ABD VE ÇİN'İN GELİŞMEKTE OLAN ÜLKE İKİLİLERİ ARASINDAKİ TİCARETE ETKİLERİ: PANEL KANTİL YERÇEKİMİ MODELİ

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Öz

Bu çalışma 58 gelişmekte olan ülkenin ticaretini Amerika Birleşik Devletleri ve Çin'in bu ülkeler üzerindeki etkilerini de göz önünde bulundurarak Yerçekimi modeli yardımıyla 1991 – 2015 dönemi için incelemeyi hedeflemektedir. Bu amaçla ülke çiftlerinin ABD ve Çin'e olan uzaklıklarının bir fonksiyonunun logaritması olan bir değişken, ABD ve Çin'in göreceli dış etkilerini ölçmek amacıyla önerilmektedir. Örneklemdeki ülke çiftlerinin ticari hacimleri önemli ölçüde değiştiğinden yerçekimi modeli Koenker (2004) tarafından önerilen cezalandırılmış panel kantil sabit etkiler tahminicisi ile tahmin edilmektedir. Olası modelleme hataları panel kantil regresyona uyarlanmış bir Hausman-tipi test yardımıyla incelenmiştir. Bulgular ABD ve Çin'in gelişmekte olan ülke ikilileri arasındaki ticaret üzerinde etkili olduğunu; bu etkinin ise şartlı ikili ticaret dağılımının farklı kantillerinde değişiklik gösterdiğini ortaya koymaktadır.

Anahtar Kelimeler: *Panel Kantil Regresyon, Yerçekimi Modeli, Amerika Birleşik Devletleri, Çin, Ticaret Çekişmeleri*
JEL Sınıflandırması: *C21, C23, F14, F50*

INFLUENCE OF THE US AND CHINA ON THE TRADE BETWEEN DEVELOPING COUNTRY DYADS: PANEL QUANTILE GRAVITY MODEL

Abstract

This study is aimed to investigate the trade between 58 developing countries based on the effects of the US and China by employing the gravity model for the period between 1991 – 2015. For this purpose, a new variable is proposed as the logarithm of a function of the distances of country dyads to the US and China $(einf)$ to measure the relative external influence of the US and China. As the trade volumes of country dyads in the sample change severely, the gravity model is estimated by penalized panel quantile fixed effects estimator proposed by Koenker (2004). Potential model misspecification is investigated with a Hausman-type test adapted for panel quantile regression. Findings reveal that the US and China have trade altering influence on developing country dyads, varying according to different quantiles of the conditional bilateral trade distribution.

Key words: *Panel Quantile Regression, Gravity Model, United States of America, China, Trade Conflicts*
JEL Classification: *C21, C23, F14, F50*

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1. Introduction

In the modern sense international trade movements are started with mercantilism in 16. century, but not until the end of the twentieth century, it was 'international' in the full context. Earlier, trade was largely dominated by the colonial powers of west European countries and the United States. Then, after the great depression and following World War II, it continued in a polarized world, where trade embargoes and barriers were in effect between the more liberal part of the world and the Soviet Block. After the Cold War Era, the former Soviet states and other 'conservative' countries started to adopt open market policies and become a part of the global markets (Mickiewicz, 2005: XVII). In this era, a major part of the industrial production moved to less developed countries since wages and taxes in developed countries were increasing while international operations were becoming more desirable through cheap workforce and logistics in less developed countries. Furthermore, many of these countries left their protectionist policies and signed free trade agreements with developed countries, adopting more liberalized insights (Dornbusch, 1992). These movements across the globe eventually bolstered the worldwide demand, leading to a rapid increase in total trade volume.

Today, respectively the US, China, and other 8 developed countries constitute for 52 percent of the total trade volume (WTSR, 2019: 14) with Chinese trade drawing closer to the US. Becoming a crucial economic actor, China attempts to further develop its economic influence, launching Asian Infrastructure Investment Bank (Xiao, 2016: 435), Silk Road Economic Belt, Twenty-First Century Maritime Silk Road project (Zhu, 2015: 1), and other similar initiatives. These attempts raised an important question on the dominant role of the US on the world economy. Zhang et al. (2019) have already investigated the influence of the US and China on global markets through the economic policy uncertainty index, commenting that China has become more influential. Combined with the recent trade conflict between the two, it is clear that the US and China are clashing to establish control over the new trade order, which presumably has effects on our current knowledge over the bilateral trade in three key aspects from an econometric perspective. First, dominant countries might have control over the bilateral trade not only with their partners, but in a more general sense. Thus, they may alter the expected bilateral trade volume of a country, conditional to known determinants of the trade flows. Second, current estimations might have been biased as the magnitude of the bilateral trade between these countries and their partners is way higher than the world average. Third, current dominant economic powers can easily affect bilateral trade flows between the less developed world through trade barriers and embargoes on vital sectors. With a presupposition that the current bilateral (FTAs) or regional trade agreements (RTAs) depend on the allegiances of participants, adding trade agreements to the model (see Carrére, 2006 and Head et al. 2010 among others for similar applications) can serve as a proxy to observe indirect external effects of dominant countries over trade flows. Also, country and pair specific fixed effects can capture the remaining effect. On the other hand, I argue it is possible to investigate the direct external effects through a function of their distances to the US and China. Therefore, in this study, I aim to introduce a new distance-based variable to estimate the possible direct effects of dominant economic powers on trade between developing country dyads. Furthermore, as the trade volumes of developing countries are quite varying, I estimate the model with Koenker (2004) fixed effects penalized panel quantile estimator to investigate the effects of different trade determinants for different quantiles of trade flows and minimize the possible bias stemming from the aforementioned issues.

The rest of the study continues as follows. Section 2 surveys the Gravity literature, starting with the theoretical founding of the original model, then continuing with the empirical advances and related part of the Gravity literature. Section 3 focuses on the data and methodology, introduces the new variable, and discusses its possible economic implications on the trade between developing countries. Section 4 presents empirical results and offers a small discussion on the findings. Lastly, section 5 concludes.

2. Literature Review

2.1. Micro Foundations of Gravity Equation

The effect of distance in international trade was assumed to be zero or fixed in empirical literature until Isard and Peck (1954) pointed to the importance of distance as a trade cost, and Isard (1954) pioneered the idea of a modern trade model also controls for the distance between countries. Shortly after, Tinbergen (1962) and Pöyhönen (1963) consecutively used the basic gravity equation to study the determinants of international trade flows successfully. On the other hand, there was not any theoretical justification of the gravity equation other than Linnemann (1966), therefore is not accepted by policymakers and economists, even though it is a successful model to explain artificial trade barriers, distance, customs unions, and trade preference groups (Taplin, 1967:450-451) until Anderson (1979), which was the first throughout study to explain the micro-foundations of the gravity model for trade. Following Anderson (1979), Bergstrand (1985, 1989, 1990) further shed light on the microeconomic foundations of the gravity equation, explaining the roles of demand, supply, and distance through Heckscher – Ohlin, Helpman – Krugman – Markusen, and monopolistic competition models. Bergstrand's studies also extended the equation with price terms, factor endowments, and non-homothetic preferences. Deardorff (1998) derived the gravity equation from extreme cases of Hecksher – Ohlin models, which are aimed to explain frictionless trade and trade between countries that produce different goods considering Cobb – Dougless and CES preferences, showing that it is not hard to justify the gravity equation from the standard trade theory. Despite the successful justification of the equation, Deardorff (1998: 21) argued on the fact that gravity equation can be derived from almost any trade model makes it a suspicious tool to test trade theories. Anderson and van Wincoop (2003) extended Anderson (1979) and Deardorff (1998) to correctly estimate border effects in *intra*- and *inter*-national trade and explained the importance of the inclusion of multilateral resistance variables, becoming a reference point for following studies.

2.2. Empirical Advances

Gravity equation has started to become a handy tool for empirical analysis with the successful description of its micro-foundations. That being said, econometric applications of the gravity equation, especially panel data studies, still suffer from specification errors. Màtyàs (1997) is the first study, which remarks on the importance of origin, destination, and time specific effects. According to the study, the correct specification of the empirical model should include both since magnitude and significance of parameter estimates are directly affected when these effects restricted to be zero. Màtyàs (1998) proposed a way to estimate the gravity equation, stating that in large samples the origin, destination, and time-specific effects can be assumed to be random and structural parameter estimates to be homogeneous across time. Based on the evidence from Hausman χ^2 test, Egger (2000) argued the fixed effects estimators have superiority over random effects estimators, stating that the individual (country) effects are largely predetermined. Egger and Pfaffermayr (2003) studied the importance of bilateral interactions and asserted that proper econometric specification of the empirical model should comprise bilateral and time effects. Baldwin and Taglioni (2007) generalized Anderson and van Wincoop (2003) for panel data equations and investigated common mistakes in the empirical gravity literature, highlighting the need to introduce time-varying individual (country) or bilateral effects to the model to deal with cross-section correlation and reduce the bias stemming from unobservable effects. Cheng and Wall (2005) proposed a two-step estimator with bilateral and time-specific effects, which additionally regress individual effects on time-invariant (individual-specific) variables. Brun et al. (2005) applied Hausman – Taylor (*HT*) estimator with time-specific effects by using population and infrastructure as instruments. Arguing that two-step estimation proposed by Cheng and Wall (2005) is exposed to bias stemming from the correlation between individual effects and time-invariant variables, Serlenga and Shin (2007) introduced common correlated effects pooled Hausman – Taylor (*CCEP – HT*) estimator, which allows for unobserved common time effects.

2.3. Related Literature

Lately, the gravity equation has become the workhorse for a broad range of studies related to international trade. It is widely used by scholars to explain the effects of borders (McCallum, 1995: 615-623; Anderson and van Wincoop, 2003:170-192); the region specific phenomena (Sohn, 2005: 417-430; Antonucci and Manzocchi, 2006: 157-169; Bilici et al., 2008: 3-22; Frede and Yetkiner, 2017: 633-648); trade blocs (Martinez-Zarzoso and Nowak-Lehmann, 2003:291-316; Serlenga and Shin, 2007: 361-381; Ekanayake and Chatrna, 2010:1-13); trade agreements (Rose, 2004: 98-114; Carrère, 2006: 223-247); and spatial factors (Porojan, 2001: 265-280; LeSage and Fischer, 2019: 1-33) among other topics. Though, the aforementioned studies cover interactions that have direct effects on bilateral trade. Non-economic diplomatic or political factors, however, indirectly affect the trade between countries. Intangible factors such as language (Anderson and Marcouiller, 2002: 342-352), colonial linkage (Head et al., 2010: 1-14), and common heritage (Yaşar and Korkmaz, 2017: 382-407) have positive effects on bilateral trade through negotiation ease, legal similarities, and cultural ties. Rauch (1999) defined three sub-groups for goods trade, which are homogeneous, reference-priced and differentiated goods. Expanding the work of Rauch (1999) with an updated dataset and appropriate econometric methodology, Möhlmann et al. (2010) investigated the effects of such similarities. The study introduced cultural and institutional distance variables to the gravity equation, arguing that magnitude and sign of their effects are rather different on different sub-groups. Lien and Lo (2017) investigated the trade increasing effect of German originated Goethe-Institut with data from 1990 to 2010 for Germany and partner countries, arguing that the establishment of the institute has positive effects both on trade and FDI. Demir and Im (2019) also studied the importance of cultural institutions with regard to trade. They used data based on 1266 cultural institutions from 8 countries and find that these institutions have export and outward FDI promoting effects for origin countries.

International non-economic arrangements and permanent foreign missions also have indirect effects on international trade, Rose and Spiegel (2010) argued that international environmental arrangements have positive effects on trade flows through “reputation spill-overs”, as countries tied to IEAs become part of a political network. Rose (2007) found that the creation of consulates and embassies in the destination country significantly increases exports of the origin country. Findings of Afman and Maurel (2010) investigated the effect of foreign missions for transition countries located in Central and Eastern Europe, arguing that consulates and embassies of both sides contribute to improving trade volume. Van Bergeijk et al. (2011) examined the issue for a broader sample of 63 countries and studied dedicated trade missions as well as consulates and embassies, arguing that they increase trade whereas dedicated trade offices do not. Volpe Martincus et al. (2010) studied the trade and diplomatic representation nexus for 26 Latin American and Caribbean countries. Their findings reveal that the diplomatic representation leads to an increase on trade only for homogeneous priced and reference-priced goods. Moons and de Boer (2014) found that embassies increase trade only in reference-priced and differentiated goods, and consulates, even though in a lesser magnitude, increase trade in all sub-groups. Afesorgbor (2017) studied effects of diplomatic exchange and economic integration for 45 African countries between 1980 – 2005, asserting that diplomatic exchange is more effective than economic integration when it comes to intra-African trade. The study also suggested that there is a trade-off between diplomatic exchange and economic integration, since effect of diplomatic exchange is diminished between African countries belong to the same economic integration bloc. Visser (2019) utilized a structural gravity model with a large sample of 100 countries between 1985 – 2005, claiming that the positive effect of representation is only significantly positive for differentiated and homogeneous goods.

Another branch of research focuses on the effects of diplomatic gestures, restrictions, and retaliations. Neumayer (2011) documented the impact of visa restrictions on trade and FDI, using data from 207 countries. Results reveal that visa restrictions reduce trade both for the country faced with visa restrictions, but also for the country impose it. Fuchs and Klann (2013) investigated whether Dalai Lama's visits to trade partners of China reduced their exports to China, using data on 159 countries tween 1991 – 2008. The study argued that countries officially receiving Dalai Lama at the highest level, experienced an export reduction mostly in machinery and transport equipment. Lin et al. (2017) examined whether African leaders' official visits to China increase Chinese official aid and state-owned enterprises' export to the continent, using data from 54 African countries between 1990 - 2006. They found evidence on an increase in China's export and official aid to Africa after leaders' official visits. Berger et al. (2013) argued how CIA interventions increase foreign countries import from the US during the Cold War era, especially in industries in which the US had a comparative disadvantage. Davis et al. (2014) investigated the topic from another aspect. Using a pooled dataset between 1993 and 2012, the study argued that countries use trade as a political tool, instantiating from China and India. Their findings show that negative political relations reduce exports of both countries. Crozet and Hinz (2016) documented the effects of western-imposed sanctions on the Russian Federation due to Ukrainian conflict, and Russian countermeasures against sanctioning countries. They asserted that trade of both sides affected by the sanctions and countermeasures, but the effects were indirect since most of it was non-embargoed loss.

Aforementioned studies claim strong ties between bilateral diplomatic affairs and trade flows, but the question remains whether the political or diplomatic interventions of external parties affect the trade between country dyads or not? For example, Crozet and Hinz (2016) mentioned that reflections of Russian retaliations imposed by western countries mostly hit European Union countries, which are geographically closer to Russia than the other sanctioning countries. Lin et al. (2017) concluded that with the anti-globalist movement and Trump sanctions at the door, Chinese policymakers should re-evaluate their export focus on the US and EU, finding new targets, such as African markets. Didier (2018) studied the effect of "one-China policy" (OCP) on Taiwanese bilateral trade (which can be described as a doctrine that rejects the idea of two separate states on the Chinese soil), using a worldwide panel dataset between 1948 and 2012. According to results, China is only partly succeeded with regard to OCP, since it is only reduced Taiwan's bilateral trade with certain African and Asian ex-colonies. Freund et al. (2018) investigated the effect of the US's newly implemented tariffs on imports from China and the Chinese retaliations, arguing that these counteracts also have implications on developing countries through depressed investments due to uncertainty over market access. They found that US-China tariff escalation could reduce global exports by up to 3% and global income by up to 1.7%. Hopewell (2019) studied the new politics of agricultural subsidies at the WTO, explaining how they evolve around the conflict between the US and China. The study claims that the trade conflict between these two dominant powers has thwarted the efforts of establishing a better set of disciplines on agricultural subsidies, thus had negative effects on the developing economies.

These findings may indicate that the trade between country dyads is open to influence of external parties through diplomatic and political non-economic factors. It is highly possible that the countries with less robust economies will be affected by the economic, diplomatic, and political interactions between these two dominant economic powers with the ongoing trade conflict between the US and China since both countries will possibly try to expand their dominion over the developing markets against the efforts of their counterparts. In my knowledge, this is the first study that aims to empirically investigate the impact of the trade conflict between the US and China on developing countries. This is partly due to the subtle and indirect, mostly independent channels of the external influence. Trade between countries can be altered by economic or diplomatic channels with soft or hard power as it is previously mentioned in this section. These and other possibly unknown channels of the possible influence of external parties cannot be directly measurable. Therefore, there is a need to evaluate the impact of these trade altering external effects and this study attempts to contribute to the literature by first proposing a novel distance-based variable to measure the relative influence of external parties over trade between developing country dyads, and second by employing this variable to examine the possible impact of the trade conflict between the US and China over them.

3. Data and Methodology

The US and China may have influence over the developed countries as well, but as it has been discussed earlier, this influence should be significantly higher over the less developed countries and have more important implications on their trade as it is mainly discussed in the literature. Therefore, in this study, I estimate the panel gravity model in equation (1) to reveal the influence of the US and China on the trade between developing country dyads using data from 3209 developing World Trade Organization member country dyads between 1991 and 2015. Trade flows data are collected from World Integrated Trade Solutions database of World Bank, and the rest are collected from Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) gravity database.

$$Y_{OD,t} = \beta X + u_{OD,t} \tag{1}$$

where subscript O represents the origin, subscript D represents the destination, $Y_{OD,t}$ is natural logarithm of country D's imports from country O ($trade_{OD,t}$), X is a matrix which contains natural logarithms of gross domestic product of origin and destination ($gdp_{O,t}, gdp_{D,t}$), population of origin and destination ($pop_{O,t}, pop_{D,t}$), distance between origin and destination country ($dist_{OD}$), external influence ($einf_{OD}$), trade agreement dummy ($ta_{OD,t}$) contiguity ($cont_{OD}$), common language ($lang_{OD}$), common colony (col_{OD}), legal changes with the transition ($lcpt_{OD,t}$), common currency ($cur_{OD,t}$), European Union membership status of origin country ($eu_{O,t}$), European Union membership status of destination country ($eu_{D,t}$) and $u_{OD,t}$ is error term. In order to gain economic ground over their counterparts, dominant powers might alter the trade between two developing country through several economic and non-economic instruments such as direct investment decisions (de Mello-Sampayo (2009); Freund et al. (2018)), cultural (Demir and Im, 2019) and other historical and demographic ties (*see,* Anderson and Marcouiller (2002), Head et al. (2010), Yaşar and Korkmaz (2017)), foreign missions (Afman and Maurel, 2010), sanctions (Didier, 2018), trade blocs (Ekanayake and Chatrna, 2010) and other instruments. Assuming that country dyads closer to the US or China will be more open to the possible effects of these instruments, variable of interest is defined as in equation (2) to capture the effect of external influence on the related country dyad.

$$einf_{OD} = \ln\left(\frac{dist_{US\rightarrow O}}{dist_{CHN\rightarrow O}} \times \frac{dist_{US\rightarrow D}}{dist_{CHN\rightarrow D}}\right) \tag{2}$$

where $dist_{US\rightarrow O}$ origin country's distance to US, $dist_{CHN\rightarrow O}$ origin country's distance to China, $dist_{US\rightarrow D}$ destination country's distance to US and $dist_{CHN\rightarrow D}$ destination country's distance to China. Relative external influence variable is constructed assuming that the distance has an important effect on economic and non-economic interactions between the given dominant power and the developing country. It will be equal to zero if both countries' distance to US and China is the same, positive if country dyads are relatively closer to China and negative if they are relatively closer to US. Thus, an estimation of the coefficient of $einf_{OD}$ can be interpreted as follows: *(1)* if the estimated coefficient has a negative magnitude, influence of the US will have a trade increasing effect on the bilateral trade between the country dyads relatively closer to the US and a trade reducing effect on the bilateral trade between the country dyads relatively closer to China; *(2)* if the estimated coefficient has a statistically insignificant magnitude, then this suggests that the bilateral trade between the country dyads is not affected by the US or Chinese influence; *(3)* if the estimated coefficient has a positive magnitude, influence of China will have a trade increasing effect on the bilateral trade between the country dyads relatively closer to the China and a trade reducing effect on the bilateral trade between country dyads relatively closer to the US.

Since the volume of the trade between developing country dyads is quite varying, mean based estimators are expected to be inefficient. Therefore, I estimate the panel quantile regression models defined in equation (3) and (4) with penalized panel quantile regression estimators proposed by Koenker (2004), as it is robust against variance related efficiency loss and in general offer more information.

$$Q_{Y_{OD,t}}(\tau|X) = X^{\top}\beta(\tau) + \alpha_{OD} \quad (3)$$

where τ represents τ. quantile of the conditional quantile distribution of $Y_{OD,t}$ and α_{OD} represents unobserved pair effects.

$$Q_{Y_{OD,t}}(\tau|X) = X^{\top}\beta(\tau) + \alpha_{OD} + \gamma_t \quad (4)$$

where γ_t captures time-specific effects such as business cycles.

Koenker (2004) estimates equation (3) with the following minimization problem defined in equation (5).

$$\hat{\beta}(\tau) = \min_{(\alpha,\beta)} \sum_{k=1}^{q} \sum_{OD=1}^{N} \sum_{t=1}^{T} \omega_k \rho_{\tau_k}\left(y_{OD,t} - \alpha_{OD} - x_{OD,t}^{\top}\beta(\tau_k)\right) + \lambda \sum_{OD=1}^{N} |\alpha_{OD}| \quad (5)$$

where $OD = 1, \dots, N$ is individual indice, $t = 1, \dots, T$ is time indice, $k = 1, \dots, q$ is quantile indice, $\rho_{\tau_k}(u) = u(\tau_k - I(u \leq 0))$ is the loss function, ω_k represents quantile weights, $y_{OD,t}$ is dependent variable, $x_{OD,t}$ is independent variable and λ is the tuning parameter to optimize the shrinkage of α_i. On the other hand, equation (4) can be estimated as in equation (6).

$$\hat{\beta}(\tau) = \min_{(\alpha,\beta)} \sum_{k=1}^{q} \sum_{OD=1}^{N} \sum_{t=1}^{T} \omega_k \rho_{\tau_k}\left(y_{OD,t} - \gamma_t - \alpha_{OD} - x_{OD,t}^{\top}\beta(\tau_k)\right) + \lambda \sum_{OD=1}^{N} |\alpha_{OD}| \quad (6)$$

Here, equation (3) becomes a fixed effects model as $\lambda \to 0$, and a model purged from fixed since when $\lambda \to \infty$ the $\alpha_{OD} \to 0$, whereas equation (4) becomes a two-way model as $\lambda \to 0$, and a model only controls for time-specific effects as $\lambda \to \infty$. If α_{OD} is correlated with the time-invariant variables in X, then the estimations will become biased. On the other hand, consistency of the estimations does not depend on the correlation between α_{OD} and the time-invariant variables in X. Therefore, Harding and Lamarche (2017: 351) propose a Hausman-type test to check for specification errors. Estimation results from equation (3) and (4) are tested against specification errors under the null hypothesis of coefficients are equal for different values of λ. Test statistics can be calculated for different values of λ against $\lambda = 0.01$ as in equation (7).

$$\frac{\hat{\beta}_{0.01}(\tau) - \hat{\beta}_{\lambda}(\tau)}{\sqrt{var(\hat{\beta}_{0.01}(\tau) - var(\hat{\beta}_{\lambda}(\tau)}} \sim \chi^2 \quad (7)$$

In the following section, estimations for the described models, and Hausman-type test results for $\lambda = \{0.5, 1, 2\}$ against $\lambda = 0.01$ will be presented.

4. Empirical Findings and Discussion

This section reveals the estimation results belonging to equation (3) and (4). Both equations are estimated with and without the external influence variable in order to investigate the robustness of model specification. Hausman-type test results suggest that slope coefficient estimations are not significantly different for different values of λ. Panel data analysis offers an insight into individual and time specific effects. It is usually common practice to include cross-section specific effects in the model, but time specific effects are generally included in the form of the event specific dummies (i.e., shock dummies). On the other hand, the data in the study cover the era after the Cold War, where several countries went into an economic transition and most of them were exposed to economics shocks, and global economic events. Therefore, equation (3) and (4) are estimated with time and pair specific effects as they are presented in table (3). Also, estimation results belonging to pair specific effects are reported in table (2) to highlight the importance of the time specific effects as they have direct impact on the variable of interest.

Table 1: **Hausman-type Test Results**

	pair effects		time and pair effects	
λ	**w/o einf**	**with einf**	**w/o einf**	**with einf**
0.5	0.999	0.999	0.994	0.999
1	0.999	0.999	0.997	0.999
2	0.999	0.999	0.997	0.999

Note: Only the $p-values$ are given in the test results.

Furthermore, removing the external influence variable from the equation (3) or (4) does not dramatically change the sign or the significancy of the coefficients. Thus, it is safe to assume that the models are specified correctly and there is no collinearity between the traditional gravity variables and the proposed external influence variable.

Table 2: **Estimation Results (Pair Effects)**

	Pair Effects									
	Q10	**Q25**	**Q50**	**Q75**	**Q90**	**Q10**	**Q25**	**Q50**	**Q75**	**Q90**
constant	-25.34*	-24.84*	-22.90*	-21.02*	-18.11*	-27.10*	-26.27*	-23.15*	-20.56*	-17.68*
	(1.767)	(1.272)	(0.992)	(1.087)	(1.222)	(1.887)	(1.266)	(0.999)	(0.961)	(1.234)
$lngdp_{O,t}$	0.691*	0.692*	0.668*	0.629*	0.585*	0.743*	0.729*	0.674*	0.613*	0.564*
	(0.058)	(0.041)	(0.038)	(0.040)	(0.043)	(0.055)	(0.045)	(0.039)	(0.038)	(0.041)
$lngdp_{D,t}$	1.109*	1.128*	1.080*	1.061*	0.997*	1.159*	1.174*	1.088*	1.049*	0.984*
	(0.050)	(0.042)	(0.038)	(0.041)	(0.045)	(0.052)	(0.041)	(0.034)	(0.037)	(0.044)
$lnpop_{O,t}$	0.365*	0.288*	0.233*	0.221*	0.200*	0.275*	0.225*	0.224*	0.245*	0.247*
	(0.058)	(0.044)	(0.041)	(0.043)	(0.048)	(0.059)	(0.047)	(0.040)	(0.038)	(0.039)
$lnpop_{D,t}$	0.595*	0.369*	0.200*	*0.002*	-0.117*	0.489*	0.302*	0.187*	*0.020*	-0.086**
	(0.049)	(0.041)	(0.042)	*(0.044)*	(0.045)	(0.050)	(0.041)	(0.037)	*(0.038)*	(0.040)
$lndist_{OD}$	-1.922*	-1.763*	-1.542*	-1.369*	-1.228*	-1.937*	-1.783*	-1.546*	-1.358*	-1.210*
	(0.065)	(0.052)	(0.044)	(0.044)	(0.055)	(0.068)	(0.050)	(0.043)	(0.042)	(0.058)
$einf_{OD}$	-0.247*	-0.136*	*-0.024*	*0.046*	0.106*					
	(0.037)	(0.031)	*(0.030)*	*(0.029)*	(0.035)					
$cont_{OD}$	*0.193*	0.476*	0.393*	0.378*	0.234**	*0.311*	0.524*	0.410*	0.385*	0.267**
	(0.397)	(0.166)	(0.134)	(0.125)	(0.122)	*(0.452)*	(0.163)	(0.129)	(0.121)	(0.136)
$lang_{OD}$	0.488*	0.338*	0.394*	0.421*	0.426*	0.771*	0.519*	0.423*	0.348*	0.246**
	(0.126)	(0.105)	(0.092)	(0.094)	(0.111)	(0.122)	(0.102)	(0.092)	(0.088)	(0.103)
col_{OD}	1.303*	1.330*	1.599*	1.392*	1.062*	0.971*	1.154*	1.566*	1.431*	1.198*
	(0.221)	(0.211)	(0.196)	(0.151)	(0.167)	(0.230)	(0.200)	(0.200)	(0.151)	(0.146)
$lcpt_{OD}$	-0.278**	-0.501*	-0.631*	-0.485*	-0.502*	-0.420*	-0.559*	-0.634*	-0.483*	-0.483*
	(0.119)	(0.102)	(0.102)	(0.109)	(0.114)	(0.133)	(0.112)	(0.103)	(0.109)	(0.122)
cur_{OD}	2.893*	2.293*	1.202*	0.658*	*0.130*	2.823*	2.219*	1.198*	0.709**	*0.264*
	(0.494)	(0.351)	(0.245)	(0.246)	*(0.251)*	(0.482)	(0.353)	(0.292)	(0.278)	*(0.258)*
eu_{O}	-1.306*	-1.048*	-0.873*	-0.598*	-0.477**	-1.354*	-1.128*	-0.882*	-0.563*	-0.456**
	(0.260)	(0.182)	(0.182)	(0.184)	(0.211)	(0.283)	(0.213)	(0.207)	(0.182)	(0.199)
eu_{D}	*-0.281*	*-0.140*	-0.351*	-0.661*	-0.715*	*-0.311*	*-0.201*	-0.369*	-0.628*	-0.646*
	(0.360)	*(0.202)*	(0.125)	(0.156)	(0.173)	*(0.333)*	*(0.201)*	(0.126)	(0.147)	(0.158)
ta_{OD}	1.514*	1.293*	1.154*	0.856*	0.624*	1.455*	1.216*	1.144*	0.870*	0.654*
	(0.183)	(0.128)	(0.113)	(0.104)	(0.111)	(0.168)	(0.137)	(0.112)	(0.094)	(0.092)

Note: Values in parentheses are standard errors. "*", "**", and "***" respectively indicate 1%, 5%, and 10% significance levels.

Results shown in table (2) and (3) are in line with the previous works in general, apart from the mostly insignificant or negative estimations of $lnpop_{D,t}$ and $lnpop_{O,t}$. This could be due to low wages, higher unemployment rates or inefficient workforce in the developing countries as the effect of $lpop_{O,t}$ on $trade_{OD,t}$ primarily depends on production and $lpop_{D,t}$ on $trade_{OD,t}$ depends on aggregate demand. GDPs, contiguity, common language, colonial ties, and trade agreements have trade-boosting effects and distance, legal changes with the transition and European Union membership have trade-reducing effects in every single quantile of the conditional trade distribution. On the other hand, effects of these variables are consistently shrinking with the increasing regression quantiles, indicating that the country dyads with relatively less trade flow are more open to exogenous effects of the US and China.

Table 3: **Estimation Results (Time and Pair Effects)**

	Time and Pair Effects									
	Q10	**Q25**	**Q50**	**Q75**	**Q90**	**Q10**	**Q25**	**Q50**	**Q75**	**Q90**
constant	-39.75*	-37.00*	-33.99*	-30.50*	-25.50*	-41.87*	-37.38*	-33.25*	-29.49*	-24.49*
	(2.033)	(1.908)	(1.665)	(1.629)	(1.492)	(1.974)	(1.591)	(1.482)	(1.581)	(1.646)
$lngdp_{O,t}$	1.055*	0.996*	0.939*	0.857*	0.764*	1.101*	1.004*	0.924*	0.826*	0.736*
	(0.056)	(0.053)	(0.049)	(0.047)	(0.045)	(0.057)	(0.045)	(0.044)	(0.049)	(0.049)
$lngdp_{D,t}$	1.484*	1.438*	1.349*	1.301*	1.183*	1.541*	1.448*	1.322*	1.267*	1.140*
	(0.058)	(0.051)	(0.049)	(0.049)	(0.052)	(0.054)	(0.046)	(0.045)	(0.045)	(0.050)
$lnpop_{O,t}$	*0.022*	*0.006*	*-0.015*	*0.005*	*0.035*	*-0.036*	*-0.006*	*0.009*	*0.058*	0.096**
	(0.055)	*(0.052)*	*(0.047)*	*(0.048)*	*(0.045)*	*(0.059)*	*(0.046)*	*(0.045)*	*(0.049)*	(0.047)
$lnpop_{D,t}$	0.225*	*0.073*	*-0.056*	-0.213*	-0.295*	0.154*	0.062	-0.022	-0.164*	-0.231*
	(0.062)	*(0.054)*	*(0.051)*	(0.050)	(0.055)	(0.052)	(0.045)	(0.044)	(0.043)	(0.047)
$lndist_{OD}$	-1.951*	-1.772*	-1.511*	-1.368*	-1.227*	-1.949*	-1.773*	-1.501*	-1.346*	-1.188*
	(0.054)	(0.050)	(0.044)	(0.044)	(0.048)	(0.059)	(0.050)	(0.042)	(0.046)	(0.049)
$einf_{OD}$	-0.096*	*-0.014*	0.052***	0.105*	0.144*					
	(0.040)	*(0.034)*	(0.029)	(0.030)	(0.035)					
$cont_{OD}$	*-0.059*	0.293***	0.439*	0.276**	*0.184*	*-0.012*	0.321***	0.447*	0.302**	0.269**
	(0.346)	(0.168)	(0.144)	(0.126)	*(0.117)*	*(0.359)*	(0.177)	(0.153)	(0.148)	(0.142)
$lang_{OD}$	0.591*	0.507*	0.452*	0.488*	0.452*	0.722*	0.519*	0.394*	0.344*	0.226*
	(0.113)	(0.098)	(0.092)	(0.099)	(0.112)	(0.108)	(0.083)	(0.086)	(0.090)	(0.108)
col_{OD}	1.365*	1.385*	1.537*	1.288*	0.961*	1.262*	1.385*	1.589*	1.403*	1.166*
	(0.210)	(0.205)	(0.190)	(0.155)	(0.149)	(0.206)	(0.206)	(0.189)	(0.158)	(0.146)
$lcpt_{OD}$	*-0.106*	-0.323*	-0.444*	-0.402*	-0.456*	*-0.133*	-0.320*	-0.429*	-0.398*	-0.385*
	(0.122)	(0.098)	(0.097)	(0.103)	(0.114)	*(0.122)*	(0.096)	(0.102)	(0.117)	(0.122)
cur_{OD}	2.894*	2.040*	1.188*	0.476**	*0.187*	2.852*	2.040*	1.231*	0.573**	*0.330*
	(0.421)	(0.353)	(0.246)	(0.237)	*(0.216)*	(0.494)	(0.414)	(0.278)	(0.250)	*(0.255)*
eu_{O}	-1.048*	-0.990*	-0.661*	-0.539*	-0.350***	-1.089*	-0.979*	-0.650*	-0.491**	*-0.271*
	(0.264)	(0.200)	(0.195)	(0.190)	(0.207)	(0.262)	(0.214)	(0.214)	(0.194)	*(0.218)*
eu_{D}	*-0.174*	*-0.088*	-0.294**	-0.541*	-0.587*	*-0.221*	*-0.106*	*-0.246*	-0.492*	-0.555*
	(0.335)	*(0.187)*	(0.139)	(0.147)	(0.173)	*(0.317)*	*(0.181)*	*(0.154)*	(0.155)	(0.161)
ta_{OD}	1.447*	1.298*	1.295*	0.996*	0.667*	1.414*	1.288*	1.307*	1.035*	0.717*
	(0.166)	(0.122)	(0.112)	(0.103)	(0.102)	(0.161)	(0.122)	(0.109)	(0.103)	(0.098)

Note: Values in parentheses are standard errors. "*", "**", and "***" respectively indicate 1%, 5%, and 10% significance levels.

According to results presented in table (3), effect of the relative external influence is statistically significant and changes according to the quantiles of conditional trade distribution. Whereas being geographically closer to China has negative effects on bilateral trade between developing countries in the lower quantiles (0.10, *0.25*), it has positive effects in the higher quantiles (0.50, 0.75, 0.90). From another aspect, this means that being geographically closer to the US has positive effects in the lower quantiles, and negative effects in the higher quantiles. On the other hand, impact of the relative external influence is statistically insignificant in Q25. This suggests that there is not enough evidence regarding the trade altering influence of the US or China, and bilateral trade among developing countries will neither increase nor decrease depending on their relative distance to these dominant powers.

These findings can be interpreted in many ways, but the dyads trading less (lower quantiles of the conditional quantile distribution) are more likely to have less GDP[1], and therefore more open to external effects of the US and China. The trade between less developed countries closer to China is mainly dependent on western (mostly US originated) foreign direct investment (Hattari and Rajan, 2008: 3). As distance has a negative effect on trade flows, China should be these countries' main trade partner since it has the highest GDP and population in the region. Thus, China has a decisive role on the trade of these countries. In case of a trade conflict between the US and China, China might impose sanctions, indirectly reducing the trade of these countries. Moreover, China is the dominant power in the region and can enforce its policies to the countries under its influence, again indirectly reducing the trade between these countries. On the contrary, the US must be aiming to improve the trade relations between the countries in its domain of power to improve the trade of American goods produced in the region while imposing sanctions to Chinese goods, thus increasing the trade between the countries closer to the US.

Effect of the external influence becomes reversed in the upper quantiles. Because upper quantiles consist of countries with higher GDPs, which are more likely to have their own industries and brands substitutional to their American or Chinese counterparts. On the other hand, these emerging economies must have been affiliated with China due to low cost of labor and other necessary resources, and thus China might seek to improve the trade between its investors to sustain and increase the incoming foreign direct investment (FDI).

5. Conclusion

In this study, I aimed to investigate the possible influence of China and the US on the trade between developing country dyads, thus proposed a simple distance-based variable. Even though, it is a long shot to assume that the influence of these dominant economic powers is equal across the globe and entirely depend on the distance, proposed variable reveals interesting results. First, the findings suggest that dominant economic powers have a significant influence on the trade between developing countries. Second, it might be claimed that the effect of this external influence changes according to the quantiles of the conditional trade distribution, explaining the recent competition between China and the US to seize the total control over trade flows. In the lower quantiles, being closer to China has a negative and being closer to the US has a positive effect on the trade between countries except for Q25 according to results. This might be mainly due to the possible Chinese trade-reducing policies on American goods and countries that produce them, and trade-promoting policies of the US for the country pairs which produce American goods. On the other hand, effects are reversed in the upper quantiles and being closer to the US diminishes the trade between country pairs due to the possible competition with the US and being closer to China increases the trade between dyads due to Chinese policies which aim to sustain and develop its inward FDI as they are partly discussed in Long (2005) and Narang and Garg (2018). Since the countries that are closer to either side are more open to the influence, policymakers should carefully re-evaluate their relations to the US and China, considering the findings. On the other hand, studies on the recent trade conflict are scarce and interpretations of the results can be considered speculative. To this end, causes of external influence should be further investigated. As $einf_{OD}$ has a naive construction, future studies can focus on the development of an elegant

[1] This is more likely as the trade between country dyads is proportional to GDPs of trading countries according to the foundation of the Gravity theory. On the other hand, there are other factors that affect the trade between countries and this claim is not necessarily true for every single dyad, even though the results show that trading country GDPs have the most impact on the bilateral trade along with the distance.

external influence variable, consider a new bilateral trade model, or exploit the gravity model further.

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