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READINESS OF THE GULF MONETARY UNION

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READINESS OF THE GULF MONETARY UNION: REVISITED

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Disclaimer: This paper borrows from Azar and Asrawi's (2002) methodological technique in assessing monetary harmonization among Arab countries. The author would like to acknowledge their valuable contribution. Rock-Antoine Mehanna would like to acknowledge the valuable research assistance of Youssef Yazbeck

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Abstract

This paper revisits Mehanna's (2004) assessment of the viability of the future project of the Gulf Monetary Union (a goal set for 2010) while examining member countries over three time periods: (1) 1990-1999; (2) 2000-2006; and (3) average period 1990-2006. It follows the theory of Optimum Currency Areas and borrows from the European Monetary Union (the Maastricht Agreement's convergence criteria) for theoretical and comparison purposes. This study examines nine indicators for the six members of the Gulf Cooperation Council (GCC). These indicators cover economic integration, trade openness, monetary policy, economic development, fiscal, and military policies. New findings reveal that GCC countries have achieved more convergence in terms of indicators under study mainly due to the petro-dollar era. However, econometric results suggest that GCC countries are still out of phase and not harmonized in terms of trade, monetary policy and economic development. Relevant policy implications are discussed.

ملخص

تقيم هذه الورقة قابلية مشروع إتحاد النقد الخليجي (GMU)للنجاح وهو مشروع مستقبلي من المقرر أن يكتمل عام 2010 وهو يتبع نظرية منطقة العملة المثلي ويستفيد من تجربة إتحاد النقد الأوروبي (معايير التقارب في اتفاقية ماستريشت) لأغراض نظرية واخري تتعلق بالمقارنة. وتبحث هذه الدراسة احدي عشر سمة إقتصادية تميز الدول الست الأعضاء في مجلس التعاون الخليجي في الفترة من 1990 وحتي 2003 وتعكس هذه السمات تكاملا اقتصاديا وانفتاحا تجاريا وتعادلا في القوة الشرائية وتوافرا لسياسات نقدية ومالية وسياسات حماية. وتشير النتائج إلي تحول كبير في كل الدول الخليجية عما هو معهود في كل شريحة. وعلي الرغم من عدم الاستعداد وقتامة الصورة للوصول لهذا الهدف في 2010 إلا أن الدلالات توضح إنه بامكان الدول الأعضاء بمجلس التعاون الخليجي تحقيق التناغم وإصلاح إقتصادياتها إذا تم أخذ خطوات معينة تكون مدروسة بعناية.

Introduction

The Gulf Cooperation Council (GCC)[1] was initially founded on mere security and political grounds, resulting from a potential Shiite (a sect of Islam) expansion driven by the Islamic Republic of Iran (Ramazani, 1988). The GCC bloc was established after the outbreak of the 1980-90 War between Iran and Iraq (a Sunni majority government—another major sect of Islam) over territorial disputes. The small but rich Sunni kingdoms of the Gulf were afraid of an Iranian/Shiite expansion that could oust their regimes and could result in a "domino effect"—i.e., if a large country like Iraq falls, the smaller adjacent ones will follow.

The GCC bloc which was formed in 1981 evolved into a relatively successful trading bloc with more integration steps, mainly due to its homogeneous political, cultural/religious, demographic, and economic structures. Remarkable steps in eliminating barriers to the free movement of goods, labor, and capital across GCC members were achieved. However, in today's global dynamic economy, GCC countries face greater challenges than ever. Attempts to reduce their dependence on oil revenues and to increase the diversification of their non-oil sectors have not been very successful.

At the end of 2001, the governments of GCC countries decided to establish by January 1, 2010, a Gulf Monetary Union (GMU) with a single currency pegged to the U.S. dollar. Literature assessing the readiness of GCC countries for the Gulf Monetary Union has known a prompt evolution. Some descriptive studies suggest the readiness of a Gulf Monetary Union. Hashmi and Abdulla (2004) analyzed other currency unions in the world and postulate that the continuous integration and progress of GCC members indicates their readiness for a monetary union. Other early basic empirical studies adopt a cost-benefit analysis, and report that the simple nature of the GCC economies makes them eligible to form a viable monetary union sooner rather than later and before they become more complicated (Al-Mannae, 1987). Mehanna (2004) assessed the readiness for the Gulf Monetary Union while adopting a framework that accounts for the two major distinct factors pertinent to the GCC—the dependence on oil and the impact of defense expenditures on fiscal policy. The One-Way ANOVA results show that the GCC country members are significantly out of phase and not harmonized to form a monetary union.

The purpose of this paper is to reassess the viability of the Gulf Monetary Union Project in-light of the withdrawal of Oman and the recent continuous depreciation of the US dollar, which has led Kuwait, for instance, to peg its currency against a basket of currencies instead of the US Dollar. Many other GCC countries are reconsidering as well their pegging regimes to the US dollar since this has been diluting their profits from the Oil price boom. Gulf States have followed the recent Fed's decision to cut interest rates to boost the US economy, which has increased inflation pressures, even further, especially in the UAE. These developments may lead several Gulf States, mainly the UAE to sever ties with the dollar.

This paper examines 9 monetary union indicators for the six GCC members over the average period 1990-2006 while distinguishing between two sub-periods 1990-1999 and 2000-2006. Hypothesis testing states that the six GCC economies are still not significantly harmonized to form a viable monetary union.

The rest of this paper is organized as follows. Section II reviews the literature. Section III discusses the methodology, while section IV analyzes the findings. Finally, section V concludes the study and provides policy implications of the results.

[1] The Gulf Cooperation Council (GCC) encompasses the following six countries: Bahrain, Oman, Kuwait, Qatar, Saudi Arabia, and United Arab Emirates (UAE).

Literature

The theoretical framework of this study is built on the theory of "Optimum Currency Areas" (Mundell, 1961; McKinnon, 1963), which predicts that fixed exchange rates are most appropriate for areas closely integrated through international trade and factor endowments. Literature indicates that a country can benefit from a currency union if it engages in freer flow of labor, goods, and capital (though the latter is questionable, especially in the wake of the 1997 Asian crisis).[2]

Although GCC members have small market size, high transportation costs (due to a desert landscape and/or rough terrain), similar resource endowments and production structures (e.g., oil and gas); their similar geo-political position, per capita income and political structures (monarchical), common religious sect (Sunni), borders and colonial ties (British Colonies) have contributed to spurring their sub-regional intra-trade activities. Moreover, their relatively open trade policies and market oriented economies allowed them to trade with the rest of the region; thus, benefiting from a superior allocation of resources and a modest trade creation outcome (Mehanna and Hassan, 2002).

Additionally, literature reports that several aspects could facilitate a monetary union, such as common culture, close geographic proximity, common religion and language, open economies, diversified exports, larger propensity to imports; thus the smaller the change in aggregate demand required to correct a given external imbalance (Azar and Asrawi, 2002). In fact, these aspects seem to favor a GMU. In addition, it is argued that under a fixed exchange rate regime like in the GCC countries, fiscal policy is stronger than monetary one.[3] Thus, greater intra-GCC trade accompanied by greater economic integration could lead to greater monetary efficiency gain under a fixed exchange regime, hence stable and predictable economic conditions (e.g., prices).

GCC countries, especially UAE, Qatar and Bahrain started to actively implementing structural and institutional reforms ranging from opening their markets to foreign direct investments, to promoting and streamlining the efficiency of the private business sector. The planned GMU is expected to enhance these reform initiatives. Popescu and Mustafa (2001) argue that there is ample benefit in achieving Gulf monetary unification, provided that GCC countries develop their current comparative advantages and learn from international experiences. But of course, there are benefits as well as costs to those countries joining a monetary union.

Such benefits include stabilizing nominal exchange rates between member countries (by reducing exchange rate volatility); lowering transaction costs (by eliminating currency conversion costs); converging incomes; reducing foreign exchange risk; spurring foreign direct investment, increasing the flow of goods (doubling or tripling trade among members), labor and capital; achieving greater economies of scales; establishing a competitive role on global markets; and locking in reforms—shielding reforms from political pressures of some interest groups [For further details, see Mehanna and Hassan, 2003; Frankel and Rose, 2002; Glick and Rose, 2002]. Financial markets could also directly benefit from a deeper integration among Gulf countries. Fasano (2003) argues that the elimination of formal barriers have allowed nationals to invest in stock markets and real estate of most other member states. He also points out that a move to a monetary union should improve the efficiency of financial services, lower transportation costs, and increase transparencies in prices, and thus facilitate appropriate investment decisions.

[2] For a further discussion on the impact of financial liberalization and capital controls, see Crotty and Lee, 2002; and Reinhart and Smith, 2002.

[3] All six GCC countries have started pegging their individual currencies to the U.S. dollar in early 2003.

Additionally, Jadresic (2002) assesses the eventual replacement of the currencies of the GCC countries with a common currency, and concludes that a properly implemented currency union may contribute to enhance economic efficiency in the region, deepen regional integration, and most importantly develop its non-oil economy. In a broader context, Grinols (1993) contends that the move from customs union to common market would open many opportunities for welfare improvement. Krueger (1997) also postulates that deeper regional integration has a positive effect on growth, as well as on resource allocation.

The cost of establishing a monetary union could be manifested by different arrays. It could weaken the national sovereignty; lose flexibility and control over monetary policy (due to a centralized monetary policy); and/or reduce the effectiveness and flexibility of fiscal policy[4]. Imposing strict limits on fiscal policy such as placing a cap on the level of public spending (as prescribed by the European convergence criteria) may create a major hindrance to a number of economies. Qatar, for instance, has a high level of external debt relative to gross domestic product (GDP) because of extensive use of project finance for the development of its gas export capacity. Saudi Arabia, by contrast, incurred a high domestic debt reaching over 100 percent of GDP in the late 1990s due to past chronic fiscal imbalances and military build ups.

Neaime (2005) concludes that GCC countries still lag behind in the coordination of their fiscal policies, which is required to achieving a full monetary union. Nonetheless, the surge in oil prices in recent years has enabled all GCC countries to enhance their public finances. Therefore, a flexible clause pertinent to public spending should be addressed in their required "convergence criteria". This may be necessary in the event of continuing a highly effective capital financing as in the case of Qatar's gas sector, or avoiding an instant sharp cut back in public spending due to any dip in oil prices.

Other costs could emerge from a monetary union, such as increasing economic vulnerability to exogenous shocks (e.g., contagion effect), where negative/positive shocks could spillover much *faster* across the bloc. In this particular case, these oil-economies may face large fiscal imbalances due to sudden fluctuations in the oil price (Mehanna and Hassan, 2003). An interesting study by Alesina and Barro (2002) shows empirically the trade off between commitment to price stability (if a currency anchor is selected like in the case of the planned GMU to the U.S. dollar) and the loss of independent stabilization policy. Literature shows that the impact of monetary union exists mostly among heterogeneous, small, open and developing countries. But usually, in the case of large developed and homogeneous economies, a common currency would have no impact on either trade or income (Thom and Walsh, 2002).

Al-Mannae (1987) argues that in the short run a Gulf monetary integration would incur a substantial cost; however, there will be larger benefits in the long run. Similarly, Ibrahim (2004) examines the potential costs and benefits of monetary union for the Gulf countries. He postulates that GCC countries will incur some significant costs, while benefits are limited and conditional to timing and specific policy efforts in trade and diversification, development of non-banking financial institutions, financial assets promotion, labor market, fiscal rules and budgetary framework. Furthermore, Mehanna (2005) claims that a common GCC currency may eventually be used to price the region's hydrocarbons exports, and could prove to be a reserve currency of choice for a number of Arab and Islamic central banks.

[4] The fiscal policy convergence criterion is usually aimed to keep public spending under control; however, this criterion could be relaxed in a special clause to allow a temporary out-of-phase budget deficit in case of emergencies, such as natural disasters and national security crises (e.g., Germany's flood in 2002). Note here that such a close does not exist under the Maastricht agreement's convergence criteria).

Methodology

This study uses a simple One-Way ANOVA technique to estimate the viability of the GMU project by examining all six GCC countries from 1990 through 2006 while splitting this overall period into two sub-periods 1990-1999 and 2000-2006. Data are borrowed from Azar and Asrawi (2002), the World Bank's Development Indicators, the International Monetary Fund's Direction of Trade Statistics, and national governments' web sites.

The One-Way ANOVA test is used to detect any significant signs of convergence among a number of observations (e.g., countries). Therefore, it would allow addressing the main research question of this paper: are the six Gulf countries still heading successfully toward a viable monetary union or they are still far behind?

The viability of the Gulf Monetary Union is assessed while borrowing major economic characteristics from the EMU framework and its convergence criteria. The specificity of GCC countries including their distinct factors is taken into account to adequately assess the harmonization of these characteristics.

Nine indicators are examined covering:

- **Economic integration**, where the higher the ratio the deeper the level of integration; hence the desirability for a monetary union. Economic integration is represented by "GCC trade as a percent of GDP"
- **Trade openness**, where more open countries are expected to benefit more from a monetary union. This characteristic is measured by "GCC import as a percent of GDP"
- **Monetary policy**, where similar low inflation rates are favorable for a common monetary union.
- **Economic development**, where similar real per capita incomes among members is another favorable sign for a union.
- **Fiscal policy,** where fiscal harmony is favorable for a Monetary Union. It is measured by "Government spending as a percent of output" and "Budget deficit as a percent of output"
- **Military policy,** where harmonization is needed to reach the established objective. It is measured by the following variables: military expenditures as a share of total government expenditures; military expenditures as a share of output and armed personnel to the labor force.

Empirical analysis

Table 1 reports average ratios of GCC trade to national output measured by the gross domestic product-GDP. These ratios range between 99.2 and 112.2 over the period 1990-2006. Such a result suggests that GCC countries are economically integrated and shows that a Gulf Monetary Union is plausible. However, the one way ANOVA test significantly reflects the absence of convergence over the periods 1990-1999 and 2000-2006, weakening the case for a monetary union.

The average ratios of GCC import over GDP are reported in table 2. The overall mean (i.e., period 1990-2006) is around 47 % which is neither too low nor too high. GCC imports have declined over the period 2000-2006 with more efforts to exports. Nonetheless, the results of the One-way ANOVA test show that a monetary union is still not plausible; a significant departure from normality remains dominant over the periods under study.

Average inflation rate is one measure of monetary policy. Table 3 shows a small increase in inflation over the period 2000-2006. A mean of 2.18 over the period 1990-2006 still indicates a low inflation rate; the decrease in range shows that the four countries under study are converging in monetary policy as is required for a currency union. The subsequent One-Way ANOVA test results suggest, however that GCC countries are still not harmonized enough to

depart from normality, and thus do not favor a GMU. The result is reinforced during the period 2000-2006.

The high overall per capita income is $12,453 and averages range for the highest $23,350 (UAE) to the lowest $8,161 (Oman) over the period 1990-2006 (see table 4). The ANOVA test in both periods 1990-1999 and 2000-2006 reveal significantly the absence of harmonization, thus weakening the case for a GMU. This means as well that fiscal discipline among the countries involved can be difficult to achieve as some countries are very high-income economies (e.g., UAE) and other are rather upper-middle income (e.g., Oman).

Tables 5 and 6 document results of the fiscal policy measured by government spending and budget deficit both as a share of output.[5] . According to table 5, the mean of government expenditure (% GDP) decreased during the period 2000-2006. Seemingly, fiscal policies have converged; thus favoring the establishment of a monetary union. This phenomenon could be explained by the departure from the previous era of military build-up after the Iraqi invasion of Kuwait and the concern of future GCC invasions. However, ANOVA test still reveals the non-readiness of GCC countries to a Monetary Union.

Table 6 shows that budget deficits have improved substantially due to the boom in petro dollars coupled with a sound fiscal policy away from the defense build up of the 1990-1999. Subsequently, econometric results changed as well to become significant, implying convergence across GCC members, favoring a monetary union across GCC countries.

The following three characteristics denote some economic aspects of the defense policy. They are represented by military expenditures as a share of government spending and output respectively, as well as military personnel as a percent of labor force. Military expenditures are intended to measure the total physical capital committed to defense, while the military personnel variable is a rough indicator of the human capital aspect of defense.

Table 7 shows that military expenditures decreased substantially over the period 2000-2006. The results of ANOVA test show a better harmony among GCC countries favoring the case of a monetary union.

Results in table 8 are consistent with a better fiscal policy away from the defense build-up. Convergence among GCC countries increased over the period 2000-2006. However, ANOVA test results reveal that this convergence is still not sufficient to justify a Gulf Monetary union.

Similarly to results of table 8 (see above), the One-Way ANOVA findings show a high significant departure from normality among the ratios of involved members, which weakens the case for a monetary union.

Conclusion and policy implications

The purpose of this paper is to reassess the readiness of the GCC member countries for a monetary union, a goal their governments head set for 2010. Building on Mundell's theory of Optimum Currency Areas and the European Monetary Union convergence, it examines nine economic indicators (covering economic integration, trade openness monetary policy, economic development, fiscal policy and military expenditures) for the six GCC members over the average period 1990-2006 while splitting it in two sub-periods 1990-1999 and 2000-2006. It uses the One-Way ANOVA test to estimate whether these countries are ready to meet the challenges of a monetary union.

[5] The other leg of fiscal policy, taxes, is not examined due to inconsistent and unavailable data.

The One-Way ANOVA results show that since 2000, GCC countries have achieved more convergence. Such convergence makes the establishment of the Monetary Union a more viable one. Specifically, government budget have substantially decreased following the high increase in oil prices; thus, meeting the conditions for the establishment of a monetary union. The decrease in government deficits was consistent with the end of the GCC military build up that occurred during the period 1990-1999. The end of this military build-up led to a statistically significant harmony among GCC countries.

However, GCC countries are still significantly out of phase and not harmonized in terms of trade, monetary policy and economic development indicators. The relevant econometric tests reject the null hypothesis of significant harmonization.

In this context, GCC should still consider the following economic policy implications to successfully fulfill the objective of a monetary union:

1. GCC countries still need to work more on identifying their comparative advantages and diversifying their exports base.
2. GCC country members should narrow inflation gaps among each other. This is particularly difficult within the context of the current financial crises and the currency peg against the US dollar. Consequently, GCC countries should adopt a more flexible arrangement dedicated to provide monetary stability and financial diversification while reducing the high correlation with the U.S business cycle. This could be achieved through pegging national currencies to a basket.
3. GCC governments should harmonize and then centralize their monetary policy with an authority vested in an independent central bank that could possibly be located in Bahrain due to its healthy and flexible banking sector (another valid proposal suggests Saudi Arabia due to it economic size).
4. GCC countries should continue their fiscal harmonization; they should discipline their fiscal policies within harmonized bands among each other.
5. Members of the planned GMU should control and harmonize their very large military expenditures, and perhaps create a regional defense pool, which might be more efficient and effective for security and economic purposes rather than the current costly individual country defense budgets. Actually, many Arab leaders highlighted the need for a regional defense pact following the last Israeli-Palestinian conflict; King Faisal considers the activation of the Arab Joint Defense Treaty is important for Arab countries to have a common stance in the military field. Future research welcomes an investigation of the economic efficiency of a regional pool.

To conclude, a monetary union is not viable without a harmony in institutional quality among GCC countries, especially in using common standards of banking procedures, legal and accounting practices, regulation policies, and others. Further research is welcomed in this field.

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Table 1: GCC foreign trade as a percent of GDP

Country	1990-1999	2000-2006	1990-2006
Average			
Saudi Arabia	66.43	79.11	72.07
Oman	82.35	95.34	87.22
Qatar	85.18	92.86	89.02
Kuwait	98.41	86.83	93.64
United Arab Emirates	135.41	146.52	139.58
Bahrain	162.72	143.63	155.56
Total	**106.51**	**105.40**	**106.05**
	95% Confidence Interval for the mean		
Lower	96.59	95.99	99.16
Upper	116.42	114.82	112.16
	One-way ANOVA test		
F Statistic	F(5,50) = 64.3	F(5,33) = 50.9	F(5,89) = 90.1
p-value	P-value = 0.00	P-value = 0.00	P-value = 0.00

Table 2: GCC import as a percent of GDP

Country	1990-1999	2000-2006	1990-2006
Average			
Bahrain	78.47	62.28	72.40
Kuwait	53.59	31.49	44.49
Oman	36.79	36.87	36.82
Qatar	36.45	28.26	32.35
Saudi Arabia	29.51	27.56	28.64
United Arab Emirates	62.82	66.13	64.06
Total	**50.54**	**41.08**	**46.66**
	95% Confidence Interval for the mean		
Lower	44.68	35.69	42.51
Upper	56.41	46.48	50.81
	One-way ANOVA test		
F Statistic	F(5,50) = 17.9	F(5,33) = 73.1	F(5,89) = 32.2
p-value	P-value = 0.00	P-value = 0.00	P-value = 0.00

Table 3: GCC average inflation

Country	1990-1999	2000-2006	1990-2006
Average			
Bahrain	0.79	0.88	0.83
Kuwait	3.13	2.45	2.83
Oman	n/a	1.54	1.54
Qatar	2.88	5.85	4.20
Saudi Arabia	1.29	0.75	1.05
United Arab Emirates	n/a	n/a	n/a
Total	**2.02**	**2.35**	**2.18**
	95% Confidence Interval for the mean		
Lower	1.23	1.25	1.52
Upper	2.82	3.45	2.84
	One-way ANOVA test		
F Statistic	F(3,36) = 2.4	F(4,33) = 4.1	F(4,73) = 4.81
p-value	P-value = 0.09	P-value = 0.01	P-value = 0.00

Table 4: GCC average GDP per capita (constant 2000 US $)

Country	1990-1999	2000-2006	1990-2006
Average			
Bahrain	10,998.5	13,333.9	11,874.3
Kuwait	18,069.9	18,672.2	18,398.4
Oman	7,603.7	9,090.7	8,161.3
Qatar	n/a	n/a	n/a
Saudi Arabia	9,159.4	9,423.7	9,276.9
United Arab Emirates	23,504.6	23,092.2	23,349.9
Total	**13,400.2**	**14,391.4**	**13,812.1**
	95% Confidence Interval for the mean		
Lower	11,518.4	12,365.5	12,453.45
Upper	15,282.0	16,417.3	15,170.83
	One-way ANOVA test		
F Statistic	F(4,40) = 750	F(4,27) = 150	F(4,72) = 496
p-value	P-value = 0.00	P-value = 0.00	P-value = 0.00

Table 5: GCC government expenditure (% of GDP)

Country	1990-1999	2000-2006	1990-2006
Average			
Bahrain	21.69	17.11	19.97
Kuwait	38.38	20.29	30.93
Oman	24.38	21.49	23.30
Qatar	31.05	15.83	23.44
Saudi Arabia	27.26	24.48	26.02
United Arab Emirates	17.10	14.21	16.02
Total	**26.33**	**19.22**	**23.41**
	95% Confidence Interval for the mean		
Lower	23.74	17.78	21.7
Upper	28.92	20.66	25.2
	One-way ANOVA test		
F Statistic	F(5,50) = 11.1	F(5,33) = 13.9	F(5,89) = 7.8
p-value	P-value = 0.00	P-value = 0.00	P-value = 0.00

Table 6: Government Budget Deficit (% of GDP)

Country	1990-1999	2000-2006	1990-2006
Average			
Bahrain	-2.70	4.30	-0.07
Kuwait	-37.44	8.17	-22.24
Oman	-6.63	-3.59	-6.12
Qatar	n/a	13.03	13.3
Saudi Arabia	n/a	n/a	n/a
United Arab Emirates	0.22	n/a	0.22
Total	-14.15	5.70	-7.95
	95% Confidence Interval for the mean		
Lower	-27.54	1.96	-17.45
Upper	-0.76	9.45	1.55
	One-way ANOVA test		
F Statistic	F(3,29) = 2.0	F(3,11) = 3.7	F(4,43) = 1.2
p-value	P-value = 0.13	P-value = 0.05	P-value = 0.31

Table 7: Military expenditure as a share of government expenditure

Country	1990-1999	2000-2006	1990-2006
Average			
Bahrain	19.90	17.27	18.82
Kuwait	35.26	17.75	28.70
Oman	45.29	42.81	44.88
Qatar	.	.	.
Saudi Arabia	.	.	.
United Arab Emirates	47.61	.	47.61
Total	34.77	20.87	30.43
	95% Confidence Interval for the mean		
Lower	28.55	15.81	25.59
Upper	40.99	25.93	35.26
	One-way ANOVA test		
F Statistic	F(3,29) = 6.2	F(2,12) = 114.2	F(3,44) = 11.5
p-value	P-value = 0.00	P-value = 0.00	P-value = 0.31

Table 8: Military expenditure (% of GDP)

Country	1990-1999	2000-2006	1990-2006
Average			
Bahrain	4.87	4.06	4.57
Kuwait	27.20	6.19	18.55
Oman	14.21	11.75	13.19
Qatar	.	.	.
Saudi Arabia	11.53	9.33	10.55
United Arab Emirates	5.40	2.88	4.46
Total	12.64	7.11	10.40
	95% Confidence Interval for the mean		
Lower	7.85	5.92	7.49
Upper	17.43	8.31	13.32
	One-way ANOVA test		
F Statistic	F(4,45) = 3.4	F(4,29) = 91.5	F(4,79) = 3.7
p-value	P-value = 0.01	P-value = 0.00	P-value = 0.01

Table 9: Military personnel (% of total labor force)

Country	1990-1999	2000-2006	1990-2006
Average			
Bahrain	5.35	6.43	5.80
Kuwait	1.86	1.69	1.78
Oman	5.45	5.10	5.31
Qatar	3.77	3.05	3.47
Saudi Arabia	3.03	2.89	2.97
United Arab Emirates	5.23	2.41	4.07
Total	4.23	3.59	3.96
	95% Confidence Interval for the mean		
Lower	3.79	3.06	3.62
Upper	4.68	4.13	4.30
	One-way ANOVA test		
F Statistic	F(5,51) = 15.5	F(5,36) = 126.4	F(5,93) = 29.8
p-value	P-value = 0.00	P-value = 0.00	P-value = 0.00