	-2.738*** (0.125)	2.497*** (0.05)	4.751*** (0.213)	3.496*** (0.092)	4.463*** (0.318)	3.505*** (.093)
Observations	300,542	300,542	300,542	300,542	300,542	300,422
R-Squared	0.91	0.922	0.91	0.96	0.95	0.96

Standard errors are in parentheses *** $p < .01$, ** $p < .05$, * $p < .1$

in international trade. Large market economies benefit from scale economies. By producing large volumes of goods, highly populated economies reduce their average total cost. Moreover, the level of income of a country is associated with high productivity and efficiency. This in turn, increases production and the overall output available for export. These results are in line with the findings of Jagdambe and Kannan (2020), and, Abidin and Sahlan (2013).

Regarding the effect of EPU, we find a negative and significant effect of EPU from the reporting country on exports in all specifications. Specifically, a 1% increase in the economic policy uncertainty of a partner country is associated with between -0.86% to -0.129% (OLS estimates) decrease in exports. Similarly, the PPML estimates report EPU coefficients between -0.426 and -0.129.¹ This trade reducing effects of EPU is consistent with the theoretical assertion that heightened uncertainty deters risk-averse agents from exporting. Bernanke (1983) notes that uncertainty creates a real option value of waiting and conservatism.

5. Conclusion

International trade has experience major decline since the global financial crises. Although the theoretical literature suggests the growing global uncertainty as a plausible contributor to the recent global trade decline the empirics remains limited. This paper thus examines the effect of economic policy uncertainty on both exports and imports using the gravity model and a Poisson Pseudo-Maximum Likelihood (PPML) estimator. We employ a novel measure of economic uncertainty which covers 126 countries and span the period 1996-2014.

Our results underscore economic policy uncertainty as a relevant determinant of bilateral trade. Specifically, we find external economic policy uncertainty to induce a positive effect on imports while the EPU from reporting countries induce a negative effect on exports. The import enhancing effect of foreign EPU is consistent with the view that heightened uncertainty creates speculative opportunities that drives imports. Moreover, high levels of uncertainty reduce the value of foreign currencies, consequently making imports cheaper. The export reducing effect of domestic economic policy uncertainty is consistent with the precautionary behavior of economic agents during periods of high uncertainty. As noted by Bernanke, (1983), uncertainty increases the sunk cost of irreversible investments and as a consequence, firms adopt a wait and see strategy to exports. By reducing the growth of economic activities, uncertainty could also limit production and hence exports. High levels of uncertainty also increases the cost of funding, thereby hampering potential investments in foreign markets.

Given the aforementioned results, we recommend the promotion of a stable and transparent economic policy environment for trade growth. However, further research is needed to draw a concrete conclusion as our study present some limitations. First, our study does not capture the exact channel connecting EPU to the reported trade results. Perhaps a firm level analysis could help us better understand the underlying forces driving the aggregate trade effects of EPU. Moreover, it is difficulty to disentangle the true effect of economic policy uncertainty

¹ The elasticity for the PPML can be calculated as $100 * (\exp(\beta) - 1) \%$, where β represents the estimated coefficients from the PPM model.

from that of trade policy uncertainty. Nonetheless, this study provides useful insight on the rising global policy uncertainty and its trade consequences.

Declarations

Availability of data and material

The data that support the findings of this study are available from the Centre d'Etudes Prospective et d'Informations Internationales (CEPII) database and from the Economic Policy Uncertainty website. Restrictions may apply to the availability of these data. Data are available at: http://www.cepii.fr/CEPII/fr/bdd_modele/presentation.asp?id=32, and https://www.policyuncertainty.com/wui_quarterly.html

Competing interests

I (the author) declare that I have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Authors' contributions

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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Table 1.0 : Description of variables and sources

Variable	Description	Sources
$\ln(Import_{ji})$	Bilateral import from country j to i	UN-COMTRADE
$\ln(Export_{ij})$	Bilateral export from country i to j	UN-COMTRADE
$\ln(Pop_i)$	Population in country i	WDI
$\ln(Pop_j)$	Population in country j	WDI
$\ln(GDP_i)$	Gross domestic product in country i	WDI
$\ln(GDP_j)$	Gross domestic product in country j	WDI
$\ln(Dist)$	Bilateral distance between country i and j	CEPII
Col	Colonial history/ties	CEPII
$Comlang$	Common language	CEPII
$Border$	Common border	CEPII
$\ln(1 + EU_i)$	Economic policy uncertainty in country i	Ahir (2018)
$\ln(1 + EU_j)$	Economic policy uncertainty in country j	Ahir (2018)

Note: WDI corresponds to, World Development Indicator database, UN denotes the United Nation, while CIPPI represents the Centre d'Etudes Prospective et d'Informations Internationals.

Table 2.0 : Descriptive statistics

Variable	Obs	Mean	Std. Dev.
$\ln(Import_{ji})$	795,707	22.113	2.155
$\ln(Export_{ij})$	779,449	21.583	2.693
$\ln(Pop_i)$	788,491	8.42	2.274
$\ln(Pop_j)$	794,479	8.594	2.123
$\ln(GDP_i)$	754,533	23.06	2.452
$\ln(GDP_j)$	760,232	23.185	2.361
$\ln(Dist)$	801,717	8.775	0.755
Col	809,806	0.011	0.105
$Comlang$	809,806	0.145	0.352
$Border$	809,806	0.015	0.123
$\ln(1 + EU_i)$	494,140	0.047	0.039
$\ln(1 + EU_j)$	523,214	0.046	0.039

Note: The variables Col , $Comlang$, and $Border$ are dummies which takes on the values of 1 if country pairs share either a colonial history, common language, or common border, and 0 otherwise.

Table 3.0 : List of countries used for analysis

Aruba	Costa Rica	Iran, Islamic Republic of
Afghanistan	Cuba	Iraq
Angola	Cyprus	Iceland
Albania	Czech Republic	Israel
Andorra	Germany	Italy
United Arab Emirates	Djibouti	Jamaica
Argentina	Dominica	Jordan
Armenia	Denmark	Japan
Antigua and Barbuda	Dominican Republic	Kazakhstan
Australia	Algeria	Kenya
Austria	Ecuador	Kyrgyzstan
Azerbaijan	Egypt	Cambodia
Burundi	Eritrea	Kiribati
Belgium	Spain	Saint Kitts and Nevis
Benin	Estonia	Republic of Korea
Burkina Faso	Ethiopia	Kuwait
Bangladesh	Finland	Laos
Bulgaria	Fiji	Lebanon
Bahrain	France	Liberia
Bahamas	Faeroe Islands	Libya
Bosnia and Herzegovina	Micronesia	Saint Lucia
Belarus	Gabon	Sri Lanka
Belize	United Kingdom	Lesotho
Bermuda	Georgia	Lithuania
Bolivia	Ghana	Luxembourg
Brazil	Guinea	Latvia
Barbados	Gambia	Macao
Brunei Darussalam	Guinea-Bissau	Morocco
Bhutan	Equatorial Guinea	Moldova
Botswana	Greece	Madagascar
Central African Republic	Grenada	Maldives
Canada	Greenland	Mexico
Switzerland	Guatemala	Marshall Islands
Chile	Guyana	Macedonia
China	Hong Kong	Mali
Côte d'Ivoire	Honduras	Malta
Cameroon	Croatia	Myanmar
Democratic Republic of the Congo	Haiti	Mongolia
Congo	Hungary	Mozambique
Colombia	Indonesia	Mauritania
Comoros	India	Mauritius
Cape Verde	Ireland	Malawi