



GCC Trade Potentials with EU Members

Dr. Nayef N. AL-Shammari*

Abstract:

This paper investigates potentials of trade between GCC and EU countries. The data set covers around 33 countries over the period from 1980 through 2008. The model is estimated using an augmented gravity model with fixed effects specification to identify the impact of GCC–EU Economic Cooperation Agreement on bilateral trade at the aggregate trade level as well as disaggregate trade level. Findings show that the indicated economic agreement enhances bilateral aggregate exports between GCC and EU countries by 211%. However, the size of the economic agreement effect is much smaller based on disaggregate data. Findings show that the benefit of the Economic Cooperation Agreement between GCC and EU countries depends mainly on the level of intra–regional trade in some particular sectors. This study finds that EU–GCC trade has definite potential to expand trade through the proposed Free Trade Agreement.

Introduction

In the last two decades, economies of the Gulf Cooperation Council (GCC) have become more exposed to global trade.* Only a small share of GCC countries' trade is carried out within the region; the rest of their

* Assistant Professor, Economics Department, College of Business Administration, Kuwait University

* The GCC includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

trade is exchanged with other countries and economic blocs. The European Union (EU) is considered to be a vital trading partner to GCC countries. The market of GCC is said to be the fifth-largest market for EU exports. The dominant exports from EU to GCC are mainly machinery and transport materials, whereas the dominant exports of GCC to EU rely on petroleum products. It is noteworthy that both groups signed an Economic Cooperation Agreement in 1988, which created a framework for a bilateral free trade agreement between the two regional blocs.

This study focuses on the impact of the existing Economic Cooperation Agreement between GCC and EU countries on their bilateral exports. In particular, this study tests predictions about the main determinants of export flows between EU countries and GCC countries. The paper presents evidence on trade determinants and impact of Economic Cooperation Agreement at the aggregate level as well as the sector level. Studying different sectors is important, as some economic policies may concentrate on different sectors than others, which would help explaining the trade potential for establishing a Free Trade Agreement between GCC and EU.

Studying these questions might be important for several reasons. First, to the best of my knowledge, there are no studies in the literature investigating the impact of the existing Economic Cooperation Agreement between GCC and EU countries on their bilateral exports. Second, the experience of the GCC-EU trade may be different from previous studies, as GCC countries rely on imports from EU, requiring high processing products such as machinery and manufactured goods. In addition, investigating the Economic Cooperation Agreement between the GCC and EU may help to analyze the proposed free trade agreement. Furthermore, identifying the trading potential may help draw predictions about sectors that benefit most from the proposed FTA between GCC and EU countries.

There are host of studies that have investigated the determinants of trade flows. This study follows the approach of Rose and van Wincoop (2001) and uses an augmented gravity model by including country-specific fixed effects as well as time-fixed effects. The study tests predictions of the model using data for aggregate trade and disaggregate trade over the period from 1980 to 2008. The objective of this paper is to examine the impact of the EU-GCC Economic Cooperation Agreement on their bilateral exports, based on identifying the determinant of trade between these countries. The potential of trade between the GCC countries and EU countries can then be examined comprehensively.

The study tests predictions of the model using data for aggregate trade and disaggregate trade over the period 1980 to 2008. It estimates that the effect of the cooperation economic agreement on bilateral EU trade is significant, with a positive sign at the aggregate level. At the disaggregate level, the effect of the cooperation economic agreement is positively significant and robustly concentrates on sectors, such as the beverage and tobacco sector (SITC1), the crude material except fuels (SITC2), manufactured goods (SITC6), machinery (SITC7), and miscellaneous manufactured articles (SITC8). However, the effect of the cooperation economic agreement between the GCC and EU countries on their bilateral trade is not significant for sectors such as mineral fuel sector (SITC3), animal and vegetable oils (SITC4), and chemicals and related products sector (SITC5).

This paper is organized as follows. Section II explains the background of economic relations between EU and GCC countries. Section III contains a brief survey of the relevant literature in the gravity model. In section IV, the methodology and model specification used in the study are explained. The data set is provided in section V. The empirical results are explained in section VI. Finally, the conclusion is provided in section VII.

II. Economic Relations between EU and GCC

The economic and political bilateral relationship between EU and GCC countries was initially formed in 1988 with the signing of the cooperation agreement, which intended to encourage political and economic relations between the two groups. The agreement considers the importance of economic aspects through enhancing trade cooperation in many important economic sectors such as the energy sector, the industrial sector, the investment sector, and the environmental sector. Such an agreement served as the initial step for both sides toward negotiations on a Free Trade Agreement. Since 2002, negotiations between both parties for an FTA have removed obstacles to the agreement.

According to Table (1), key economic indicators show that both the GCC and EU members are classified as high-income countries based on the per capita GDP. The second key economic indicator is the openness variable, which is measured as total trade in goods to GDP. Although both regional blocs share a similar openness indicator level (about 65%), differences between the two blocs are clear in the case of intra-trade shares. The degree of intra GCC trade to their total trade is only about 6%, whereas EU members enjoy a high degree of intra EU integration for about 34%. This in turn reflects the high degree of economic integration between EU countries as compared to GCC countries.

While GCC does the largest share of its foreign trade with the EU, the GCC market is one of the largest export markets to EU. Exports of EU to GCC consist of different products. However, these exports are mainly focused on machinery and transport materials such as power generation plants and electrical machineries. On the import side, the EU imports from GCC are focused mainly on fuels and derivatives. The share of EU exports to GCC is roughly around 5.3% of the aggregate EU exports in 2008, whereas the

share of EU imports from GCC is roughly around 2.4% of the aggregate EU imports during the same period. Trading GCC with EU records an average growth rate of 13.7% during the period from 2004 to 2008 for EU exports to GCC, whereas the average growth rate for EU imports from GCC during the same period is about 9.3%. This pace of growth between the two blocs reflects the importance of the bilateral partnership in recent years.

According to Tables (2) and (3), while GCC is the ninth-largest market for EU imports, GCC is considered to be the fifth-largest market for EU exports and the seventh-largest trading partner in terms of total trade. The GCC share in EU exports (imports) is about 5.3% (2.4%), while that of total EU trade is about 3.7%. On the other hand, EU is an important market for the GCC, accounting for 29% of the total GCC imports. Thus, the EU is the largest importer to GCC, whereas EU is said to be the fourth-largest market to GCC exports and the second-largest trading partner in terms of total trade. It is noteworthy that the US, China, Russia, Switzerland, and Norway are considered the largest trading partners to EU countries, whereas Japan, EU, the US, China, and South Korea are the largest trading partners to GCC countries.

In terms of EU exports to the world and particularly to GCC, Table (4) indicates that the SITC group “Machinery & Transportation Equipment” has the largest share among other EU exported goods to the world, with a share of 43.5% in total EU exports. The SITC groups of “Chemicals & Related Products” and “Manufactured Goods Classified Chiefly by Material” are, respectively, the second- and third-largest classified SITC groups among other EU-exported goods to the world, with a share of 15.4%, and 13.6% in total EU exports, respectively. Specifically, EU exports to GCC market relies heavily on the SITC group “Machinery & Transportation Equipment” with a share of 6.3% in total EU exports. It is followed by the SITC groups “Manufactured Goods Classified Chiefly by Material” and “Miscellaneous

Manufactured Articles” with shares of 6% and 5.8%, respectively. It is noteworthy that the structure of GCC imports from the EU depends on a high proportion of processing products (industrial products).

III. Gravity Model, Trade Determinants, and Trade Potentials

The gravity model explains the magnitude of international trade between any two of countries. According to empirical studies, the gravity model is used in different trade policy specifications. These include specifications related to trade agreements, exchange rate policies, currency unions, and international borders. The initial framework for the gravity model is based on Anderson (1979), who made the first attempt to derive the theoretical basis of a gravity model. His effort was followed by derivations in McCallum (1995) and Anderson and van Wincoop (2003). The simple form of the gravity equation depends on the fact that any pair of countries may trade between each other, taking into account the positive effect of their economic income and negative effect of the distance between them in their trade flows.

Several large studies that have used gravity specifications within the framework of bilateral trade.** Brülhart and Kelly (1999) estimate potential trade flows in the case of Irish trade with CEEC countries. They conclude that due to EU expansion, trade between Ireland and CEEC countries has increased. While Lamotte (2002) looks at trade between EU and Yugoslav, Boris and Vedran (2004) determine by each trading sector the export potential of Croatia with SEE, EU, and CEFTA countries. Using a gravity framework, a study by Ghosh (2003) tests the possible Indian trade with several economic blocs such as NAFTA, EU, ASEAN, and SAARC. The possible export potential of India worldwide is also examined by Batra (2004). In addition, Pradhan (2010) examines the export potentials of India with GCC countries using an augmented gravity model. He finds that export

** Baldwin (1994) provides a survey of literature in the gravity model.

potentials of India differs from one country to another in the GCC group, and varies from one exporting sector to another. Anderson and van Wincoop (2003) predict the impact of a common currency on trade. They argue that the relative trade cost is a key aspect of trade between countries. Thus, failure to consider the importance of the relative trade cost (as opposed to the absolute trade cost) may affect the findings of gravity estimations.

Considering the effect of multilateral trade resistance, Rose and van Wincoop (2001) incorporate a fixed effects approach so as to make trade between any trading partner dependent on their bilateral absolute trade barriers (i.e., distance, common language and landlocked) relative to average trade barriers against all other trading partners (multilateral resistance). In their estimated gravity model, Rose and van Wincoop (2001) include bilateral trade resistance (i.e., FTA, language, border, etc.) as well as the multilateral trade resistance. In order to embody the multilateral resistance of a country, they replace terms of the multilateral resistance with country fixed effects. Findings of their estimations show the smaller effect of currency union when the multilateral trade resistance's effect is considered.

IV. Methodology and Model Specification

The objective of this paper is to examine the impact of the Economic Cooperation Agreement between GCC and EU countries on their bilateral export flows. This involves investigation in the aggregate trade level as well as in individual sectors. The estimated model used in this study includes panel specification. The model is estimated in two ways, first with aggregate trade data and then with data by sector. The model is also estimated using gravity framework.

Many recent studies have discussed econometric issues related to estimation of the gravity equation. Concerns about omitted variables

within gravity framework have been the focal point in most of these studies. Though studies have tried to control for a vast of variables such as common language, colonial history, and other political factors, it is still possible that other factors remain that affect trade flows. The issue of the omitted variables is raised in several previous studies, in which the issue is tackled through a fixed effect approach (i.e., Feenstra, 2002; and Rose and van Wincoop, 2001). Also, the fixed effect approach obviates the need for published price indices that do not necessarily reflect theoretical implicit prices (Feenstra, 2002).

IV. a. Aggregate Trade Determinants Model

The augmented gravity model is estimated based on the aggregate trade data. This paper aims to explore patterns of trade between GCC and EU by identifying their determinants and therefore the impact of the Economic Cooperation Agreement between GCC and EU countries. In the aggregate trade model, the augmented gravity equation is used to identify the determinants of trade between EU and GCC using data for total trade flows. Then, the coefficient of the Economic Cooperation Agreement between the GCC and EU is used to convey the agreement's influence on the regions' trading flows. The estimated model also follows the specification of Rose and van Wincoop (2001) by including country fixed effects in the gravity equation as proxies for multilateral trade resistance terms. Country fixed effects specifications may clarify any differences in prices across countries, which the price index approach does not reveal (Peridy, 2005). Fixed effects specifications with panel data are used for the analysis of the aggregate trade model. The estimated model includes time fixed effects to control for any trade flows increasing over time (i.e., due to shocks related to oil price and other macroeconomics issues). The aggregate trade model is estimated through the augmented gravity equation by the following regression:

$$\ln(X_{ij})_t = \beta_0 + \beta_1 \ln(Y_i Y_j)_t + \beta_2 \ln(PC_{ij})_t + \beta_3 (ECA_{ij})_t + \beta_4 (D_{ij}) + \beta_5 (B_{ij}) + \beta_6 (L_{ij}) + \beta_7 (Landlock_{ij}) + \beta_8 (Island_{ij}) + \beta_9 (\lambda_i) + \beta_{11} (\pi_j) + \gamma_t + \varepsilon_{ijt} \quad (1)$$

where X_{ij} represents the aggregate export volume from country i to country j in current US dollars; Y denotes the GDP; PG_{ij} is GDP per capita between country i and country j at period t ; ECA_{ij} represents a binary variable which takes a value one if country i and country j belong to the GCC–EU Economic Cooperation Agreement and zero otherwise; D_{ij} is the distance between country i and country j ; B_{ij} is a binary variable which takes a value one if country i and country j share a border and zero otherwise; L_{ij} represents a binary variable which takes a value one if country i and country j share a same language and zero otherwise; $Island_{ij}$ is a binary variable which takes a value one if either one or both countries are island and zero otherwise; $Landlocked_{ij}$ represents a binary variable which takes a value one if either one or both countries are landlocked and zero otherwise; λ_i represents a multilateral resistance variable that is unity if country i is the exporter and zero otherwise; π_j represents a multilateral resistance variable that is unity if country j is the importer and zero otherwise; γ_t represents time trend effects; and ε_{ijt} is an error term.

IV. b. Disaggregate Trade Determinants Model

On the other hand, the estimations in equation (1) are also tested using data at the one–digit industry level. This methodology is used in the case of disaggregate data. Studying different sectors is especially important because some policies may focus on certain sectors more than others. This method allows the research to uncover to what degree the existing Economic Cooperation Agreement between the GCC and EU countries affects their bilateral exports. Specifically, one–digit SITC sectors are used to examine the effect in each industry. In addition, sector–

level data helps to analyze the impact of the existing Economic Cooperation Agreement between the GCC and EU countries in each sector, as compared to the overall economy. It also leads to investigating the influence of the Economic Cooperation Agreement at the aggregate level and exploring to what extent the impact may vary by trading sector.

According to disaggregate-level data, eight sets of equations are estimated separately for export flows. These sectors are the food and live animals sector; beverage and tobacco sector (SITC1); crude material, inedible, except fuels sector (SITC2); mineral fuel, lubricants and related material sector (SITC3); animal and vegetable oils, fats and waxes sector (SITC4); chemicals and related products sector (SITC5); manufactured goods classified chiefly materials sector (SITC6); machinery and transport equipment sector (SITC7); and miscellaneous manufactured articles sector (SITC8).***

V. Data Description

The data included in this study cover 33 countries throughout the period from 1980 to 2008. Annual exports are obtained from the IMF database (Direction of Trade Statistics). All bilateral export data are measured in current US dollars. Data for the sector-level model are based on the SITC-1 level (revision 3) and obtained from the United Nations' COMTRADE database over the period from 1980 to 2008. The number of countries varies between sectors, depending on the data availability in each sector. According to the UN database, the exports data are constructed on the FOB base and measured in current dollars.

Data for GDP and per capita GDP is obtained from the World Bank's World Development Indicators (WDI) and also measured in current US dollars. The CIA World Fact Book and the World Bank are the main

*** These sectors are identified and classified based on the UN comtrade database.

sources of data on location, language, and other geographical information. The economic cooperation agreements are obtained from the World Trade Organization. Distance is obtained from the World Bank's website calculated using a Great Circle distance algorithm. Appendix country list countries used in this paper study.

VI. Empirical Results

VI. a. Benchmark Results

The descriptive statistic for the aggregate trade model is represented in Appendix C. Results for the benchmark model using the aggregated trade model are displayed in Table (6). The model is estimated using the pooled OLS regression, fixed effects regression with exporter dummy, and fixed effects regression with importer dummy. Fixed effects regressions include country-specific fixed effects (two separate dummies, one for the exporter and the other for the importer), and year fixed effects.

According to Table (6), findings for the aggregate export model are robust to different specifications; pooled OLS regression, exporter fixed effects regression, and importer fixed effects regression. The coefficients for most gravity variables are significant and show the expected signs. For the GDP variable, increasing GDP is correlated with an increase in overall bilateral exports between two the GCC countries and EU countries. The GDP coefficient is statistically highly significant, suggesting that a one-percent increase in the country's GDP increases the bilateral export between the GCC and EU countries by about 211% based on the pool OLS specification. **** The estimated coefficient for the per capita GDP variables turns out to be statistically significant but, surprisingly, has a negative sign. This indicates that per capita GDP influences GCC-EU bilateral trade in a negative way. This negative sign predicts that countries with similar levels of per capita

**** The effects are computed as $[\exp(\beta) - 1] \times 100$

income are less inclined to trade with each other. Therefore, the negative effect for the per capita GDP between GCC and EU countries suggests that a one-percent increase in per capita GDP between GCC and EU countries decreases the bilateral export between the GCC and EU countries by about 27% based on the pool OLS specification.

The estimated coefficient of the distance variable is found to be statistically significant with a negative sign, suggesting that the further the distance between two countries, the lower the bilateral trade between GCC and EU countries. The distance is a proxy for transport costs; therefore, the distance between any pair of countries should determine the volume of trade between them, and this finding is notable in the case of trade between GCC and EU countries. The finding is robust to different specifications, indicating that a one-percent increase in the distance between the GCC and EU countries decreases the bilateral export between the GCC and EU countries by about 229% based on the pool OLS specification. The coefficient for language dummy is statistically highly significant with a positive sign, indicating that countries with the same language trade 737% more than those with different languages based on the pool OLS specification. However, the border coefficient is not statistically significant, suggesting that shared borders have no effect on trade.

More importantly, the variable of interest is the Economic Cooperation Agreement dummy between GCC countries and EU countries. The estimated parameter of the ECA dummy shows a positive sign with statistically significant coefficient. The finding is robust for all different specifications (OLS, exporter fixed effects, and importer fixed effects). Belonging to the Economic Cooperation Agreement dummy between GCC and EU regions increases bilateral exports between a pair of countries by 180%, based on OLS regression.

VI. b. Extensions Results

Tables from (7) to (10) extend the model from the benchmark aggregate trade data to sector-level data model. The gravity model is estimated using sector-level data disaggregated at the one-digit SITC level (revision 3). Eight different goods sectors are used to verify any differences between the aggregate trade model and the sector-specific model. Investigating the industry effects may help to identify the sectors most and least affected by the Economic Cooperation Agreement.

Table (7) represents exports between GCC and EU countries for the beverage and tobacco sector (SITC1). Results for most of the traditional gravity estimates are significant, except for per capita GDP and border, and have the expected signs. More interestingly, the coefficient of the Economic Cooperation Agreement dummy between GCC countries and EU countries is statistically significant and robust to different specifications with an expected positive sign. This suggests that the Economic Cooperation Agreement dummy between GCC and EU regions raises bilateral exports by 94%, based on OLS regression. Such a finding is much smaller than the finding of 86% at the aggregate level. In addition, results in Table (7) represent exports between GCC and EU countries for crude material, inedible, except fuels sector (SITC2). Findings for most of the traditional gravity estimates are significant and have the expected signs, except for per capita GDP, language, and border. With regard to the interest variable, the coefficient of the Economic Cooperation Agreement dummy between GCC countries and EU countries is found to be statistically significant and robust to different specifications with an expected positive sign. This finding suggests that the Economic Cooperation Agreement dummy between GCC and EU regions raises bilateral crude material, inedible, except fuels exports between these countries by 84%, based on OLS regression. Such a finding is much smaller than the finding of 96% at the aggregate level.

Exports between GCC and EU countries for mineral fuel, lubricants and related material sector (SITC3) are shown in Table (8). According to the Table (8), results for the traditional gravity estimates are significant and have the expected signs, except for per capita GDP, language, and border. However, the interest coefficient of the Economic Cooperation Agreement dummy between GCC countries and EU countries turns out to be statistically insignificant for different regression specifications. This implies that the Economic Cooperation Agreement dummy between GCC and EU regions could not influence their bilateral exports in the goods sector of mineral fuel, lubricants and related material during the period from 1980 to 2008. In addition, exports between GCC and EU countries for animal and vegetable oils, fats and waxes sector (SITC4) are represented in Table (8). Results in Table (8) indicate that the traditional gravity estimates are significant and have the expected signs, except for per capita GDP, language, and border. Although the interest estimated coefficient of the Economic Cooperation Agreement dummy between GCC countries and EU countries turns out to be statistically significant with a negative sign based on the pooled regression, this finding turns out not to be robust with fixed effects regressions. Therefore, it implies that the Economic Cooperation Agreement dummy between GCC and EU regions could not influence their bilateral exports in the goods sector of animal and vegetable oils, fats and waxes during the period from 1980 to 2008.

Results in Table (9) represent exports between GCC and EU countries for chemicals and related products sector (SITC5). Based on the findings, GDP and distance are the only two variables among other traditional gravity estimates that are significant and have the expected signs. With regard to the interest variable, the coefficient of the Economic Cooperation Agreement dummy between GCC countries and EU countries turns out not to be statistically significant. This finding implies that the Economic Cooperation Agreement dummy between GCC and EU regions could not influence their

bilateral exports in the goods sector of chemicals and related products during the period from 1980 to 2008. Furthermore, results in Table (9) represent exports between GCC and EU countries for manufactured goods classified chiefly materials sector (SITC6). Findings for most of the traditional gravity estimates are significant and have the expected signs, except for island and border. Regarding the interest variable, the coefficient of the Economic Cooperation Agreement dummy between GCC countries and EU countries turns out to be statistically significant and robust to different specifications with an expected positive sign. This finding suggests that the Economic Cooperation Agreement dummy between GCC and EU regions raises their manufactured goods exports by 67%, based on OLS regression. Such a finding is much smaller than the finding of 113% at the aggregate level.

In Table (10), findings represent exports between GCC and EU countries for machinery and transport equipment sector (SITC7). Estimated gravity variables are significant and have the expected signs, except for landlocked, and border. Regarding the interest variable, the coefficient of the Economic Cooperation Agreement dummy between GCC countries and EU countries turns out to be statistically marginally significant with an expected positive sign and robust only to the importer fixed effects regression. This finding suggests that the Economic Cooperation Agreement dummy between GCC and EU regions raises their machinery and transport equipment exports by 38%, based on OLS regression. Such a finding is much smaller than the finding of 142% at the aggregate level. Regarding exports between GCC and EU countries for miscellaneous manufactured articles sector (SITC8), Table (10) shows the related findings. Results in Table (14) indicate that the traditional gravity estimates are significant and have the expected signs, except for landlocked, language, and borders. With regard to the interest variable, the coefficient of the Economic Cooperation Agreement dummy between GCC countries and EU countries turns out to be statistically

significant and robust to different specifications with an expected positive sign. This finding suggests that the Economic Cooperation Agreement dummy between GCC and EU regions raises their miscellaneous manufactured articles exports by 84%, based on OLS regression. Such a finding is much smaller than the finding of 96% at the aggregate level.

The findings at the aggregate and disaggregate levels confirm that main determinants for trade between GCC and EU countries include the country size and the distance between these countries in these two groups. However, the finding that the similarity in levels of per capita income acts as an obstacle to trade between GCC and EU countries at the aggregate trade model, such a finding tends not to be robust in disaggregate models. More importantly, the findings of the Economic Cooperation Agreement dummy between GCC countries and EU countries suggest that the economic agreement has helped enhancing bilateral exports between these countries during the period from 1980 to 2008 at the aggregate trade level as well as some disaggregate trade levels. The economic agreement enhances bilateral exports between GCC and EU countries by 211% during 1980 to 2008.

On the other hand, the investigation at the disaggregate or sector level shows that the benefit of Economic Cooperation Agreement between GCC countries and EU countries depends mainly on the level of intra-regional trade in sectors such as the beverage and tobacco sector (SITC1), crude material, inedible, except fuels sector (SITC2), manufactured goods classified chiefly materials sector (SITC6), machinery and transport equipment sector (SITC7), and miscellaneous manufactured articles sector (SITC8). It is noteworthy that these sectors (SITC1, SITC2, SITC6, SITC7, and SITC8) are expected to achieve the trade potential of the proposed FTA between GCC and EU countries. The most significant sector to benefit from the EU-GCC proposed FTA is the beverage and tobacco sector (SITC1), with an effect of 94% increase in bilateral trade. Next is the crude material,

inedible, except fuels sector (SITC2) and miscellaneous manufactured articles sector (SITC8), with an effect of 84% increase in bilateral trade. The manufactured goods classified chiefly materials sector (SITC6) comes next in terms of its importance to affect the proposed FTA between GCC and EU, with an effect of 67% increase in bilateral trade. Last is the machinery and transport equipment sector (SITC7) with an effect of 38% increase in bilateral trade.

VII. Concluding Remarks

The main purpose of this research is to estimate the impact of the GCC–EU economic agreement on the regions’ bilateral trade. The study pursues this research using the augmented gravity models. It uses data for 33 countries, including all EU and GCC countries during the period between 1980 and 2008. The estimated model includes country–specific fixed effects as well as time effects. The model is tested using aggregate and disaggregate trade data.

Findings reveal that EU–GCC bilateral trade is significantly and positively affected by higher economic size in terms of GDP. As expected, distance between trading partners negatively affects EU–GCC bilateral trade. More importantly, the findings of the Economic Cooperation Agreement dummy between GCC countries and EU countries suggest that the economic agreement has enhanced bilateral exports between these countries from 1980 to 2008 at the aggregate trade level, as well as at some disaggregate trade levels. The economic agreement enhanced bilateral exports between GCC and EU countries by 211% during 1980 to 2008. On the other hand, the investigation at the disaggregate– or sector–level shows that the benefit of Economic Cooperation Agreement between GCC countries and EU countries depends mainly on the level of intra–regional trade in some particular sectors. This study explores that EU–GCC trade

has definite potential to expand, especially in sectors such as the tobacco sector (SITC1), crude material, inedible, except fuels sector (SITC2), manufactured goods classified chiefly materials sector (SITC6), machinery and transport equipment sector (SITC7), and miscellaneous manufactured articles sector (SITC8). Therefore, we can conclude that the proposed FTA between GCC and EU countries can offer much trade potential.

This study, furthermore, implies that GCC and EU governments should take into consideration the potential of trade expansion when they establish the proposed FTA. More importantly, such an agreement should be of greater interest to sectors most expected to benefit from the GCC–EU FTA, as explored in this paper.

Appendix A. Tables (Source: EUROSTAT, GCC Secretariat, IMF DoTs)

Table 1

Key Characteristics of EU and GCC member countries, 2008

Key Economic Indicator	GCC	EU
GDP per capita (thousand US dollars)	28.30	30.74
Intra–regional trade (% total trade)	6.26%	34.71%
Openness	65%	65%
Nominal GDP (billion US dollars)	1059.9	18387.5

Table 2

EU Main Trading Partners, 2008

Imports			Exports			Trade		
Rank	Country	Share	Rank	Country	Share	Rank	Country	Share
1	China	16%	1	US	19.1%	1	US	15.2%
2	US	12%	2	Russia	8%	2	China	11.4%
3	Russia	11.2%	3	Switzerland	7.5%	3	Russia	9.7%
4	Norway	5.9%	4	China	6%	4	Switzerland	6.2%
5	Switzerland	5.2%	5	GCC	5.3%	5	Norway	4.7%
9	GCC	2.4%	6	Turkey	4.1%	7	GCC	3.7%

Table 3
GCC Main Trading Partners, 2008

Imports			Exports			Trade		
Rank	Country	Share	Rank	Country	Share	Rank	Country	Share
3	US	10.4%	3	US	10.2%	3	US	10.3%
4	Japan	8%	4	EU	8.1%	4	China	9.1%
5	India	6.6%	5	China	8%	5	South Korea	7.8%

Table 4
Disaggregate EU Trade with GCC

Main EU Exports to the World		
SITC Code	SITC Section	(%) of Total
SITC 7	Machinery & transportation equipment	43.5%
SITC 5	Chemicals & related products	15.4%
SITC 6	Manufactured goods classified chiefly by material	13.6%

Table 5

Main EU Exports to the GCC			
SITC Code	SITC Section	(%) of Total	(%) of Total EU Exports
SITC 7	Machinery & transportation equipment	51.8%	6.3%
SITC 6	Manufactured goods classified chiefly by material	15.7%	6.0%
SITC 8	Miscellaneous manufactured articles	11.7%	5.8%

Table 6
Aggregate Trade Results

Dependent variable: Log Export Volume	Pooled OLS	Fixed Effects	Fixed Effects
Log Distance	-1.191*** (-14.06)	-1.160*** (-13.63)	-1.191*** (-13.93)
Log GDP	1.135*** (55.71)	1.115*** (53.99)	1.125*** (54.51)
Log Per Capita GDP	-0.242*** (-7.06)	-0.242*** (-7.06)	-0.254*** (-7.25)
Language	2.125*** (8.52)	1.986*** (7.98)	1.913*** (7.61)
Border	0.042 (0.15)	0.117 (0.43)	-0.002 (-0.01)
ECA	1.031*** (7.74)	0.875*** (6.54)	1.100*** (8.22)
Landlocked	0.701*** (4.92)	0.833*** (5.61)	0.524*** (3.62)
Island	0.730*** (5.31)	0.567*** (4.13)	0.695*** (5.05)
Fixed Effects	None	Exporter	Importer
Obs.	1857	1857	1857
Adj. R2	0.6678	0.6797	0.6784

Note: The table reports t-statistic in parentheses

Regressions include exporter dummy, importer dummy, and time dummy

* Significant at 10%; ** significant at 5%; *** significant at 1%

The constant, year dummies and country fixed effects are not reported.

Table 7
Results; Beverage and Tobacco Sector (SITC 1), Crude Material,
Inedible, except Fuels Sector (SITC2)

	Beverage and Tobacco Sector (SITC 1)			Crude Material, Inedible, except Fuels Sector (SITC2)		
Dependent variable: Log Export Volume	Pooled OLS	Fixed Effects	Fixed Effects	Pooled OLS	Fixed Effects	Fixed Effects
Log Distance	-1.213*** (-9.93)	-1.214*** (-9.91)	-1.186*** (-9.47)	-1.657*** (-17.45)	-1.589*** (-16.56)	-1.657*** (-17.46)
Log GDP	0.769*** (22.43)	0.757*** (22.21)	0.748*** (21.31)	1.088*** (41.12)	1.073*** (40.28)	1.084*** (41.00)
Log Per Capita GDP	-0.106* (-1.92)	0.001 (0.01)	0.012 (0.20)	-0.640*** (-16.34)	-0.545*** (-13.31)	-0.540*** (-12.29)
Language	1.215*** (3.50)	1.346*** (3.88)	1.088*** (3.07)	0.417 (1.49)	0.341 (1.22)	0.242 (0.87)
Border	0.385 (1.09)	0.361 (1.01)	0.244 (0.68)	0.034 (0.12)	0.079 (0.28)	0.028 (0.10)
ECA	0.667*** (3.24)	0.602*** (2.93)	0.857*** (4.07)	0.610*** (3.91)	0.492*** (3.11)	0.753*** (4.83)
Landlocked	-1.042*** (-4.80)	-0.814*** (-3.51)	-1.178*** (-5.26)	-0.729*** (-4.38)	-0.468*** (-2.65)	-0.871*** (-5.20)
Island	-0.366* (-1.64)	-0.455** (-2.06)	-0.421* (-1.84)	-0.231 (-1.29)	-0.429*** (-2.40)	-0.242 (-1.37)
Fixed Effects	None	Exporter	Importer	None	Exporter	Importer
Obs.	1202	1202	1202	1428	1428	1428
Adj. R2	0.3796	0.4101	0.3929	0.5878	0.6047	0.6135

Note: The table reports t-statistic in parentheses

Regressions include exporter dummy, importer dummy, and time dummy

* Significant at 10%; ** significant at 5%; *** significant at 1%

The constant, year dummies, and country fixed effects are not reported

Table 8
Results; Mineral Fuel, Lubricants and Related Material Sector (SITC3),
Animal & Vegetable Oils, Fats & Waxes Sector (SITC4)

	Mineral Fuel, Lubricants and Related Material Sector (SITC3)			Animal & Vegetable Oils, Fats & Waxes Sector (SITC4)		
Dependent variable: Log Export Volume	Pooled OLS	Fixed Effects	Fixed Effects	Pooled OLS	Fixed Effects	Fixed Effects
Log Distance	-1.143*** (-7.05)	-1.233*** (-7.69)	-1.180*** (-7.33)	-1.299*** (-10.20)	-1.325*** (-10.24)	-1.266*** (-9.90)
Log GDP	0.644*** (12.18)	0.542*** (9.94)	0.762*** (13.89)	0.742*** (21.27)	0.617*** (15.21)	0.763*** (21.62)
Log Per Capita GDP	0.106 (0.76)	-0.235 (-1.61)	0.335*** (2.35)	-2.096 (-1.38)	-4.750** (-2.13)	3.180 (1.33)
Language	1.446*** (3.48)	1.099*** (2.62)	1.467*** (3.58)	-0.351 (-0.88)	-0.320 (-0.81)	-0.443 (-1.12)
Border	-0.258 (-0.51)	0.519 (1.03)	-0.240 (-0.48)	0.299 (0.77)	0.855** (2.10)	0.592 (1.52)
ECA	-0.439 (1.47)	-0.323 (-1.11)	-0.182 (-0.61)	-0.473** (-2.00)	-0.256 (-1.06)	-0.320 (-1.34)
Landlocked	-4.264*** (-13.69)	-4.117*** (-13.54)	-4.273*** (-13.79)	-2.340*** (-6.92)	-2.021*** (-5.90)	-2.036*** (-6.00)
Island	-3.722*** (-10.92)	-2.948*** (-8.69)	-3.408*** (-9.93)	-1.567*** (-5.08)	-0.813*** (-2.49)	-1.383*** (-4.48)
Fixed Effects	None	Exporter	Importer	None	Exporter	Importer
Obs.	935	935	935	768	768	768
Adj. R2	0.3775	0.4338	0.4030	0.4961	0.5162	0.5194

Note: The table reports t-statistic in parentheses

Regressions include exporter dummy, importer dummy and time dummy

* Significant at 10%; ** significant at 5%; *** significant at 1%

The constant, year dummies, country fixed effects not reported

Table 9
Results; Chemicals & Related Products Sector (SITC5), Manufactured Goods Classified Chiefly Materials Sector (SITC6)

	Chemicals & Related Products Sector (SITC5)			Manufactured Goods Classified Chiefly Materials Sector (SITC6)		
Dependent variable: Log Export Volume	Pooled OLS	Fixed Effects	Fixed Effects	Pooled OLS	Fixed Effects	Fixed Effects
Log Distance	-1.100*** (-13.14)	-1.128*** (-13.37)	-1.110*** (-13.07)	-1.218*** (-12.43)	-1.240*** (-12.46)	-1.158*** (-11.85)
Log GDP	0.894*** (39.70)	0.888*** (39.06)	0.910*** (39.17)	0.877*** (36.70)	0.873*** (35.92)	0.900*** (37.12)
Log Per Capita GDP	-2.013 (-1.00)	-2.013 (-0.99)	-4.480 (-0.20)	-0.157*** (-3.51)	-0.162*** (-3.53)	-0.065 (-1.41)
Language	-0.162 (-0.66)	0.475* (1.88)	0.108 (0.43)	0.555* (1.85)	0.538* (1.77)	0.731*** (2.43)
Border	-0.182 (-0.67)	-0.279 (-1.02)	-0.159 (-0.58)	-0.294 (-0.97)	-0.290 (-0.95)	-0.246 (-0.81)
ECA	0.237 (1.64)	0.171 (1.18)	0.245 (1.66)	0.513*** (3.19)	0.496*** (3.03)	0.557*** (3.50)
Landlocked	0.007 (0.04)	0.001 (0.01)	-0.025 (-0.14)	0.445*** (2.42)	0.394** (2.13)	0.499*** (2.70)
Island	0.075 (0.47)	0.153 (0.96)	0.033 (0.21)	-0.049 (-0.30)	-0.017 (-0.11)	-0.081 (-0.50)
Fixed Effects	None	Exporter	Importer	None	Exporter	Importer
Obs.	1045	1045	1045	1075	1075	1075
Adj. R2	0.6831	0.6927	0.6839	0.6245	0.6287	0.6385

Note: The table reports t-statistic in parentheses

Regressions include exporter dummy, importer dummy and time dummy

* Significant at 10%; ** significant at 5%; *** significant at 1%

The constant, year dummies, and country fixed effects are not reported

Table 10

Results; Machinery & Transport Equipment Sector (SITC7), Miscellaneous Manufactured Articles Sector (SITC8)

	Machinery & Transport Equipment Sector (SITC7)			Miscellaneous Manufactured Articles Sector (SITC8)		
Dependent variable: Log Export Volume	Pooled OLS	Fixed Effects	Fixed Effects	Pooled OLS	Fixed Effects	Fixed Effects
Log Distance	-1.194*** (-11.04)	-1.206*** (-11.07)	-1.149*** (-10.74)	-1.161*** (-11.71)	-1.149*** (-11.50)	-1.158*** (-11.49)
Log GDP	0.995*** (37.58)	0.990*** (36.90)	1.039*** (38.33)	0.936*** (38.43)	0.914*** (36.60)	0.946*** (37.36)
Log Per Capita GDP	0.144*** (2.98)	0.144** (2.33)	0.216** (4.36)	0.112*** (2.47)	0.124*** (2.68)	0.127*** (2.70)
Language	0.799*** (2.42)	0.913*** (2.73)	1.013*** (3.09)	0.389 (1.39)	0.509* (1.79)	0.388 (1.34)
Border	-0.066 (-0.20)	-0.032 (-0.09)	-0.097 (-0.29)	0.038 (0.14)	0.070 (0.25)	-0.045 (-0.15)
ECA	0.325* (1.89)	0.252 (1.46)	0.360** (2.12)	0.609*** (3.67)	0.592*** (3.50)	0.630*** (3.72)
Landlocked	0.239 (1.11)	0.192 (0.89)	0.267 (1.26)	-0.115 (-0.58)	-0.114 (-0.56)	-0.066 (-0.32)
Island	0.686*** (3.93)	0.762*** (4.36)	0.707*** (4.10)	0.961*** (5.69)	0.952*** (5.60)	0.932*** (5.38)
Fixed Effects	None	Exporter	Importer	None	Exporter	Importer
Obs.	1067	1067	1067	1066	1066	1066
Adj. R2	0.6552	0.6638	0.6721	0.6563	0.6613	0.6571

Note: The table reports t-statistic in parentheses

Regressions include exporter dummy, importer dummy and time dummy

* Significant at 10%; ** significant at 5%; *** significant at 1%

The constant, year dummies, and country fixed effects are not reported

Appendix B. Countries in Sample

Austria	Belgium	Bulgaria	Cyprus	Czech Republic
Denmark	Estonia	Finland	France	Germany
Greece	Hungary	Ireland	Italy	Latvia
Luxembourg	Lithuania	Malta	Netherlands	Poland
Portugal	Romania	Slovakia	Slovenia	Spain
Sweden	United Kingdom	Kuwait	Saudi Arabia	Bahrain
UAE	Qatar	Oman		

Appendix C. Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Log Trade	23860	18.4311	3.24343	3.04452	26.2566
Log GDP	23278	51.0601	2.84040	42.2717	59.4994
Log GDP per Capita	23122	18.8475	1.51769	12.8978	22.64415
Log Distance	22713	7.80704	0.91211	4.304065	9.713778
Cooperation Agreement	23396	0.50363	0.49999	0	1
Language	23396	0.04650	0.21057	0	1
Border	23396	0.04269	0.20218	0	1
Landlock	23396	0.10749	0.30975	0	1
Island	23396	0.16609	0.37217	0	1

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