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ISSN: 2365-9793

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## ABSTRACT

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# Did the Arab Spring Reduce MENA Countries' Growth?

This paper examines the economic ramifications of the recent political reconfigurations that the MENA region witnessed, commonly known as the Arab Spring, utilizing MENA countries data during period 2005-2016. Using the Arellano-Bond dynamic panel estimation, the paper estimates a growth model using the difference in the log of GDPC between periods  $t$  and  $t+1$ . Buttressed by sufficient empirical evidence, the paper's findings corroborate that the Arab Spring had been negatively associated with growth.

**JEL Classification:** G2, O16, P48, N25

**Keywords:** Arab Spring, growth, MENA countries, panel data

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## 1. Introduction

Does the Arab Spring lower economic growth? The subsequent political and economic transition that started in 2011 across the Middle East and North Africa (MENA) region has created a fragile economic environment. Aside from the impact on people's wellbeing, foreign direct investment (FDI), consumption, exports, tourism as well as national income and growth were all subject to unambiguous blows. In the aftermath of the Arab Spring, the MENA region witnessed lower annual growth rates in output, compared to many other developing regions in the world (World Bank, 2014). In examining the ramifications of the Arab spring, Acemoglu et al. (2017) corroborate that the Arab Spring events resulted in significantly less efficient financial markets, leading a plummet in economic growth regionally.<sup>1</sup>

We attempt to add to the literature by engaging the consequences of the conflicts and violence associated with the Arab Spring. Political instability and violence have been detrimental to macroeconomic and financial development (Abadie and Gardeazabal, 2008; Roe and Siegel, 2011; Pástor and Veronesi, 2013; Francis et al., 2014), ultimately leading to a reduction in economic growth and development (Blomberg and Hess, 2006; Blattman and Miguel, 2010; Meierrieks and Gries, 2013; Arayssi and Fakh, 2017). For instance, the burden of the Syrian conflict on the five neighboring countries (Turkey, Lebanon, Jordan, Iraq, and Egypt) is estimated to be around \$35 billion in output, measured in 2007 prices, which is equivalent to Syria's GDP in 2007 (Devarajan and Mottaghi, 2017). Consequently, this paper aims to better understand the implications of the Arab Spring on the growth of this politically unstable region, while controlling for the global financial crisis, macroeconomic and governance settings.

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<sup>1</sup> For example, Syria's gross domestic product (GDP) fell by 16 percentage points on average each year during the period of 2011-2014 and witnessed a contraction by another 16 percent in 2015, 4 percent in 2016 and 3.4 percent in 2017 (Devarajan and Mottaghi, 2017; Trading Economics, 2018). Real GDP in Libya is estimated to have declined by 8.9 percent in 2015 and by 2.5 percent in 2016; additionally, absence of financing imports in Libya, mainly food, led to scarcities in basic commodities, flourishing black markets in different sectors (Devarajan and Mottaghi, 2017).

Conflicts may reduce economic growth by imposing substantial opportunity costs on affected countries. Freund and Jaud (2014) find that benefits resulted from growth witnessed a substantial reduction in the early years of regime changes and political transitions. Murdoch and Sandler (2002) show that civil wars negatively impact economic performance and economic activities in neighboring countries. In the MENA region, the existing evidence show that the total costs of conflict in terms of economic output would almost double in Turkey, Syria, Jordan and Lebanon, when we take into consideration the opportunity cost of the forgone profound trade assimilation amendments (Ianchovichina and Ivanic, 2016). Within the same context, the financial sector's opportunity costs of the Arab Spring related conflicts entail a substantial decrease in bank profitability and an increase in bank risk (Ghosh, 2016), tightened borrowing constraints and impeded capital accumulation (Herrala and Turk-Ariss, 2016), diminishing the prospects of economic growth. More recently, Kasmaoui et al. (2018) examine the impact of market confidence on economic growth in the MENA region. They find that the decline in people's trust and confidence level during the political turmoil of the Arab Spring produced lower economic growth.

## **2. Data and empirical methodology**

Our empirical analysis utilizes data extracted from 16 MENA countries during the period 2005-2016. The utilized data is derived from the World Development Indicators (WDI) and the Worldwide Governance Indicators (WGI); both of which are databases of the World Bank.<sup>2</sup> The dependent variable is the real annual growth rate of gross domestic product per capita (GDPC), setting 2010 as the base year. Hence, we estimate the growth variable using the difference in the log of GDPC between periods  $t$  and  $t+1$  across time  $t(t=1, 2, \dots, T)$  and in country  $j(j=1, 2, \dots, N)$ . The model is

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<sup>2</sup> Our sample includes 16 Arab countries out of 23 countries in the MENA region. It includes Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestinian Territories, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia, and United Arab Emirates.

estimated using the Arellano-Bond GMM dynamic regression that includes lagged endogenous variable as an explanatory variable in order to make the endogenous variable uncorrelated with the error term.

The independent variables of the model represent a comprehensive set of factors that heavily affect economic development and growth. They are categorized into macroeconomic and public governance variables. Macroeconomic variables include government budget balance and public debt (all in current US\$ billions); for instance Bittencourt (2011) found these to be negatively related to economic growth. Trade balance (total exports minus total imports of goods and services in current US\$ billions) and FDI inflows (measured in current US\$ billions) are also vital determinants of growth. Araujo and Lima (2007) found that given the constraint imposed by the balance-of-payments position on growth, a country's growth rate of exports is directly proportional to its economic growth. FDI encourage technology transfers which boost overall economic growth in recipient countries (Carkovic and Levine, 2005). Some additional macroeconomic control variables have also been found to be important measures of economic growth: population size which is measured in millions, inflation rate, unemployment rate, life expectancy at birth which is measured in total years and the number of fixed telephone lines per 100 people. For instance, fixed telephone lines and rule of law were found to increase economic growth in MENA (Arayssi and Fakh, 2015).

The political governance institutions are shown to stimulate economic development (Blackburn and Forgues-Puccio, 2010). The public governance variables include the rule of law, political stability, government effectiveness, regulatory quality and control of corruption. These variables rely on the perceptions of people, business and policy-makers in order to measure the quality of institutions and governance. They range between 0 (being the lowest) and 100 (being the highest) on a percentile rank. Table 1 presents summary statistics of the variables used in the regressions.

[Table 1 about here]

The empirical specification of the panel data takes the following form:

$$GR_{jt} = a_0 + a_1 GR_{jt-1} + a_2 AS_{jt} + a_3 GF_{jt} + a_4 M_{jt} + a_5 G_{jt} + \varepsilon_{jt} \quad (1)$$

$GR_{jt}$  is the growth rate obtained by taking the difference in the logs of GDPC for a country  $j$  in two consecutive years.  $AS_{jt}$  represents a dummy variable that equals 1, if the observation originates from any Arab country that witnessed some conflicts, and zero otherwise. Although the main focus of this paper is on the effect of the Arab Spring on economic growth, we control for the global financial crisis (GFC) on economic growth in the MENA region. Hence,  $GF_{jt}$  is also a dummy variable representing the GFC for the years 2008-2010. This allows us to compare between the implications of these two events for the MENA's growth.  $M_{jt}$  is a vector of variables depicting the macroeconomic characteristics of country  $j$  and  $G_{jt}$  represents a vector of institutional variables,  $\varepsilon_{jt}$  is the stochastic error term.

Equation (1) is estimated by using the Arellano-bond dynamic model, aiming to deal with country effects that are not captured by independent variables. This dynamic regression model contains one lagged dependent variable, permitting for the modeling of a partial adjustment mechanism. It thus assumes that the necessary instruments are “internal”, or established on the lagged values of the instrumental variables. Furthermore, clustering error terms by country and year allows them to be correlated within countries but not between countries, therefore offer more precise standard errors (Petersen, 2009; Cameron et al., 2011; Ghosh, 2016).

### **3. Results**

The estimation results are reported in Table 2 for the whole sample. Anticipating a negative effect on growth, we find that the Arab Spring, and to a lesser degree the GFC, are negatively correlated with growth in many specifications. Though, the GFC is not significant in several probes. The role played

by the global crisis was probably a secondary one to the Arab Spring, adding to its burden on the macroeconomic level, and further compounding its impact in this region.

When testing whether macroeconomic variables of budget balance and public debt are negatively correlated with growth, we confirm that expectations from wars, civil disorders, and conflicts introduce multifaceted uncertainties, straining fiscal balances (especially for oil-dependent economies), weakening economic growth (Bittencourt, 2011). These results are robust when other macroeconomic controls (i.e., life expectancy, the number of internet users, and the existence of fixed telephone lines) are included in the model, thus showing a positive correlation with economic growth as found in Igyor (1996) and Todaro and Smith (2011).

We also address the correlation between institutional development (measured using governance indicators) and growth in the subsequent regressions (5) to (9) in Table 2, examining whether there is a positive relationship between these variables and growth. We find that government effectiveness, rule of law, control of corruption and regulatory quality all promote growth (Beck *et al.*, 2000; Yao and Yueh, 2009). In examining the economic impact of having well-functioning institutions, Hasan et al. (2009) argue that the rule of law buttresses economic growth in China. Furthermore, Arayssi and Fakhri (2015) argue that the rule of law has a positive impact on MENA region's economic growth in the eve of Arab Spring (2007-2010). All these results strongly reveal that institutional developments improve public services, and advance adopting suitably chosen policies and regulations that eventually enhance growth. This validates the common argument in the literature that a stable economic and political environment are preconditions to achieve better growth levels.

The robustness of this model is checked using several diagnostic tests, including AR with one and two lags and Hansen test for exogeneity. These tests reject the null hypothesis of AR1 that the

coefficients on one lag are all zero, but do not reject the AR2 null hypothesis. The Hansen test also fails to reject the null hypothesis that the instruments used are valid.

[Table 2 about here]

It can be argued that oil producing countries have been especially hit by the behavior of oil prices during the financial crisis and the years thereafter. Therefore, we split the sample between oil and non-oil producing countries to highlight possible differences across the countries used in our analysis in terms of economic growth. We report the empirical results of this estimation in Tables 3 and 4, respectively. We find that for oil producing countries, there is a stronger negative effect of the GFC than the Arab Spring on growth, compared to non-oil producing countries (World Bank, 2014). We detect a more important dampening effect of the Arab Spring on growth in the non-oil producing countries, and a less significant effect of the GFC on growth. Capital flight (measured by FDI inflows) contributes negatively to economic growth, while budget balance and rule of law contributes positively to growth only in oil countries. This is in line with what Neaime (2016) argues for in regards to local markets in the MENA region that have been vulnerable to global and regional financial crises, negatively impacting its prospects of economic growth. In particular he shows that unlike markets in Egypt, Morocco, and Tunisia, the Gulf Cooperation Council's (which mainly consists of oil producing countries) diversified their equity markets, and appear to be relatively more susceptible to regional and international financial crises, like the GFC.

Overall, our results implicitly suggest that a peaceful resolution of political conflicts in these countries could lead to an increase in exports, foreign investments and tourism allowing them to increase fiscal discipline, regain current account imbalances, expand foreign reserves, and promote economic growth in the intermediate term.

[Table 3 about here]

[Table 4 about here]

#### **4. Conclusion**

The results can be summarized in three observations. First, civil disorder dampens economic growth in the MENA region; it is found to be more important for non-oil countries than the oil countries. Second, the Arab Spring events have negatively affected macroeconomic stability especially that the Arab Spring burdened the budget balance and increased the public debt. The global financial crisis has mostly affected oil-producing countries, which are more connected to the global financial markets than non-oil producing countries. Third, all governance institutions positively affect growth.

It is noteworthy to conclude that the Arab Spring seems to have burdened growth in some countries more than others, suggesting that policies in the post-conflict era need to take into account the specificities of each country. Governments should pay closer attention to rebuilding public institutions in a modern and efficient approach. Consequently, these institutions would allow financial markets to operate under better economic conditions, potentially create more jobs and help reduce rampant unemployment, and improve growth rates.

Further research can examine the convergence in per capita income in a reasonably homogeneous sample of countries in terms of long-run or steady-state characteristics (Barro, 2012). Doing this would require long-term data that is beyond the scope of the current paper.

## References

- Abadie, A., and Gardeazabal, J. 2008. Terrorism and the world economy. *European Economic Review*, 52(1), 1-27.
- Acemoglu, D., Hassan, T. A., and Tahoun, A. (2017). The power of the street: Evidence from Egypt's Arab Spring. *The Review of Financial Studies*, 31(1), 1-42.
- Araujo, R. A., and Lima, G. T. (2007). A structural economic dynamics approach to balance-of-payments-constrained growth, *Cambridge Journal of Economics*, 31(5), 755–774.
- Arayssi, M., & Fakhri, A. (2015). Institutions and development in MENA region: evidence from the manufacturing sector. *International Journal of Social Economics*, 42(8), 717-732.
- Arayssi, M., & Fakhri, A. (2017). Finance–growth nexus in a changing political region: How important was the Arab Spring?. *Economic Analysis and Policy*, 55, 106-123.
- Barro, R. J. (2012). Convergence and modernization revisited (No. w18295). National Bureau of Economic Research
- Beck, T., Levine, R. and Loayza, N. (2000), “Finance and the Sources of Growth”, *Journal of Financial Economics*, Vol.58 No.1-2, pp. 261-300.
- Bittencourt, M. 2011. Inflation and financial development: Evidence from Brazil. *Economic Modelling*, 28(1-2), 91-99.
- Blackburn, K. and Forgues-Puccio, G.F. (2010), “Financial Liberalization, Bureaucratic Corruption and Economic Development”, *Journal of International Money and Finance*, Vol.29 No.7, pp. 1321-1339.
- Blattman, C., and Miguel, E. 2010. Civil war. *Journal of Economic literature*, 48(1), 3-57.
- Blomberg, S. B., and Hess, G. D. 2006. How much does violence tax trade?. *The Review of Economics and Statistics*, 88(4), 599-612.
- Cameron, A. C., Gelbach, J. B., and Miller, D. L. 2011. Robust inference with multiway clustering. *Journal of Business & Economic Statistics*, 29(2), 238-249.
- Carkovic, M. and Levine, R. (2005), “Does Foreign Direct Investment Accelerate Economic Growth?”, in Moran, T.H., Graham, E.M., and Blomström, M. (Ed.), *Does Foreign Direct Investment Promote Development?* Washington, DC: Institute for International Economics and Center for Global Development.
- Devarajan, S., and Mottaghi, L. 2017. Middle East and North Africa Economic Monitor, April 2017.
- Francis, B. B., Hasan, I., and Zhu, Y. 2014. Political uncertainty and bank loan contracting. *Journal of Empirical Finance*, 29, 281-286.
- Freund, C., and Jaud, M. 2014. Regime change, democracy, and growth. Peterson Institute Working Paper 14-1.
- Ghosh, S. 2016. Political transition and bank performance: how important was the Arab Spring?. *Journal of Comparative Economics*, 44(2), 372-382.
- Hasan, I., Wachtel, P., and Zhou, M. 2009. Institutional development, financial deepening and economic growth: Evidence from China. *Journal of Banking & Finance*, 33(1), 157-170.R.
- Herrala R. – Turk-Ariss. 2016, “Capital accumulation in a politically unstable region”, *Journal of International Money and Finance*, 64, 1-15.

- Ianchovichina, E., and Ivanic, M. 2016. Economic Effects of the Syrian War and the Spread of the Islamic State on the Levant. *The World Economy*, 39(10), 1584-1627.
- Igyor, G.A. (1996), *The Economic and Social Benefit of Telecommunications Technology*. A Paper Presented at the Animal International Conference on Information Technology Management Infotech, October 23 – 25.
- Kasmaoui, K., Mughal, M., & Bouoiyour, J. (2018). Does Trust Influence Economic Growth? Evidence from the Arab World. *Economics Bulletin*, 38(2), 880-891.
- Masetti, O., Körner, K., Forster, M., Friedman, J., Lanzeni, M. L., AG, D. B., and Speyer, B. 2013. Two years of Arab Spring. Current issues, emerging markets.
- Meierrieks, D., and Gries, T. 2013. Causality between terrorism and economic growth. *Journal of Peace Research*, 50(1), 91-104.
- Murdoch, J. C., and Sandler, T. 2002. Economic growth, civil wars, and spatial spillovers. *Journal of conflict resolution*, 46(1), 91-110.
- Neaime, S. (2016). Financial crises and contagion vulnerability of MENA stock markets. *Emerging Markets Review*, 27, 14-35.
- Pástor, E., and Veronesi, P. 2013. Political uncertainty and risk premia. *Journal of Financial Economics*, 110(3), 520-545.
- Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies*, 22(1), 435-480.
- Roe, M. J., and Siegel, J. I. 2011. Political instability: Effects on financial development, roots in the severity of economic inequality. *Journal of Comparative Economics*, 39(3), 279-309.
- Todaro, M. and Smith S. (2011), *Economic Development*, 11th Edition, Pearson Education and Addison-Wesley.
- Trading Economics. (2018). Syria GDP Annual Growth Rate | 1971-2018 | Data | Chart | Calendar. Retrieved from <https://tradingeconomics.com/syria/gdp-growth-annual>
- Yao, Y. and Yueh, L. (2009), “Law, Finance and Economic Growth in China: An Introduction”, *World Development*, Vol.37 No.4, pp. 753-762.
- World Bank. 2014. “Regional Economic Outlook for Middle East and North Africa”, The World Bank, Washington, DC.

Table 1: Summary statistics

	Mean	Standard Deviation	Minimum	Maximum
GDP	21,113.53	20,358.28	516.0	93,700
Arab Spring	0.20	0.40	0.0	1
Global financial crisis	0.30	0.46	0.0	1
Budget balance	1.09	11.40	-39.2	30
Trade balance	10.87	27.82	-44.2	55
Public debt	44.90	22.26	1.0	75
FDI inflows	4.49	4.50	-0.4	24
Population size	17.74	20.45	1.2	84
Inflation rate	5.63	10.95	-2.4	90
Unemployment	30.80	16.56	1.0	47
Life expectancy	73.93	2.84	68.7	80
Fixed telephone	14.03	5.56	3.7	30
Internet users	32.85	22.29	0.9	90
Rule of Law	46.87	21.42	0.5	83
Regulatory quality	54.51	14.88	1.9	76
Political stability	40.47	23.55	0.0	91
Government effectiveness	54.42	17.15	0.5	90
<i>N</i>	160			

Table 2: Arab Spring and economic growth (Arellano-Bond dynamic estimations)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Arab Spring	-0.829*	-0.497*	-0.486***	-0.433**	-0.379**	-0.426**	-0.319*	-0.085	-0.223
	(0.429)	(0.288)	(0.162)	(0.195)	(0.190)	(0.196)	(0.176)	(0.208)	(0.193)
Global financial crisis	-0.361	-0.386**	-0.144	-0.049	-0.129	-0.062	-0.147*	-0.173*	-0.161*
	(0.424)	(0.173)	(0.092)	(0.094)	(0.101)	(0.106)	(0.087)	(0.092)	(0.095)
Budget balance		-0.013	-0.018***	-0.018**	-0.016**	-0.018**	-0.013**	-0.008	-0.010
		(0.012)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Trade balance		0.028***	0.029***	0.030***	0.029***	0.030***	0.025***	0.027***	0.027***
		(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Public debt		-0.020***	-0.007**	-0.007***	-0.007***	-0.007***	-0.005**	-0.007***	-0.007***
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
FDI inflows		0.070*	0.082***	0.063**	0.065***	0.065***	0.045**	0.065***	0.065***
		(0.042)	(0.023)	(0.024)	(0.024)	(0.025)	(0.022)	(0.021)	(0.022)
Population size			0.014***	0.013***	0.013***	0.013***	0.013***	0.012***	0.015***
			(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Inflation rate			-0.042**	-0.029	-0.029*	-0.028	-0.029*	-0.023	-0.021
			(0.018)	(0.018)	(0.017)	(0.018)	(0.016)	(0.016)	(0.016)
Unemployment			-0.010***	-0.010***	-0.007***	-0.010***	-0.007***	-0.006**	-0.003
			(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)
Life expectancy			0.217***	0.205***	0.205***	0.204***	0.200***	0.192***	0.223***
			(0.026)	(0.030)	(0.029)	(0.030)	(0.027)	(0.026)	(0.028)
Fixed telephone				-0.014	-0.004	-0.013	0.010	-0.001	-0.009
				(0.012)	(0.013)	(0.013)	(0.013)	(0.012)	(0.011)
Internet users				0.007**	0.001	0.006	0.002	-0.003	-0.002
				(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
Rule of Law					0.006*				
					(0.003)				
Regulatory quality						0.001			
						(0.004)			
Political stability							0.010***		
							(0.003)		
Government effectiveness								0.012***	
								(0.004)	
Control of corruption									0.010***
									(0.004)
Year and country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	16	16	16	16	16	16	16	16	16
P-value of AR(1) test	0.000	0.000	0.071	0.043	0.031	0.039	0.266	0.114	0.021
P-value of AR(2) test	0.641	0.593	0.566	0.750	0.974	0.726	0.423	0.474	0.969
P-value of Hansen exogeneity test	0.316	0.983	0.704	0.080	0.167	0.074	0.184	0.641	0.255

Notes:  $p$ -value of AR(1) and AR(2) serial correlation tests on residuals and exogeneity of instrument test. Standard errors (clustered by country and year) are within parentheses. Statistical significance: \* = 10%, \*\* = 5%, \*\*\* = 1%.

Table 3: Arab Spring and economic growth in oil producing countries (Arellano-Bond dynamic estimations)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Arab Spring	-2.446*** (0.476)	-3.802*** (1.168)	-6.800** (2.926)	-0.192* (0.110)	-0.185 (0.722)	-1.665 (1.466)	-0.448*** (0.089)	1.314 (0.842)	1.518* (0.834)
Global financial crisis	-0.475*** (0.056)	-0.073 (0.140)	-0.339*** (0.076)	-0.094 (0.075)	-0.197*** (0.035)	-0.099*** (0.034)	-0.132*** (0.003)	-0.166*** (0.033)	-0.130*** (0.028)
Budget balance		-0.034*** (0.008)	0.013 (0.011)	0.022*** (0.003)	0.001 (0.002)	0.009*** (0.003)	0.002*** (0.000)	0.006*** (0.002)	0.008*** (0.002)
Trade balance		0.041*** (0.011)	0.001 (0.009)	0.002 (0.005)	0.012*** (0.002)	0.003 (0.009)	0.010*** (0.000)	0.013*** (0.002)	0.012*** (0.002)
Public debt		-0.005 (0.003)	0.005** (0.002)	-0.002 (0.002)	0.001*** (0.000)	0.001 (0.001)	0.001*** (0.000)	-0.001 (0.001)	-0.000 (0.001)
FDI inflows		0.214*** (0.057)	-0.032* (0.017)	0.014*** (0.003)	-0.022*** (0.006)	-0.020* (0.010)	-0.014*** (0.001)	-0.042*** (0.007)	-0.032*** (0.006)
Population size			-0.105*** (0.023)	-0.011 (0.007)	-0.015* (0.009)	-0.021 (0.016)	-0.005*** (0.001)	-0.000 (0.008)	0.003 (0.008)
Inflation rate			0.040*** (0.013)	-0.009 (0.009)	0.017*** (0.005)	0.017** (0.008)	0.020*** (0.001)	0.018*** (0.005)	0.015*** (0.005)
Unemployment			0.006 (0.004)	-0.003 (0.002)	0.002*** (0.001)	0.002* (0.001)	0.003*** (0.000)	0.002** (0.001)	0.001 (0.001)
Life expectancy			-0.371*** (0.132)	0.285*** (0.046)	0.203*** (0.071)	0.427*** (0.072)	0.282*** (0.007)	0.345*** (0.058)	0.387*** (0.055)
Fixed telephone				-0.060*** (0.004)	-0.054*** (0.003)	-0.003 (0.035)	-0.022*** (0.001)	-0.058*** (0.004)	-0.051*** (0.004)
Internet users				0.005*** (0.002)	0.001 (0.001)	-0.004 (0.003)	-0.000 (0.000)	0.001 (0.001)	0.000 (0.001)
Rule of Law					0.013*** (0.003)				
Regulatory quality						-0.020 (0.013)			
Political stability							0.005*** (0.000)		
Government effectiveness								0.008*** (0.002)	
Control of corruption									0.005*** (0.001)
Year and country dummies	Yes								
Countries	8	8	8	8	8	8	8	8	8

Notes: Standard errors (clustered by country and year) are within parentheses. Statistical significance: \* = 10%, \*\* = 5%, \*\*\* = 1%.

Table 4: Arab Spring and economic growth in non-oil producing countries (Arellano-Bond dynamic estimations)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Arab Spring	0.138 (0.631)	-0.563*** (0.175)	-0.445*** (0.102)	-0.497*** (0.073)	-0.388*** (0.114)	-0.508*** (0.076)	0.069 (0.121)	-0.211*** (0.081)	-0.465*** (0.065)
Global financial crisis	-0.086 (0.704)	-0.254*** (0.094)	-0.043 (0.046)	0.058 (0.046)	0.043 (0.054)	0.061 (0.045)	0.000 (0.049)	-0.097** (0.048)	-0.043 (0.047)
Budget balance		-0.021 (0.019)	-0.061*** (0.013)	-0.062*** (0.009)	-0.065*** (0.011)	-0.062*** (0.009)	-0.018 (0.012)	-0.037*** (0.009)	-0.065*** (0.008)
Trade balance		0.030*** (0.002)	0.034*** (0.001)	0.023*** (0.003)	0.017*** (0.005)	0.024*** (0.004)	-0.004 (0.006)	0.026*** (0.003)	0.021*** (0.003)
Public debt		-0.024*** (0.003)	-0.007*** (0.003)	-0.020*** (0.005)	-0.022*** (0.005)	-0.019*** (0.005)	-0.026*** (0.005)	-0.002 (0.006)	-0.019*** (0.004)
FDI inflows		0.024 (0.053)	-0.014 (0.022)	-0.010 (0.015)	-0.005 (0.018)	-0.014 (0.015)	0.015 (0.016)	-0.012 (0.015)	-0.069*** (0.020)
Population size			0.004* (0.002)	0.025*** (0.006)	0.032*** (0.008)	0.024*** (0.007)	0.035*** (0.007)	0.013** (0.006)	0.033*** (0.006)
Inflation rate			-0.097*** (0.019)	-0.106*** (0.013)	-0.103*** (0.016)	-0.106*** (0.013)	-0.045*** (0.015)	-0.116*** (0.014)	-0.081*** (0.012)
Life expectancy			0.157*** (0.027)	0.280*** (0.037)	0.321*** (0.051)	0.276*** (0.039)	0.329*** (0.043)	0.228*** (0.036)	0.344*** (0.038)
Fixed telephone				-0.111*** (0.031)	-0.109*** (0.038)	-0.107*** (0.033)	-0.127*** (0.034)	0.000 (0.035)	-0.081*** (0.028)
Internet users				-0.007** (0.004)	-0.009** (0.004)	-0.007* (0.004)	-0.010*** (0.004)	0.000 (0.004)	-0.009*** (0.003)
Rule of Law					0.013 (0.008)				
Regulatory quality						-0.002 (0.005)			
Political stability							0.028*** (0.005)		
Government effectiveness								0.019*** (0.003)	
Control of corruption									0.017*** (0.004)
Year and country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	8	8	8	8	8	8	8	8	8

Notes: Standard errors (clustered by country and year) are within parentheses. Statistical significance: \* = 10%, \*\* = 5%, \*\*\* = 1%.