

What Drives Inflation in Gulf Cooperation Council (GCC) Countries

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Abstract

The main reason of this study is to determine the main inflation determinants in Gulf Cooperation Council (GCC) countries over the period 1996-2016. The GCC area is exposing many economic challenges and risks like higher prices of basic products and services. Moreover, GCC countries impose value added tax in 2018 that increased the prices significantly. To reduce the prices rates, GCC governments decided to support the local manufacturing rather than depending on imports. However, controlling the inflation rates is showing the efficiency of economic administration for any country. In this study, the data was gathered through the United Nations Conference on Trade and Development (UNCTAD) International Monetary Fund (IMF) and World Bank (WB) databases. Statistically, the data were analysed by generalized method of moments (GMM) and generalized least square (GLS). The main results of this study show that the foreign direct investment (FDI) is one of main determinants that has an inverse and significant influence on inflation. Moreover, the corruption impacted the inflation positively and significantly. Finally, the oil prices are controlling the inflation as higher oil prices increase the inflation rates significantly.

Keyword: Inflation, Gulf Cooperation Council countries, Arab Spring, Oil prices

1. Introduction

Inflation affects purchase power of consumers negatively and decrease the strength of currencies. This study is finding the main determinants of Gulf Cooperation Council (GCC) states. The GCC countries are Kingdom of Bahrain, Kingdom of Saudi Arabia, State of Kuwait, Sultanate of Oman, State of Qatar and United Arab Emirates (UAE). The GCC economies depend mainly on oil exporting and this can be strongly risky due to lower prices of oil. This means that inflation rates are significantly related to oil prices in GCC. To reduce

this economic risk, GCC countries have to diversify their economies through depending on different sectors. As a result, Saudi Arabia proposed an idea of differentiating the national income sources, this proposal called Saudi Vision 2030 (KSA Vision 2030, 2019). Finding the main determinants of inflation would help the policy makers to control inflation rates through identifying the significant positive and negative variables. Many studies in the literature review examined the correlation between inflation and its determinants such as Khan (2010) and Conrad, Mohanty and John (2015) and Hartmann (2019). Controlling inflation rates in GCC could attract the investors to build new businesses. In addition, regulate inflation rates impact exchange rates positively. Nowadays, it is challenging for whole countries to face inflation due to scarcity of resources and increasing in world population. However, this study contributes to the literature several contributions: a) there are lack of studies focusing on GCC region and in fact it is very important area due to main exporters are in this area (such as Saudi Arabia), b) the data is covering updated period 1996-2016, c) this study is finding the effects of Arab Spring on inflation, d) comparing GMM and GLS models will provide a robust evidence of main determinants of inflation. This article is finding the main factors that impact inflation rates in GCC region for the period 1996-2016. Further, the research questions of this study are:

1. What are the main positive inflation' determinants in GCC countries?
2. What are the main negative inflation' determinants in GCC countries?

However, the data will be analysed through generalized method of moments (GMM) and generalized least square (GLS). Employing GMM and GLS regressions would help providing a strong evidence of the associations between the dependent variables (inflation in this study) and the independent indicators. This article however is ordered like: section two shows the literature review of inflation and hypotheses of the study. section three presents the data description and methodology. Section four illustrates the empirical results. Finally, section five indicates the conclusion of the study.

2. Literature Review of Inflation and Hypotheses of the Study

2.1 Literature Review

There is a lack of studies that focus on the determinants of inflation rates in GCC region. However, this part shows the literature review on inflation.

Lopez-Villavicencio and Pourroy (2019) examined the factors of inflation of 48 advanced and emerging economies for the period 1982-2016. State-space models are used statistically in this study for testing the association between inflation rates and the causes of inflation. The findings illustrate that higher political stability increased the average level of prices significantly and positively. This means that more political stability rates allowed higher money supply and higher consumption. In the other side, more economic growth led to lower inflation rates. In this case, more production increases the competition between investors and reduce the prices effectively (this is consistent to the study of Ajmair, 2015).

Franses and Janssens (2018) found the main drivers of inflation in 47 African countries

during the period 1960-2015 using GARCH model (statistically). The main result of this study shows that the correlation between inflation and corruption is significant and negative. The corruption declines the purchase power of consumers due to corruption limit the availability of money. This encourage the African governments to eliminate corruption to balance the prices rates.

Montes and Lima (2018) tested the indicators of inflation for 82 countries over the period 2006-2014. Statistically, generalized method of moments (GMM) was employed to test the indicators of inflation. The unemployment rates influenced inflation significantly and negatively. The result indicates that when prices grow the unemployment lower down as costs of operating businesses force investors to reduce jobs. The same result of Franses and Janssens (2018), corruption reduced the prices levels significantly.

Termos et al. (2013) focused on the GCC countries and found the drivers of inflation rates through the period 1972-2010. The statistical methods in this study are ordinary least square (OLS), fixed-effects model and anderson–hsiao (AH) regression. Oil prices support the increase of the level of prices positively. This means that higher oil prices lead to higher costs of production in GCC. Finally, there is an insignificant relationship between inflation and GDP.

2.2 Hypotheses Formulation

After analysing the literature review, the main indicators of inflation will be tested in this study as gross domestic production, GDP per capita, foreign direct investment (FDI), unemployment, corruption, political stability, global financial crisis (GFC), Arab Spring and oil prices. Theses hypotheses can be conducted as:

GDP: some studies confirm a positive correlation between inflation and GDP (e.g. Ajmair, 2015; Lopez-Villavicencio & Pourroy, 2019). on the other side, few studies show that higher economic growth led to higher inflation rates (Bashir et al., 2011; Bhattacharya, 2014). In general, investors are looking into countries with higher GDP and lower inflation rates when they invest. Therefore, the hypothesis is:

H1: There is a significant correlation between GDP and inflation

GDP per capita: Khan and Saqib (2011) approved that the higher GDP per capita lower the inflation rates significantly. This indicates that during greater inflation rates the production per person decrease due to higher costs of production. Al-Marhubi (2000) however, found insignificant relationship between prices and GDP per capita. The hypothesis is:

H2: There is a significant correlation between GDP per capita and inflation

FDI: This study tests weather the foreign direct investment would increase or decrease the level of prices of products and services over the period 1996-2016 by the hypothesis as:

H3: There is a significant correlation between FDI and inflation

Unemployment: The unemployment rates do not give good indicator of economy therefore, investors target countries with lower rates of unemployment to build their businesses. Montes

and Lima (2018) concluded that higher prices influenced unemployment significantly and negatively for the period 2006-2014. The hypothesis for unemployment is:

H4: There is a significant correlation between unemployment and inflation

Corruption: Most studies in the literature claimed that corruption affects inflation rates significantly and inversely. This could be that the corruption reduces the purchase power in the society which declines buying behavior. However, Al-Marhubi (2000) and Montes and Lima (2018) confirm a significant and positive relationship between inflation rates and corruption. Therefore, the hypothesis for corruption can be formulated as:

H5: There is a significant correlation between corruption and inflation

Political stability: Lopez-Villavicencio and Pourroy (2019) approved that stronger political stability increase the inflation levels significantly. As an explanation of this case, higher political stability would increase the sales which leads to greater prices. The hypothesis therefore is:

H6: There is a significant correlation between political stability and inflation

Global financial crisis (GFC): Wimanda et al. (2011) approved that the Asian financial crisis (AFC) that occurred in 1997-1998 affected the recession significantly and positively in Indonesia. This means that in the financial crisis period the availability of money is getting lower which eventually would support rescission rates. However, the hypothesis for GFC is:

H7: There is a significant correlation between GFC and inflation

Arab Spring: This study tests if the Arab Spring (political revelations) impact the inflation rates of GCC countries. The Arab Spring happened in 2011 in most (Middle Eastern and Northern African) countries and it impacted their economies and political systems. The hypothesis is:

H8: There is a significant correlation between Arab Spring and inflation

Oil prices: Most studies suggested that greater prices of oil led to higher level of prices. This result occurred due to higher oil prices increase costs of distribution for goods and services. Bashir et al. (2011) for Pakistan and Termos et al. (2013) for GCC countries have the same conclusion. The final hypothesis is:

H9: There is a significant correlation between oil prices and inflation

3. Methodology

3.1 Data Description

The data was collected from the United Nations Conference on Trade and Development (UNCTAD) International Monetary Fund (IMF) and World Bank (WB) databases during the period 1996-2016. The study concentrates on GCC countries during the period 1996-2016. The GCC countries are Kingdom of Bahrain, Kingdom of Saudi Arabia, State of Kuwait, Sultanate of Oman, State of Qatar and United Arab Emirates (UAE). The statistics

description information is shown in Table 1 below (for variables).

3.2 Inflation Statistical Model

Two statistical models are used in this study to find the inflation factors. These models are generalized method of moments (GMM) and generalized least square (GLS) as:

$$\begin{aligned} INFLATION = & \alpha + \beta_1 GDP + \beta_2 GDPP + \beta_3 FDI + \beta_4 UNEMPLOYMENT + \beta_5 \\ & CORRUPTION + \beta_6 PSTABILITY + \beta_7 GFC + \beta_8 ASPRING + \beta_9 OILPRICES + \varepsilon \quad (1) \end{aligned}$$

Where, *INFLATION* is the percentage of inflation rates; *GDP* is the natural logarithm of GDP; *GDPP* is the natural logarithm of GDP per capita; *FDI* is the natural logarithm of FDI; *UNEMPLOYMENT* is the rate of unemployment; *CORRUPTION* is the rate of corruption; *PSTABILITY* is the political stability percentage; *GFC* is the dummy of global financial crisis period; *ASPRING* is the dummy of Arab Spring period; *OILPRICES* denotes the crude oil prices.

Before running the model, the correlation matrix can be examined to ensure that there is no multicollinearity. In Table 2, all values are below 70%.

4. Results and Discussion

Table 3 indicates the results of GMM and GLS. According to GMM, unemployment rates and corruption increase the inflation rates significantly and positively while, FDI reduce the inflation effectively. Regarding the GLS, the association between inflation and unemployment rates is significant and positive.

H3: FDI. Against the expectation, the results of GMM suggest that the association between inflation rates and FDI is significant and negative. This result discourages the foreign private companies to invest more in GCC countries as lower inflation rates indicate that the purchase power is weaker. Overall, FDI is increasing the competition with local businesses which lead to lower prices. This conclusion is representing a benefit for consumers as they are looking for reduced prices. For the future plans, GCC countries would diversify their economies, one of the most effective strategy is to attract more foreign investors to GCC their countries.

H4: Unemployment. It was expected that the inflation would reduce the unemployment rates, but the GMM and GLS in Table 3 claim different result. The findings propose that when inflation rates are high the costs of operation are going up the unemployment rates increases. This can be through reducing the number of registered jobs and to raise redundancy. This is inconsistent with the study of Montes and Lima (2018) who concluded that higher inflation impacted unemployment rates significantly and negatively. According to the Vision 2030 for GCC countries, the economic stability is one of the main goals. Controlling inflation and unemployment rates is a big challenge if the GCC countries still depending on oil as it is expected that oil prices will reduce sharply. The reason behind this expectation is that most countries depend recently on the alternative energy rather than oil derivatives.

H5: Corruption. Against the anticipation, the GMM concludes that corruption influences the level of prices significantly and positively. Al-Marhubi (2000) and Montes and Lima (2018)

confirmed an opposite case as there is a significant and positive relationship between inflation rates and corruption in their studies. Regarding the GCC Vision 2030, the corruption rates would be reduced to the minimum as corruption slower the development.

H9: Oil prices. The findings of the GMM and GLS confirm that higher prices of oil result to have more inflation rates. This is because GCC countries are strongly linked to oil sector. On other words, when oil prices go up then the growth of economy can be seen in GCC which lead to higher salaries and purchase power. In this case, the demand on products and services would raise significantly. This finding is consistent with the studies of Bashir et al. (2011) for Pakistan and Termos et al. (2013) for GCC countries.

5. Conclusion

The main aim of this study is to find the main drivers of inflation in GCC countries. The data was collected from the United Nations Conference on Trade and Development (UNCTAD) International Monetary Fund (IMF) and World Bank (WB) databases during the period 1996-2016. The statistical employed models are generalized method of moments (GMM) and generalized least square (GLS) regressions. The main findings show that unemployment and corruption influenced the levels of prices significantly and positively. Moreover, FDI lower inflation rates effectively through the period of the study. Finally, the correlation between inflation rates and oil prices is positive and significant.

The results of this study help financial (e.g. central banks) and economic policy makers (Ministries of Economy) to control the levels of inflation rates. This can be through determining the significant positive and negative drivers of inflation.

The challenge of this study (limitation) is that some countries have not updated their data so, the data set covered the period up to 2016. Therefore, further studies could cover the periods of 2017 and 2018. Moreover, more variables, regressions and countries can be tested in the future.

Table 1. Statistics description for the (dependent and independent) variables

Factor	Description	Statistics					Anticipated correlation
		Obs	Mean	S.D.	Min	Max	
Dependent variable							
Inflation	Inflation rates	126	0.063	0.162	-0.05	1.55	-----
Independent variables							
GDP	Log (GDP)	126	24.992	1.256	22.53	27.35	+
GDP per capita	Log (GDP per capita)	126	10.038	0.641	8.74	11.39	+
FDI	Log (FDI)	126	6.639	1.997	1.29	10.58	+
Unemployment	%, higher percentage indicates higher unemployment	126	0.058	0.060	0.00	0.20	-
Corruption	%, higher percentage indicates higher Corruption	126	0.684	0.105	0.48	0.91	-
Political stability	%, higher percentage indicates higher political stability	126	0.604	0.210	0.09	0.92	+
Global financial crisis	Dummy = 1 for the period 2007-2009, otherwise zero	126	0.143	0.351	0	1	-
Arab Spring	Dummy = 1 for the period 2011-2016, otherwise zero	126	0.286	0.454	0	1	-
Oil prices	Crude oil prices	126	48.72	27.17	11.91	91.48	+

Sources: UNCTAD (2019), IMF (2019) and World Bank (2019)

Table 2. Correlation matrix for variables

Correlation Matrix	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Inflation	1									
(2) GDP	-0.1993	1								
(3) GDP per capita	-0.2854	0.4068	1							
(4) FDI	-0.1937	0.5674	0.4083	1						
(5) Unemployment	0.4382	-0.2735	-0.5652	-0.1103	1					
(6) Corruption	0.1472	-0.1167	0.3767	-0.0474	-0.0265	1				
(7) Political stability	0.195	-0.083	0.3156	-0.1437	0.1899	0.6193	1			
(8) Global financial crisis	0.007	0.1387	0.1901	0.2707	0.0053	0.0582	0.0299	1		
(9) Arab Spring	-0.145	0.4004	0.3688	0.2833	-0.0948	-0.0726	-0.2231	-0.2582	1	
(10) Oil prices	-0.137	0.4909	0.561	0.5825	-0.0508	0.0247	-0.1373	0.3166	0.5299	1

Table 3. GMM and GLS results

Model	GMM	GLS
Dependent Variable	Inflation	Inflation
Independent Variables		
(H1) GDP	0.0051 (0.9)	0.0051 (0.35)
(H2) GDP per capita	-0.0391 (-0.91)	-0.0391 (-0.63)
(H3) FDI	-0.0091** (-2.02)	-0.0091 (-0.97)
(H4) Unemployment	0.9256*** (3.23)	0.9256* (1.89)
(H5) Corruption	0.2729** (2.51)	0.2729 (1.62)
(H6) Political stability	0.0417 (0.62)	0.0417 (0.31)
(H7) GFC	0.0204 (0.78)	0.0204 (0.43)
(H8) Arab Spring	-0.0021 (-0.08)	-0.0021 (-0.05)
(H9) Oil prices	0.00003** (0.08)	0.00003* (0.03)
_cons	0.00003 (0.29)	0.1177 (0.16)
<i>N</i>	126	126
<i>R</i> ²	0.2455	0.2455

Notes: z statistics in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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