



## **Corruption and Democracy in Middle East and North Africa Countries: Dynamic Generalized Method of Moments**

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### **ABSTRACT**

The goal of this study is to investigate the relationship between democracy and corruption using a dynamic generalized method of moments during the period 1984-2013 in 13 Middle East and North Africa (MENA) countries namely Algeria, Bahrain, Egypt, Iraq, Iran, Kuwait, Lebanon, Morocco, Qatar, Saudi Arabia, Tunisia, Turkey and United Arab Emirates. Our results captured the gross domestic product (GDP) per capita is feed corruption in MENA countries, while 1% of per capita GDP rise corruption about 0.73 and lead to lose more than 0.23 in MENA net oil and gas exporting countries except United Arab Emirates (Ongba, 2015; Haber and Menaldo, 2011). In this context, magnitude of impacts in countries non-oil producers is less dependent with corruption over the last decade compared the two early decades and compares an oil and gas exporting countries. Thus, the high income states of the oil exporting countries would not have been decreased corruption level (Jetter, 2016, Rachdi and Saidi, 2014). Finally, our finding present a positive significantly associated between democracy and corruption, the influence of positive feedback around about 0.5 points in regressors. According to this estimation, the lower democratization process in MENA countries highly depends to high levels of corruption.

**Keywords:** Corruption, Democracy, Middle East and North Africa Countries, Panel Generalized Method of Moments

**JEL Classifications:** F2, C3

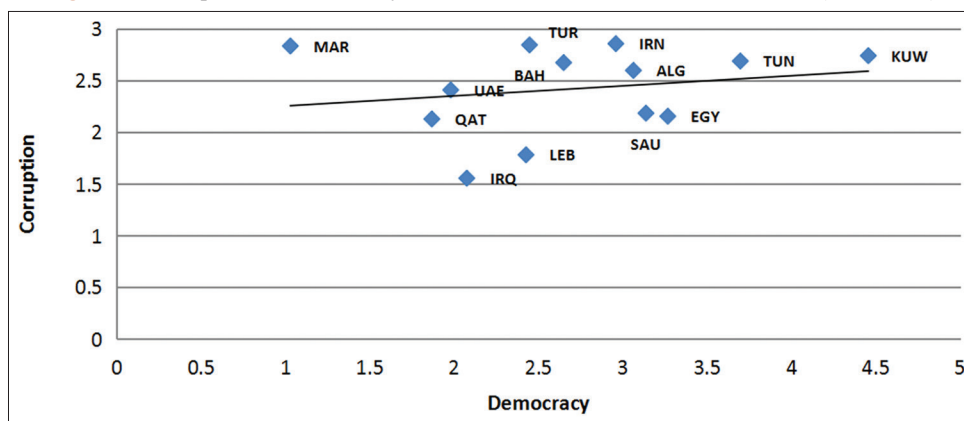
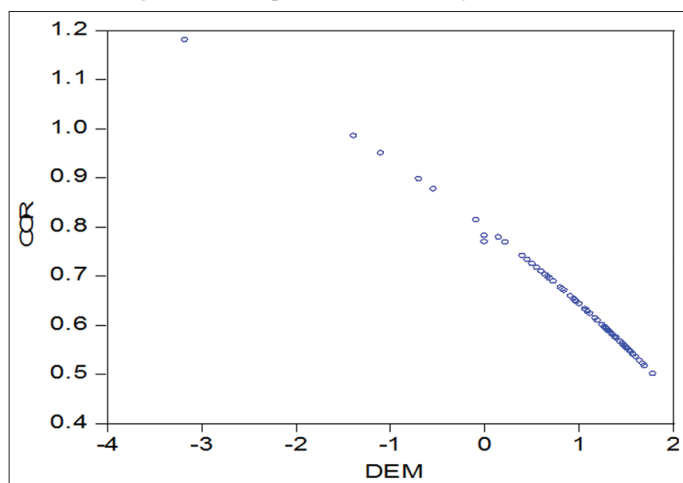
### **1. INTRODUCTION**

Much attention has been explained the relationship between democracy and corruption. In most empirical studies, results finding is mixed. Some papers found a negative relationship, while a democracy fall, the corruption rise and the opposite are true, which a country is democratic is least corrupt country. Others provide inverted U which the corruption rose in the 1<sup>st</sup> time suggests in newly democratizing countries, before become less corruption when of these countries following a truly democratic, See more; Mohatdi and Roe (2003), Schneider and Schmitter (2004), Rock (2009). In addition, some paper falls to capture any relationship between the corruption and democracy; Ades and Di Tella (1999); Fisman and Gatti (2002), Lambsdorff (2005).

Indicators of Middle East and North Africa (MENA) corruption rank of the middle class countries. We can observe small variation between

MENA countries, first group are GCC countries and turkey. A second range of countries are including Algeria, Morocco, Egypt and Tunisia. The third set comes in the last rank, including Syria, Iran and Iraq.

In addition, MENA countries appears to be newly democratizing countries who knowing rapidly movement as the Arab spring, security crisis and well-positioned to fight extremism. Also, it is necessary to distinguish between transition and consolidation democracy. Consolidation democratic depends to competitive elections, institutional transparency, processes and values by the political class and the masses without any control and intervention by the army; see more Gunther et al. (1995), Schneider and Schmitter (2004). Transition democracy survived in the country that replace authoritarian regimes by democratic governments like Latin America and MENA regions; O'Donnell and Schmitter (1986) Scott Mainwaring (1989), Faulenbach (2007).

**Figure 1:** Corruption and democracy in Middle East and North Africa countries (1983-2013)**Figure 2:** Corruption and democracy inverted U

Although the recent rank of World Bank, the strong democracies in MENA region are countries such as Tunisia, Turkey, Lebanon, and Kuwait. Algeria, Egypt, Iran, Iraq, Morocco and GCC countries become the second MENA country classified in a democratic country.

In this situation of newly democratizing countries and tentative moves to combat corruption in MENA region, we try to check a combination between two indicators and if we can provide inverted U or not? In the Figure 1, we plot this relationship during the period 1984-2013. In this context, the general apparent shows that Iraq, and some GCC countries respectively are more individual falls to establish link between democracy and reduced corruption. Morocco seems relatively undemocratic and lowest corrupt countries compared to Iraq, Quarter, UAE and Bahrain. Kuwait, Tunisia, Algeria and Egypt are top countries were successful in achieving to relative democracy as a powerful tool to reduce relatively corruption during the period of 1984-2013.

Figure 2 shows the existence of inverted U pattern measuring by Kaufmann et al. (2007) equation in panel MENA countries for the period spanning 1984 and 2013. The answer of democracy reduce corruption presented in inverted U may be clear but has been moved to the left compared a consolidated democracy and Rock's (2009) democracy in Figure 2.

The relationship between democracy and corruption still not obvious, and the two rarely associated together. In this study, democracy-corruption nexus can be explained by several endogens variables such as rule of law, bureaucracy, Military in Politics and Religion in Politics and gross domestic product (GDP) per capita.

The goal of this study is to investigate the relationship between democracy and corruption in 13 MENA countries through an empirical analysis using a panel generalized method of moments (GMM) dynamic during the period 1984-2013.

The rest of the paper is organized as follows. In Section 2, we shall present a literature review on the impact. Section 3 deals with the model and the methodology, followed by the results and discussion in Section 4, and finally, Section 5 sets out the main findings.

## 2. LITERATURE REVIEW

Ross (2001) investigated the democracy in oil Middle East Countries pooled time-series cross-national data from 113 states between 1971 and 1997. He found negatively correlated between oil and democracy, while oil resources don't exploited to boost political reforms. In the same sense, Jensen and Wantchekon (2004) supported Ross (2001) results when they found that oil and mining countries are failed to democratize their political systems.

Houssem and Hichem (2015) examined the effect of democracy on economic growth beginning in 1983 by applying a panel and GMM methodologies in 17 MENA countries. They found negative impact democracy on economic growth.

Jetter et al. (2016) reported the ambiguous relationship between democracy and corruption during the period from 1998 to 2012 using a 3SLS framework. They results confirmed that democracy reduces corruption in countries with higher per capita GDP and increase of corruption in the poorer nations.

More specifically, Billger and Goel (2009) captured the greater democracy and more economic freedom are reduce corruption in least corrupt nations and failed in highly corrupt countries. Kurzman et al., 2002 tested the role of government consumption

to GDP on democracy and finds positive effect such as (Baum and Lake, 2003; Helliwell, 1994).

Rota (2015) documented the relationship between military spending and democracy over the sample (1880-1938) through a Pooled regression. This study establishes positive association between military spending and the components of democracy in long run. Aisen and Veiga (2013) indicted a small negative effect of political instability on democracy using GMM model of 169.

On other sense of democracy, many studies highlighted the relationship between democracy and religion. La Porta et al. (1997; 1999) studied the correlation between religious affiliation and corruption. In this context, several papers achieved similar results of negative relationship between Islam and democracy see Barro and Lee (Huntington, 1984; 1991; Lipset, 1994). Midlarsky (1998) pointed in his study that Muslim countries is less democratic than non-Muslim states. Indeed, in the contrary, Emre (2010) observed the coexistence relationship between Islam and democracy in turkey. In other region and exactly in Central Asia, Collins and Owen (2016) focused on this relationship and shown that Muslims want democracy.

Saha et al. (2014) point out in their analysis that the higher income inequality, tertiary level of education and unemployment lead to increase corruption during the period from 1995 to 2008.

Kotera et al. (2012) examined the effect of government size on corruption using annual data of 82 countries between 1995 and 2008. This study showed positive effect of government size on corruption in the countries high democracy and negative effect in the countries less democracy as well as Treisman, 2000; Fisman and Gatti (2002); Adserà et al., 2003.

Iwasaki and Suzuki (2012) using panel date in for 32 transition economies from 1998 to 2006. They put the progress of structural reform, comprising marketization, rule of law, and democratization as determinants of corruption in transition economies.

Serra (2006) tested the main determinants of corruption of 62 countries over the period (1950-1995).she used 16 variables including four economic variable, five socio-cultural and seven political variables. She found significant impact on corruption of economic development, Protestant religion, British colonial heritage and democracy.

### 3. MODEL AND METHODOLOGY

#### 3.1. Data Source

The sample comprises 30 annually data for the period 1984-1913. The sources of GDP per capita, government expenditure and education variables are collected from different issues of International financial statistics and world development indicators. The sample of economic freedom is unbalanced when begin in 1996. It comes from the Heritage Foundation, where the rest variables (as democracy, Corruption...) sourced from International Country Risk Guide.

This study covers a sample of 13 countries in the MENA countries: Algeria, Bahrain, Egypt, Iraq, Iran, Kuwait, Lebanon, Morocco, Qatar, Saudi Arabia, Tunisia, Turkey and United Arab Emirates.

#### 3.2. Definition of the Model

For checking the relationship between democracy and corruption in MENA countries, we use dynamic GMM (DGMM) proposed by Arellano and Bond (1991). GMM can help avoid serial correlation among variables which use the least square method (generalized least squares) see Crakovic and Levine, (2002). Also, this approach sidesteps the need for structural modeling by treating every endogenous variable in the system as a function of the lagged values of all of the endogenous variables in the system. Indeed, the GMM method can be help avoid false results through stationary time's series and avoid producing spurious regression by using instrumentals variables with their own lagged values. See more; Arellano and Bond (1991), Nkurunziza and Bates (2003), Buonanno (2005).

The mathematical representation of our specification is:

$$CPI_{it} = \alpha + \beta_1 dem_{it} + \beta_2 lngdp_{it} + \beta_3 ef_{it} + \beta_4 govz_{it} + \beta_5 er_{it} + \beta_6 law_{it} + \beta_7 rel_{it} + \beta_8 bur_{it} + \beta_9 mil_{it} + \varepsilon_i \quad (1)$$

Where: (CPI) is Corruption Perceptions Index. (Dem) is democracy variable, (Law) is Law and Order. (Bur), (mil) and (Rel) are bureaucracy, Military in Politics and Religion in Politics (all these indices bellow are ranging from 0 to 6). For other variables, (lngdp) presents GDP per capita, (Govz) measured government expenditure as percent of GDP, and (Er) is Gross enrollment ratio. the Index of Economic Freedom (Ef) range from 0 to 100 and calculus on based 10 quantitative and qualitative factors ((property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, financial freedom. finally,  $\varepsilon$  is the disturbance term,  $i$  and  $t$  represents countries and time.

### 4. RESULTS AND DISCUSSION

The results of democracy and corruption using DGMM approach is given in Table 1.

Column 2 and 5 are reported the coefficients effect on corruption and democracy respectively where column 3 and 6 present P value. Our results captured the GDP per capita is feed corruption in MENA countries, while 1% of per capita GDP rise corruption about 0.73 and lead to lose >2 point in the 0-6 corruption index in MENA net oil and gas exporting countries except United Arab Emirates (these countries are Algeria, Bahrain, Iraq, Iran, Kuwait, Qatar, Saudi Arabia). In this context, magnitude of impacts in countries non-oil producers is less dependent with corruption over the last decade compared the two early decades and compares an oil and gas exporting countries.

Columns one and two present a positive significantly associated between democracy and corruption. We observe the sign coefficient is broadly unchanged in two columns, which indicates, the influence of positive feedback around about 0.5 points in

**Table 1: Democracy and corruption using DGMM approach**

Corruption			Democracy		
Variable	Confessions	P value	Variable	Confessions	P value
DGDPPH	0.73	2.15 **	DCPI	0.46	2.55**
DDMC	0.54	3.85**	DGDPPH	-0.32	-2.63**
DEF	-0.45	-2.25**	DEF	2.93	1.68*
DBUR	0.57	2.45**	DBUR	1.77	1.91*
DGOV	-0.01	1.81*	DGOV	-0.14	-2.95**
DLAW	0.29	1.74*	DLAW	-0.56	-1.90*
DRELG	-0.30	-2.05**	DRELG	1.13	2.65**
Constant	-0.12	-3.68**	Constant	0.04	0.85**
AR (2)	-1.588	-	AR (2)	-1.403	-
P value	0.112	-	P value	0.161	-
Sargan test	218	-	Sargan test	24.97	-
P value	0.99	-	P value	0.99	-
Wald $\chi^2$	27.78	-	Wald $\chi^2$	27.78	-
Number of instruments	17	-	Number of instruments	9	-

\*And \*\*Indicate statistical significance at the 10% and 5% level. DGMM: Dynamic generalized method of moments

regressors. According to this estimation, the lower democratization process in MENA countries highly depends to high levels of corruption. A certain democratic and the high income states of the oil exporting countries would not have been decreased corruption level, (Jetter, 2016; Rachdi and Saidi, 2014).

The government size confession is statistically significant and relatively near to zero that can be reveal a small expenditure composite on GDP (<15% except GCC countries) and does not have any effect on corruption. Despite the inefficient government spending in MENA countries but continual improvement on education spending argues the modest affected on corruption.

Also, we note that the bureaucracy quality is relatively very larger and does not reduce corruption (significantly positive), when one standard deviation of bureaucracy increase 0.57 corruptions (Mauro, 1998; Treisman, 2000; Anderson and Gray, 2006; Brown et al., 2007; Prasch, 2007...).

Furthermore, the Index of economic freedom is to be significant and negative sign in regressions in MENA countries, that may help explain the inhibit economic freedom to reduce CPI (especially in Qatar, turkey, UAE) thought many channels including the improvement market competition, boost private business and investments flow in this region except Iran and Iraq. Indeed, Economic Freedom leads to produce 1.6 points lose on corruption index; see: Paldam, 2002b; Shen and Williamson, 2005; Carden and Verdon, 2010; Pieroni and d'Agostino, 2013.

However, law and order variable has important sign impact on corruption because the main reason of this positive reaction between high corruption and weak law and order variable can be explains the ineffectuality of legal and juridical systems to reduce level of corruption as consequence in MENA countries during 1984 to 2013, see more Levin and Satarov (2000), Jain (2001), Thomas and Christoph (2003).

Finally, religion had a negative significant on corruption index and proves to reduce 0.3% corruption against 1% use Islam (Sunni and Shea Muslims) as a proxy of religion in MENA countries, see La Porta et al. (1997); Lambsdorff (2005); Samanta (2011), but we

distinguish in this certain paradoxes of the more corrupt in the countries Islamic government than laity government.

In the democracy columns, the effect of GDP per capita on democracy indicating that increasing 10% growth reduces democracy about 3% in MENA countries over the period 1983 to 2013 and that can be explained by using oil rents to buy social peace and avoid a popular decisions See: Karl, 1997; Ross (2001), Ngodi, 2005; Tsui (2010), Haber and Menaldo (2011).

Thus, the non-oil counties in MENA region (Tunisia, Turkey, Lebanon, Egypt) do not seem the higher income compared the others countries but they are not least democratic countries in MENA compared the countries name: Algeria, Bahrain, Iraq, Iran, Kuwait, Saudi Arabia, and United Arab Emirates.

It should be noted same negative sign as impact of government size, law and order variables on democracy. The weak rule and government expenditure Incompetence are incompatible with well-functioning democracy in Mena countries. Therefore, we note that religion and economic freedom are relatively very significant and larger effect on democracy (full elasticity). Both democracy and religion have association direction with liberal democracy in Lebanon, Morocco, Tunisian and turkey, while in countries whose have Islamic militant form as Iraq and Iran can't boost the democracy, equality and improves transparency in their institutions see (Lewis,1994; Midlarsky, 1998). Adding the evidence of economic freedom allows nourishing democracy in many MENA countries in recent year as Bahrain, Kuwait and turkey on the contrary, a free society in Qatar, Arabic Saudi cannot give sustenance to democracy.

Finally, expansive bureaucracy is positively significant associated with lower democracy in MENA countries, which indicates a one standard of bureaucracy causes 1.77 standard deviation of MENA democracy.

Our results of Sargan test and AR (2) test of Arellano and Bond (1991) seems to be good with high  $P > 5\%$  that meaning there no serial-correlation. According to the Wald tests result, when it low p-values appear significant and  $<5\%$ , well estimation allow

us to determine whether the instrumental variables are significant affected to dependent and regressors variables.

## 5. CONCLUSIONS

This study attempt to check the relationship between corruption and democracy using DGMM model during the period 1984-2013 in 13 MENA countries. We find that democracy is more effect to corruption (0.53) compared to 0.4 influence of corruption to democracy. This relationship explains the role of institutions and governments to boost democracy as strategy to reduce corruption. In addition democracy is not alone variable can be effect on corruption.

Our results captured that the GDP per capita, bureaucracy and economic freedom are most variables feeding to corruption and democracy in MENA countries.

## REFERENCES

- Ades, A., Di Tella, R. (1999), Rents, competition and corruption. *The American Economic Review*, 89(4), 982-993.
- Aisen, A., Veiga, F.J. (2013), How does political instability affect economic growth? *European Journal of Political Economy*, 29, 151-167.
- Anderson, J., Cheryl, G. (2006), *Anticorruption in Transition 3: Who is Succeeding and Why?* World Bank.
- Arellano, M., Bond, S. (1991), Some test of specification for panel data: Monte carlo evidence and an application to employment to employment equation. *Review of Economic Studies*, 58, 277-297.
- Barro, R., Lee, J. (1993), International comparisons of educational attainment. *Journal of Monetary Economics*, 4, 363-394.
- Baum, M.A., Lake, D.A. (2003), The political economy of growth: Democracy and human capital. *American Journal of Political Science*, 47, 333-347.
- Brown, D., John, E., Scott, G. (2007), Helping Hand or Grabbing Hand? State Bureaucracy and Privatization Effectiveness. Available from: <https://www.ssrn.com/abstract=1194702>.
- Billger, S.M., Goel, R.K. (2009), Do existing corruption levels matter in controlling corruption? Cross-country quantile regression estimates. *Journal of Development Economics*, 90(2), 299-305.
- Buonanno, P. (2005), Crime and Labour Market Opportunities in Italy (1993-2002). Available from: <http://www.unibg.it/dati/bachecca/273/14929.pdf>.
- Carden, A., Verdon, L.L. (2010), When is corruption a substitute for economic freedom? *Law and Development Review*, 3, 40-63.
- Carkovic, M., Levine, R. (2002), Does Foreign Direct Investment Accelerate Economic Growth? Working Paper, University of Minnesota, Minneapolis and Saint Paul.
- Claus, F.F. (2007), The concept of democratic consolidation: A tool to aid actors with democracy assistance? *Biermannsweg*, 37, 44799.
- Emre, T. (2010), The Relationship between Islam and democracy in Turkey: Employing political culture as an indicator. *Social Indicators Research*, 95, 253-267.
- Haber, S., Menaldo, V. (2011), Do natural resources fuel authoritarianism? A reappraisal of the resource curse. *American Political Science Review*, 105(1), 1-26.
- Helliwell, J.F. (1994). Empirical linkages between democracy and economic growth. *British Journal of Political Science*, 24, 225-248.
- Houssein, R., Hichem, S. (2015), Democracy and economic growth: Evidence in MENA countries. *Procedia - Social and Behavioral Sciences*, 191, 616-621.
- Huntington, S. (1991), Democracies: Third wave. *Journal of Democracy*, 2(1), 12-34.
- Huntington, S.P. (1984), Will more countries become democratic? *Political Science Quarterly*, 99(2), 193-218.
- Iwasaki, I., Suzuki, T. (2012). The determinants of corruption in transition economies. *Economics Letters*, 114(1), 54-60.
- Jain, A.K. (2001), Corruption: A review. *Journal of Economic Surveys*, 15, 71-121.
- Jetter, M., Agudelo, A.M., Hassan, A.S. (2016), The effect of democracy on corruption: Income is key. *World Development*, 74, 286-304.
- Karl, T. (1997), *The Paradox of Plenty: Oil Booms and Petro-States*. Berkeley: University of California Press.
- Kotera, G., Okada, K., Samreth, S. (2012), Government size, democracy, and corruption: An empirical investigation. *Economic Modelling*, 29, 2340-2348.
- Kurzban, C., Werum, R., Burkhart, R.E., (2002). Democracy's effect on economic growth: A pooled time-series analysis, 1951-1980. *Studies in Comparative International Development*, 37(1), 3-33.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R. (1999), The quality of government. *Journal of Law, Economics and Organization*, 15(1), 222-279.
- Lambsdorff, J.G. (2005), Consequences and Causes of Corruption: What Do We Know from a Cross Section of Countries? Discussion Paper No. V-34-05. Passau: University of Passau.
- Levin, M., Satarov, G. (2000), Corruption and institutions in Russia. *European Journal of Political Economy*, 16, 113-132.
- Lipset, S.M. (1994), The social requisites of democracy revisited. *American Sociological Review*, 59(1), 23-45.
- Mauro, P. (1995), Corruption and growth. *Quarterly Journal of Economics*, 110(3), 681-712.
- Midlarsky, M.I. (1988) Rulers and the ruled: Patterned inequality and the onset of mass political violence. *American Political Science Review*, 82, 491-509.
- Mohtadi, H., Roe, T.L. (2003), Democracy, rent seeking, public spending and growth. *Journal of Public Economics*, 87(3-4), 445-466.
- Ngodi, E. (2005). Gestion des Ressources pe 'trolie 'res et de 'veloppement en Afrique, Pre 'sentation a ` la 11e `me Assemble 'e ge 'ne 'rale du CODESRIA, 6-10 de 'cembre 2005, Maputo, Mozambique.
- Nkurunziza, J.D., Bates, R.H. (2003), Political Institutions and Economic Growth in Africa. Available from: <http://www.bepress.com/cgi/viewcontent.cgi?article=1186&context=csae>.
- Ongba, L.D. (2015), Why do some oil-producing countries succeed in democracy while others fail? *World Development*, 76, 180-189.
- O'Donnell, G., Schmitter, P.C., Whitehead, L. (1986), *Transitions from Authoritarian Rule: Comparative Perspectives*. Baltimore: Johns Hopkins University Press.
- Paldam, M. (2002a), The cross-country pattern of corruption: Economics, culture and the seesaw dynamics. *European Journal of Political Economy*, 18, 215-240.
- Prasch, R. (2007), *The Economics of Fraud*. Vermont: Middlebury College.
- Rachdi, H., Saidi, H. (2014), Democracy and economic growth: Evidence in MENA countries. *Procedia - Social and Behavioral Sciences*, 191, 616-612.
- Paldam, M. (2002b), The Big Pattern of Corruption, Economics, Culture and the Seesaw Dynamics. *Economics Working Papers 1999-11*. School of Economics and Management, University of Aarhus.
- Pironi, L., d'Agostino, G. (2013), Corruption and the effects of economic freedom. *European Journal of Political Economy*, 29(2013), 54-72.
- Rock, M.T. (2009), Has democracy slowed growth in Asia? *World Development*, 37, 941-952.
- Ross, M. (2001), Does oil hinder democracy? *World Politics*, 53, 325-361.
- Samanta, S.K. (2011), Corruption, religion and economic performance in

- OPEC countries: An analysis. *International Journal of Economics, Management and Accounting*, 19(2), 187-208.
- Serra, D. (2006), Empirical determinants of corruption: A sensitivity analysis. *Public Choice*, 126(1-2), 225-256.
- Shen, C., Williamson, J.B. (2005), Corruption, democracy, economic freedom, and state strength: A cross-national analysis. *International Journal of Comparative Sociology*, 46, 327-345.
- Shrabani, S, Rukmani, G. (2013), Corruption and economic development nexus: Variations across income levels in a non-linear framework. *Economic Modelling*, 31(1), 70-79.
- Schneider, C.Q., Schmitter, P.C. (2004), Liberalization, transition and consolidation: measuring the components of democratization. *Democratization*, 11(5), 59-90.
- Scott, M. (1989), *Transitions to Democracy and Democratic Consolidation: Theoretical and Comparative Issues*, Working Paper #130.
- Thomas, H., Christoph, W. (2003), Corruption and legal (in) effectiveness: An empirical investigation. *European Journal of Political Economy*, 19, 621-632.
- Treisman, D. (2000), The causes of corruption: A cross-national study. *Journal of Public Economics*, 76, 399-457.
- Tsui, K. (2010), More oil, less democracy? Theory and evidence from crude oil discoveries. *Economic Journal*, 121, 89-115.

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