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GCC States' Import Demand:

The Effects of Geopolitics

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Introduction

In recent years, the high price of crude oil and natural gas have increased the purchasing power of oil-exporting Arab countries, as a result of which the competition among industrial countries to export goods and services to these countries has intensified. For industrial countries that have had to pay considerably more for crude oil and oil products since 2000, the Middle East import market has become more significant than ever before. Furthermore, the economic boom in Arab countries has not been limited to the oil-exporting MENA (Middle East and North Africa) countries; non-oil-exporting Arab countries such as Egypt, Jordan, and Morocco have also benefited indirectly as a result of the economic linkages they enjoy with their oil–rich neighbors. These linkages include tourism, workers' remittances and a growing flow of investment from oil-rich countries to other Arab economies. The oil-importing Arab countries also experienced higher economic growth rates between 2000 and 2008, and as a result their demand for imports likewise increased.[1]

The available import data for Arab countries show that as the total volume of imports by most Arab countries has sharply increased in the past ten years, the relative market shares of their trade partners have not remained stable; rather, they have fluctuated over time, with some countries gaining market share at the expense of others. Since the Arab Middle East has been one of the world's fastest growing markets in recent years, the major exporting countries have a keen interest in identifying the factors that can have an impact on their market shares vis-à-vis this import market.

In this Paper, I will examine the market shares of the United States, Western Europe, Japan, and China in the import markets of Arab countries. I will first tabulate and discuss each exporter's market share to see if any noticeable trends stand out over time. I will then use statistical analysis to identify the economic and noneconomic factors that have had a significant influence on each exporting country or region's market share.

Among Arab countries, I will focus primarily on the six members of the Gulf Cooperation Council (GCC): Saudi Arabia, the United Arab Emirates, Kuwait, Oman, Bahrain, and Qatar. These countries have benefited the most from the 2002–8 oil boom, and their import markets have experienced the sharpest growth among Arab countries in recent years. In addition to investigating the import markets of individual GCC countries, I will also examine the market shares of leading exporters with respect to the aggregate imports of the GCC considered as a trade bloc, followed by a similar analysis vis-à-vis the aggregate imports of Arab countries.

The value of the total imports of a given country is affected mainly by economic factors, such as the size of the domestic economy (measured as Gross Domestic Product), the country's exchange rate policy, and its import tariff rates. The relative market shares of each trade partner with respect to those imports, however, is influenced by both economic and noneconomic factors, and on some occasions noneconomic factors can play a more dominant role. For example, if a specific commodity such as rice can be purchased from several countries and all producers are selling at competitive prices, a buyer might take geopolitical factors into account when deciding which country to buy from.[2]

Since the main focus of this Paper is on import market shares, I will consider both economic and noneconomic factors. The analytical section of the article, however, will put more emphasis on the role of noneconomic factors, including strategic considerations as well as the state of diplomatic relations between two given countries, in determining the market shares of leading exporters vis-à-vis Arab economies.

The noneconomic factors are particularly important when considering U.S. trade relations with Arab countries, due to the complex strategic and

security relationships between the U.S. and some Arab countries as well as the unique role of the United States in the Arab-Israeli conflict. These two dimensions of American Middle East policy generate mixed feelings in some Arab countries. On the one hand, the United States plays a crucial role in providing external security for several Arab countries (Saudi Arabia, the UAE, Qatar) and in strengthening moderate Arab regimes against their domestic opponents (Saudi Arabia, Yemen, Jordan). The ruling elites in these countries are appreciative of the U.S. role and might be encouraged to favor American products to show this appreciation. At the same time, they are frustrated by the continuing American support for Israel in its ongoing conflict with the Palestinians and with neighboring Arab countries. That American support of Israel could reduce the popularity of U.S. goods in Arab countries, as Arab governments and private importers might decide to purchase their imports from countries that show more sympathy for the Arab positions in this conflict. In addition, the al-Qaeda terrorist attacks against the United States and some European countries since 2001, and the U.S. response to these attacks, have added a new complication to U.S.-Arab relations.

If some political or diplomatic development generated more positive public opinion toward the United States in an Arab country, it is reasonable to suppose that that might benefit American exporters and contractors at the expense of their European and Asian competitors, resulting in a market share gain for the United States. For example, we might expect the U.S. liberation of Kuwait from Iraqi occupation in 1991 to have had a positive impact on U.S. market share in Saudi Arabia, as well as in other GCC countries appreciative of the American military intervention. Contrariwise, during the second Palestinian Intifada (2000–2001), a large number of Arab nongovernmental organizations (NGOs) launched a grassroots campaign urging a boycott of American products as a means of protesting United States support for Israel.[3] It is possible that this boycott, along with the widespread anti-American sentiment it reflected, have led to a reduction of demand for American brand products in some Arab countries.

Another important factor in bilateral trade relations is trade agreements. A bilateral trade agreement between two nations will lower the barriers to trade between them and hence give each country a trade advantage over its competitors vis-à-vis the other nation. On the other hand membership in

the World Trade Organization (WTO), which amounts to a multilateral trade agreement among member nations, limits the ability of a member nation to favor a specific trade partner by imposing discriminatory tariffs or quotas. In recent years, a growing number of Arab countries have been admitted to the WTO; Saudi Arabia was the last GCC country to gain admission, in 2005.[4]

Both the United States and the European Union have had some success in concluding free trade agreements with Arab countries. The U.S. has signed bilateral trade agreements with Bahrain, Morocco, Jordan, and Oman; the last Bush administration initiated trade negotiations with several Arab countries with the long-term goal of replacing these bilateral trade agreements with a comprehensive U.S.-Arab Free Trade Agreement.[5]

Unlike the United States, which has focused on individual free trade agreements, the European Union is working towards a collective free trade agreement known as the Euro-Mediterranean Free Trade Agreement with nine Arab partners (Morocco, Algeria, Tunisia, Jordan, Lebanon, Israel, Egypt, Syria and the Palestinian Authority) in the Southern and Eastern Mediterranean area (the "Euro-Mediterranean Free Trade Area").[6]

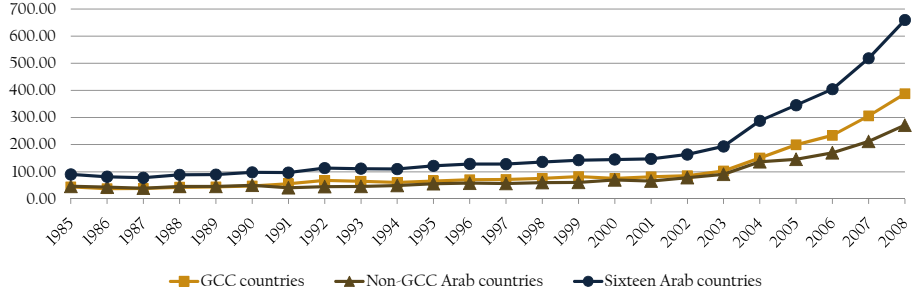
The European Union is also negotiating a free trade agreement with the GCC, although those negotiations have been underway for more than two decades, and some fundamental differences have yet to be resolved.[7] In more recent years, Japan, China and India have also expressed interest in signing free trade agreements with GCC countries, and several rounds of trade talks between these countries and the GCC have already taken place.[8]

The rest of this article is organized into three sections. We first examine recent trends in the aggregate imports of Arab countries, along with the relative market shares of their trade partners. Next, we review the academic literature on the impact of political and diplomatic factors on bilateral trade among nations, followed by a statistical analysis of factors that have had an impact on each export partner's market share. (The statistical findings reported were obtained through econometric and statistical techniques that might be too complicated for non-economists; in order to make the article accessible to a general and diverse audience, I have moved all the technical explanations, along with the underlying mathematical models, to an Appendix at the end of the article.)

Recent Trends in Arab Import Markets

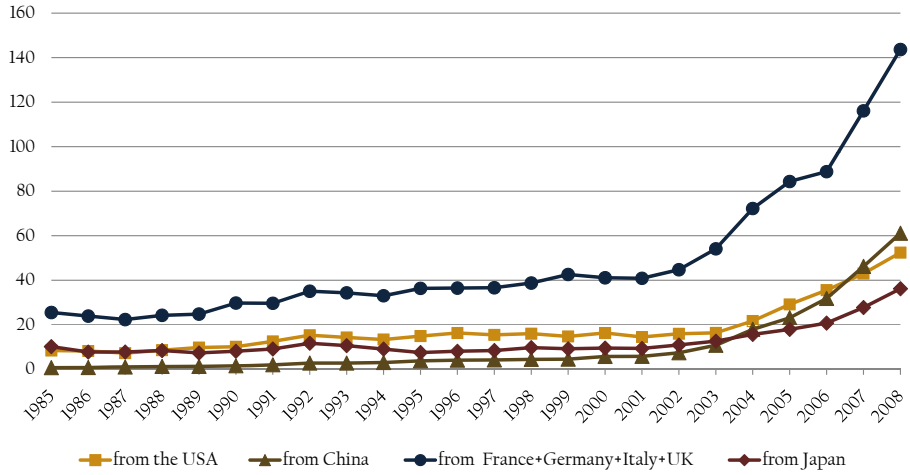
Before focusing on the relative market shares of exporting nations vis-à-vis Arab markets, it is helpful to look at the aggregate size of this market. As shown in Figure 1, the total merchandise imports of Arab countries has increased sharply since 2001: from $147.6 billion in 2001 to $659.5 billion in 2008, an increase of 347%. Most of this growth was generated by the six GCC countries: The merchandise imports of GCC countries rose by 375% during 2001–8, thanks to their record high oil revenues. Although GCC countries account for less than 12% of the total population of the Arab world, their share of Arab imports has exceeded 50% since 1991. As a result, the GCC import market is a very important one for industrial countries. Arab imports from all of their major trade partners have increased sharply since 2000, as demonstrated in Figure 2—which also shows that imports from Europe have grown significantly larger than those from China or the United States.

Figure 1. Merchadise Imports of Arab Countries, 1985-2008
(in billions of $)



Source: International Monetary Fund (IMF), *Direction of Trade Statistics,* Yearbook (various years). The non-GCC Arab countries included are: Algeria, Egypt, Iraq, Jordan, Libya, Lebanon, Morocco, Yemen, Sudan, and Syria.

Figure 2. Merchandise Imports of Arab Countries
(in billions of $)



Source: IMF, *Direction of Trade Statistics* Yearbook (various years). The non-GCC Arab countries included are: Algeria, Egypt, Iraq, Jordan, Libya, Lebanon, Morocco, Yemen, Sudan, and Syria.

I have focused my comparison of relative market shares on China, Japan, the United States, and the aggregate imports from the four largest European economies: France, Germany, Italy, and the UK. (These four countries will hereinafter be referred to in the aggregate as EU4.) And in order to shed light on longer-term trends, I have used three-year averages of annual market share data instead of annual data. Annual bilateral trade between nations is often subject to sizeable fluctuations, which tend to obscure the longer-term trends and can be smoothed out by averaging.

Although the volume of Arab imports from these four trade partners has sharply increased (Figure 2), the relative share of each partner in total imports of the Arab countries has changed over time as will be shown below. The most visible trend with respect to import market shares in the period 1988–2008 is a gradual loss of market share vis-à-vis Arab countries on the part of Europe, Japan, and the United States. Over the same time period, on the other hand, the market share of China has visibly increased. This trend is a reflection of the emergence of China as the dominant global center for manufacturing since 1980: China has enjoyed a clear cost advantage since then with respect to the production and export of low- and medium-technology manufactured products. The United States, Western

Europe, and Japan still dominate the global market in high-tech products, but the range of products that can be produced in a cost-effective manner in China has steadily expanded over the past three decades.

The market share of EU4 in the Arab world fell from an average of 32% in 1988–90 to 24% in 2005–7, as can be seen in Table 1. Most of this decline took place during 2000–2007, however, and EU4's market share was relatively stable before then. The EU4 share with respect to GCC countries fell from 25% to 21% during the same twenty-year interval, but that decline was not consistent among member countries: While EU4 market share declined sharply in Saudi Arabia, it enjoyed a moderate growth in the UAE and was essentially stable over the twenty-year period in Kuwait. Table 1 also allows us to compare EU4's market share performance in the Arab world vis-à-vis that in other developing regions. We see that EU4's loss of market share was not limited to the Arab world: The downtrend is evident in Africa and Latin America as well, and the relative decline in both markets was larger than in Arab countries. In Africa, for example, EU4's market share fell by 36%, from 0.42 in 1988–90 to 0.27 in 2005–7.

Table 1. Combined Market Shares of Germany, France, Italy and the UK in Arab Countries (3-year averages of the annual market shares)

	1988-90	1991-93	1994-96	1997-99	1998-2000(b)	2002-04	2005-07
Saudi Arabia	27%	28%	26%	24%	23%	22%	21%
UAE	25%	25%	26%	24%	28%	32%	28%
Kuwait	23%	27%	27%	23%	23%	26%	22%
GCC	25%	26%	25%	24%	24%	23%	21%
Arab Countries(a)	32%	32%	31%	30%	30%	29%	24%
Middle East	33%	36%	34%	32%	31%	28%	26%
Latin America	14%	13%	13%	12%	11%	10%	9%
Africa	42%	40%	37%	35%	35%	33%	27%
Developing Countries	26%	26%	24%	23%	22%	21%	19%

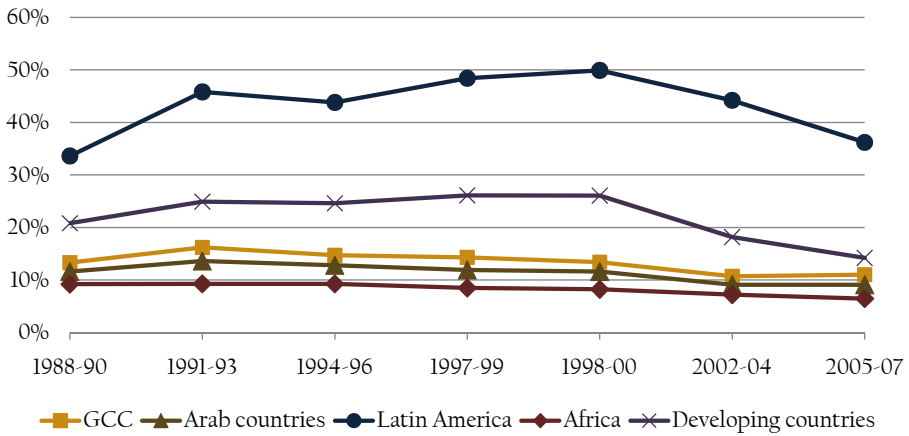
Source: Import data from UN Comtrade, market shares calculated by the Author. The shares for developing regions, (lower half of the table), are based on aggregate data as reported by the UN comtrade. Notes: a) Arab countries are: GCC countries, Algeria, Morocco, Libya, Egypt, Tunisia, Syria and Jordan. B) The overlap of 1997-99 and 1998-2000 intervals is intentional. In order to highlight the impact of September 11, 2001 terror attacks on market shares I'm reporting the average market shares for the three-year intervals before 2001 and after. The year 2001 does not appear in either three-year interval.

The U.S. market share in Arab countries has been consistently smaller than that of the EU4 countries, partially owing to the relatively closer proximity of Europe and the Middle East as well as to the long history of trade and economic ties between Arab countries and Europe as compared with the United States. The U.S. market share in Arab countries remained stable, in the 12%–14% range, between 1988 and 2000, but had declined to 9% by 2007, as can be seen in Table 2.

The U.S. loss was somewhat smaller vis-à-vis the GCC market, falling from an average of 14.2% between 1988 and 2000 to an average of 11.0% between 2002 and 2007. The United States has traditionally maintained strong economic ties with Saudi Arabia, but the U.S. market share in that country declined from 20% in 2000 to under 13% in 2007. The U.S. market share in Oman, Qatar, and the United Arab Emirates remained relatively stable between 1988 and 2007. The U.S. market share in Kuwait increased considerably after the first Gulf War (1990–91, in which an American-led international coalition liberated Kuwait from Iraqi occupation), going from 11.7% in 1990 to a peak of 22% in 1993. It remained above 15% until 1999, and has remained stable, in the 12%–14% range, ever since.

As shown in Table 2 and Figure 3, the U.S. market share in the Arab region (and in the Middle East as a whole) is larger than in Africa but smaller than in the developing countries as a group—whereas, as we saw in Table 1, the EU4 countries' market share in the Arab world is larger than in Latin America and in developing countries as a whole but smaller than in Africa. At the same time, we observe that the pace of decline in the U.S. market share in Arab countries between 2001 and 2007 is not as severe as it is with respect to Latin America or the developing countries as a whole. In other words, it appears that the U.S. has lost less market share in the Arab world in comparison with other developing countries.

Figure 3. USA: 3 Year Average Market Shares in Developing Countries



Source: IMF, *Direction of Trade Statistics Yearbook* (various years). List of Arab countries is the same as Table 2.

Table 2. Market Share of the United States in Arab Countries (3-year averages of the annual market shares)

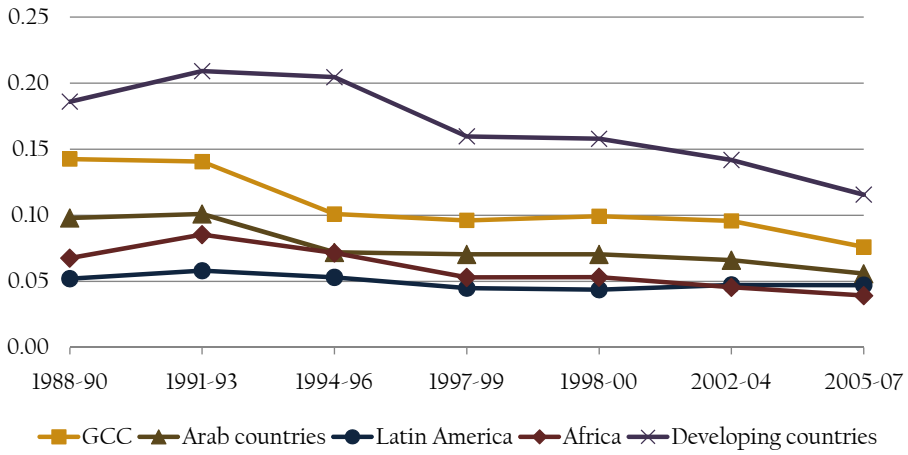
	1988-90	1991-93	1994-96	1997-99	1998-2000(b)	2002-04	2005-07
Saudi Arabia	17%	21%	22%	21%	20%	16%	13%
UAE	9%	9%	9%	10%	9%	7%	10%
Kuwait	12%	22%	16%	14%	13%	13%	14%
GCC	13%	16%	15%	14%	13%	11%	11%
Arab Countries(a)	12%	14%	13%	12%	12%	9%	9%
Middle East	13%	15%	17%	16%	15%	11%	12%
Latin America	34%	46%	44%	48%	50%	44%	36%
Africa	9%	9%	9%	8%	8%	7%	6%
Developing Countries	21%	25%	25%	26%	26%	18%	14%

Source: Import data from UN Comtrade, Market shares calculated by the Author. The shares for developing regions, (lower half of the table), are based on aggregate data as reported by the UN comtrade. Notes: a) Arab countries are: GCC countries, Algeria, Morocco, Libya, Egypt, Tunisia, Syria and Jordan; b) The overlap of 1997-99 and 1998-2000 intervals is intentional. In order to highight the impact of September 11, 2001 terror attacks on marketshares I'm reporting the average market shares for the three-year intervals before 2001 and after. The year 2001 does not appear in either three-year interval.

Another industrial country that has lost market share in the Arab world is Japan. (See Figure 4.) On average, Japan's market share in Arab countries has been smaller than in other developing countries, though larger than its share in Latin America. Japan's market share in Arab countries' imports fell from an average of 8.5% between 1988 and 2000 to less than 7% in 2005–7. In the GCC market, Japan's share fell from 14% to 8% between 1988 and 2007.

Unlike EU4 and the U.S., which experienced the largest decline in their market shares in Arab countries during 2000–2007, Japan's market share in Arab countries dropped most in the early 1990s, when the Japanese currency, the yen, appreciated against the U.S. dollar. As can be seen in Figure 4, Japan's market share decline in other developing countries was more severe in the second half of the 1990s.

Figure 4. Japan: 3-year Average Market Shares in Developing Countries



Source: IMF, *Direction of Trade Statistics*

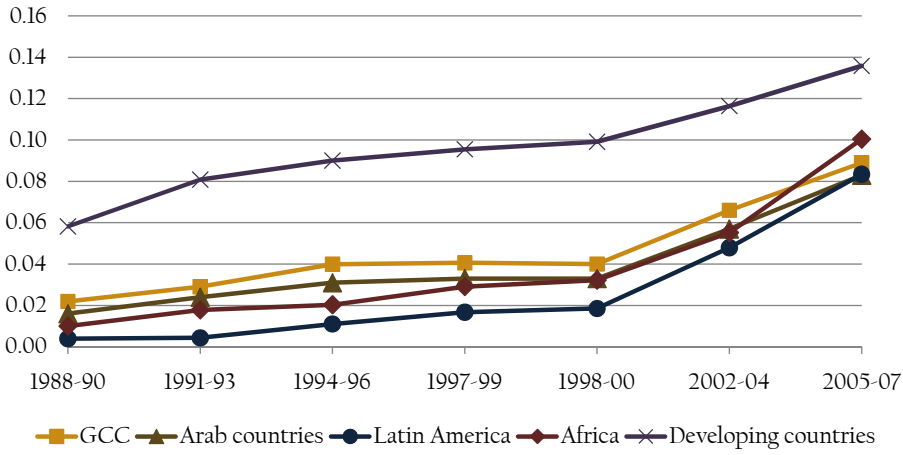
In contrast to the United States and European countries, China has seen its market share in the Arab world *increase* during the past two decades. (See Figure 5.) While China's market share in Arab countries is significantly smaller than the shares of Europe (EU4) and the United States, it has enjoyed a considerable growth in recent years. Starting from a negligible share of less than 2% in 1988-90, China's share grew slowly to 3% by 1998–2000; this was followed by much faster growth, which increased China's share to an average of 8% in 2005–7. Figure 5 also shows that during 2005–7, China's market share in Arab countries was similar to its share in Latin America but smaller than its share in Africa and much smaller than its share in the aggregate imports of developing countries.

China's market share in the GCC bloc was only 2% in 1988–2000 but rose to 9% by 2005–7, owing mainly to the rapid increase in China's exports to the UAE, which has emerged as a major processing and re-export center

vis-à-vis the Middle East and Central Asia. China's market share in UAE imports rose to 11% in 2005–7, from 4% in 1988–2000.

The Chinese currency, the yuan, was effectively fixed against the U.S. dollar during 1995–2005 and enjoyed an 18% appreciation during 2006–8. While this appreciation made Chinese goods relatively more expensive, China continued to gain market share, while the U.S. share remained steady. Furthermore, during 2006–8 the euro appreciated against the dollar and yuan, making European goods more expensive as compared with both American and Chinese products. Yet we see in Figures 2, 3, and 5 that while European countries (EU4) lost market share in Arab countries during this interval, the appreciation of the euro benefited China's market share but not that of the United States.

Figure 5. China: 3-year Average Market Shares in Developing Countries

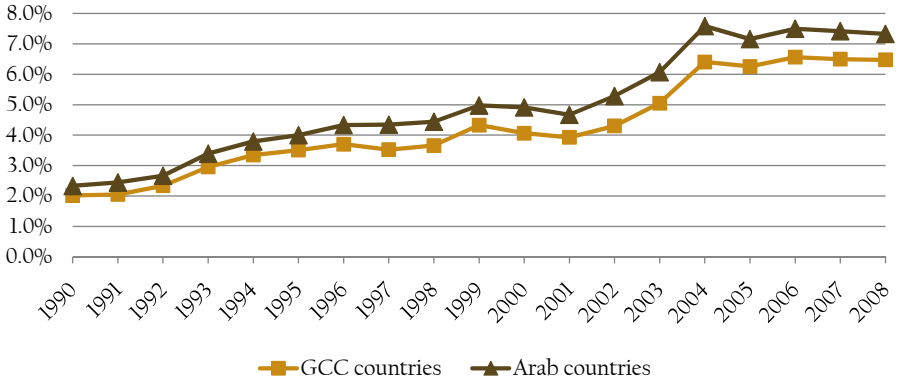


Source: IMF, *Direction of Trade Statistics Yearbook* (various years.)

The market share changes discussed above also reveal that the Arab import market has become more diversified over time. The combined exports of EU4, Japan, China, and the United States accounted for 56% of the total imports of Arab countries in 1988–90, but that combined share declined to 47% during 2005–7, indicating an increase in the market shares of other countries, such as India. As shown in Figure 6, India's market share in Arab countries has enjoyed strong growth since 1990, with the fastest growth occurring between 2002 and 2005. It is also worth noting that the combined share of China and India in Arab merchandise imports has also

increased significantly: from 4.2% in 1992 to 13.9% in 2007. The growth of the combined share of China and India in the GCC market is even more significant: from 5.2% in 1992 to 17.2% in 2008. (Author's calculations based on United Nations Comtrade Data.)

Figure 6. India's Share in Merchandise Imports of Arab Countries



Source: IMF, *Direction of Trade Statistics Yearbook* (various years)

Market shares in major import categories. Manufactured goods and machinery and transport equipment are the largest import categories for Arab and GCC countries, as shown in Table 3; together they accounted for 53.5% of total merchandise imports in Arab countries in 2008, and for 57.7% of GCC countries' total imports. The share of these two categories in the merchandise imports of oil-exporting Arab countries is significantly larger than for Arab oil importers. Seventy-eight percent of the imports of the oil- and gas-exporting country of Qatar, for example, was accounted for by these two import categories in 2008, which was the highest recorded percentage in the Arab world. (Oman and Libya ranked second and third.)[9]

Table 3. Arab and GCC Countries' Imports by SITC* Categories, 2008

	GCC Countries		All Arab Countries**	
	Value (in millions of U.S.$)	Share (%)	Value (in millions of U.S.$)	Share (%)
0+1-Food, live animals, beverages, tobacco	22680.8	8.1%	47669.5	10.2%
2+4–Crude materials, inedible, except fuels; animal and vegetable oils; fats and waxes	6760.3	2.4%	19955.6	4.3%
3–Mineral fuels, lubricants, except fuels	7990	2.9%	37124.5	8.0%
5–Chemicals and related products	18238.5	6.5%	37993.1	8.2%
6–Manufactured goods	56552.1	20.2%	95952.6	20.6%
7–Machinery and transport equipment	104657.1	37.5%	153648.2	33.0%
8–Miscellaneus manufactured articles	24812.6	8.9%	34437.6	7.4%
9–Commodities and transactions not classified elsewhere	37699.5	13.5%	39538.8	8.5%

Source of data: United Nations Comtrade database. * SITC= Standard international Tariff Classification, ** "Arab countries" = GCC countries + Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Tunisia, Yemen

Manufactured goods and machinery and transport equipment also account for a significant share of the total exports of the leading trade partners with the Arab world. China's strong advantage in the production of manufactured goods is reflected in the composition of its exports, as we see in Table 4. Manufactured goods (SITC categories 6 and 8) accounted for 42.4% of China's merchandise exports in 2008, while the comparable figures for the United States, Japan, and EU4 were 19.9%, 19%, and 26%, respectively.

Exports of machinery and transport equipment accounted for 63.3% of Japan's exports in 2008, which was significantly higher than the shares of other exporting countries in my study. The share of this category in the exports of the United States, EU4, and China fell in the range of 41% to 48%, which still made it the largest export category for each of them. The share of machinery and transport equipment in China's exports increased from 33.1% in 2000 to 47.4% in 2008; for the United States, on the other hand, the share of this category declined from 52.7% in 2000 to 42.8% in 2008.[10]

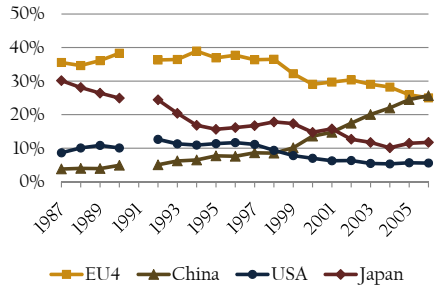
Table 4. Exports by SITC* Categories (% Share of Total Exports) in 2008

	U.S.	China	EU4	Japan
0+1-Food, live animals, beverages, tobacco	7	2.6	6.25	0.5
2+4–Crude materials, inedible, except fuels; animal and vegetable oils; fats and waxes	6.2	0.8	2.09	1.3
3–Mineral fuels, lubricants, except fuels	5.9	1.6	5	1.3
5–Chemicals and related products	13.8	5	14.48	9.1
6–Manufactured goods	9.6	18.1	14.73	11.7
7–Machinery and transport equipment	42.8	47.4	41.1	63.3
8–Miscellaneus manufactured articles	10.3	24.3	11.23	7.3
9–Commodities and transactions not classified elsewhere	4.3	0.2	5.11	5.5
Total value of exports (in billions of $)	**1299.90**	**1217.78**	**3053.31**	**714.33**

Source of data: United Nations Comtrade database, *SITC= Standard International Tariff Classification.

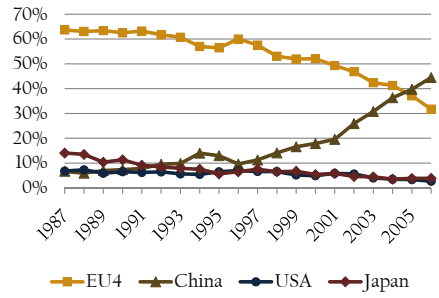
Market shares in imports of manufactured goods. Figures 7–10 show the market shares of leading exporters of manufactured goods in the imports of various subregions of the Arab world. Between 1987 and 2006, European countries (EU4) dominated the Arab market for manufactured products. This dominance is particularly evident in the case of North Africa (Algeria, Libya, Egypt, and Moroccco—referred to as Maghreb in the graphs below), where EU4 countries captured over 70% of the market during 1987–2005, falling below 70% only in 2006. Still, EU4's share of manufactured imports has gradually declined in all three subregions of the Arab world, with the downtrend most severe in the Levant (Jordan, Lebanon, and Syria).

Figure 7. Manufactured Goods: Market shares (%) in imports of GCC (1987-2006)



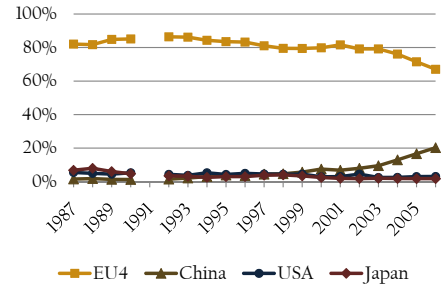
Source: United Nations Comtrade Data

Figure 8. Manufactured Goods: Market shares (%) in imports of Levant (1987-2006)



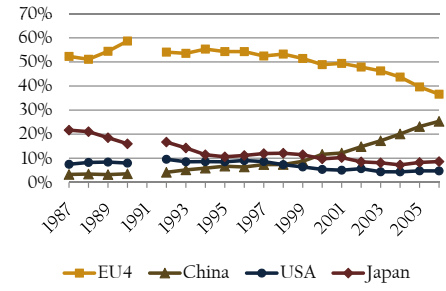
Source: United Nations Comtrade Data

Figure 9. Manufactured Goods: Market shares (%) in imports of Maghreb (1987-2006)



Source: United Nations Comtrade Data

Figure 10. Manufactured Goods: Market shares (%) in imports of all Arab countries (1987-2006)



Source: United Nations Comtrade Data

The market share of the United States in the manufactured goods markets of Arab countries has been significantly smaller than that of European countries (accounting for under 10% of the aggregate imports of all Arab countries). In GCC countries, the U.S. share was slightly above 10% until 1997 but suffered a gradual decline to near 6% by 2006. A similar downward trend is evident with regard to the U.S. market share of manufactured goods imports in the Levant (Figure 10).

Among the exporting countries in my sample, Japan has suffered the largest relative market loss in the Arab market for manufactured goods. Japan's market share for manufactured goods in the Arab world as a whole (Figure 8) has declined from 21.6% in 1987 to 8.6% in 2006; in the GCC block, Japan's share declined from a sizable 30.1% in 1987 to 11.7% in 2006. Japan has likewise lost market share in the Levant and Maghreb regions, although its market share in the manufactured imports of those regions was relatively small in 1987 to begin with. The decline is partly due to the deliberate industrial policy of the Japanese government, which promoted a shift from the production of low-end manufactured goods to that of advanced machinery and capital goods, which fall outside of the SITC manufactured goods category.

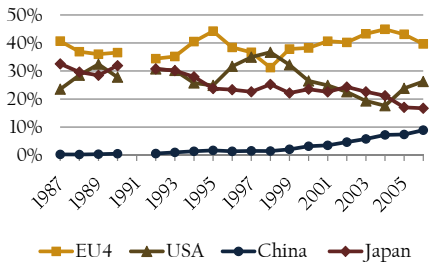
China's market share in Arab countries' imports of manufactured goods, on the other hand, has enjoyed a rapid *increase*, to the point where it has exceeded its share of their overall merchandise goods imports. Figures 7–10 show that this growth was primarily achieved after 1995. In the aggregate Arab market, China's share rose from 6.3% in 1996 to 25.3% in 2006; a similar trend is observed with regard to China's share in the GCC market. In Maghreb countries, the growth has been moderately slower (with China's share increasing to just 20.2% in 2006), but in the Levant it has been more substantial than in the rest of the Arab world, increasing from an average of 10% in the 1990s to 44.4% in 2006—compared with EU4's share of 31% in that year.

Market Shares in Machinery and Transport Equipment. Figures 11–14 show the relative market shares of leading exporters of machinery and transport equipment in the imports of the same subregions of the Arab world. These graphs show that unlike in the case of manufactured goods, we do not observe a significant downtrend in the market shares of the U.S., EU4, and Japan.

The EU4 market share in the aggregate imports of the Arab world (Fig. 14), in particular, appears to have been relatively stable, in the 45% to 55% range, during 1987–2006—and that stability is also evident with respect to EU4's market share in GCC countries, albeit with a wider range of fluctuations. In more recent years, EU4's market share in GCC countries has enjoyed a steady increase, from a low of 31.2% in 1998 to a peak of 44.9% in 2004, before declining to 39.6% in 2006. The only subregion in which EU4's market share shows a visible downward trend is the Levant, where it has gradually declined from a peak of 69.4% in 1990 to 49.8% in 2006.

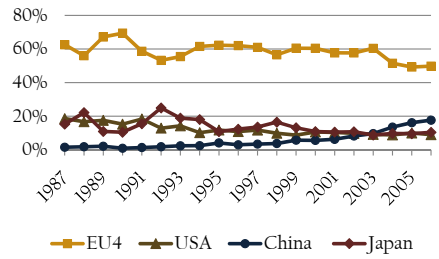
Figures 11 and 14 reveal an interesting relationship between the market shares of the United States and EU4. Although the market shares of both regions appear stable in the long run, their short-run fluctuations seem to move in opposite directions. Intervals of market gain for EU4 (e.g., 1998 to 2004) are associated with market *losses* of similar magnitude for the United States. This inverse relationship is most visible in the GCC market (Fig. 11). Between 1998 and 2004, when EU4 market share was on the rise, the U.S. market share declined steadily, from 36.6% to 17.6%, before reversing into an uptrend during 2005–2006. This relationship is partly due to exchange rate fluctuations between the dollar and the euro. It appears that for Arab importers, American and European exports of machinery and transport equipment are close substitutes, and they accordingly switch from one supplier to the other as dollar/euro rates fluctuate.[11]

Figure 11. Machinery and Transportation: Market shares (%) in imports of GCC (1987-2006)



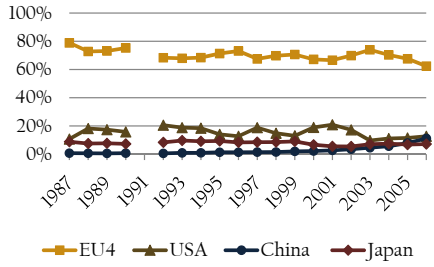
Source: United Nations Comtrade Data

Figure 12. Machinery and Transportation: Market shares (%) in imports of Levant (1987-2006)



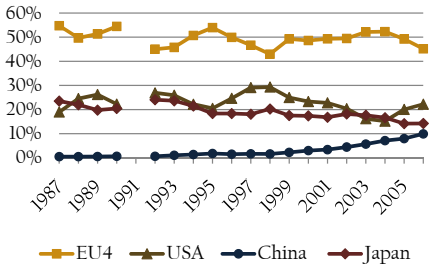
Source: United Nations Comtrade Data

Figure 13. Machinery and Transportation: Market shares (%) in imports of Maghreb (1987-2006)



Source: United Nations Comtrade Data

Figure 14. Machinery and Transportation: Market shares (%) in imports of all Arab countries (1987-2006)



Source: United Nations Comtrade Data

The U.S. market share in the Arab world's imports of machinery and transport equipment is significantly larger than its share of the manufactured goods market. In the aggregate Arab market, the average U.S. market share in machinery and transport equipment imports during 1987–2006 was 22.9%, compared with only 6.9% in manufactured goods. The comparable figures in the GCC market were 27.4% and 8.8%, reflecting an even larger gap. Since the U.S. economy has a technological advantage with respect to the production of advanced machinery and capital goods, this result is not surprising. Furthermore, most of the military goods and weapons systems that constitute a sizeable portion of United States exports to friendly Arab countries also fall into this category.

China's share in Arab imports of machinery and transport equipment has been notably smaller than in the case of manufactured goods (averages of 2.9% and 10.0%, respectively, during 1987–2006). And it remained stable up until 2000. It is only after 2000 that we observe a noticeable increase in China's market share in aggregate Arab imports of machinery and transport equipment, which rose steadily from 3.0% in 2000 to 10.0% in 2006. This development is in line with the transition of China's export products in recent years, from low-cost labor-intensive goods to more advanced products and machinery. This trend is likely to continue, in which case China will become more competitive in the global market for machinery and transport equipment.

Review of Literature on Determinants of Import Share

Bilateral trade relations among nations have attracted the attention of economists and political scientists alike. Not surprisingly, when economists analyze international trade, the economic factors influencing bilateral trade patterns have taken center stage, while noneconomic factors have taken a back seat. Political scientists, on the other hand, have paid more attention to political, diplomatic, and institutional factors bearing on trade relations, introducing economic variables as control variables only to ensure the accuracy and soundness of their analysis.

Most economic analysis of international trade is concerned with a given country's total volumes of imports and exports and how they affect domestic macroeconomic conditions within that country. The earliest economic model of international trade to differentiate importation of products based on their countries of origin and thus pave the way for analysis of country import shares was Armington (1969).[12] Armington assumed that when several countries produce the same product for export, an individual importer differentiates these products by their country of origin. According to the Armington model, an importing country first allocates its total expenditures between domestic goods and imports. Once it decides on an aggregate level of imports, if there are several national suppliers for a given product, it decides on how much to import from each country, thereby determing the market share of each supplier.

In another empirical study, Parikh (1988) focused on the import shares of leading trade partners of the United States, Japan, and the European Economic Community (EEC).[13] His import share model was derived from an Almost Ideal Demand System (AIDS).[14] In his model, the import share of country **i** with respect to country **j** is a function of the real value of the aggregate imports of **j** and the export price indexes of all countries that export to **j**. Parikh used a 25x25 matrix of trade flows (in constant prices) to estimate his import share equations for twenty-five countries and regional blocks.

In empirical trade studies, economists consider the income level of the importing country and the relative price of products from various exporting countries as the key determinants of the volume of imports by a country from its various trade partners. Political scientists have generally tried to assess the impact of diplomatic relations on trade by adding appropriate dummy variables to these standard models of trade.

Using this approach, two early statistical studies by Kunimoto (1977) and Nagy (1983) showed that warmer diplomatic relations between two nations led to expansion of bilateral trade.[15] Two other empirical studies in the early 1980s focused on the impact of bilateral conflict on trade and vice versa. Polachek (1980),[16] Gasiorowski and Polachek (1982),[17] and Arad, Hirsch, and Tovias (1983)[18] all used a rational choice model as the basis for a number of empirical studies which showed that rational actors (i.e., nations) will avoid conflict with their trade partners.

Building on these earlier empirical works, Pollins (1989)[19] used a pooled cross-section time-series econometric model to investigate the impact of bilateral diplomatic relations on imports. He used a log-linear import demand function in which the independent variables were: a) the importing country's income level, b) the price level for exports from a specific trade partner, c) a weighted average of export prices for all of the importing country's trade partners, and d) an index measuring the state of diplomatic relations between the trade partners. Pollins' empirical results showed that the state of diplomatic relations has a significant correlation with volume of trade, and that warmer diplomatic relations are associated with larger volumes of bilateral trade. Moreover, his findings revealed that the impact of diplomatic relations on trade was stronger in countries where governments imposed more direct control over foreign trade.[20]

Several other studies have also demonstrated the impact of noneconomic factors on trade relations among nations. Summary (1989)[21] showed that the volume of U.S. trade with other countries was sensitive to political factors: in particular, that in general the United States traded more with countries that were regarded as politically friendly. In another study on trade behavior, Dixon and Moon (1993)[22] demonstrate that countries with similar political systems (e.g., democracies) tend to trade more with each other. In an extension of Pollins' analysis, Morrow, Siverson, and

Tabares (1998)[23] focused on the direct and indirect impact of conflict on trade. Using long-term international trade data relating to major powers, they showed that conflict short of war between two states has both a direct impact on trade (embargoes and formal restrictions) and an indirect impact (higher political and security risks associated with trade), and results in a reduction of trade.

Although the empirical studies cited above focused on advanced economies, there has also been a small body of literature that has dealt with the role of noneconomic factors in the trade behavior of developing and former Communist countries. Since, in such countries, the government has more control over international trade, one would expect the role of political factors in the choice of trade partners to be even stronger.

In a study of foreign trade patterns in Eastern Europe in the 1960s and 1970s, Lutz (1995)[24] found that their trade with developing countries was influenced by diplomatic considerations and Soviet influence: Whenever the Soviet Union expanded its trade relations with a developing country, the Eastern European nations increased their volume of trade with that country within a year or so. Another study of the trade behavior of Communist countries, conducted by Lim and Kim (2002),[25] focused on North Korea. Prior to the collapse of the Soviet Union, North Korea maintained close diplomatic relations with both China and the Soviet Union. Lim and Kim's empirical study revealed that while the aggregate imports of North Korea from these two Communist rivals was not sensitive to diplomatic relations, their relative market share of North Korea's imports of some basic commodities was highly sensitive to such factors.

In a more recent study, Ogus and Erbil (2006)[26] considered the impact of global and regional instability on Turkey's exports to Iraq. They applied statistical regression analysis to export data for sixty commodity sectors over the period 1980–2004 to show that periods of both regional instability (the Iran-Iraq war: 1980–88) and global instability (the 1990–91 Gulf War and the U.S. war in Iraq during 2003–4) caused an increase in the volume of Turkish exports to Iraq. They argue that in these periods of instability and conflict, Iraq was forced to divert its trade from other countries to Turkey.

Statistical Analysis

For my statistical investigation, I will focus on import shares in the six Arab countries of the Gulf Cooperation Council (Saudi Arabia, the United Arab Emirates, Kuwait, Oman, Bahrain, and Qatar), plus on combined import shares in two regional aggregates: the GCC as a bloc and thirteen Arab countries (GCC countries + Algeria, Egypt, Jordan, Libya, Morocco, Tunisia, Syria). The dependent variable for each importing country is the import share of one of its partners. For the sake of consistency, the four exporters discussed in the trend analysis section will also be included in this section: the United States, EU4, Japan, and China. In addition, I will also repeat some regression models with respect to the aggregate market share of Japan, China, India, and South Korea, considered as a single exporting block which we refer to as Asia4.

The annual bilateral import-export data for this analysis is borrowed from the IMF *Direction of Trade (DOT) Statistics*[27] on an annual basis, with the maximum data range of 1969–2008. *DOT* data are ideal for multicountry analysis because all trade data are reported in U.S. dollars. However, in many cases the volume of bilateral trade reported by an exporting country differs from what the importing trade partner reports. Such discrepancies can be due to procedural differences or, occasionally, to corrupt practices in one of the partner countries, resulting in underreporting or overreporting of trade values; they are also visible when exports are used in developing countries for implicit capital transfer (capital flight).[28]

I will use the import shares that were described above, as dependent variables in my statistical analysis. The goal of this analysis is to identify both the political and the economic factors (referred to as independent variables) that determine each exporting country's share in the total imports of its Arab trade partners. For this purpose I use regression analysis. Each regression model consists of one dependent variable and a number of explanatory variables that are believed to have an impact on this dependent variable. The statistical analysis then determines whether the impact of each explanatory variable is significant or not. (See Appendix A for details and theoretical foundations of this statistical model.)

Explanatory variables. The explanatory variables that will be included in each regression model include two economic variables, an appropriate currency exchange rate, and the value of the country or region's aggregate imports (after adjustment for annual inflation). A number of indicators ("dummy variables," in statistics jargon) for political and geopolitical events that are expected to have had an impact on the importing country's attitude toward each trade partner are also added to the list of explanatory variables. Since all six GCC countries had adopted a fixed exchange rate against the dollar for the entire time period under consideration, I have used the dollar/euro exchange rate and the dollar/yen exchange rate as proxies for the national currency exchange rates against the euro and yen. For example, the dollar/euro exchange rate will reflect the relative price competitiveness of U.S. and Chinese exports vis-à-vis European exports (since Chinese currency is also fixed against the dollar.)

Political and diplomatic variables. In order to test for the impact of political and diplomatic factors, I introduce several indicators for specific time intervals that are associated with important events in the Arab world. The choice of events is primarily motivated by U.S.–Arab relations, and I have focused on events that have had a lasting and significant impact on bilateral relations between the United States and the Arab world. (See Table 5.)

Two major events that clearly stand out are the first Gulf War and the Iraq War. The role of the United States in the first Gulf War, which led to the liberation of Kuwait from Iraqi occupation, was generally perceived in GCC and other moderate Arab countries as positive. On the other hand, the U.S. invasion of Iraq in 2003 faced strong public opposition on the part of most Arab governments and contributed to the rise of anti-American sentiment throughout the region. I have limited the time span of this latter variable to 2003 and 2004. The observed changes in U.S. and European market shares in the course of these wars (Table 5) support my initial expectations regarding how these events might have affected American and European export prospects in the Arab world. The U.S. market share in GCC countries, for example, rose by 3.7% in 1991 but declined by 0.8% and 1.6% in 2003 and 2004, respectively.

I have also included an indicator variable for the years 2001 and 2002 in order to consider the impact of the second Palestinian Intifada[29] and the

September 11, 2001, terrorist attacks. The Second Intifada, which began in September 2000, led to a surge in anti-American sentiment in the Arab world, which might have had an adverse effect on the demand for American products in the region. The Second Intifada was soon followed by the September 2001 attack on the World Trade Center, which led to further tensions between the United States and Arab countries. Because of the short time interval between these two events, I have combined them into a single variable covering the years 2001 and 2002.

Table 5. Effect of Important Events in U.S.–Arab Relations on American and European Import Shares

Change in the market share of	1st Gulf War (Kuwait) (1990–91)		
	1990	1991	1992
USA in Saudi Arabia	-1.5%	3.5%	2.3%
EU4 in Saudi Arabia	0.9%	0.4%	0.3%
EU2 in Saudi Arabia	0.8%	0.0%	0.3%
USA in GCC	-1.0%	3.7%	0.2%
EU4 in GCC	0.8%	-0.6%	0.7%
EU2 in GCC	0.8%	-0.3%	0.0%
USA in Arab countries (total)	-1.1%	2.1%	0.5%
EU4 in Arab countries (total)	1.7%	-1.6%	0.2%
EU2 in Arab countries (total)	1.9%	-1.7%	0.6%

Table 5 Continued

Change in the market share of	Second Intifada + September 11 attacks (2001–2)			Iraq War (2003–4)		
	2000	2001	2002	2003	2004	2005
USA in Saudi Arabia	0.1%	-1.2%	-1.5%	-1.3%	0.3%	-0.5%
EU4 in Saudi Arabia	-1.2%	0.1%	-0.3%	0.1%	-1.8%	-0.5%
EU2 in Saudi Arabia	-1.8%	0.3%	-1.1%	0.0%	-0.3%	-1.0%
USA in GCC	0.6%	-0.5%	-0.6%	-0.8%	-1.6%	1.8%
EU4 in GCC	0.2%	-0.3%	0.1%	-0.5%	-0.1%	-0.4%
EU2 in GCC	-1.8%	0.3%	-1.1%	0.0%	-0.3%	-1.0%
USA in Arab countries (total)	1.0%	-1.3%	-0.1%	-1.4%	-0.9%	1.0%
EU4 in Arab countries (total)	-1.3%	-0.2%	-0.5%	0.5%	-2.9%	-0.5%
EU2 in Arab countries (total)	-0.9%	0.1%	-0.5%	1.1%	-1.7%	-1.1%

EU4 = Aggregate market share of Germany, France, UK, Italy. EU2 = Aggregate market share of France and Germany. These two countries were the leaders of the European opposition to the U.S. occupation of Iraq in 2003. Arab countries = GCC countries + Algeria, Egypt, Jordan, Libya, Morocco, Tunisia, Syria.

Estimation Results

For each importing country, I estimated a statistical model based on the specifications that were described above and are elaborated in the Appendix. The statistical model includes one equation for the import share of each exporting partner.[30] This is known as the regression equation. An equation has a dependent variable (the import share in this case) and a number of explanatory variables (for example the exchange rate and various geopolitical events). Then the existing data for these variables is used to identify the explanatory variables that have a significant impact on the dependent variable. In this section I have grouped the results by exporting country. Hence, each equation that appears in the table below comes from the statistical model (SUR) of the corresponding importing country. Table 6 shows the results for the United States as an export partner of the listed Arab countries and regions. (Readers who are not familiar with how to interpret the results of regression analysis can skip Table 6 and the paragraph that follows. All the results are presented in nontechnical terms in Tables 7, 8, and 9.)

In Table 6, the explanatory variables appear in the left-hand column. The impact of each variable on the U.S. market share in each country's or region's imports appears in the corresponding column, with the sign of the number in **boldface** indicating the direction of that variable's influence. For example, in the first column we observe that the number for "Exchange rate $/euro" is negative (-0.199), which means that an increase in the value of the dollar relative to the euro will have a negative impact on the U.S. market share in Bahrain. However, only the numerical values that are statistically significant can provide meaningful information. In this table, I have indicated statistical significance by placing either an * or a ** under the boldface numbers. We see in Table 6 that only a handful of explanatory variables have significant coefficients. Even the $/euro exchange rate does not have a significant coefficient in any of the equations.

Table 6. Model Specification: First-Difference Log Equations (Market share of the U.S. in each country is the dependent variable. Equations extracted from each country's SUR model estimations.)

USA	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE	GCC	Arab 13
Total imports	**0.532**	**- 0.5**	**0.391**	**0.0887**	**0.516**	**0.273**	**0.267**	**0.229**
	0.228	0.021**	0.139	0.634	0.595	0.133	0.053*	0.137
Exchange rate $/euro	**- 0.199**	**0.297**	**0.0656**	**0.446**	**- 0.047**	**- 0.32**	**- 0.051**	**0.00772**
	0.642	0.379	0.814	0.19	0.671	0.164	0.679	0.954
Dummy 2001–2 (2nd Intifada/ September 11)	**- 0.012**	**0.0996**	**0.0688**	**0.0924**	**- 0.0495**	**- 0.0142**	**- 0.0366**	**- 0.0679**
	0.949	0.504	0.544	0.524	0.292	0.88	0.486	0.164
Dummy 2003–4 (, Iraq War)	**- 0.298**	**0.0864**	**- 0.223**	**- 0.23**	**- 0.00578**	**- 0.184**	**- 0.15**	**- 0.16**
	0.13	0.59	0.068*	0.134	0.91	0.11	0.018**	0.008**
Dummy 1991–2 (Gulf War,	**0.215**	**0.489**	**- 0.202**	**0.0673**	**0.152**	**- 0.0601**	**0.0963**	**0.091**
	0.247	0.002**	0.082*	0.642	0.002**	0.541	0.091*	0.07*
Dummy 1998–99 (Asian financial crisis)	**0.114**	**- 0.0286**	**- 0.11**	**0.0219**	**- 0.0666**	**- 0.232**	**- 0.129**	**- 0.0867**
	0.548	0.846	0.343	0.881	0.155	0.022**	0.015**	0.08
Observations	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**25**
"R-squared"	**0.197**	**0.295**	**0.251**	**0.13**	**0.373**	**0.23**	**0.423**	**0.411**
p-value	**0.33**	**0.0611**	**0.156**	**0.604**	**0.011**	**0.217**	**0.0022**	**0.0079**

Data range: 1980–2007, "Arab13" = GCC countries + Algeria, Egypt, Jordan, Libya, Morocco, Tunisia, Syria. *=significant with 90% confidence, **=significant with 95% confidence.

Nevertheless, we see that in the case of several Arab countries the coefficient of political event indicators (also referred to as dummy variables) is significant and shows the direction of influence that we generally expect. The indicator for the first Gulf War has a positive and significant coefficient with respect to the U.S. market share in Kuwait, Saudi Arabia, the GCC bloc, and the aggregate of 13 Arab countries. As we mentioned earlier, the ruling regimes in GCC countries were generally supportive of the U.S.-led war that liberated Kuwait from Iraqi occupation, and the resulting positive feelings might have contributed to the growth of the U.S. market share in the GCC bloc. The indicator for the 2003–4 Iraq War has a negative coefficient for all countries other than Kuwait, but its coefficient is significant only in Oman, the GCC bloc, and the aggregate Arab market. The indicator for the Second Intifada/September 11 does not have a significant coefficient in any of the equations.

Tables similar to Table 6 were constructed for China, Japan, and EU4. Rather than presenting these tables here, however, I have summarized the results for coefficients of the dummy variables in Table 7. Only the statistically significant coefficients for each trade partner of an importing country are shown.[31]

Table 7. Direction of Influence for Significant Coefficients in SUR Model with First Difference-Log Equations

EU4 USA China (CH) Japan (JAP)	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE	GCC	Arab 13
Dummy 2001–2 (2nd Intifada + September 11)								
Dummy 2003–4 (Iraq War)	JA EU4		EU4 USA			JAP USA		
Dummy 1991–2 (Gulf War, Kuwait)	EU4 CH	EU4, USA	JA USA	EU4	USA	JAP	USA, JAP	
Dummy 1998–9 (Asian financial crisis)					JAP	USA CH		

Upper: A positive and significant coefficient (a < 0.1). Lower: A negative and significant coefficient (a < 0.1). EU4: Germany, France, UK, Italy. Arab 13: GCC countries + Algeria, Egypt, Jordan, Libya, Morocco, Tunisia, Syria Underlined abbreviations: The coefficient is significant, but it comes from an equation that is not statistically significant.

The numbers in Table 7 offer some consistent but weak results with regard to the impact of geopolitical developments on U.S. market shares. The 2003–4 Iraq War has a negative correlation with the U.S. market share in GCC countries. This negative correlation is also found to be significant in the case of Oman. The Gulf War indicator has a positive correlation with the U.S. market share in Kuwait, Saudi Arabia, and GCC. At the same time, we notice that the Intifada/September 11 indicator has no significance for any exporting country in any of the models. Similarly, no indicator (dummy) variable proves significant with respect to the aggregate imports of the 13 Arab countries that were included in this statistical study.

In order to examine the robustness of the results reported in Table 7, I repeated the statistical analysis with several other groupings of the exporting countries in my sample. The exports of China and Japan were combined into a single export bloc (Asia2), as were those of China, Japan, and India (Asia3) and those of China, Japan, India, and South Korea (Asia4). The results of the statistical models with these new groupings were similar and

consistent. One grouping that offered the best statistical results was Asia4. Each importing country's estimation model now had three equations for the U.S., EU4, and Asia4. I estimated these models with the same set of explanatory variables as in Table 5.[32] I further switched from annual market share data to the three-year moving average of market shares and found that the latter model generated similar results, with stronger statistical confidence.[33] A summary of the coefficients of the dummy variables with the first-difference model is presented in Table 8.

Table 8. Direction of Influence for Significant Coefficients in SUR Model with First-Difference Equations Based on 3-Year Averages of Market Shares (3-Equation SUR Model)

EU4 USA Asia4	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE	GCC	Arab 13
Dummy 2001–2 (2nd Intifada + September 11)	USA				Asia4 USA	Asia4 USA	Asia4	USA
Dummy 2003–4 (Iraq War)	Asia4	Asia4	EU4		Asia4	Asia4	Asia4	Asia4, EU4
Dummy 1991–2 (Gulf War, Kuwait)	USA Asia4	USA Asia4		USA	USA Asia4		USA	USA
Dummy 1998–9 (Asian financial crisis)	USA	Asia4				Asia4		

Upper: A positive and significant coefficient. Lower: A negative and significant coefficient (significance level: ≥ 0.9 for both). Asia4: China, Japan, India, South Korea. EU4: France, Germany, Italy, UK. Arab13: GCC countries + Algeria, Egypt, Jordan, Libya, Morocco, Tunisia, Syria. Underlined abbreviations: The coefficient is significant, but it comes from an equation that is not statistically significant.

The positive (upper) and negative (lower) correlations in Table 8 point to more consistent and stronger results regarding the impact of each indicator (dummy) variable on the relative market shares of the three exporting regions. The results for the Second Intifada/September 11 indicator variable show that these events were associated with lower market shares for the United States in three GCC countries as well as with respect to the

aggregate imports of the Arab world. Asian exporters, on the other hand, *gained* market share over the two years involved; this result is consistent with the deteriorating diplomatic relations between the U.S. and Arab countries during this period. Not only did the September 11 terrorist attacks give rise to diplomatic tensions between the two parties, but it also became more difficult for Arabs to travel to, and conduct business in, the United States. Visa applications were subject to long background checks, and financial transactions came under close scrutiny on the part of U.S. oversight agencies.

While Table 8 does not indicate a significant market share loss for the United States in connection with the 2003–4 Iraq War indicator, it does show that this indicator has a positive and significant correlation with the market shares of European and Asian countries. The market share gain of Asian countries was primarily driven by the growth of China's market share and can be understood as part of the longer-term trend that began in 2001. The European market gain, however, can be partly attributed to the geopolitical concerns of Arab importers. Among EU4 countries, market share of the United Kingdome in aggregate imports of Arab countries declined in 2003 while the market shares of France and Germany, which expressed the strongest opposition to the war, increased and Italy's share remained unchanged. However, the market gains of France and Germany were larger than the market loss of the United Kingdom and the net result was a market gain for aggregate exports of France, Germany, Iraly and the UK to the Arab countries.

The indicator for Gulf War shows a significant positive association with U.S. market share with respect to some GCC countries and the aggregate imports of the Arab countries. Within the GCC countries, the U.S. market share has a significant positive association with this indicator in the Kuwait, Qatar, Saudi Arabia, and Bahrain models. The GCC countries rely on the United States for their external security, and the swift U.S. response to the Iraqi occupation of Kuwait was a welcomed development. It is reasonable, therefore, to assume that the increase in U.S. market share during the years immediately after the liberation of Kuwait was partly due to such diplomatic considerations, and to the resulting improved image of the United States among the political and business elites of these societies.[34] At the same time, the fact that the Gulf War indicator did not show a

significant positive correlation with the EU4 market share is puzzling. These four countries were active participants in the U.S.-led coalition against Iraq in Gulf War I, even if their contribution was much smaller than that of the United States.

As a final experiment, I added a new indicator variable for the years 2005–8 to the statistical models of Table 8. This indicator covers a period that was associated with record high prices of oil and correspondingly record oil revenues for GCC countries. These high revenues in turn led to a sharp increase in Arab imports of merchandise goods, as shown in Figure 1. The results are reported in Table A3 in the Appendix and seem consistent with the earlier results shown in Table 8. It appears that inclusion of this additional variable has increased both the explanatory power of the models and the number of variables for which the results are statistically meaningful.

Summary of the Research

Between 2003 and 2008, the amount spent by Arab countries on merchandise imports rose from $200 billion to $650 billion. This rapid increase in purchasing power, which was made possible by the sharp increase in the price of crude oil, has intensified the competition among industrial countries for the Arab world's import market. Many international corporations have increased their marketing campaigns in order to promote their products in the region. At the same time, the governments of exporting countries have launched intense diplomatic efforts to promote trade and investment relations with Arab countries.

These diplomatic efforts have been especially intense with respect to the six Gulf Cooperation Council (GCC) countries, which accounted for more than 60% of Arab imports in 2008 despite their small population. The frequent visits of high-ranking American, European, and Asian diplomatic and trade missions to GCC capitals in recent years is clear testimony to the importance of GCC markets for these governments.

In light of the growing significance of the Arab import market for the global community, this study has focused on how the market shares of leading exporters to the Arab world have evolved over the past two decades. In the first part of this analysis, I look at the trends of these market shares over time and in comparison with market shares vis-à-vis other developing regions. Using International Monetary Fund and United Nations databases on annual bilateral trade among nations, I investigated the market shares of the United States, China, and Japan and the aggregate market share of the four largest European economies (Germany, France, the United Kingdom, and Italy). Since the GCC constitutes the largest and most important subregional import market within the Arab world, the study focuses on GCC countries in particular detail.

The trends analysis revealed that between 1988 and 2007, the United States, Japan, and and the four European countries lost market share in Arab markets. China's market share, on the other hand, which was very small at the beginning of this period, enjoyed substantial growth over these two decades. The market shares of European countries and the United

States were relatively stable before 2000; most of their market loss was occurred during the next eight years. For Japan, on the other hand, the market loss was most substantial during the first half of the 1990s, followed by another noticeable loss during 2005–7. China's market share grew at a slow pace up until 2000, which was followed by faster growth during 2001–7.

The trade data further revealed that these patterns were not unique vis-à-vis the Arab countries, though there were some differences in magnitude when market share loss in the Arab world was compared with that in other regions. Thus, the United States' loss of market share in Arab markets (particularly in the GCC countries) was relatively smaller than with respect to the aggregate imports of the developing countries as a whole. For the European countries, on the other hand, the market loss in the Arab world was slightly larger than in the developing countries. The pattern of China's market gain in the Arab world was similar to that in other developing regions.

In addition to aggregate merchandise imports, this study also looked at the market shares of the same exporters with respect to two specific types of products that constitute a substantial share of their exports to the Arab world: manufactured goods, and machinery and transport equipment. Data revealed that the United States, Japan, and the four European countries incurred significant market losses in the market for manufactured goods, where they faced strong competition from China and other low-cost producers, and that most of this market loss was realized after 1995. In the market for machinery and transport equipment, the U.S., Europe, and Japan still dominate, and their market shares have remained relatively stable. China's share in this category of exports has been very small, but it has experienced a visible uptrend since 2000. This suggests that China is entering into the production of more sophisticated high-value products and will pose a more serious challenge to the traditional producers of advanced machinery in the coming decades.

In the second part of this analysis, I use statistical regression models to investigate the impact of important geopolitical events on the relative market shares of the same exporters that were studied in the first section. Various empirical studies have suggested that political and diplomatic

relations between two nations might have an impact on the volume of their bilateral trade. In light of the complex diplomatic and security relations between the United States and Arab countries, it might be the case that the volumeof Arab imports from the U.S. is sensitive to the ups and downs of U.S.-Arab relations.

To investigate this theory, I focused on four important geopolitical events: the Gulf War of 1991, the second Palestinian Intifada (2000–1), the September 11, 2001, terror attacks, and the U.S. invasion of Iraq (2003–4). In my statistical model, the dependent variables are the market shares of the leading exporters to each Arab country or bloc of countries; I added dummy variables corresponding to each of these events to the existing set of independent variables for each model. (Because of the short interval between the Second Intifada, which began in September 2000, and the September 11 attacks, I combined these two into a single dummy variable covering 2001 and 2002.)

While none of these geopolitical events involved China or Europe, they had an indirect effect on these exporters' market shares as well. An event that deteriorates U.S.-Arab relations might encourage an Arab country to switch from American products to Asian or European substitutes. This could particularly be the case when a European country sides with Arabs in opposition to a U.S. policy, as exemplified by French and German opposition to the U.S. invasion of Iraq.

The statistical results suggest that the first Gulf War and the U.S. invasion of Iraq have both been associated with changes in U.S. market share in Arab imports. We observe a positive association between the first Gulf War and the U.S. market share in GCC countries and in the aggregate imports of Arab countries in 1991 and 1992. Contrariwise, we observe a negative association between the invasion of Iraq and the U.S. market share in the aggregate imports of the Arab world. (Among GCC countries, this negative association is significant only for the U.S. market share in Saudi Arabia.) The analysis also shows a strong and positive increase in the market shares of Asia and Europe in Arab imports during 2003–04 interval, which is associated with the U.S. invasion of Iraq.

The results for the Second Intifada/September 11 variable are mixed. This period is associated with an increase in the U.S. market share in Bahrain and a decrease in its market share in Saudi Arabia and the UAE. No significant association is detected with respect to other GCC countries or the aggregate imports of the GCC countries. Nevertheless, we observe a negative association between this pair of events and the U.S. market share in the aggregate imports of Arab countries. In Saudi Arabia, the U.S. market loss during this period (2001–2) is associated with market *gains* for Asian and European countries. This outcome suggests that the adverse impact of the Second Intifada and the September 11 attacks on U.S.-Saudi relations was stronger than on U.S. relations with other Arab countries.

Overall, my analysis allows us to suggest that the long-term trends with respect to the market shares of leading exporters to the Arab world are driven mainly by cost and by economic considerations. China's rise as a manufacturing powerhouse has allowed it to gain market share at the expense of established industrial nations, and this trend in the case of Arab countries is no different than with regard to other developing regions. At the same time, however, my analysis has revealed that major geopolitical events can have a short-term impact on bilateral trade between Arab countries and their trade partners. While this impact is statistically significant, its magnitude is generally small.

The statistical results that I have presented to support this argument should be treated with caution, as they might be sensitive to my method of analysis and to the sample of countries that I included. Future empirical research on this topic could include a larger sample of Arab countries as well as a larger selection of their trade partners. Another direction for future research would be to repeat the statistical/regression analysis for specific categories of commodities—in contrast to my analysis, which has focused on aggregate merchandise imports.

Appendix

Theory and Statistical Model

In this section, I describe a theoretical argument for the estimation model that I used to investigate the determinants of import market shares. This model was initially developed by Ashok Parikh.[35] In his analysis of import demand shares, Parikh derived his import share equations from an Almost Ideal Demand System (AIDS). The AIDS model is suitable because it allows us to formulate each exporting country's market share as a function of the real value of the importing country's aggregate imports and the export prices of major competitors. The import demand equations in AIDS are derived from an indirect utility function, as described in equation (1).

$$(1)\ \text{Log } c(\mu,P) = \alpha_0 + \sum_k \alpha_k \log P_k + \tfrac{1}{2}\sum_k\sum_i \gamma^*_{ki} \log P_k \log P_i + \mu\beta_0 \Pi_k P_k^{\beta k}$$

where **c(μ, P)** = the cost of achieving the utility level (**μ**) for the given level of export prices ($\mathbf{P_1}$, $\mathbf{P_2}$, . . . , $\mathbf{P_n}$). Here $\mathbf{P_i}$ represents the export price level of exporting country **i** (i.e., the relative exchange rate). By taking the derivative of equation (1) with respect to **log** $\mathbf{P_i}$, we can derive the market share demand for each exporter as shown in equations 2 and 3:

$$(2)\ \frac{\partial \log c(u, P)}{\partial \log P_i} = a_i$$

$$(3)\ a_i = \alpha_i + \sum_k \gamma_{ik} \log P_k + \beta_i \mu\beta_0 \Pi_k P_k^{\beta k}$$

Equation (3) gives the exporting country's import share as a function of the importing country's utility level and of all export prices. To introduce the total import volume into equation (3), Parikh notes that for a utility-maximizing importer, the cost of imports (**M**) needed to achieve the utility level **μ** at a given price level **P** is **M= c(μ,P)**. This equation can be solved for **μ** as a function of **M** and **P**. After substituting for **μ** in equation (3) and simplifying the result, we get the import share demand function for each importing country **j** vis-à-vis country **i** in equation 4:

$$(4)\ a_i^j = \alpha_i^j + \sum_k \gamma_{ik}^j \log P_k^j + \beta_i^j \log\left(\tfrac{M}{P}\right)^j$$

This equation proves very practical for the estimation of the import share equation. The relative exchange rates can be used as substitutes for export prices, and data regarding the nominal level of aggregate imports and price levels are readily available for the Arab (importing) countries. We can add appropriate dummy variables to this equation representing the noneconomic factors that we anticipate having an impact on the market share of each exporter.

Conversion to real values. All import values were converted to real values before calculating the trade shares for the purpose of regression analysis. This conversion helps us prevent the results of my analysis from being distorted by differences in inflation rates in exporting countries across the time span of my data. For each of the nine exporting countries, an appropriate export price index was used to calculate the real value of their exports to Arab countries after adjustment for price changes. For some countries a direct export price index was not available, so close proxies were used, as described in Table 3. In order to convert the total imports of each importing country from nominal to real values, I constructed a weighted export price index based on the export price indexes of the nine exporting countries in my sample. The weight assigned to each exporting country's index is equal to its share of the combined exports of the nine exporting countries in my sample to each importing country. Consequently, the lack of historical export index data for some countries reduced the data range for real values to twenty-eight annual observations after 1980.

Table A1. Sources of Data for Export Price Indexes

U.S.	Bureau of Economic Analysis (Export-Goods Price Index, Table 1.1.4)
Italy, UK, Germany	IMF
Japan	Bank of Japan (Export Price Index)
China	National Bureau of Statistics (Producer Price Index of Manufactured Goods
France	National Income Accounts (Ratio of Nominal to Real Values of Exports of Goods
India	IMF (Export Prices, L74&D)
Korea	IMF (Export Prices, L76)

The Estimation Method

The market shares of the trade partners of any given importing country are interconnected, because the market shares for all partners add up to one, so an increase in one partner's share reduces the market shares of all the others. Because of this property, using the Seemingly Unrelated Regression (SUR) method is more efficient than running independent Ordinary Least Squares (OLS) regressions. To take advantage of this additional efficiency, I have used the SUR model in this analysis.

I estimated an SUR model for each importing country. The model will then have one equation for each trade partner under consideration. As was explained earlier, the nine exporting countries in my sample accounted for nearly 50% of the total imports of each importing country; we consider the rest of the world as the residual trade share that will not be directly estimated.

The unit-root test

To make sure that the trade share time series are stationary, I used the Multivariate Dickey-Fuller test for seemingly unrelated equations (Table A2)[36]. The results in Table A2 suggest that, with the exception of Bahrain and Qatar, the market share variables were nonstationary at the level but became stationary after conversion to first difference. In light of this result, I used the first difference of all the dependent and independent variables in my regression estimates rather than their levels.

Table A2. Multivariate Dickey-Fuller Test for Seemingly Unrelated Equations (Four Equations for Market Shares of USA, EU4, Japan, & China)

	Level		First Difference	
	Test value	5% Critical value (no. of observations)	Test value	5% Critical value (no. of observations)
Bahrain	**33.226**	28.15 (28)	**79.953**	28.894 (27)
Kuwait	17.937	28.15 (28)	**79.491**	28.894 (27)
Oman	22.287	28.15 (28)	**75.384**	28.894 (27)
Qatar	**30.921**	28.15 (28)	**164.745**	28.894 (27)
Saudi Arabia	8.329	28.15 (28)	**46.156**	28.894 (27)
UAE	11.818	28.15 (28)	**93.898**	28.894 (27)
GCC	14.919	28.15 (28)	**56.128**	28.894 (27)
Arab13	19.631	31.844(24)	**53.232**	33.168 (23)

Data range: (1980–2007); (Arab13 = GCC countries + Algeria, Egypt, Jordan, Libya, Morocco, Tunisia, Syria.) Market shares are based on import values in constant prices. Statistics that are significant appear in boldface font.

Table A3. Direction of Change for Significant Coefficients in SUR Models with First-Difference Equations Based on 3-Year Averages of the Market Shares (3-Equation SUR Model for each Importer)

EU4 USA Asia4	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE	GCC	Arab 13
Dummy 2001–2 (2nd Intifada + September 11)	USA	EU4			EU4* USA	EU4, Asia4 USA	Asia4	Arab 13
Dummy 2003–4 (Iraq War)	Asia4	Asia4	EU4	EU4	Asia4,EU4 USA		Asia4	USA Asia4
Dummy 2005–8 (Oil boom)		Asia4		Asia4 EU4	Asia*, EU4* USA	USA	Asia4*	USA Asia4
Dummy 1991–2 (Gulf War)	USA Asia4	USA	Asia4	USA	USA	Asia4	USA	USA
Dummy 1998-99 (Asian financial crisis)	USA EU4	Asia4	Asia4			Asia4		EU4

Upper: A Positive and Significant Coefficient. Lower: A Negative and Significant Coefficient. EU4 = Germany, France, UK, Italy; Asia4 = China, Japan, India, South Korea; Arab13 = GCC countries + Algeria, Egypt, Jordan, Libya, Morocco, Tunisia, Syria. * Statistical significance level in the 0.9–0.925 rage (weak significance) Underlined abbreviations: The coefficient is significant, but it comes from an equation that is not statistically significant.

Endnotes

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1 For a survey of the economic performance of Arab countries after 2000, see International Monetary Fund, "Regional Economic Outlook: Middle East and Central Asia" (Washington, DC, October 2009).

2 Economists have generally been more interested in studying the volume of bilateral trade among nations than the relative market shares. The most common analytical model for analysis of bilateral trade is the gravity model, which assumes that the volume of trade between two nations is a function of the size of their respective economies (GDP) and the geographical distance between them. (The gravity model was first introduced by Jan Tinbergen in *Shaping the World Economy: Suggestions for an International Economic Policy* [New York: Twentieth Century Fund, 1962].) Economists and political scientists have inserted additional variables into the simple gravity model to study the impact of other factors–such as political institutions, diplomatic relations between the two countries, and relative prices–on the volume of bilateral trade.

3 Nicholas Blanford, "Arab Citizens Seize Boycott Banner," *Christian Science Monitor*, May 7, 2002.*

4 Currently ten Arab countries enjoy WTO membership, while six other states have observer status, which will eventually pave the way for accession negotiations.

5 For more detail on U.S. trade agreements with Arab countries, see Robert Z. Lawrence, *A US–Middle East Trade Agreement: A Circle of Opportunity?* (Washington, DC: Peterson Institute for International Economics [Policy Analyses in International Economics 81], 2006).

6 For a recent analysis of the Euro-Mediterranean Free Trade Agreement, see ENPI Info Centre, "The EuroMed Partnership,"* See also: Luc De Wulf, et al., "Economic Integration in the Euro-Mediterranean Region," *Center for Social and Economic Research*, September 2009.*

7 A major point of disagreement in EU-GCC trade negotiations is the refusal of the European Union to open its petrochemical market to GCC exports. GCC countries have a significant cost advantage in the production of petrochemicals, but European countries want to protect their domestic petrochemical industries.

8 The first round of trade talks between China and GCC countries was held in Riyadh in September 2009. This was followed by a GCC-China economic forum in February 2010 in Bahrain. The third round of talks between the two parties was concluded in June of that year. The first round of free trade talks between India and the GCC was held in March 2006, but progress has been slow. The GCC countries also initiated free trade talks with South Korea in 2008. The 2008–9 financial crisis resulted in a significant slowdown in GCC trade negotiations with potential Asian trade partners.

9 These statistics were calculated by the author based on United Nations Comtrade data. The figures reported reflect the sum of SITC categories 6 (manufactured goods) and 7 (machinery and transport equipment). If we add SITC category 8, which covers miscellaneous manufactured articles, the aggregate shares of categories 6, 7, and 8 will increase to 61% for the entire Arab world and 66.5% for GCC countries.

10 Data calculated by the Author based on the United Nations Comtrade data.

11 The European currencies, which were closely linked to one another before they were replaced with the euro in 1997, depreciated sharply against the dollar in the first half of the 1980s before reversing course and gradually appreciating during 1986–95. When the euro was introduced, it initially depreciated against the dollar between 1997 and 2001, but subsequently experienced a round of steady appreciation which lasted through 2009.

12 P. S. Armington, "A Theory of Demand for Products Distinguished by Place of Production," *International Monetary Fund Staff Papers* 16 (1969), pp. 159–76.

13 Ashok Parikh, "An Econometric Study on Estimation of Trade Shares Using the Almost Ideal Demand System in the World Link," *Applied Economics* 20 (1988), pp. 1017–39.

14 For a detailed analysis of the AIDS model, see A. S. Deaton and J. Muellbauer, "An Almost Ideal Demand System," *American Economic Review* 70, no. 2 (1980): 312–26.

15 See K. Konimoto, "A Typology of Trade Intensity Indices," *Hitotsubashi Journal of Economics* 17 (1977), pp. 15–32, and Andras Nagy, "The Treatment of International Trade in Global Models" (Laxenburg, Austria: International Institute of Applied Systems Analysis A-2361, February 1983) (Working Paper 83-25).

16 Solomon W. Polachek, "Conflict and Trade," *Journal of Conflict Resolution* 24 (1980), pp. 55–78.

17 Mark Gasiorowski, and Solomon W. Polachek. "Conflict and Interdependence: East-West Trade and Linkages in the Era of Detente," *Journal of Conflict Resolution* 26 (1982), pp. 709–29.

18 Ruth Arad, Seev Hirsch, and Alfred Tovias, *The Economics of Peacemaking: Focus on the Egyptian-Israeli Situation* (New York: St. Martin's, 1983).

19 Brian M. Pollins, "Does Trade Still Follow the Flag?" *American Political Science Review* 83, no.2 (June 1989), pp. 465–80.

20 A more recent study offers more recent empirical evidence that political tension and conflict have an adverse effect on bilateral trade. See Omar M. G. Keshk, Rafael Reuveny, and Brian M. Pollins, "Trade and Conflict: Proximity, Country Size, and Measures," *Conflict Management and Peace Science* 27, no. 1 (February 2010), pp. 3–27.

21 Rebecca M. Summary, "A Political-Economic Model of U.S. Bilateral Trade," *Review of Economics and Statistics* 71, no. 1 (February 1989), pp. 179–82.

22 William J. Dixon and Bruce E. Moon, "Political Similarity and American Foreign Trade Patterns," *Political Research Quarterly* 46, no. 1 (March 1993), pp. 5–25.

23 James D. Morrow, Randolph M. Siverson, and Tressa E. Tabares, "The Political Determinants of International Trade: The Major Powers, 1907–1990," *American Political Science Review* 92, no. 3 (September 1998), pp. 649–61.

24 James M. Lutz, "East European Trade with the Developing World: Soviet Diplomatic Partner or Economic Self-Interest," *International Trade Journal* 9, no. 3 (1995), pp. 333–62.

25 Kang-Taeg Lim and Jae-Young Kim, "Economic and Political Changes and Import Demand Behavior of North Korea," *Journal of Economic Development* 27, no. 1 (June 2002), pp. 137–150.

26 Ayla Ogus and Can Erbil, "The Effect of Instability on Turkey's Bilateral Trade with Iraq," *Turkish Policy Quarterly* 4, no. 4 (2005), pp. 169–77.

27 For more information about this data base, see: http://www2.imfstatistics.org/DOT/help/DOThelp.htm.*

28 For an analysis of this issue, see Anton Dobranogov and Ahmad Jalali-Naini, "Explaining Large Inventories: The Case of Iran," *Middle Eastern Finance and Economics*, Issue 1 (2007).*

29 The first Palestinian Intifada began in December 1987 and lasted until 1993. The second Palestinian Intifada began in September 2000, but there are disagreements as to when it ended. Some argue that it ended in 2004, while others believe it lasted until 2005. As far as the impact of the Second Intifada on the image of the United States in the Arab world is concerned (and the resulting possible surge in anti-American sentiment), I believe that the impact of the Second Intifada was strongest in 2001 and lasted through 2002. After 2002, it was overshadowed by the

U.S. invasion of Iraq, which had a significantly greater impact on Arab sentiment toward the United States. Even in the last quarter of 2001, the impact of the Second Intifada on the image of the U.S. in the Arab world was largely overshadowed by the September 11 attacks. This is why I chose to flag 2001 and 2002 as the time period during which the Second Intifada and the September 11 attacks were the dominant contributors to Arab sentiment toward the United States.

30 I use a SUR model with the first-difference log equation of the import share equation that is described in the appendix. The SUR does allow for differences in right-hand-side equations, and instead of using the same exchange rate in all equations, I have used the appropriate exchange rate for each exporting country.

31 In some cases the coefficient was significant, but it came from an equation with a p-value of greater than or equal to 0.1, which lessens the significance of the result.

32 These estimations were performed with first difference-log values and simple first difference values.

33 The results were very similar in terms of the sign and significance of the coefficients, but the coefficient t-statistics were larger in the first-difference model.

34 The improved image of the United States in GCC countries and its impact on U.S. exports to these countries was remarked on by Edward P. Djerejian, Assistant Secretary for Near East Affairs in the Clinton administration, who observed in 1993 that "[i]n the wake of Desert Storm, the end of the Cold War, and our role in the Arab-Israeli peace process, many U.S. firms are finding Near East markets more receptive to American products. This is particularly true in the Gulf, where both the public and private sectors are increasingly inclined to 'buy American.'" ("U.S. Economic Policy in the Middle East: Challenges and Opportunities" [speech, October 4, 1993], U.S. Department of State dispatch).*

35 Parikh, "An Econometric Study."

36 This test was conducted in Stata (econometric software) using the MADFULLER command. Multivariate Augmented Dickey-Fuller is a panel unit root test that is suitable for Seemingly Unrelated Regression (SUR) models. The null hypothesis of this test is that all the time series in the panel are nonstationary. Therefore the null hypothesis will be rejected even if one time series *is* stationary. For more details, see Mark P. Taylor and Lucio Sarno, "The Behavior of Real Exchange Rates during the post–Bretton Woods Period," *Journal of International Economics* 46, no. 2 (1998), pp. 281–312 .

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