Output Volatility and Trade:

Evidence from the 1967-1975 Closure of the Suez Canal

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Abstract

This paper examines the effects of trade on economic growth and growth volatility. Using the closure of the Suez Canal as an instrument for trade, I find that trade leads to higher- and more stable economic growth. There is also some evidence that trade reduces growth volatility.

Keywords: growth, volatility, trade

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1 Introduction

What is the effect of trade on output volatility? Does trade lead to higher economic growth? Will it cause growth to be less volatile?

Theoretically, trade promotes high- and more stable economic growth. Trade induces knowledge spillovers, spurs innovation, and helps allocating resources more efficiently, which improve productivity and stimulate growth. Trade also helps countries diversifying their production, which may reduce their vulnerability to idiosyncratic sectoral shocks.[1]

Empirically, the relationship between trade and growth has been well researched.[2] Early papers establish the correlation between trade and growth. Many are silent about the causal relationship between trade and growth, though some find that trade Granger-causes growth using time series analysis. More recent papers, like Frankel and Romer (1999), focus more on the causal relationship by identifying the effect of trade openness using instrumental variable methods.[3] These papers show that trade openness positively affects economic growth.

There have been also papers that look into the relationship between trade openness and growth volatility. The results have been mixed, however. Cavallo (2008), for example, finds that trade openness reduces growth volatility. Calderon and Schmidt-Hebbel (2008)

[1] See, for example, Grossman and Helpman (1991), Melitz (2003), Bernard, Redding and Schoot (2006) and Acemoglu and Zilibotti (1997).
[2] See Harrison and Rodriquez-Clare (2009) for a review on this line of literature.
[3] See also Dollar and Kraay (2004), Alcala and Cicone (2004), Romalis (2007), and Estevadeordal and Taylor (2008).

find that trade openness reduces growth volatility in economies with well-diversified economic structures. However, di Giovanni and Levchenko (2009), examining sectoral volatility and trade openness, find that, overall, trade openness increases aggregate volatility.

The main challenge in identifying the effect of trade on economic growth and growth volatility is endogeneity problem. Rodriguez and Rodrik (2000), for example, criticize many papers in this literature for not properly addressing omitted variable bias problems, in addition to for using poorly defined measures of trade openness.

So far, to address the endogeneity between trade and output or economic growth, many papers use the geographic determinants of trade in the gravity equation as instruments for trade openness. Recently, however, a few papers have come up with interesting, and arguably more convincing instruments of trade. Romalis (2007), for example, uses MFN tariffs of the US as instruments for developing country trade shares. Estevadeordal and Taylor (2008) use the interaction between GATT membership in 1975 and the pre-Uruguay Round tariff level as well as the interaction between Great Depression intensity and past tariff level as instruments for trade liberalization. Perhaps more interestingly, Feyrer (2009) uses the 1967-1975 closure of the Suez Canal to identify the effect of trade on income.

This paper will use the same event, the 1967-1975 closure of the Suez Canal, as a natural experiment to examine the effects of trade on output volatility. The closure changed the sea distances among a large number of countries exogenously. The increase in the sea

distances in turn reduced bilateral trade. Using the changes in the sea distances because of the closure of the Suez Canal as an instrument for bilateral trade in a regression of economic growth on bilateral trade, I find that trade leads to higher economic growth. I also find that trade makes recession or economic slowdown is less likely to happen. There is also some evidence that trade reduces growth volatility as indicated by smaller standard deviation of economic growth.

This paper contributes to the literature in at least two ways. First, using a natural experiment, I provide another piece of evidence that there is a causal relationship between trade and output volatility: Trade leads to higher economic growth and lower growth volatility. Second, compared to some papers in this line of literature, my identification strategy is arguably cleaner. Other than a set of country pair- and year dummies, I introduce bilateral trade as the only independent variable, which rules out the possibility that there are endogeneity problems in my specifications once I use the closure of the Suez Canal as an instrument for trade.[4]

This paper proceeds as follows. Section 2 explains the method of identification. Section 3 describes the data. Section 4 presents the empirical results. Section 5 concludes.

[4] Papers on the relationship between trade and growth volatility such as Cavallo (2008) often include many control variables in addition to trade or trade openness. While these control variables help lowering the standard errors of the estimate of interest, they may invite back-door endogeneity problems.

2 Method of Identification

I want to identify the effect of trade on economic growth and growth volatility.

Regressing, for example, economic growth on trade may not give us an unbiased estimate of the effect of trade. We could try to estimate the following model:

$$ln(y_{ijt}) = \alpha + \beta ln(Trade_{ijt}) + \gamma X_{ijt} + \delta_{ij} + \xi_t + \varepsilon_{ijt} \quad (1)$$

where y_{ijt} is the economic growth of country pair ij at time t; $Trade_{ijt}$ is the value of bilateral trade of country i and j at time t; X is a vector of economic growth determinants; δ_{ij} is the country pair fixed-effects, which capture country pair specific time-invariant factors that may affect economic growth; ξ_t is time fixed effects; and ε is the error term. But, because some time-varying determinants of economic growth are unobservable, the specification may suffer from omitted-variable-bias problem. Moreover, there may be selection bias as well: For example, it is possible that high-growth countries open up their economies, and, hence, have larger trade. In other words, we cannot rule out reverse causality running from economic growth to trade. In a regression of growth volatility on trade, there may be also reverse causality if small countries, which are more susceptible to domestic economic shocks, are more likely to open up their economies than large countries.

We could solve these endogeneity problems if we could find an instrumental variable for trade. Then, we could estimate equation (1) using two-stage least square, and the estimate of the coefficient of the predicted value of trade in the second stage regression

would give us an unbiased estimate of the effects of trade on economic growth and growth volatility.

A good instrument for trade would need to satisfy the following two requirements: (1) it is correlated with the bilateral trade, and (2) it is not related to the dependent variable, i.e., economic growth or growth volatility. In other words, the effect of the instrument on the dependent variable is only through trade. If this is the case, then the assignment of trade to country pairs can be considered as good as random.

There is a plausibly a good instrument of trade: the change in sea distances among countries because of the closure of the Suez Canal for eight years from June 1967 to June 1975.[5]

Egypt closed the Suez Canal during the Six Day War in June 1967 between Israel and Egypt, Syria, and Jordan. The closure was a surprise to shipping companies around the world such that fifteen cargo ships were trapped inside the canal when it was closed. After the war ended, the Suez Canal had remained closed because it had become the cease fire line between Israel and Egypt.

Only in the aftermath of the Yom Kippur War fought between Israel, Egypt and Syria in October 1973 that there were some possibilities that the canal would be reopened. In 1974, as a part of the peace negotiations, Egypt and Israel agreed to let the canal reopened. After the canal was cleaned up and deemed safe for commercial shipping, it was

[5] As far as I know, Feyrer (2009) is the first paper that uses the closure of the Suez Canal to identify the effects of trade. He examines the effect of trade on income. In this paper, I focus on the effect of trade on output volatility.

officially reopened on June 5, 1975.

In effect, the canal had remained closed for eight years. The closure was, to a large extent unanticipated; the reopening might be expected, but perhaps only sometime in 1974.

This closure means that during the years 1967-1975, many country pairs, whose shortest route between their ports are through the Suez Canal, experienced a sudden and large increase in sea distances between their ports. The shortest route between Hamburg in Germany to Port Klang in Malaysia, for example, is 8,344 nautical miles. If the Suez Canal is closed, ships would need to go through Good Hope, which would increase the sea distance to 11,811 nautical miles, an increase of 42 percent.

Because distance is an important determinant of trade as shown by the gravity equation, the closure of the Suez Canal is correlated with trade. Because the latitude and longitude of each country in a country pair relative to the Suez Canal have arguably nothing to do with economic growth or growth volatility, changes in sea distances due to the closure of Suez Canal is not correlated with the dependent variable in equation (1). These two features mean that the closure of the Suez Canal is a good instrument for trade in the estimation of equation (1).

I will therefore estimate the effect of trade using two-stage least square. First, I estimate the first-stage regression by estimating the following model:

$$ln(Trade_{ijt}) = \alpha` + \beta` ln(Distance_{ijt}) + \delta_{ij} + \xi_t + \varepsilon_{ijt} \quad (2)$$

where $Trade_{ijt}$ is the value of trade between country i and j at time t; $Distance_{ijt}$ is the sea distance between a main port in country i and a main port in country j at time t; δ_{ij} is the

country pair fixed-effects, which capture country pair specific time-invariant factors that may affect trade; ξ_t is time t fixed effects; and ε is the error term.

In the second stage, I estimate a version of equation (1) as follows:

$$ln(y_{ijt}) = \alpha + \beta \overline{ln(Trade_{ijt})} + \delta_{ij} + \xi_t + \varepsilon_{ijt} \quad (3)$$

in which I replace $Trade_{ijt}$ with the predicted values obtained from equation (2). I drop the vector of determinants of economic growth, *X*, to make the identification cleaner. It is tempting to include some determinants of economic growth such as physical capital, human capital, labor, and some measures of institutional quality as additional independent variables. However, this inclusion may make the identification less clean. If we include, for example, the quality of institution as an independent variable, then we may have to worry about the possibility that institution is endogenous. By dropping *X* from equation (1), as long as the closure of the Suez Canal is a good instrument for trade, and it is not a very weak instrument, we will get a clean identification of the effect of trade.

To summarize, given that the closure of the Suez Canal is a good instrument for trade, the coefficient of predicted values of trade in the second stage regression would give us an unbiased estimate of the effects of trade on economic growth and growth volatility.

3 Data

I get the data on trade and real GDP from Frankel and Rose (2004).[6] Trade in this dataset (i.e., *ltrade*) is the logarithm of real value of bilateral trade. Real GDP (*lrgdp*) is the logarithm of the product of real GDPs of each country pair. As my dependent variable, I calculate the annual economic growth of each country pair from *lrgdp*. Because I define economic growth as the percentage change in the product of GDPs, my measure of economic growth is therefore approximately equal to the sum of economic growth of the two countries in a country pair.

I focus on the years 1961-1982. Because the Suez Canal was closed in June 1967 and reopened in June 1975, I exclude the years 1967 and 1975 from the sample. I also exclude the years 1968 and 1976 because economic growth for these two years would not be available once I drop the years 1967 and 1976. Moreover, Feyrer (2009) shows that the years 1967-1969 and 1975-1977 are transition periods during which trade started decreasing and increasing, respectively.

Because of the unavailability of economic growth for some years, and to take into account the transition periods found by Feyrer (2009), I will therefore use two samples in my analyses: (1) the two two-year transition years, i.e., 1967-1968 and 1975-1976, are excluded, and (2) the two three-year transition years, i.e., 1967-1969 and 1975-1977, are excluded.

Because I will be exploiting changes in sea distance among countries, I exclude

[6] The data is downloadable from http://faculty.haas.berkeley.edu/arose/RecRes.htm.

landlocked countries such as Nepal and Laos. Following Feyrer (2009), I also exclude oil exporters as well as countries involved in the conflict and their immediate neighboring countries. In the end, I have 86 countries in my sample, with about 3,000 country pairs, for 16-18 years.[7]

I get the bilateral sea distances from the World Shipping Register's website.[8] First, I identify the primary port in each of the countries. Then I find the shortest route between ports for each country pair. If the shortest route is through the Suez Canal, then I find the shortest alternative route. Before the closure of the Suez Canal, and after its reopening in 1975, I use the distance of the shortest route as the sea distance. During the closure of the Suez Canal, I use the same sea distances unless the shortest route is through the Suez Canal, in which case I use the distance of the shortest alternative route instead.

Table 1 shows the summary statistics of these key variables, before the closure, during the closure, and after its reopening.

[INSERT TABLE 1 HERE]

The average of economic growth after the reopening of the Suez Canal (i.e., 1978-1982) seems to be smaller. The average distance during the closure (i.e., 1970-1974) is larger, while the average value of bilateral trade during the closure of the Suez Canal is smaller.

[7] The list of countries in the sample is available in Appendix 1.
[8] The data is available at http://e-ships.net/dist.htm.

4 Results

First, I discuss the results of the first-stage regressions, i.e., the effect of the closure of the Suez Canal on trade. Then, I examine the effects of trade on economic growth and growth volatility.

4.1 The Effect of the Closure of Suez Canal on Trade

Table 2 presents the estimates for equation (2), i.e., the effect of the closure of the Suez Canal on trade.

[INSERT TABLE 2 HERE]

In columns (1-2), I estimate equation (3) using OLS with data that excludes the two two-year transition period and the two three-year transition period, respectively. I find that sea distance and trade are negatively correlated: An increase in sea distance by one percent is associated with 0.5 percent decrease in trade. The estimates are also significant statistically. In columns (3-4), I estimate the equation using fixed effect, i.e., by including the country pair fixed effects. The degree of association between sea distance and trade is smaller, about 0.2. In column (3) in which I exclude the two two-year transition periods, the estimate is significant statistically at ten percent level of significance only. If I exclude the two three-year transition periods, the estimate becomes significant statistically at five percent level.

The results suggest that sea distance is related to the value of bilateral trade.

Because the closure of the Suez Canal is arguably a natural experiment, sea distance between any country pair can be considered as good as randomly assigned. In other words, because the closure of the Suez Canal is unlikely to be related to economic growth or growth volatility of any country pair, sea distance is a good instrument for trade in equation (1).

The statistical significance of the estimates in columns (3-4) suggests that the results may be more conclusive if I exclude the two three-year transition periods. In what follows, I will consider the results using data that excludes the two three-year transition periods as my main results. I will present the results using data that excludes the two two-year transition periods as well, however, to show how robust the results are.

4.2 Economic Growth

Table 3 presents the results for the growth equation in which the sum of economic growth of country pair is the dependent variable. Each column provides a different specification, with and without country pair fixed-effects, estimated using OLS or IV estimator. The odd-numbered columns are regressions using a sample that excludes the two two-year transition periods, i.e., the years 1967-1968 and 1975-1976; the even-numbered columns using a sample that also excludes the years 1969 and 1977.

[**INSERT TABLE 3 HERE**]

Columns (1-2) show that, after controlling for year fixed-effects, economic growth

and trade are negatively correlated. The estimates are small: A one-percent increase in trade is associated with 0.001 lower percentage point of economic growth. Even though the coefficients are significant statistically, they are not, of course, the causal effect of trade on economic growth. They, however, highlight the importance of addressing omitted-variable problems or reverse causality in a regression of growth and trade

Controlling further for time-invariant variables using country pair fixed-effects in columns (3-4), I find that trade is positively correlated with economic growth. Using the sample that excludes the two three-year-transition periods in column (4), trade is associated with 0.001 percentage point higher economic growth. The estimates are not significant statistically, however.

Columns (5-6) show the results in which I use sea distance as instruments for trade. Excluding the two two-year-transition periods in column (5) yields a large positive effect of about 0.3, though it is marginally significant statistically at ten percent level of significance. Excluding the two three-year transition periods in column (6), the estimate is slightly smaller, but now it is significant statistically.

These results suggest that trade leads to higher economic growth. The magnitude of the effect is also large: A one-percent increase in trade leads to 0.26 percentage point increase in the sum of the economic growth of country pair. More importantly, to the extent that the closure of the Suez Canal is exogenous, and its effect on economic growth is only through trade, these estimates are the causal effect of trade on economic growth.

4.3 Economic Recession and Slowdown

What is the effect of trade on growth volatility, in particular the likelihood of economic slowdown or recession? Table 4 presents the results. The figure in each cell is the coefficient of trade in equation (3). Each column provides a different specification. Each row shows the measure of growth volatility used as the dependent variable.

[**INSERT TABLE 4 HERE**]

Row (1) displays the results using economic recession as the dependent variable. I define economic recession to be one if the economic growth of a country pair is negative, and zero otherwise. The coefficient of trade in row (1) would then indicate the effect of trade on the likelihood of economic recession. Using all specifications, I find that trade is associated with lower probability of recession. The estimates using IV method in columns (5-6) are about one, which suggest that that an increase in trade between two countries would almost surely prevent economic recession in the country pair.

In row (2), I consider the effect of trade on the likelihood of low economic growth. I define low economic growth to be one if economic growth is smaller than 0.1 and zero otherwise. The OLS estimates in columns (1-4) are positive and significant statistically. But, the IV estimates in columns (5-6) are negative and large. Along with the results in row (1), they suggest that an increase in trade would not only prevent economic recession, but also low economic growth.

In row (3), I examine the effect trade on economic slowdown. I define economic

slowdown to be one if economic growth in one year is smaller than the growth in the previous year, and zero otherwise. The OLS estimates in columns (1-4) are mostly insignificant statistically. The estimates in columns (5-6), like those in rows (1-2), are negative and significant statistically. The result in row (6), in particular, shows that an increase in trade leads to 33 percent lower probability of economic slowdown.

These results suggest that trade is associated with the volatility of economic growth: An increase in trade leads to lower probability of economic recession, low economic growth, and economic slowdown. Again, to the extent that the closure of the Suez Canal is a good instrument for trade, the estimates are the effects of trade on these measures of economic volatility.

4.4 Standard Deviation and Skewness of Growth

I now examine two direct measures of growth volatility: the standard deviation of economic growth and its skewness. First, to get better results, I exclude the two three-year transition periods. Then, I define three time periods: The period before the closure of the Suez Canal (i.e., 1961-1966), during the closure (i.e., 1970-1974), and after the closure (i.e., 1978-1982). For each time period, I calculate the standard variation and the skewness of economic growth of each country pair. Then, I regress each of these measures on the bilateral trade.

Table 5 presents the results. Each column provides a different specification. Each row shows the results using each measure of growth volatility.

[**INSERT TABLE 5 HERE**]

Row (1) presents the effect of trade on the standard deviation of economic growth. The OLS estimate without country pair fixed-effects in column (1) shows that trade is associated with less volatile growth. Including the country pair fixed effects in column (2), however, makes the estimate insignificant statistically. Column (3) displays the IV estimate: Trade does cause less volatile economic growth, though the estimate is statistically significant at ten percent of significance only.

Row (2) presents the effect of trade on the skewness of the distribution of economic growth. Using OLS in columns (4-5), I find that trade is associated with smaller skewness. The IV estimate in column (3), however, indicates that trade does cause the distribution of economic growth more positively skewed. The estimate is not significant statistically, however.

These results suggest that trade leads to less volatile growth. The results are less significant statistically, however. Given the fact that the sample size is considerably smaller, we could perhaps consider these results are still in line with those on the effects of trade on economic recession and slowdown in the previous section.

5 Concluding Remarks

I examine the relationship between trade and output volatility. I show that an increase in trade is associated with higher economic growth, less likely economic recession or slowdown, and less volatile economic growth.

Because I use the closure of the Suez Canal as a natural experiment, these results can be considered as the causal effects of trade on growth and volatility. I, therefore, have shown that there is some evidence on the causal relationship between trade and economic growth as well as between trade and growth volatility: Trade causes higher- and more stable economic growth.

There are concerns about the external validity of the results, however. Trade may cause higher- and more stable economic growth if the increase in trade is induced by lower transportation costs as we have in this natural experiment. The same cannot perhaps be said on the effect of trade on economic growth or growth volatility if the increase in trade is induced by trade liberalization or the proliferation of free trade agreements. The effects of trade identified here may be the true effects in the 1960s and 1970s, when many countries were not as open as they are now. The effects of further liberalization today may be different than the ones I find in this paper.

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Appendix 1: List of Countries

Algeria	Ecuador	Jamaica	Poland
Angola	El Salvador	Japan	Portugal
Antigua and Barbuda	Fiji	Kenya	Romania
Argentina	Finland	Liberia	Samoa
Australia	France	Madagascar	Senegal
Bahamas	Gambia	Malaysia	Sierra Leone
Bangladesh	Germany	Malta	Singapore
Barbados	Ghana	Mauritania	South Africa
Belize	Greece	Mauritius	South Korea
Benin	Guatemala	Mexico	Spain
Bermuda	Guinea	Morocco	Sri Lanka
Brazil	Guinea-Bissau	Mozambique	Suriname
Bulgaria	Guyana	Myanmar	Sweden
Cameroon	Haiti	Netherlands	Thailand
Canada	Honduras	New Zealand	Togo
Chile	Hong Kong	Nicaragua	Tunisia
China	Iceland	Norway	United Kingdom
Colombia	India	Pakistan	United States
Costa Rica	Indonesia	Panama	Uruguay
Cyprus	Ireland	Papua New Guinea	Venezuela
Denmark	Italy	Peru	
Dominican Rep.	Ivory Coast	Philippines	

Table 1: Summary Statistics

Variable	**1961-1966**	**1970-1974**	**1978-1982**
Economic growth	0.12	0.11	0.07
	(0.08)	(0.10)	(0.09)
ln(Trade)	11.21	10.45	10.83
	(2.24)	(3.04)	(3.18)
ln(Distance)	8.31	8.42	8.38
	(0.84)	(0.87)	(0.81)

Notes: The figures are the means and standard deviation, the latter in parentheses. The numbers of observations are about 9,600, 12,200, and 13,300 for the years 1961-1966, 1970-1974, and 1978-1982, respectively.

Table 2: The First-Stage Regressions

Dependent variable: ln(Trade)				
	OLS			
	(1)	**(2)**	**(3)**	**(4)**
ln(Distance)	-0.46	-0.47	-0.15	-0.20
	(0.07)	(0.07)	(0.08)	(0.08)
Dummy variables				
Country pair			✓	✓
Year			✓	✓
Sample (years excluded)				
1967-1968 and 1975-1976	✓		✓	
1967-1969 and 1975-1977		✓		✓
Country pairs	3,103	3,092	3,103	3,092
Observations	39,655	35,062	39,655	35,062

Notes: The dependent variable is bilateral trade. Distance is the sea distance between countries in a country pair. The numbers in parentheses are robust standard errors, clustered by country pair.

Table 3: The Effect of Trade on Economic Growth

Dependent variable: Economic growth rate						
	OLS				**IV**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
ln(Trade)	-0.001	-0.001	0.0003	0.001	0.29	0.26
	(0.0002)	(0.0002)	(0.001)	(0.001)	(0.17)	(0.12)
Dummy variables						
Country pair			✓	✓	✓	✓
Year	✓	✓	✓	✓	✓	✓
Sample (years excluded)						
1967-1968 and 1975-1976	✓		✓		✓	
1967-1969 and 1975-1977		✓		✓		✓
Country pairs	3,104	3,093	3,104	3,093	2,994	2,976
Observations	39,663	35,069	39,663	35,069	39,546	34,946

Notes: Economic growth rate is the annual percentage change in the product of real GDP. The numbers in parentheses are robust standard errors, clustered by country pair. The instrument is the logarithm of sea distance.

Table 4: The Likelihood of Recession and Economic Slowdown

Dependent variables: Recession, low growth, or economic slowdown							
		OLS				**IV**	
		(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Recession	(1)	-0.006	-0.007	-0.007	-0.007	-1.16	-1.01
		(0.0006)	(0.0007)	(0.002)	(0.002)	(0.63)	(0.45)
Low growth	(2)	0.006	0.005	0.0009	0.001	-1.24	-1.01
		(0.001)	(0.001)	(0.003)	(0.003)	(0.67)	(0.45)
Economic slowdown	(3)	0.001	-0.001	-0.0001	-0.003	-0.25	-0.33
		(0.0007)	(0.0007)	(0.003)	(0.003)	(0.17)	(0.16)
Dummy variables							
Country pair				✓	✓	✓	✓
Year		✓	✓	✓	✓	✓	✓
Sample (years excluded)							
1967-1968 and 1975-1976		✓		✓		✓	
1967-1969 and 1975-1977			✓		✓		✓

Notes: The numbers displayed are the coefficient of ln(Trade). Recession, Low Growth, and Economic Slowdown are dummy variables. The numbers in parentheses are robust standard errors, clustered by country pair. The instrument is the logarithm of sea distance. The number of observations is about 40,000; the number of country pairs is about 3,000-3,100.

Table 5: The Standard Deviation and Skewness of Growth

Dependent variables: Standard deviation or skewness of economic growth							
		OLS		**IV**	**OLS**		**IV**
		(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Standard deviation	(1)	-0.005	0.0003	-0.536			
		(0.0002)	(0.001)	(0.322)			
Skewness	(2)				-0.019	-0.02	1.39
					(0.002)	(0.01)	(1.03)
Dummy variables							
Country pair			✓	✓	✓	✓	✓
Year		✓	✓	✓	✓	✓	✓
Country pairs		2,951	2,951	2,527	2,951	2,951	2,527
Observations		7,205	7,205	6,781	7,205	7,205	6,781

Notes: The numbers displayed are the coefficient of ln(Trade). Standard deviation and skewness of economic growth are calculated by period and country pair, in which the periods are before the closure, during the closure, and after reopening the Suez Canal. The numbers in parentheses are robust standard errors, clustered by country pair. The instrument is the logarithm of sea distance.