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# The rise of GCC-East Asian trade: A cointegration approach to analysing trade relationships

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## Abstract

The economic relationship between the Gulf Cooperation Council states and the countries of East Asia has grown in significance in recent years at the expense of the European Union and the USA. Empirical analysis of GCC-East Asian trade indices shows that East Asian states now dominate GCC trade flows and a number of GCC-East Asian Free Trade Agreements are cementing the long-term economic ties between the two regional blocs, which are based on the complementarity of their economic structures and comparative advantage. Within East Asia, Japan is increasingly having to compete with China and India for both security of energy supplies from the GCC and to supply GCC markets with their manufactured exports. Using a new approach to analysing trade relationships, we utilise cointegration techniques to analyse GCC trade patterns over time. We find econometric evidence of a long-term trade relationship between the GCC states and those of East Asia, in particular China, whose continued economic growth has allowed the GCC bloc to diversify its economic and political dependence away from North America and ‘look East’ for new strategic alliances.

## KEYWORDS

economic integration, economywide country studies—Asia including the Middle East, empirical studies of trade, energy demand and supply

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## 1 | INTRODUCTION

In recent decades, the world has witnessed East Asia's (EA) growing influence in the global economy and in world energy markets. This is especially the case with China and India, being the first and third largest energy consumers in the world (EIA, 2021a, 2021b). The emergence of EA as a global growth pole has been especially significant for the oil and gas exporting Gulf Cooperation Council<sup>1</sup> states. The growing significance of EA as an economic region vis-à-vis Europe or North America (see Table 1) has been a major influence on the direction of GCC trade, and investment, in recent decades.

This paper examines the empirical evidence that a symbiotic, economic relationship has emerged between the energy-hungry East Asian countries and the hydrocarbon-exporting GCC states as a result not only of geographic proximity but also of their complementary economic structures and comparative advantages. The rise in demand by East Asian countries, especially China, Japan, India and Korea, for secure energy sources is a key element in the strengthening economic relationship, whilst EA is also able to supply manufactured imports which GCC states do not produce in sufficient quantity and quality. Barriers to trade with many Asian states are also being rapidly dismantled. The GCC chambers of commerce already have a tacit 'look East' policy in place and a number of free trade agreements with East Asian states are being negotiated and fast-tracked for completion free from the 'political baggage' of ties with other blocs such as the USA and the European Union (EU) (Table 2).

The purpose of this paper is to explore the nature and extent of the trading relationship between the GCC states and EA compared with its trade with the USA and EU, as well as examining the underlying foundations of the trade linkages. Our empirical analysis of the GCC's trading relationships with its trading partners will be based on (a) traditional descriptive indicators such as shares of trade and trade intensity ratios and (b) adopting a new approach by testing for the presence of a long-term trade relationship through cointegration analysis.

TABLE 1 GCC trading partner average GDP growth rates in per cent

| East Asian State | 1980–1989 | 1990–1999 | 2000–2009 | 2010–2019 |
|------------------|-----------|-----------|-----------|-----------|
| China            | 9.7       | 9.5       | 10.3      | 7.8       |
| Hong Kong        | 7.4       | 3.5       | 4.2       | 2.4       |
| India            | 5.5       | 5.8       | 6.9       | 7.1       |
| Indonesia        | 6.5       | 5.2       | 5.3       | 5.4       |
| Japan            | 4.4       | 1.8       | 0.5       | 0.6       |
| South Korea      | 8.9       | 7.3       | 4.9       | 3.1       |
| Malaysia         | 5.9       | 7.4       | 4.7       | 4.7       |
| Philippines      | 2.0       | 3.1       | 4.5       | 6.0       |
| Singapore        | 7.8       | 7.5       | 5.4       | 4.5       |
| Thailand         | 7.2       | 6.0       | 4.3       | 3.3       |
| Vietnam          | 5.0       | 7.4       | 6.9       | 6.4       |
| EU6              | 2.3       | 2.3       | 1.5       | 1.3       |
| USA              | 3.1       | 3.2       | 2.3       | 2.3       |

Source: Calculated by authors using International Monetary Fund (2020).

**TABLE 2** GCC-East Asian Free Trade Agreements Completed and Under Negotiation

|             | Status                                       | Details  |
|-------------|--|--|
| China       | Under negotiation                            | Framework Agreement on Economic Cooperation signed 2004. A ninth round of FTA negotiations took place in 2016.   |
| India       | Under negotiation                            | Framework Agreement on Economic Cooperation signed 2004. A second round of FTA negotiations took place in 2008.  |
| Japan       | Under negotiation, early announcement to WTO | Second round of negotiations was held in January 2007, a third round in 2008 and a fourth in May 2009.   |
| South Korea | Under negotiation                            | Preliminary talks between Korea and GCC were held in November 2007 in Riyadh. A third round of negotiations took place in Seoul in July 2009, WTO not yet notified.  |
| Singapore   | Negotiations concluded, signed 2008          | GCC-Singapore Free Trade Agreement (GSFTA) took approximately 1 year to negotiate, first round took place in January 2007 and four rounds of negotiations were held. |

Source: Compiled by authors as of October 2020.

## 2 | UNDERLYING DETERMINANTS OF GCC TRADE PATTERNS

There is a growing emerging body of research on the strengthening economic ties between the GCC and EA and its significance. Qian and Fulton (2017) argue that the GCC and China have become increasingly economically interdependent with growing trade and investment consolidated by policy initiatives such as progress on a Chinese-GCC FTA and China's 'Belt and Road' initiative. In addition to the strong extant trade linkages based on China's energy needs, Young (2019) presents evidence that both sides are heavily investing in future economic ties. It is argued that the GCC's orientation towards China, and Asia, involves a longer term strategy to develop its downstream added value derivatives and petrochemical markets in the region in a bid to diversify away from dependence on exporting hydrocarbons (Young, 2019).

Ehteshami (2020) contends that since the 1980s, mutual dependency between the Gulf states and Asia has significantly grown and that 'supplier and consumer needs' is shaping their economic behaviour (Ehteshami, 2020, p. 182). Furthermore, according to Nonneman (2006), expanding trade relations with non-US partners has also helped the GCC diversify the trade portfolio and thus reduce dependence on the USA, a desirable outcome for mainly political reasons.

As some of the world's lowest cost suppliers of oil and gas and in close geographical proximity to Asia, the GCC has a competitive advantage in exporting to the region. Javid et al. (2018) explored the role of oil prices, oil price volatility and the real exchange rate on bilateral trade flows between GCC states and Northeast Asian countries. They found that oil consumption in Northeast Asia had a significant positive influence on the GCC's exports to that region. Irshad et al. (2017) examined China's pattern of trade with OPEC member states over the period 1990–2016 using a gravity model and found that GDP per capita and trade openness were significant determinants. Another driving force behind GCC trading patterns (particularly Asian exports to the region) has been the strong immigration flows from South East Asia (Karayil, 2016). Hence, trade relations with countries like India and the Philippines are strengthening (Alam & Ahmed, 2017).

Extant research has shown that geographical proximity plays an important role in determining trade patterns (Bahar et al., 2014). Other determinants include institutional homogeneity and quality (De Groot et al., 2004) technological innovation (Soete, 1987) and preferential trading agreements

(Khayat, 2019). The latter have the potential to substantially increase trade through lowering barriers to trade such as tariffs and transaction costs. GCC trade policy also favours preferential deals with Asian states. Khayat (2019) found that a reduction in trade barriers through preferential agreements was a significant determinant of bilateral trade flow for the GCC states. To date, the only free trade agreement (FTA) to be signed by the GCC as a bloc is with Singapore, concluded in January 2008.

Several Asian states are in the process of negotiating trade and investment agreements with GCC states, which suggests there is great potential for economic integration to develop further in the future, at the expense of those relationships between the GCC and the EU and USA, neither of whom have concluded FTAs with the GCC as a bloc. The USA has preferred to negotiate bilaterally with the GCC states but only managed to sign deals with the smallest GCC economies—those of Bahrain and Oman. In 2012, a US-GCC Framework for Trade, Economic, Investment and Technical Cooperation was agreed. An FTA with the EU has faced decades of protracted delays only to be suspended in 2009 reportedly over EU ‘human rights’ concerns (Sreekumar, 2009). Trade and investment deals with Asia apparently do not carry the ‘political baggage’ of those with other economic blocs.

China and India have signed economic cooperation agreements with the GCC and Japan and Korea are still continuing with their FTA negotiations (see Table 2). In 2004, China signed a Framework Agreement on Economic, Trade, Investment and Technological Cooperation (Antkiewicz & Whalley, 2005) and began negotiating a free trade agreement, with the ninth round occurring in 2016.

In 2004 Japan's Ambassador to Bahrain, Takao Natsume, said that Japan had proposed a FTA with the GCC governments and that an FTA with the GCC states would be apparently ‘relatively easy to negotiate’ (Khonji, 2005). In January 2007, a second round of negotiations took place and in late 2008 Japanese business sources reported that an agreement was close.

The process of intra-regional economic integration among GCC states has also impacted their trade patterns, although not as much as might be expected. Since the EU came into formation, the GCC states became increasingly interested in liberating regional trade through regional economic integration policies culminating in the establishment of a common market in 2008 (Rutledge, 2012). Despite its shortcomings, regionalism is beneficial when the regional trading partners form a coherent group (Lee et al., 2008), and it can also form a firm foundation for multilateral trade liberalisation (Baldwin, 1997). With the main export of the GCC states, being oil and its derivatives intra-regional opportunities for trade growth have however been limited and trade within the region remains relatively low (Ganguli, 2018). In addition, regional disputes have often weakened the GCC as a bloc and further worsened its future prospects (Baabood, 2018). Sahib and Kari (2012) stress the important role of Saudi Arabia in terms of regional trade but find that economic integration with non-GCC countries has been stronger in the last few years than among GCC members. Hence, GCC states have mainly looked for their trade partners outside of the Gulf region, in an effort to improve economic growth outcomes (Akhtar & Rouis, 2010; Alam & Ahmed, 2017).

### 3 | GCC TRADE ANALYSIS—A DESCRIPTIVE APPROACH

Empirical evidence indicates that Asian states are now indisputably the GCC's most important trading partners. In 2019, EA<sup>2</sup> constituted the GCC's largest export market with, 51.6 per cent of exports destined for the region and imports from EA accounting for more than a third of the GCC total, at 35.6

<sup>2</sup>East Asia is defined as China PR Hong Kong, China PR Macao, China PR Mainland, India, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Thailand and Vietnam and Japan.

**TABLE 3** Changing destination of GCC exports (% share of total exports)

|                         | East Asia | EU6 <sup>a</sup> | USA   | GCC  | RoW   |
|-------------------------|-----------|------------------|-------|------|-------|
| 1980                    | 32.4%     | 30.1%            | 11.7% | 3.0% | 22.8% |
| 1990                    | 38.8%     | 13.0%            | 14.3% | 8.0% | 25.9% |
| 2000                    | 57.8%     | 4.8%             | 7.0%  | 8.5% | 21.9% |
| 2009                    | 55.3%     | 4.6%             | 5.4%  | 9.3% | 25.4% |
| 2019                    | 51.6%     | 5.8%             | 3.1%  | 5.9% | 33.6% |
| Share change since 1980 | 19.2%     | -24.3%           | -8.6% | 2.9% | 10.8% |
| CAGR 1980–2019          | 4.9%      | -0.6%            | 0.2%  | 5.5% | 3.7%  |

<sup>a</sup>The EU6 are the founding members of the European Union and are Germany, France, Italy, Spain, UK and Netherlands, the six largest European economies by GDP. At the time of analysis the UK was still a member of the EU.

Source: Calculated by authors using International Monetary Fund (2020).

**TABLE 4** Changing destination of GCC imports (% share of total imports)

|                         | East Asia | EU6    | USA   | GCC  | RoW   |
|-------------------------|-----------|--------|-------|------|-------|
| 1980                    | 25.9%     | 31.5%  | 16.7% | 6.6% | 19.3% |
| 1990                    | 26.7%     | 28.9%  | 13.0% | 8.4% | 23.1% |
| 2000                    | 29.3%     | 26.9%  | 12.4% | 7.5% | 23.9% |
| 2010                    | 28.7%     | 15.5%  | 8.6%  | 7.0% | 40.2% |
| 2019                    | 35.6%     | 16.0%  | 9.3%  | 7.0% | 27.4% |
| Share change since 1980 | 9.7%      | -15.5% | -7.4% | 0.4% | 8.1%  |
| CAGR 1980–2019          | 7.1%      | 4.4%   | 4.7%  | 7.8% | 6.2%  |

Source: Calculated by authors using International Monetary Fund (2020).

per cent. Indeed, the vast majority of GCC exports have gone to EA since the start of the millennium (see Tables 3 and 4).

In terms of dynamics, GCC exports to EA have significantly risen as a share of total GCC exports since the early 1980s, today EA stands as the major destination for GCC exports having overtaken exports to the EU in 1982. In 1980, GCC exports to Asia formed 32.4 per cent of their total exports, by 2000 GCC exports to EA had grown significantly to reach the majority of their total exports. In 2019, the share of GCC exports to Asia (51.6 per cent) was sixteen times greater than that to the USA, and nine times greater than exports to the six largest EU economies<sup>3</sup> (3.1 and 5.8 per cent respectively, see Table 3).

Between 1980 and 2019, GCC exports to EA grew at an annual growth rate of 4.9 per cent comparable only to that of intra-regional GCC exports (see Table 3), which benefited from preferential intra-regional trade policies such as the launch of a customs union and common market. In stark contrast GCC exports to the EU6 actually declined by an annual rate of -0.6 per cent over this period as negotiations for a FTA between the GCC and EU faltered over petrochemical markets and human rights. GCC exports to the USA grew but by a negligible amount at just 0.2 per cent over the same period. As the USA became a net oil exporter in 2019, following the oil shale revolution which began in 2011 and allowed the USA to become less dependent on Middle East oil suppliers (Crooks, 2015).

<sup>3</sup>EU6 economies are Germany, France, Italy, Spain, the UK and the Netherlands, the six largest European economies by GDP. At the time of writing, the UK was still a member of the European Union.

TABLE 5 GCC OPEC members' crude oil exports to Asia Pacific as a Share of GCC total crude oil exports

|      | Kuwait | Qatar              | KSA   | UAE   |
|------|--------|--------------------|-------|-------|
| 2000 | 56.8%  | 91.2%              | 46.4% | 98.0% |
| 2002 | 70.6%  | 95.6%              | 49.6% | 97.6% |
| 2004 | 77.8%  | 98.7%              | 50.8% | 98.4% |
| 2006 | 82.2%  | 99.8%              | 56.3% | 97.1% |
| 2008 | 82.7%  | 100%               | 58.5% | 97.3% |
| 2010 | 83.8%  | 98.3%              | 64.1% | 95.6% |
| 2012 | 82.1%  | 99.7%              | 60.6% | 92.6% |
| 2014 | 77.7%  | 100.0%             | 61.7% | 98.0% |
| 2016 | 77.2%  | 99.6%              | 65.9% | 98.1% |
| 2018 | 85.3%  | 98.3% <sup>a</sup> | 67.6% | 98.7% |

Note: Bahrain and Oman are non-OPEC members and are therefore data is not available. Asia and Pacific includes People's Republic of China (PRC), Hong Kong Special Administrative Regions, Macau and Japan among other countries.

<sup>a</sup>Qatar data only available for 2017.

Source: Calculated by authors using OPEC Annual Statistical Bulletins, 1999–2019 (OPEC, 1999–2020).

TABLE 6 Top five global trade partners with GCC in 2019

| Rank | GCC Exports | GCC Imports        |
|------|-------------|--------------------|
| 1    | China       | China <sup>a</sup> |
| 2    | India       | EU6                |
| 3    | Japan       | GCC                |
| 4    | GCC         | US                 |
| 5    | EU6         | India              |

<sup>a</sup>China's ranking is vis-a-vis the EU6 however, the EU as a bloc was the only regional grouping to supersede China in terms of GCC imports in 2019.

Source: Calculated by authors using International Monetary Fund (2020).

Increasing demand for hydrocarbons—the GCC's main export (constituting on average 72 per cent of their exports in 2019<sup>4</sup>)—is at the heart of increasing GCC exports to EA. In particular, China and India constitute rapidly growing markets for GCC oil and gas, although at present Japan absorbs the largest share, and in some cases, the majority of GCC oil sales to Asia. In all of the GCC OPEC member states, oil exports to 'Asia and Pacific'<sup>5</sup> form the majority share of their oil exports; in 2018, the share was as high as 98.7 per cent in the UAE, 98.3 per cent in Qatar and 85.3 per cent in Kuwait (Table 5) and within the Asia and Pacific bloc oil exports to Japan predominate—at more than a third in all three aforementioned GCC states. Since 1983, Japan has ranked among the GCC's top five global export partners (Table 6), and in 2019, within Asia ranked third behind India and China (Table 7).

Cooperation and greater linkages between the GCC and EA in the oil sector is thus a key element to ensuring both security of supply for Asian consumers and of demand for GCC oil producers. EA's demand for GCC hydrocarbon exports has risen considerably as these states have sought to fuel their economic industrial development and motorisation of society. At present, it is estimated that EA oil consumption

<sup>4</sup>Authors calculations using The World Bank (2022) dataset.

<sup>5</sup>The 'Asia and Pacific' region used in OPEC's Annual Statistical Bulletin includes East Asian states, Japan and Australia. A breakdown of this data illustrates that Japan is the largest recipient within Asia and Pacific for GCC oil exports.



TABLE 7 Top five East Asian states trade with GCC in 2019

| Rank | GCC Exports | GCC Imports |
|------|-------------|-------------|
| 1    | China       | China       |
| 2    | India       | India       |
| 3    | Japan       | Japan       |
| 4    | Korea       | Korea       |
| 5    | Singapore   | Thailand    |

Source: Calculated by authors using International Monetary Fund (2020).

(34.2 mn barrels per day (bpd)) accounts for almost 35 per cent of the world's oil consumption (British Petroleum, 2020). This is forecast to grow considerably in the coming years as fast-growing Asian states, in particular China, bounce back from the world financial crisis and global COVID-19 pandemic. In 2009, British Petroleum forecast that China would require 14 million barrels of oil per day by 2025, in fact by 2019, it had already reached that level of consumption. Whilst China is attempting to change its energy mix in order to combat air pollution problems and is investing heavily in the production of renewable energy, nevertheless, its demand for oil is predicted to rise to 17–18 million barrels per day of oil by 2040 (Meidan, 2020). Such growth would lead to further economic interdependence between the GCC and China, as according to the US Energy Information Administration, in 2019, 30 per cent of China's crude oil imports came from GCC states, more than any other individual or regional grouping (EIA, 2021a).

The GCC states are also a relatively important export market for Asian goods, if not in gross terms certainly in per capita terms. In recent years, China, India and Japan have benefited from increasing GCC demand for their products, to the detriment of the USA and, albeit to a lesser extent, the EU. GCC imports from EA formed 26 per cent of their total imports in 1980; by 2019, this had risen to 36 per cent (see Table 4), more than the share of imports arriving from the EU6 at 16 per cent and much greater than that from the USA or GCC neighbours at 9.3 per cent and 7 per cent, respectively.

The increasing penetration of Asian imports into GCC markets is perhaps not surprising; given Asia's increasing share in global trade generally, East Asian exports accounted for about 30 per cent of global trade flows in 2019 climbing from about 16 per cent at the beginning of the 1980s (Rodrigue, 2020). Nevertheless, during the period of analysis, 1980–2019, the growth rate of GCC imports from EA was higher than all other regional groupings at an annual growth rate of 7.1 per cent, with the exception of intra-GCC trade growth.

The GCC's main imports from Asia are manufactured goods, motor vehicles, electronic products and textiles. Japan's main exports to the GCC are manufactured goods, consisting primarily of cars, vehicle parts and transport-related equipment. Japanese-made cars are highly regarded in the GCC states. Yet, other East Asian economies are rapidly catching up with Japan and competing for a bigger share of the Gulf markets.

The import dynamics between the GCC and the Asian states indicate a dominance of China and India and a declining importance of mature markets, such as Japan. In 2006, China overtook Japan to become the GCC's main Asian import partner, and in 2009, India overtook Japan as well (see Table 6). China is also increasingly dominating GCC imports on a global level as well, overtaking the USA in 2008, and the EU6 in 2017 (see Table 7).

The trading relationship has also benefitted from a stable exchange rate. The GCC currencies are all pegged against the US dollar (with the exception of Kuwait, which is pegged against a basket of currencies including the US dollar). Up to 2005, the renminbi was officially pegged to the US dollar and currently operates a managed float with reference to a basket of currencies including a dollar component (Das, 2019).



TABLE 8 Annualised growth rates of GCC imports from East Asian states

| East Asian State | 1980–1989 | 1990–1999 | 2000–2009 | 2010–2019 |
|------------------|-----------|-----------|-----------|-----------|
| China            | 4.8%      | 10.1%     | 27.6%     | 11.7%     |
| Hong Kong        | −3.5%     | 12.6%     | 26.8%     | 12.9%     |
| India            | 2.6%      | 13.9%     | 28.7%     | 2.6%      |
| Indonesia        | 28.2%     | 12.3%     | 10.3%     | 6.2%      |
| Japan            | −4.0%     | 1.1%      | 10.9%     | 2.0%      |
| South Korea      | 2.9%      | 7.6%      | 17.1%     | 2.5%      |
| Malaysia         | 7.8%      | 13.0%     | 22.2%     | 0.4%      |
| Philippines      | 1.3%      | 7.2%      | 14.0%     | 7.7%      |
| Singapore        | −2.6%     | 8.3%      | 23.7%     | 4.7%      |
| Thailand         | 12.0%     | 3.9%      | 23.4%     | 2.4%      |
| Vietnam          | −28.5%    | 38.1%     | 45.8%     | 38.3%     |

Note: Data are not available for Taiwan.

Source: Calculated by authors using International Monetary Fund (2020).

The average annualised growth rate of GCC imports from EA grew most rapidly during the decade 2000–2009, with annualised import growth rates as high as 27.6 per cent from China compared to 10.9 per cent for Japan. This coincides with the decade when EA growth rates were also highest on average (see Table 1). Whereas in the last decade, 2010–2019, the growth rate of GCC imports from EA had fallen to just 2 per cent for Japan but still remained high for China at 11.7 per cent and for other countries such as Vietnam were as high as 38.3 per cent (see Table 8).

Looking forward, the rapid economic growth of China and India is expected to continue and rebound after the COVID-19 pandemic, and therefore, we are likely to see an increasing penetration of their import products into GCC markets. Despite Japan's firm hold on the automobile market in the GCC states, China is increasingly competing with Japan and South Korea in terms of high-skill, capital intensive manufactures such as computers and other electrical equipment. Electrical goods from China and India are already significant imports into the UAE, the GCC's most dynamic trading and re-export hub. Yet, the majority of the GCC's imports from India have tended to be non-fuel primary commodities such as diamonds, rice and resource-intensive manufactures such as textiles and clothing. UAE Imports of precious metals and stones from China and India were also bolstered by the establishment of the Dubai Gold and Commodities Exchange (DGCX)—a joint venture between the Government of Dubai and India's Multi Commodity Exchange—which opened for trading in November 2005.

#### 4 | GCC TRADE INTENSITY RATIOS

One statistical index, which can be used to measure the strength of the trading relationship between two nations (or two blocs), is the trade intensity ratio. This measures the strength of bilateral trade between two states in relation to one particular country's trade with the world. It can be calculated to assess either export intensity or import intensity. It is specifically defined as the share of one country's

TABLE 9 GCC import and export intensity ratios 1980–2019

|               | Export Intensity Ratios |      |      |      |      | Import Intensity Ratios |      |      |      |      |
|---------------|-------------------------|------|------|------|------|-------------------------|------|------|------|------|
|               | 1980                    | 1990 | 2000 | 2010 | 2019 | 1980                    | 1990 | 2000 | 2010 | 2019 |
| China         | 0.06                    | 0.11 | 1.86 | 0.84 | 1.11 | 1.15                    | 0.78 | 0.93 | 0.75 | 1.22 |
| India         | 1.26                    | 4.25 | 8.55 | 4.96 | 4.37 | 3.72                    | 3.39 | 6.94 | 5.39 | 4.04 |
| Japan         | 3.43                    | 3.84 | 3.84 | 3.72 | 3.00 | 2.70                    | 1.58 | 1.61 | 1.19 | 1.29 |
| Korea         | 2.95                    | 2.34 | 4.67 | 3.47 | 2.68 | 2.84                    | 1.81 | 1.86 | 0.89 | 0.72 |
| Singapore     | 2.95                    | 3.09 | 2.19 | 2.36 | 2.34 | 1.80                    | 0.96 | 0.85 | 0.48 | 0.53 |
| Thailand      | 2.05                    | 0.97 | 3.20 | 2.89 | 2.03 | 1.40                    | 2.25 | 1.32 | 1.15 | 0.93 |
| Indonesia     | 1.37                    | 0.42 | 1.64 | 0.78 | 1.00 | 0.04                    | 1.09 | 1.90 | 0.65 | 0.81 |
| Malaysia      | 0.75                    | 0.28 | 0.71 | 0.79 | 0.97 | 0.32                    | 0.79 | 0.83 | 0.79 | 0.55 |
| Philippines   | 1.92                    | 3.59 | 1.46 | 1.27 | 0.56 | 0.37                    | 0.59 | 0.30 | 0.30 | 0.39 |
| Vietnam       | 0.00                    | 0.06 | 0.86 | 0.29 | 0.14 | 1.06                    | 0.07 | 0.17 | 0.32 | 1.20 |
| East Asia     | 1.52                    | 1.44 | 2.67 | 1.78 | 1.63 | 1.26                    | 1.24 | 1.36 | 1.05 | 1.21 |
| United States | 0.94                    | 0.98 | 0.40 | 0.42 | 0.24 | 1.35                    | 1.11 | 1.20 | 1.08 | 1.11 |
| EU 6          | 0.96                    | 0.39 | 0.17 | 0.22 | 0.26 | 1.11                    | 0.89 | 0.98 | 0.71 | 0.77 |

Source: Calculated by authors using International Monetary Fund (2020).

exports (imports) going to (coming from) a partner divided by the share of world exports (imports) going to (coming from) that partner.<sup>6</sup>

In 2019, the import intensity ratio between the GCC and EA collectively was 1.21, greater than 1 and therefore indicating a level higher than normally expected, as compared to a ratio of 1.11 with the USA and less than one at 0.77 with the EU6 states. The export intensity ratio of the GCC states to those EA ones was much higher at 1.63, especially when compared to the low export intensity ratios with the USA and EU6 again at 0.24 and 0.26, respectively (see Table 9).

An examination of import intensities reveals that India has the highest import intensity ratios for all six GCC states, followed by Japan in each state with the exception of Qatar and Oman (see Table 10). Import intensities with China are lower than might have been expected, being greater than one only in the case of Saudi Arabia, the UAE and Kuwait—the GCC's largest economies and oil producers.

TIRs for GCC exports to EA are also often bigger than expected, in particular between the OPEC members and Japan and Korea, again reflecting the importance of hydrocarbon exports (see Table 11). In particular, Qatar had exceptionally high TIRs (more than five) with India, Japan and Korea, which are its main Asian markets for Liquefied Natural Gas exports. For Bahrain—a GCC non-OPEC member—TIRs with India and Thailand were particularly large and Oman, despite being a non-OPEC member also had its highest ratios with China and Korea.

The results of our analysis also suggest that GCC trade with EA is stronger than that with the USA or EU6, particularly with respect to exports but also for imports. Furthermore, the TIRs indicate that the trade relationship with EA is particularly strong for those GCC OPEC members reflecting the importance of exporting hydrocarbons to EA markets and to their traditional trading partners in Asia such as Japan, whilst it appears that India has emerged as a significant import market for the GCC states and reflecting the large and growing migrant community from South East Asia (Rutledge, 2018).

<sup>6</sup>The export intensity ratio (EIR) is calculated as:  $T_{ij} = (x_{ij}/X_{it})/(x_{wj}/X_{wt})$  where  $x_{ij}$  and  $x_{wj}$  are the values of country  $i$ 's exports and of world exports to country  $j$  and where  $X_{it}$  and  $X_{wt}$  are country  $i$ 's total exports and total world exports respectively.

TABLE 10 GCC import intensity ratios, 2019

|               | Bahrain | Kuwait | Oman | Qatar | KSA  | UAE  |
|---------------|---------|--------|------|-------|------|------|
| China         | 0.82    | 1.20   | 0.41 | 0.89  | 1.42 | 1.24 |
| India         | 3.37    | 3.07   | 4.11 | 3.15  | 2.70 | 5.26 |
| Japan         | 1.49    | 1.50   | 0.24 | 0.78  | 1.16 | 1.40 |
| Korea         | 0.67    | 1.20   | 0.62 | 0.40  | 0.90 | 0.49 |
| Singapore     | 1.08    | 0.31   | 0.50 | 0.75  | 0.70 | 0.49 |
| Thailand      | 0.98    | 0.81   | 0.57 | 0.83  | 1.22 | 0.86 |
| Indonesia     | 0.58    | 0.60   | 0.59 | 0.67  | 1.36 | 0.66 |
| Malaysia      | 0.49    | 0.49   | 0.34 | 0.74  | 0.41 | 0.64 |
| Philippines   | 0.42    | 0.40   | 0.08 | 0.57  | 0.42 | 0.38 |
| Vietnam       | 0.67    | 0.88   | 0.05 | 0.54  | 0.71 | 1.78 |
| East Asia     | 0.94    | 1.15   | 0.66 | 0.92  | 1.26 | 1.31 |
| United States | 0.74    | 1.03   | 0.23 | 2.24  | 1.39 | 0.95 |
| EU 6          | 0.71    | 0.86   | 0.40 | 1.16  | 0.78 | 0.71 |

Source: Calculated by authors using International Monetary Fund (2020).

TABLE 11 GCC export intensity ratios, 2019

|               | Bahrain | Kuwait | Oman | Qatar | KSA  | UAE  |
|---------------|---------|--------|------|-------|------|------|
| China         | 0.66    | 0.09   | 3.08 | 1.00  | 1.42 | 0.60 |
| India         | 1.08    | 0.64   | 2.54 | 5.02  | 4.33 | 5.01 |
| Japan         | 0.10    | 0.00   | 1.00 | 5.38  | 2.97 | 3.03 |
| Korea         | 0.56    | 0.02   | 3.15 | 6.10  | 3.13 | 1.41 |
| Singapore     | 1.05    | 0.05   | 1.12 | 4.35  | 1.92 | 2.65 |
| Thailand      | 1.73    | 0.01   | 0.26 | 3.37  | 1.62 | 2.59 |
| Indonesia     | 0.18    | 0.02   | 0.17 | 0.70  | 1.37 | 0.95 |
| Malaysia      | 0.38    | 0.02   | 0.43 | 0.30  | 1.07 | 1.27 |
| Philippines   | 0.07    | 0.02   | 0.08 | 0.24  | 0.59 | 0.77 |
| Vietnam       | 0.11    | 0.04   | 0.31 | 0.09  | 0.15 | 0.11 |
| East Asia     | 0.69    | 0.12   | 2.29 | 2.13  | 1.81 | 1.36 |
| United States | 0.78    | 0.00   | 0.12 | 0.11  | 0.40 | 0.13 |
| EU 6          | 0.14    | 0.01   | 0.03 | 0.35  | 0.42 | 0.14 |

Source: Calculated by authors using International Monetary Fund (2020).

## 5 | LONG-TERM GCC TRADE RELATIONSHIPS: A COINTEGRATION APPROACH

Cointegration analysis enables us to examine the strength of the trading relationships over time and to assess the extent of trade interdependency.<sup>7</sup> If GCC exports over time to EA economies have been on a long-term rising trend and at the same time EA exports to the GCC have risen, then this implies

<sup>7</sup>Note that we have included the UK in the EU6 group, since the data refers to the period before Brexit, when the UK was a full member of the EU.



TABLE 12 Country Groups in the Data Sample

| Group Name | DOTS Countries in Group  |
|------------|--|
| GCC        | Bahrain<br>Kuwait<br>Oman<br>Qatar<br>Kingdom of Saudi Arabia<br>United Arab Emirates  |
| East Asia  | China PR Hong Kong<br>China PR Macao<br>China PR Mainland<br>India<br>Indonesia<br>Japan<br>Korea<br>Malaysia<br>Philippines<br>Singapore<br>Thailand<br>Vietnam |
| EU6        | France<br>Germany<br>Italy<br>Netherlands<br>Spain<br>United Kingdom   |
| USA        | United States of America   |
| China      | China PR Hong Kong<br>China PR Macao<br>China PR Mainland  |

trade between these two blocs exhibits a long-run equilibrium relationship. Whilst either trade time series may deviate in the short run, they will ultimately return to their long-term cointegrating path. The intuition behind using the cointegration model is that if the GCC and EA's trading relationship is based on the foundation of complimentary economic structures and mutual comparative advantage, then over time their exports to each other will continue to grow and follow a long-term relationship. Without the underlying economic rationale to trade with the EU6 or USA, we would not expect there to be such a relationship.

Our methodological approach includes using Johansen and Juselius (1990). The modelling approach is based on an unrestricted Vector autoregression (VAR) model and includes an error correction term. Using data from the IMF's Direction of Trade Statistics (DOTS) database,<sup>8</sup> we select the pairwise values of total exports<sup>9</sup> between the individual countries that form our country groups for years with available data spanning 1981 to 2019 (see Table 12 for the group definitions).

The first step is to test for stationarity, using the Augmented D-F (ADF) (Dickey & Fuller, 1979; Said & Dickey, 1984) and Phillips–Perron (PP) tests (Phillips & Perron, 1988). All tests showed that the data series are non-stationary, and thus, cointegration analysis is appropriate. Since the Johansen test can yield spurious results, under the null hypothesis of no cointegration, we confirm the results using the Phillips–Ouliaris distributions (Phillips & Ouliaris, 1990). The existence of a long-term converging relationship is tested using an unrestricted VAR model with error correction (VECM). The error correction term is necessary, because a simple VAR in first differences will be misspecified.

The general form of our model is:

$$\Delta Y_t = \sum_{i=1}^n \vartheta_i(L) \Delta \ln(Y_{t-i}) + \sum_{i=1}^n \vartheta_i(L) \Delta \ln(X_{t-i}) + \pi ECM_{t-1} + u_t \quad (1)$$

where  $L$  is the lag operator,  $n$  is the number of lags, and  $ECM_{t-1}$  is the error correction term (ECM) derived from the long-run relationship and is a stationary variable. We compute this model using Newey–West (Newey & West, 1987) estimators for the covariance matrix.

We perform 12 pairwise regression sets using the natural logs of exports from each of the group to all the other groups in our data sample. Each regression set included both causality directions, resulting in 24 regressions using the VECM specification of Equation 1. By performing coefficient tests on the regression outcomes, we were able to determine the significant coefficients in the cointegrating relationship (see Table 13).

Our analysis confirms the findings of our descriptive analysis and indicates that a long-run cointegrating relationship exists between the trade flows of the GCC and EA. Causality seems to be unidirectional, meaning that changes in EA exports towards GCC drive changes in the GCC exports to the EA and not vice-versa. The increased significance of the respective lags suggests the causality effect from EA towards GCC is persistent in the long run. This would suggest that the trade relations among the two regions are mainly driven by the GCC ‘looking East’ in order to procure goods and services.

To further clarify the driving force of the relationship on the EA side, we executed a further pair of regressions, using GCC exports to China only and Chinese exports to the GCC (see Table 14). This analysis showed a clear and strong long-run cointegrating relationship in GCC and Chinese trade, with direction of causality from GCC to China. This confirms our assertion that it is mainly China that drives an increase in the trade relations of EA countries with the GCC. In addition, the coefficients of the autoregressive vector in both regressions are significant, suggesting a strong long-run persistence of the underlying trade relations.

For robustness, we also examined the relationship between the GCC and Japan, since Japan is included in the EA group and could thus be a driving force behind the relationship of the group with GCC. Our analysis indicates that trade patterns between Japan and the GCC do not demonstrate long-run convergence, suggesting that the underlying fundamentals of trade between Japan and the GCC are less significant (see Table 15).

No such long-term cointegrating relationships were found between the GCC and the EU6 or the GCC and the USA. We note only statistical significance of some lags in the cointegration analysis of trade volumes between the GCC and the USA. In this case, the direction of causality appears to be from GCC to USA. We also note the strong autoregressive pattern in the EA exports to the GCC, which further strengthens our conclusion of a long-run persistence of the underlying trade relations.

Finally, we examined the data series for structural breaks to assess possible changes in the trade patterns that may affect the results. We follow Andrews (1993) to check for regime changes and find that GCC trading patterns with the EA group exhibit a possible structural break around 2011. This coincides with the beginning of the US shale revolution and the USA becoming a major oil supplier in international markets (Crooks, 2015). No other structural breaks are consistently suggested by our empirical findings.

TABLE 13 Summary of cointegration analysis between all country groups

| Y                        | X                        | Significant variables (Lags) |         |                |         |
|--------------------------|--------------------------|------------------------------|---------|----------------|---------|
|                          |                          | Regressor                    |         | Autoregressive |         |
|                          |                          | Lag                          | p-value | Lag            | p-value |
| GCC exports to East Asia | East Asia exports to GCC | (none)                       |         | Lag 8 (*)      | .0181   |
| East Asia exports to GCC | GCC exports to East Asia | Lag 4 (*)                    | .0179   | Lag 1 (**)     | .0043   |
|                          |                          | Lag 6 (**)                   | .0049   | Lag 2 (**)     | .0023   |
|                          |                          | Lag 7 (**)                   | .0065   | Lag 3 (**)     | .0032   |
|                          |                          | Lag 9 (**)                   | .0043   | Lag 4 (**)     | .0032   |
|                          |                          | Lag 10 (**)                  | .0027   | Lag 5 (**)     | .0093   |
|                          |                          |                              |         | Lag 6 (**)     | .0029   |
|                          |                          |                              |         | Lag 7 (*)      | .0108   |
|                          |                          |                              |         | Lag 8 (**)     | .0007   |
|                          |                          |                              |         | Lag 9 (**)     | .0018   |
|                          |                          |                              |         | Lag 10 (**)    | .0009   |
| GCC exports to EU6       | EU6 exports to GCC       | (none)                       |         | (none)         |         |
| EU6 exports to GCC       | GCC exports to EU6       | (none)                       |         | (none)         |         |
| GCC exports to USA       | US exports to GCC        | Lag 1 (**)                   | .0033   | Lag 1 (*)      | .0497   |
|                          |                          | Lag 2 (**)                   | .0053   | Lag 2 (*)      | .0181   |
|                          |                          | Lag 3 (**)                   | .0037   | Lag 3 (*)      | .0173   |
|                          |                          | Lag 4 (*)                    | .016    | Lag 5 (**)     | .006    |
|                          |                          | Lag 5 (*)                    | .012    | Lag 8 (*)      | .0492   |
|                          |                          | Lag 10 (*)                   | .0192   |                |         |
| US exports to GCC        | GCC exports to USA       | Lag 1 (*)                    | .0461   | Lag 10 (*)     | .0491   |
|                          |                          | Lag 2 (*)                    | .0409   |                |         |
|                          |                          | Lag 10 (*)                   | .0419   |                |         |
| EU6 exports to USA       | US exports to EU6        | (none)                       |         | Lag 5 (*)      | .0218   |
| US exports to EU6        | EU6 exports to USA       | Lag 8 (*)                    | .0409   | Lag 5 (***)    | .0001   |
| East Asia exports to USA | US exports to East Asia  | (none)                       |         | Lag 8 (*)      | .0421   |
| US exports to East Asia  | East Asia exports to USA | Lag 4 (*)                    | .0425   | (none)         |         |
|                          |                          | Lag 8 (*)                    | .0408   |                |         |
| East Asia exports to EU6 | EU6 exports to East Asia | (none)                       |         | (none)         |         |
| EU6 exports to East Asia | East Asia exports to EU6 | Lag 1 (*)                    | .0192   | Lag 1 (*)      | .0137   |
|                          |                          | Lag 2 (*)                    | .0263   |                |         |

Note: \*\*\* Coefficient is significant for  $\alpha < 0.001$ ; \*\* Coefficient is significant for  $\alpha = 0.01$ ; \* Coefficient is significant for  $\alpha = .05$ .

## 6 | CONCLUSIONS AND PROSPECTS

The evidence presented indicates the de facto trading relationships between the GCC states and EA, in particular China, have taken on greater significance in recent decades at the expense of the USA and EU. Empirical evidence over the period for which data were available 1981–2019 revealed the increasing significance of GCC trade with EA in comparison with that with the USA and EU6. Within the EA region, the trading relationship between the GCC and two of Asia's fastest growing economies,

TABLE 14 Summary of cointegration analysis between GCC and China

| Y                    | X                      | Significant variables (Lags) |                      |                |         |
|----------------------|------------------------|------------------------------|----------------------|----------------|---------|
|                      |                        | Regressor                    |                      | Autoregressive |         |
|                      |                        | Lag                          | p-value              | Lag            | p-value |
| GCC exports to China | Chinese exports to GCC | Lag 8 (*)                    | .0245                | Lag 1 (**)     | .003    |
|                      |                        | Lag 9 (***)                  | .0001                | Lag 3 (***)    | .0005   |
|                      |                        |                              |                      | Lag 4 (*)      | .013    |
|                      |                        |                              |                      | Lag 5 (**)     | .0041   |
|                      |                        |                              |                      | Lag 6 (***)    | .0001   |
|                      |                        |                              |                      | Lag 7 (***)    | .0007   |
|                      |                        |                              |                      | Lag 8 (***)    | .0001   |
|                      |                        |                              |                      | Lag 9 (***)    | .0001   |
|                      |                        |                              |                      | Lag 10 (***)   | .0001   |
|                      |                        | Chinese exports to GCC       | GCC exports to China | Lag 2 (*)      | .0156   |
| Lag 3 (*)            | .011                   |                              |                      | Lag 3 (***)    | .0003   |
| Lag 4 (**)           | .0035                  |                              |                      | Lag 4 (*)      | .0276   |
| Lag 5 (***)          | .0003                  |                              |                      | Lag 5 (**)     | .0087   |
| Lag 6 (***)          | .0007                  |                              |                      | Lag 6 (*)      | .0155   |
| Lag 7 (**)           | .002                   |                              |                      | Lag 8 (*)      | .0167   |
| Lag 8 (**)           | .0015                  |                              |                      | Lag 9 (***)    | .0004   |
| Lag 10 (*)           | .0136                  |                              |                      | Lag 10 (***)   | .0003   |

Note: \*\*\* Coefficient is significant for  $\alpha < 0.001$ ; \*\* Coefficient is significant for  $\alpha = 0.01$ ; \* Coefficient is significant for  $\alpha = 0.05$ .

TABLE 15 Summary of cointegration analysis between GCC and Japan

| Y                       | X                       | Significant variables (Lags) |         |                |         |
|-------------------------|-------------------------|------------------------------|---------|----------------|---------|
|                         |                         | Regressor                    |         | Autoregressive |         |
|                         |                         | Lag                          | p-value | Lag            | p-value |
| GCC exports to Japan    | Japanese exports to GCC | (none)                       |         | (none)         |         |
| Japanese exports to GCC | GCC exports to Japan    | Lag 10 (*)                   | .0106   | (none)         |         |

Note: \*\*\* Coefficient is significant for  $\alpha < 0.001$ ; \*\* Coefficient is significant for  $\alpha = 0.01$ ; \* Coefficient is significant for  $\alpha = 0.05$ .

China and India, were most significant and trade with more established Asian trading partners such as Japan less so. To examine the nature of the GCCs trading relationships, we employed cointegration analysis, the results of which established the presence of a long-run trade relationship between the GCC and EA, in particular with that of China. No such relationship was found with the USA, EU6 or Japan.

The current close economic relations between these regional blocs may ultimately lead to closer engagement in other arenas. As a result of the increasing economic integration between the East Asian countries and the GCC, political and security dynamics may also take a more central role in the future especially as China seeks to safeguard its increasing interests in the region such as through the Belt and Road Initiative. There can be no doubt as far as Asia is concerned that the nature of GCC-Asia economic and business ties will influence the emerging international relations picture. This includes regional interactions among the major Asian powers, the role played by the USA and EU in facilitating



or complicating cooperative relationships and the involvement of international organisations as they try to balance the numerous competing forces and trends.

Thus, whilst economics may be the immediate focus of GCC-East Asian relations in the coming years, the political and security aspects may become areas of greater concern. The economic interdependence and mutual interests between the GCC states and the major East Asian players could underpin strategic alliances in broader arenas, a prospect which is unlikely to be welcomed by the existing global hegemony.

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## DATA AVAILABILITY STATEMENT

Data are openly available in a public repository that does not issue DOIs. The data that support the findings of this study are openly available in IMF, Direction of Trade Statistics at <https://data.imf.org/?sk=9d6028d4-f14a-464c-a2f2-59b2cd424b85>.

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