Governance, Capital and Economic Growth in the Arab Region

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Abstract

Arab countries (ACs) started their developmental process several years back. However, they still suffer from numerous economic, political and social problems, culminating in poor livelihoods, which was a key focus of the recent 'Arab Spring'. This paper aims to contribute to the continuing debate on the factors that boost economic growth in the ACs in comparison to other regions in the world with an emphasis on the often neglected role of governance in growth. The analysis is underpinned by a neoclassical growth framework augmented with institutional controls, and panel data estimation techniques applied to a balanced panel data set over the period 1995 to 2014 for 97 countries including 19 from the Arab Region. The study found strong evidence of a significant positive impact of human capital and investment on growth but a significantly negative impact of regulatory quality. The most striking result from the baseline model is that the coefficient of governance is significant and positively determines growth in the whole sample, while it is negative in ACs sample. The outcomes of the empirical analyses clearly underline the importance of human capital and governance to improve the growth prospects of the ACs economies. The latter variable may have additional benefits of minimising the occurrence of political and economic instability leading to such events as the 'Arab Spring'.

Keywords: economic growth, governance, panel analysis-fixed and random effects, Middle East

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1. Introduction

Economic, social and political failures in the Arab region have strongly been attributed to the 2011 self-immolation by Mohamed Bouazizi, a local street vendor in Tunisia outraged by police corruption (Brisson, 2012). This ignited a wave of protests that spread throughout most of the Arab region, popularly referred to as the 'Arab Spring'. The Arab street seemed to have made clear that it is no longer willing to accept poor public services, and a private sector made up of politically well-connected businessmen who earn huge profits by political connections, which allows them to avoid taxes and charge non-competitive prices.

Seeking the reasons for the 'Arab Spring', this paper aims to investigate the factors that determine growth in Arab economies in comparison to other regions in the world with an emphasis on the role of governance in growth. The paper relies on a neoclassical growth framework to formalise the channel of institutional influence on growth as it holds a shift parameter that is capable of accounting for the impacts of numerous factors (including institutions) on total factor productivity. That is, to examine the role of institutions in the growth trend of the Arab region underpinned by an extended neoclassical growth framework. The institutional variables, which have been somewhat under-studied, are crucial if the Arab region is to attain more sustainable growth and limit the potential occurrence of such an 'Arab Spring' in the future.

Arab countries (ACs) after their independence had a series of developmental processes. By the mid-twentieth century, the independent states had formed the region's new architecture, and a new era began. Since the 1950s and early 1960s, the development model in ACs was based on strong governments, central planning of economic and social priorities, and wide-scale policies for redistribution and addressing equity issues. Most ACs invested in major infrastructure projects, education, and public health(Bibi and Nabli, 2010). With the end of the oil boom in the 1970s, however, economic performance gradually declined. By the mid-1980s, the development model faced pressures for change because of the significant role played by oil revenues (Drine, 2012). In the 1990s and 2000s the economic growth implications and attempts at reform, in addition to the emergence of a new development model were noticeable (Kireyev, 2000).

Many ACs launched necessary economic reforms in line with programs prescribed by such international institutions as the International Monetary Fund (IMF) and the World Bank (Abbott et al., 2010). These reforms were mainly concerned with privatisation and trade

liberalisation, considered to be a means with which to improve trading capacities and to attract more foreign direct investment (FDI). At the same time, there were significant and critical challenges in the region during that period, such as, extremely high growth of the labour force, which was increasingly young, educated, and feminised (Bibi and Nabli, 2010).

Despite implementing these series of economic reforms with emphasis on stabilisation and structural adjustment in some ACs, these changes did not significantly affect the standards of living in these countries. Indeed, over the last fifteen years or so, growth performance of the Arab region as a whole has been disappointing (Harrigan and El-Said, 2011). Besides the poor economic conditions, there are weak governance and institutional frameworks, corruption and the increasing gaps between governmental policies and the needs and aspirations of the citizens.

There is no doubt that political, economic and institutional conditions in ACs had a direct affect on economic performance and business activities. Emara and Jhonsa (2011) and Nabli (2007) have claimed that the low efficiency of capital in the MENA region can be associated to the fact that most countries in the region provide an unfriendly business environment and insufficient institutional support for private investment. In addition, the region, according to the Freedom House (2015), had the worst civil liberties scores of any region, and most of its countries were classified as not free.

In the light of the above, the ACs with regard to polity were designated by a top-down, personalised, highly concentrated and non-contestable mode of governing. Economically, the region exhibited highly skewed income and property accumulation as well as resource allocation, and distribution of political power linked with highly centralised control of the ruling elite. In particular, under this politically and economically captured system, neither the middle nor the poor class were beneficiaries.

It can be observed in Figure 1 of Appendix 1 that the economic growth rates in Arab countries during the last two decades have been unstable and remarkably volatile. Some of these fluctuations are due to exogenous variables related to changing world economic conditions. Additionally, Figure 1 shows that on average, the trend of the growth rates of ACs follows almost the same pattern as other regions. For instance, the highest growth rate was 7% in 2004, while the worst rate was in 2009 following the global financial crisis in 2008, similar to other regions.

Nevertheless, estimating the GDP per capita functions across the period of the study in the ACs compared to other regions demonstrates that the ACs were the second worst region in the world only slightly above the poorest performing districts of Sub-Saharan Africa (SSF) as in Figure 2 of Appendix 1.

These weak economic conditions, in addition to the poor socio-political environment, underpinned the "Arab Spring". These protests led to leadership changes, administrative reforms, and a range of political, social, and economic changes that continue to reverberate today. The focus has shifted towards discovering alternative explanations and a range of development policy options to help redress the underlying causes that gave rise to public grievances and discontent. These claims were clearly encapsulated in the case of Egypt and Tunisia by the slogan, "Bread, freedom and social justice" – a slogan that emphasises the interdependence of inclusive governance, economic and social inclusion (UNDP, 2011).

The 'Arab Spring' reflects not only a demand for jobs and improved living standards, but is also a protest against corruption, favouritism and unequal access to economic resources. The presence of these factors discourages broad-based sustainable investment, leads to a misallocation of public and private resources, and ultimately adversely affects economic performance. This is the focus of the paper in examining the key role of institutions in ensuring more sustainable growth in the Arab region.

The rest of the paper is organised as follows: the second section is a brief overview of previous related studies, while Section 3 presents the methodology and the research model specification. Section 4 discusses the results of the regression analyses, with the last section focusing on conclusions and policy implications.

2. Previous Studies

2.1: Economic growth in Arab countries

Several recent studies have analysed the growth pattern of the Arab region (Badawi and Makdisi, 2007, Bhattacharya and Wolde, 2010, Bibi and Nabli, 2010, Costello et al., 2015, Dasgupta et al., 2005, Makdisi et al., 2006, Nabli, 2007, Sullivan and Nadgrodkiewicz, 2008, UNDP, 2011). Makdisi et al. (2006), for example, found that with very few exceptions, this growth pattern is considered to be inextricably linked to numerous characteristics of most of the countries in the region, their heavy dependence on oil, low rates of returns on investment in physical and human capital, weak economic base, high

population growth and unemployment rates, low level of integration in the world economy and underdevelopment of market institutions.

Some empirical studies have argued that labour skill shortages could well be another key constraint on growth in the MENA region. Pissarides and Véganzonès (2006), for example, claimed that a prominent feature of the MENA economies, inherited from the experience of development, is human capital and the low stock of skilled labour compared to other countries with similar levels of per capita income. Moreover, the countries in the region continue to fail to deploy human capital efficiently despite high levels of education. This is mainly due to the existence of large public sectors, which distort incentives, and because of excessive regulations governing the industry. The authors argue that education systems in the ACs are mainly designed for the needs of the public sector, with the end that earned skills do not match those required in growth-enhancing businesses in the private sector. Irrelevant regulation of the private sector removes the incentives for employers to recruit and train good workers. The authors claim that labour market regulations in the region have historically been stringent and remain extremely tight compared with most developing countries, although not as high as those prevailing in the previously planned economies or in Latin America.

Moreover, several studies have emphasised the role of governance and institutional factors in explaining MENA's relatively weak growth performance and other key macroeconomic indicators. Nabli (2003) provides empirical evidence that institutional capability, measured by international indices of the state's ability to perform critical institutional functions, is strongly correlated with economic growth and its sources (investment and total factor productivity). Addtionally, Badawi and Makdisi (2007) show that the institutional capability affects the capacity of governments in the Arab region to implement policy change.

Other researchers such as Emara and Jhonsa (2011) and Nabli (2007) have explained that the weak efficiency of capital in the MENA region can be associated with the fact that most ACs in the region provide an unfriendly business environment and inappropriate institutional support for investment and private sector development. Makdisi et al. (2006) have also emphasised the significance of the quality of governance as well as of the stock of human capital in clarifying the low productivity performance of MENA countries in comparison with the rest of the world in general and particularly the high-performing East Asian countries.

Furthermore, Aysan et al. (2007) address the issue of the low level of private investment in the MENA region, with particular emphasis on the role of governance. The study estimated a simultaneous model of private investment and governance quality where economic policies concurrently explain both variables. The empirical results showed that governance plays a significant role in private investment decisions. The same result in the case of "administrative quality" in the form of controllingcorruption, bureaucratic quality, the investment-friendly profile of administration, law and order, as well as for "political stability." The estimations also stress that structural reforms like financial development, trade openness, and human development affect private investment decisions directly, and/or through their positive effect on governance.

To sum up, the current study opines that, ACs face a crucial choice. The weaknesses of past economic reforms foreshadow a potential social instability and massive labour crisis as the growing wave of youth unemployment sweeps through the region. On the other hand, after the 'Arab Spring', ACs may have at hand a unique opportunity for sustained growth and development, given that long-overdue institutional reforms – both economic and political – are introduced.

2.2: The Role of Governance and Capital on Economic Growth

The reasons for economic development have been studied before Adam Smith made his inquiry into the causes of the wealth of nations. The first development economists concentrated primarily on the accumulation of physical capital as the driving force in economic growth. This emphasis on the accumulation of capital provided the intellectual impetus for the large sums of foreign relief provided to emerging countries by international aid agencies post–World War II.

In the 1960s and 1970s, the pioneering work of Schultz (1961) and Becker (1964) on human capital caused economists to expand their standard economic growth models to allow for human capital investment to play a role. In a study into the effects of education on economic growth, Hall (2000) found that education seemed to clarify a significant share of economic growth. These results led development scholars to an emphasis on human capital as a key factor of production during the 1980s and 1990s (Coyne and Boettke, 2006). Therefore, the World Bank encouraged high levels of government investment in schooling in an attempt to increase the quality of human capital.

However, there is slight evidence to suggest that efforts to improve the levels of physical and human capital in developing countries, especially in Africa, have failed to generate high growth (Easterly, 2006). Easterly (2001) presents how African states had larger increases in the number of schools than any other countries since 1960. Yet these countries remained mired in poverty while Asian ''tigers'' like South Korea and Taiwan had smaller increases in education levels but flourished economically. The justifications for these situations are illustrated by Pritchett (2001) when he found that in some states under specific conditions the institutional environment might be so perverse that increasing education actually leads to lower growth.

According to North (2009) and North et al. (2008) societal payoffs for improvements in the levels of both physical and human capital are probably dependent on the institutional conditions in which those investments occur. In countries with good institutions where the social, political, and legal rules provide for protected property rights, fair contract enforcement and reliance on a free market mechanism guide economic activity, investments in capital are beneficial to individuals and also create a positive impact on the economy as a whole (Carson and Prado, 2016). On the other hand, in countries with poor institutions, the higher returns to investments are in the rent-seeking activities of those who plunder the wealth of others, through lobbying powerful members of the community in an alliance with military, political, religious, and economic elites.

This study begins by integrating this hypothesis into the augmented Solow (1956) growth model. In this respect, the theoretical approach used is a clear addition to the work of Dawson (1998) who was the first to integrate institutions into the standard growth models. This hypothesis is then empirically tested by interacting governance with both physical and human capital in cross-country growth regressions. Thus, this study is closely connected to the valuable work of Ahmad and Marwan (2012), Bennett (2014), Hall et al. (2010), Jalilian et al. (2007), Stroup (2007), Stroup (2008) who used a similar approach to separate out the impact of political and economic institutions on economic growth.

3. Theoretical framework, estimation approach and data sources

This paper formalises the institutional impact on growth by utilising a basic neoclassical growth framework and augmenting it with institutional characteristics based on regulatory quality. Such a clear growth framework would does tends to allow an explicit modelling

of the institutions' channel of impact and can eventually provide a better understanding of its relationship with economic growth.

3.1 Theoretical Framework

This study investigates the relationship between economic growth and governance, and it utilises a conceptual framework drawn from Dawson (1998) and Hall et al. (2010) which are in turn based on the Solow (1956) growth model[3]. Consider the following Cobb-Douglas function which exhibits constant returns to scale ($0 < \alpha_i < 1$ & $\alpha_1 + \alpha_2 + \alpha_3 = 1$) but diminishing returns to individual factors.

$$Y_{it} = A_{it} K_{it}^{\alpha1} H_{it}^{\alpha2} L_{it}^{\alpha3} \tag{1}$$

Where Y is real output produced by K_{it}, the physical capital, L_{it}, the amount of labour and H_{it}, human capital; i and t represents individual countries and time respectively The term A_{it} is often denoted as Total Factor Productivity (TFP) or Multifactor Productivity (MFP) and is designated to capture a host of factors that affect the overall efficiency of the economy. These factors according to Mankiw et al. (1992) reflect not just the technology level , but also other factors, such as resource endowments, climate, quality of management and governance, the strength of institutions and property rights, and cultural factors, and so on (the institutional term is added to the list by Campos and Nugent (1999))[4]. The income per capita function results from dividing by L and revises equation (1) in per worker terms:

$$y_{it} = k_{it}^{\alpha1} h_{it}^{\alpha2} A_{it}$$

This traditional model implicitly assumes an underlying set of good institutions. In this model, the quality of institutions affects output through the effect that institutions have on the productivity of human and physical capital. Consequently, the notion of institutions affecting TFP can obviously be incorporated into the model via a function of A, such as in Hall et al. (2010):

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[3] Dawson (1998) however utilizes the Mankiw et al. (1992) growth model which is a Solow (1956) neoclassical growth model augmented with human capital. In his panel analysis, Dawson divides his data into three 5-year sub-periods because the data for institutional quality (i.e. economic freedom) and human capital is only available in five-year periods. Since this study uses annual data, it therefore employs Solow framework with human capital parameter.

[4] The primary motivation to use the Solow framework is particularly due to the fact that it has a shift parameter. Solow (1956) acknowledges that this term is far from capturing technical change solely. It is "a shorthand expression for any shift in the production function" and thus it will capture "slowdow ns, speedups,improvements in the education of the labor force, and all sorts of things".

$$A_{it} = A_0\, h_{it}^{b1(I_i - I^*)}\, k_{it}^{b2(I_i - I^*)} \tag{2}$$

Where A_0 represents the level of technology, I^* accounts for the ideal institutions implicitly assumed in the classical growth model, and I is the country's current level of institutional quality. Thus, $(I - I^*)$ measures the degree to which the country's institutions fall short of ideal conditions. When $(I = I^*)$, in an ideal institutional environment, productive entrepreneurship, investments in human and physical capital and the division of labour are incentivized in a manner necessary to foster innovation and economic growth (Baumol, 1990; Holcombe 1998) such that a country is operating on the Production Productivity Frontier (PPF). TFP is here structured to serve as a production deflator for a country whose institutions are less than ideal, $(I < I^*)$, which can be thought of as operating at a point inside the PPF.

Dawson (1998) argues that the specification of the A function in equation (2) implies differences in institutions and having an explicit influence on the level of productivity across countries. One critical assumption in this specification is that institutions are considered to affect growth via a TFP channel and not only via investment but also through human capital[5].

Substituting equation (1) into (2) in per capita terms and taking the logs of the function, will lead to the following equation:

$$\ln y_{it} = \ln A_0 + (\alpha_1 + b_1(I_i - I^*)\ln h_{it} + (\alpha_2 + b_2(I_i - I^*))lnk_{it} \tag{3}$$

We focus on the extent to which the growth of physical and human capital per worker explain the growth of output per worker following Pritchett (2001) and Hall et al. (2010). This is done through taking differences, which gives the growth rate of output as:

$$\hat{y}_{it} = \hat{A}_0 + (\alpha_1 + b_1(I_i - I^*)\hat{h}_{it} + (\alpha_2 + b_2(I_i - I^*))\hat{k}_{it} \tag{4}$$

where ˆ denotes a growth rate. Simplifying

$$\hat{y}_{it} = \hat{A}_0 + (\alpha_1 - b_1 I^*)\hat{h}_{it} + (b_1 I)\hat{h}_{it} + (\alpha_2 - b_2 I^*)\hat{k}_{it} + (b_2 I)\hat{k}_{it} \tag{5}$$

Within this framework, institutions exert a homogenous influence on the productivity of human and physical capital across economies.

$$\hat{y}_{it} = \alpha_0 + I_{it}\hat{k}_{it} + \delta_1 \hat{k}_{it} + \delta_2 \hat{h}_{it} + I_{it}\hat{h}_{it} \tag{6}$$

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[5] See Dawson (1998) for more discussion on the possible channel of institutional impact towards growth and the consequent assumptions made.

Where, $\alpha_0 = \hat{A}_0$ and $(\alpha_i - b_i I^*) = \delta_i$. The functional form of Equation (6) with appropriate error term and country i and time t specific effect terms is therefore specified as the following,

$$\hat{y}_{it} = \alpha_0 + I_{it}\hat{k}_{it} + \delta_1 \hat{k}_{it} + \delta_2 \hat{h}_{it} + I_{it}\hat{h}_{it} + I_{it} + e_{ij} \qquad (7)$$

Equation (7) presents a heuristic way of testing the institutional effects on growth via its impact on productivity. This equation is used to assess the direct effect of institutions on the level of income per capita and differenced to examine how institutional change affects economic growth.

3.2 Estimation approach

While using a pooled OLS, countries' unobservable individual effects are not controlled therefore the heterogeneity of the countries in the analysis can influence the measurements of the estimated parameters (Tiwari and Kalita, 2011). Furthermore, using a panel data model with the incorporation of individual effects can have numerous benefits, for example, allowing us to account for individual heterogeneity. Indeed, developing countries differ regarding their colonial history, political regimes, ideologies, and religious affiliations, geographical sites and climatic environments, not to mention a broad range of other country-specific variables. In addition, if this heterogeneity is not taken into account it will inevitably bias the results, no matter how large the sample is. Therefore, by integrating countries' unobservable individual effects in equation (7) the model to be estimated is as follows:

$$\hat{y}_{it} = \alpha_0 + I_{it}\hat{k}_{it} + \delta_1 \hat{k}_{it} + \delta_2 \hat{h}_{it} + I_{it}\hat{h}_{it} + I_{it} + w_{ij} \qquad (8)$$

Where, $w_{ij} = \mu_i + e_{ij}$ with μ_i being countries' unobservable individual effects. The difference between a pooled OLS regression and a model considering unobservable individual effects lies precisely in μ_i (Gujarati, 2004).

To test the relevance of unobservable individual effects the Lagrange Multiplier (LM) test could be used with the null hypothesis of the irrelevance of unobservable individual effects (Mátyás and Sevestre, 2008). Also, there may be a correlation between countries' unobservable effects and growth determinants. If there is no correlation, the most appropriate way of carrying out such analysis is using a panel model of random effects (Higgins and Green, 2008). Hausman test is used to test for the possible existence of a correlation.

3.3 Data sources and variables

An annual panel observation for 97 countries including 19 Arab countries (see Appendix 2) for 20 years over 1995 to 2014 has been utilised for this study. Data are obtained from World Development Indicators (WDI) from the World Bank (2015). The dependent variable is real per capita GDP growth, while explanatory variables are as follows: the population growth variable and gross investment are respective proxies for the rates of growth of factor inputs (labour and capital) in the production process, and secondary school enrolment rate is added as a proxy for the quality of human capital.

Regulatory quality is used as a proxy for governance and institutions following measures of governance by Kaufmann and Kraay (2003). The measures are perhaps the most widely quoted governance indicators, based on perceptions developed for 212 countries. Regulatory quality presents the perceptions of the ability of the government to formulate and apply sound policies and regulations that promote private sector development. Effective regulation achieves the social progress goals which are set out by the government for the regulatory authority. In emerging countries, the social advancement objectives of regulation are unlikely to be directly concerned with the aim of economic efficiency, but with broader goals to improve sustainable progress and poverty reduction. Efficient regulation achieves the social prosperity goals with minimum economic costs (Jalilian et al., 2007).

Table 1 presents the means, standard deviations, minimum and maximum values for all the variables in the analysis for both groups of countries. It shows that both economic growth and governance in Arab regions are below the world average, while it is higher in population growth[6].

Table 1 Descriptive statistics

	GDP growth per capita(%)	Population growth (%)	Secondary school enrolment(%)	gross investment	Regulatory quality
All countries					
Obs	1732	1736	1270	1644	1305
Mean	2.37	1.57	78.87	21.38	0.16
Std. Dev.	5.1	1.72	30.73	6.5	1.04
Min	-62.46	-3.82	5.19	-2.42	-2.34

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[6] Furthermore, Multiple-Sample Comparison tests used to compare the means of the growth rates of the regions, show that there is significant difference between the means for Arab countries and those of all countries (always at better than 1% level) for all institutional and the per capita income. In contrast, for the secondary school enrolment variables, it is not significant (at 5% level).

Max	102.77	17.48	165.58	59.72	2.24
Arab Countries					
Obs	377	399	273	345	285
Mean	1.75	2.91	69.66	22.42	-0.38
Std. Dev.	8.58	2.55	27.50	7.84	0.76
Min	-62.46	-0.30	10.90	2.91	-2.16
Max	102.77	17.48	124.29	58.95	1.11

4. Empirical Results

The first step in the econometric analysis was to examine the degree of integration of the variables in equation (8). Appendix 3 presents the results of the panel unit-root test to ensure the variables are integrated in the same order based on Levin -Lin-Chu (LLC) test (2002), Im, Pesaran and Shin test (IPS) (2003). The results indicate that the series are generally stationary at a 1% level with intercept (intercept and trend in the case of school enrolment (H)). This allows estimating the regression for all countries and Arab countries using the standard methods as described below.

The analysis run pooled OLS, fixed effects and random effects estimations which are meant to check the robustness of the results. Explicitly, they allow for appropriate comparison with previous institutional studies that use similar estimation methods. The strategy is to run the estimations in two stages, firstly for the whole sample of 97 countries, and secondly for a sample consisting of 19 Arab countries only. The main objective of this strategy is to identify the similarities or differences in the level of significance of the institutional quality variable. The estimated results are presented in Table 2 and 3. The Tables contains results of static panel data models from estimating the baseline growth model formalised in equation (8) for the whole and ACs samples respectively.

Based on the results in Tables 2 and 3, the overall F-statistics are significant in all panel data models, and therefore the null hypothesis cannot be rejected that the explanatory variables do not explain (taken as a whole) changes in the dependent variable. Hence the determinants selected in this study can be considered sufficient to explain variations in the real per capita GDP growth. In addition, this finding, coupled with significant coefficients of the human capital and investment variables clearly supports the assumption that economic resources affect growth via the factor productivity channel.

Regarding Table 2 for the whole sample, the Pooled OLS model ignores the potential for unobserved heterogeneity and thus overcomes the panel nature of the data altogether. The LM was used to test this (Mátyás and Sevestre, 2006). The result indicated the rejection of the null hypothesis of the irrelevance of unobservable individual effects and implied that a pooled OLS regression would not be the most appropriate. That is, country-specific heterogeneity plays a significant role in economic growth. Therefore, it should be incorporated into the model. Furthermore, the Hausman test was insignificant, and the null hypothesis of the absence of correlation between countries' unobservable individual effects and growth determinants was not rejected, and therefore the random effect model was most appropriate. Therefore, the analysis of the relationship in equation (8) is a panel model with random effects.

Table 2: Estimated Panel data Models for the whole sample of 97 countries
Dependent Variable: Growth rate of GDP per capita

	OLS		Fixed Effects		Random Effects	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Ln(h)	1.66923*	0.063545	0.469383*	0.030611	0.555595*	0.033024
Ln(k)	0.055368	0.083744	0.097113*	0.024476	0.072277*	0.026859
I	0.19377*	0.370849	0.299432*	0.137143	0.3443*	0.150289
Ln(h*I)	0.70527*	0.067806	0.036207*	0.029219	0.072552*	0.03189
Ln(k*I)	0.31167*	0.080471	0.100885*	0.023963	0.095309*	0.026289
_cons	0.8303*	0.380206	6.296519*	0.14507	5.791999*	0.176379
F test	0.0000		0.00000			
R-squared	0.8409		0.8046		0.8249	
chi2					0.0000	
LM test, chi2					0.0000	
Hausman, chi2			0.935			

*Denote significant at 5% level

All coefficients in the random effects model are positive and statistically significant, which reflects the importance of each component to contribute to higher growth rate. These results are consistent with Ahmad and Marwan (2012) and Jalilian et al. (2007). While Hall et al. (2010) have found the same results for only coefficients on both interaction terms, the coefficients on the change in physical capital and the change in human capital are negative and significant. The outcomes are consistent with those of Olson et al. (2000) who found that productivity growth is strongly correlated with the quality of governance and Kauffman et al. (2005) who found that the quality of governance has a positive effect on incomes.

In Table 3 for only the Arab countries sample, there is evidence of potential unobserved heterogeneity across ACs owing to the insignificance of the estimated chi2 of the Lagrange

Multiplier. Moreover, the OLS estimated standard errors are only valid when the errors are homoscedastic and not correlated (within individual countries) over time. As shown in Appendix 4, it is clear that there is a weak correlation over time, which is very consistent with this result, indicating that there is probably no observed individual heterogeneity. Furthermore, the estimated robust standard errors are approximately similar to the standard OLS ones (see Appendix 5) (Mátyás and Sevestre, 2006). Therefore, pooled OLS regression will be the most appropriate for ACs analysis.

The estimated pooled OLS results in Table 3 show that, while the coefficient of human capital is positive and significant, it is relatively small compared to the whole world sample (Table 2), which reflects the poor quality of human resources in ACs and its effect on production output. The insignificance of the interaction term between human capital and governance confirm this remarkable state , which is consistent with the average adult literacy rate in the region only reaching 72.9% by 2012 (Huebler and Lu, 2015). A UNDP (2011) Report of Arab Development Challenges concluded that the Arab region suffers from well-known quality issues that do not equip the youth with the tools they need to succeed in the modern world, including joining the mainstream economic activity. The regulatory environment in some of the countries does not encourage private investment in vocational and tertiary skills development as has been the case in some other regions, e.g. IT services and technical colleges in India. The region has failed to sustain job-creating growth and faces an explosive situation of youth unemployment particularly acute amongst the educated. This was one of the causes of the 'Arab Spring'.

The governance variable (Regulatory Quality), is significant but with adverse affect, which probably again explains the reason for the 'Arab Spring' in the region. Another significant finding from this result is that both investment and governance variables are statistically significant which means that the effect of institutions could possibly run totally through the investment channel if Arab states improve the quality of governance. The result confirms that institutional quality in ACs and developing countries is inferior and faces many problems as noted by Ahmad and Marwan (2012), Hall et al. (2010), Jalilian et al. (2007), Nabli (2007).

Furthermore, when the governance parameter interacts with the investment, it reduces the size of the investment effect on growth from 0.5881 to 0.3084 in the Pooled OLS (this is rather reinforced in the whole sample model in Table 2).

The most striking result from the baseline model is that the coefficient of the governance variable is significant and positively determines growth in the whole sample, while it is negative in the ACs sample. Using an F-test to compare regression coefficients of governance across the two models there appears to be a significant difference. By the standards of virtually any major metric measuring the quality of governance in a particular country, Arab countries routinely rank well below the global average. The findings of the World Bank's worldwide governance indicators provide the starkest evidence of the mismanagement and misrule produced by many of the region's governments (Kwon and Kim, 2014).

Table 3: Estimate Panel data Models for Arab Countries only
Dependent Variable: Growth rate of GDP per capita

	OLS		Fixed Effects		Random Effects	
	Coef.	**Std. Err.**	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**
Ln(h)	**0.47385***	0.231656	-0.07677	0.527673	0.364474	0.297257
Ln(k)	**0.5881***	0.196035	0.389475	0.281736	**0.49475***	0.223046
I	**-3.0965***	1.154559	-0.3417	2.481227	-2.1772	1.449801
Ln(h*I)	0.502005	0.27343	0.382375	0.628943	0.343152	0.353855
Ln(k*I)	**0.308405***	0.159479	-0.17891	0.284816	0.244286	0.181694
_cons	-2.41364*	1.219888	0.782719	2.254784	-1.60163	1.477812
F test	0.0062		0.0346			
R-squared	0.0956		0.0798		0.0922	
chi2					0.1008	
LM test, chi2					0.3476	
Hausman, chi2			0.024			

*Denote significant at 5% level

5. Conclusions and policy implications

The study seeks to contribute to the ongoing debate on the factors that boost productivity growth in Arab countries (ACs) through estimating Total factor productivity (TFP) function. Two main estimations were undertaken. The first is for the whole sample of 97 countries and the second for Arab countries only. The main objective of this strategy is to test the nature and level of significance of institutional quality impact, directly and indirectly, on economic growth in both samples.

Arab countries have experienced a dramatically poor economic performance since the early 1990s. The overall growth performance of the Arab countries has been both mixed and characterised by a higher degree of volatility in comparison with other regions of the world. These episodes of high and low growth are indeed an interesting case study from the institutional perspective. Utilising the Solow growth framework augmented with

governance variable, this study achieved the intended objectives to find empirical support for the proposition that 'institutions matter' for economic growth in ACs especially after the 'Arab Spring' and to show that the institutional growth-effect essentially runs via total factor productivity channels.

The estimated regression results suggest that governance in Arab countries over the last two decades have had a limited role in economic growth, which might not seem surprising given that some of the previous studies have reached similar conclusions.

The return of human capital for Arab countries is smaller than the whole world sample, which reflects the poor quality of human resources and its effect on production output. Unfortunately, the Arab region is heavily dependent on imports for the basic survival of its population and has not managed to use its wealth of natural and human resources to negotiate for a more even playing field and a more significant role in the evolving international order.

The provision of a regulatory regime that promotes rather than constrains economic growth is an important part of good governance. The ability of the state to provide effective regulatory institutions can be expected to be a determinant of how well markets and the economy perform. The impact of regulatory institutions on economic growth will depend on both the efficiency of the regulatory policies and instruments that are used and the quality of the governance processes that are practised by the regulators.

Moreover, these results focus attention on institutional reform as the key to economic progress so that future increases in the physical and human capital will generate positive social returns as well as private ones. Indeed, the ACs are in need of an economic development approach that targets resolving social issues related to inequality and poverty. Stiglitz (2002) promotes a vision where development strategies must incorporate economic as well as social objectives. Such development will be accomplished through government transparency, communities' participatory processes, international organisations exchange, and openness to international markets. "Too often, development is interpreted as being identical with economic development, the increase in per capita GDP", but what does social development in fields like education and health mean? It is true that increases in per capita income are helpful for improving social sectors, but while economic growth and social development "tend to move together, there is far from perfect correlation" (Stiglitz, 2002).

However, these results need further investigation and confirmation to determine the contribution of socioeconomic reform programs in the Arab region on the growth pattern and development. Thus, additional empirical studies are needed to verify the nature of the relationship between governance and economic development in ACs, in order to find out whether governance is causing economic development or development is causing governance.

In sum, charting an Arab development path in human dignity that promotes (social, economic and political) inclusion, social justice and equity, is not only desirable, it is also within reach. In fact, all the necessary endowments – regarding natural, human and financial resources – are widely available within the region. The window of opportunity to chart this new way was instigated by the people of the Arab region themselves in their call for human dignity and demands for "bread, freedom and social justice" - a slogan of revolution which captures the inseparability and interdependence of economic, social and political life, indeed of social, economic and political inclusion.

References

ABBOTT, P., ANDERSEN, T. B. & TARP, F. 2010. IMF and economic reform in developing countries. *The Quarterly Review of Economics and Finance,* 50**,** 17-26.

AHMAD, M. & MARWAN, N. F. 2012. Economic growth and institutions in developing countries: Panel evidence. *EconPapers.*

AYSAN, A. F., NABLI, M. K. & VEGANZONES-VAROUDAKIS, M.-A. 2007. Governance Institutions and Private Investment: An Application to the Middle East and North Africa. *Developing Economies,* 45**,** 339-377.

BADAWI, I. E. & MAKDISI, S. 2007. Explaining the democracy deficit in the Arab world. *The Quarterly Review of Economics and Finance,* 46**,** 813-831.

BECKER, G. 1964. Human CapitalNational Bureau of Economic Research. *New York*.

BENNETT, D. L. 2014. *Essays on institutions, economic development, and inequality.* 3625723 Ph.D., The Florida State University.

BHATTACHARYA, M. R. & WOLDE, H. 2010. *Constraints on Growth in the MENA Region*, International Monetary Fund.

BIBI, S. & NABLI, M. 2010. *Equity and inequality in the Arab region.*

BRISSON, Z. K., KATE; 2012. Tunisia - From revolutions to institutions (Vol. 1 of 2). Washington DC: World Bank.

CAMPOS, N. F. & NUGENT, J. B. 1999. Development performance and the institutions of governance: evidence from East Asia and Latin America. *World Development,* 27**,** 439-452.

CARSON, L. D. & PRADO, M. M. 2016. Using institutional multiplicity to address corruption as a collective action problem: Lessons from the Brazilian case. *The Quarterly Review of Economics and Finance,* 62**,** 56-65.

COSTELLO, M., JENKINS, J. C. & ALY, H. 2015. Bread, Justice, or Opportunity? The Determinants of the Arab Awakening Protests. *World Development,* 67**,** 90-100.

COYNE, C. J. & BOETTKE, P. J. 2006. The role of the economist in economic development. *Quarterly Journal of Austrian Economics,* 9**,** 47-68.

DASGUPTA, D., KELLER, J. & SRINIVASAN, T. 2005. Reform and elusive growth in the Middle East-what happened in the 1990s? *Trade Policy and Economic Integration in the Middle East and North Africa: Economic Boundaries in Flux.*

DAWSON, J. W. 1998. Institutions, investment, and growth: New cross-country and panel data evidence. *Economic Inquiry,* 36**,** 603-619.

DRINE, I. 2012. Successful. Development Models in the MENA Region. World Institute for Development Economic Research (UNU-WIDER), Working Papers: UNU-WIDER Research Paper WP2012/52.

EASTERLY, W. 2001. *The elusive quest for growth: economists' adventures and misadventures in the tropics*, MIT press.

EASTERLY, W. 2006. Reliving the 1950s: the big push, poverty traps, and takeoffs in economic development. *Journal of Economic Growth,* 11**,** 289-318.

EMARA, N. & JHONSA, E. Governance and Economic Growth: The Case of the Middle East and North African Countries. Proceedings of the Northeast Business & Economics Association, 2011 Philadelphia. Northeast Business & Economics Association, 153-159.

GUJARATI, D. 2004. *Basic Econometrics,* New York, McGraw-Hill.

HALL, J. C. 2000. Investment in education: Public and private returns. *Washington, DC: Joint Economic Committee*.

HALL, J. C., SOBEL, R. S. & CROWLEY, G. R. 2010. Institutions, Capital, and Growth. *Southern Economic Journal,* 77**,** 385-405.

HARRIGAN, J. & EL-SAID, H. 2011. *Globalisation, democratisation and radicalisation in the Arab world*, Springer.

HIGGINS, J. P. & GREEN, S. 2008. *Cochrane handbook for systematic reviews of interventions*, Wiley Online Library.

HUEBLER, F. & LU, W. 2015. Adult and Youth Literacy 1995-2015. Montreal: UNESCO Institute for Statistics.

JALILIAN, H., KIRKPATRICK, C. & PARKER, D. 2007. The Impact of Regulation on Economic Growth in Developing Countries: A Cross-Country Analysis. *World Development,* 35**,** 87-103.

KAUFMANN, D. & KRAAY, A. 2003. Governance and Growth:Causality which way? -- Evidence for the World, in brief. the World Bank.

KIREYEV, A. 2000. Comparative Macroeconomic Dynamics in the Arab World International Monetary Fund.

KWON, H.-J. & KIM, E. 2014. Poverty Reduction and Good Governance: Examining the Rationale of the Millennium Development Goals. *Development and Change,* 45**,** 353-375.

MAKDISI, S., FATTAH, Z. & LIMAM, I. 2006. Chapter 2 Determinants of Growth in the MENA Countries. *In:* B. N. Jeffrey & M. H. Pesaran (eds.) *Contributions to Economic Analysis.* Elsevier.

MANKIW, N. G., ROMER, D. & WEIL, D. N. 1992. A contribution to the empirics of economic growth. *The Quarterly Journal of Economics,* 107**,** 407-437.

MÁTYÁS, L. & SEVESTRE, P. 2006. *The Econometrics of panel data*, Springer.

MÁTYÁS, L. & SEVESTRE, P. 2008. *The econometrics of panel data: fundamentals and recent developments in theory and practice*, Springer Science & Business Media.

NABLI, M. K. 2007. *Breaking the Barriers to Higher Economic Growth: Better Governance and Deeper Reforms in the Middle East and North Africa,* Washington, D.C, World Bank.

NABLI, M. K., AND CHARLES HUMPHREYS 2003. *Better governance for development in the Middle East and North Africa: Enhancing inclusiveness and accountability,* Washington, D.C, World Bank.

NORTH, D. C. 2009. *Violence and social orders : a conceptual framework for interpreting recorded human history,* Cambridge ;, Cambridge University Press.

OLSON, M., JR., SARNA, N. & SWAMY, A. 2000. Governance and Growth: A Simple Hypothesis Explaining Cross-Country Differences in Productivity Growth. *Public Choice,* 102**,** 341-364.

PISSARIDES, C. A. & VÉGANZONÈS, V. M. A. 2006. Labor markets and economic growth in the MENA region. *Contributions to Economic Analysis,* 278**,** 137-157.

PRITCHETT, L. 2001. Where has all the education gone? *The World Bank Economic Review,* 15**,** 367-391.

SCHULTZ, T. W. 1961. Investment in human capital. *The American economic review***,** 1-17.

SOLOW, R. M. 1956. A contribution to the theory of economic growth. *The quarterly journal of economics***,** 65-94.

STIGLITZ, J. E. 2002. Participation and development: Perspectives from the comprehensive development paradigm. *Review of development economics,* 6**,** 163-182.

STROUP, M. D. 2007. Economic Freedom, Democracy, and the Quality of Life. *World Development,* 35**,** 52-66.

STROUP, M. D. 2008. Separating the influence of capitalism and democracy on women's well-being. *Journal of Economic Behavior and Organization,* 67**,** 560-572.

SULLIVAN, J. D. & NADGRODKIEWICZ, A. 2008. Middle East and North Africa reform: Rooted in economic and political ground. *CIPE Economic Reform Issue Paper*.

TIWARI , A. K. & KALITA, M. 2011. Governance and Foreign Aid in ASIAN Countries. *Economics Bulletin, ,* Vol. 31**,** pp. 453-465.

UNDP 2011. Arab Development Challenges Report"TOWARDS THE DEVELOPMENTAL STATE IN THE ARAB REGION". Cairo, Egypt: United Nations Development Programme, Regional Centre for Arab States, Cairo.
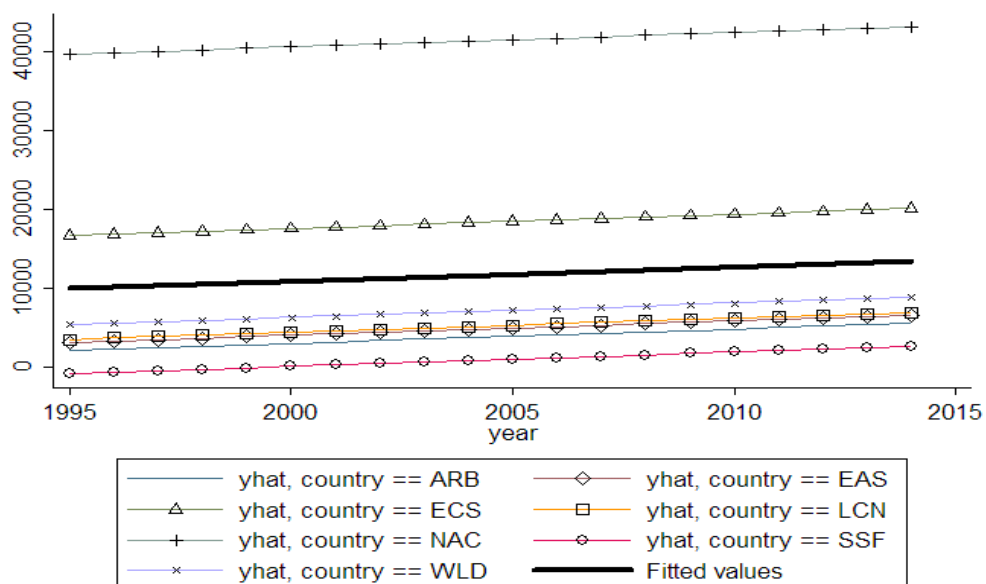
Appendices

Appendix 1:

Figure 1: The pattern of GDP per capita growth in the Arab States compared to other regions (1995-2014)[7]
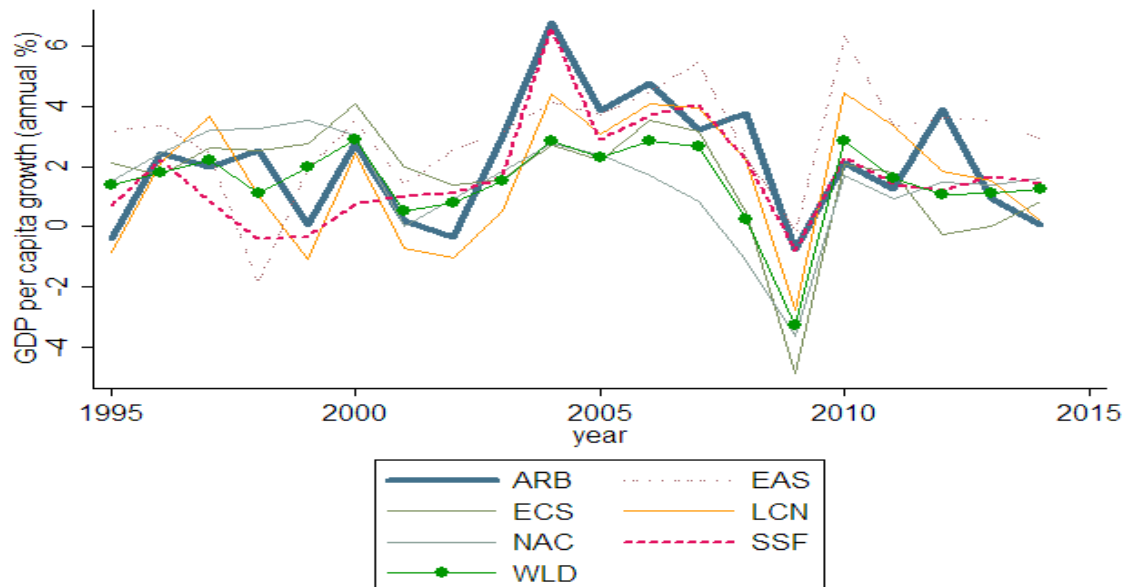
Sources: Based on World Development Indicators (2014), World Bank (Year2014)

Figure 2: GDP per capita growth function in the Arab States compared to other regions, 1995 – 2014

Source: Authors' estimations

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[7] Arab World: ARB, Sub-Saharan Africa: SSF, South Asia: SAS, Latin America & Caribbean: LCN, Europe & Central Asia: ECS, East Asia Pacific: EAS, and World: WLD.

Appendix 2: List of countries included in the analysis

South Asia	Europe & Central Asia	Arab Countries	East Asia & Pacific	Sub-Saharan Africa	Latin America & Caribbean	North America
Bangladesh India Pakistan Sri Lanka Iran	Austria Belarus Belgium Bulgaria Croatia Czech Republic Denmark Finland France Georgia Germany Greece Ireland Italy Lithuania Luxembourg Montenegro Netherlands Norway Poland Portugal Romania Russian Slovenia Swede Turkey United Kingdom	Algeria Bahrain Djibouti Egypt Iraq Jordan Kuwait Lebanon Libya Morocco Oman Qatar Saudi Arabia Syrian Tunisia The United Arab Emirates Yemen Sudan	Cambodia China Hong Kong Indonesia Japan Korea, Rep Malaysia Myanmar New Zealand Singapore Thailand Vietnam	Angola Cameroon Chad Comoros Guinea Kenya Malawi Mali Niger Nigeria Senegal Sierra Leone South Africa Sudan Tanzania Zimbabwe	Bolivia Brazil Chile Colombia Cuba Ecuador El Salvador Jamaica Mexico Peru	Canada United States of America

Appendix 3: Panel Unit Root Tests for variables in level

Tests Variables	Levin, Lin & Chu (LLC)	Im, Pesaran and Shin (IPS)	Final result
Y	-17.6446 (0.0000)	-17.2312 (0.0000)	**I(0)**
H	-10.8909 (0.0000)	-1.48683 (0.0001)	**I(0)**
K	-3.62189 (0.0000)	-1.45291 (0.0218)	**I(0)**
I	-0.44900 (0.0000)	-6.63334 (0.0000)	**I(0)**

Source: Authors' calculations using EViews 8.

Note: Values in parentheses refer to the probability of the test statistics. The null hypothesis of Levin, Lin & Chu t-test assumes common unit root process, while the others assume individual unit root process.

Appendix 4: The correlation coefficients of the OLS residuals over time for the Arab Countries' sample

	uols_1	uols_2	uols_3	uols_4
uols	0.4461	0.3855	-0.0369	-0.1437

Appendix 5: The robust of standard errors for Arab sample

ly	Coef.	Robust Std. Err.	t	P>t	[95% Conf. Interval]	
lh	0.47385	0.298735	1.59	0.131	-0.15643	1.104126
lk1	0.588131	0.307921	1.91	0.073	-0.06153	1.237787
rq	-3.09651	1.810729	-1.71	0.105	-6.91682	0.723791
Hrq	0.502005	0.439785	1.14	0.269	-0.42586	1.42987
Krq	0.308405	0.228943	1.35	0.196	-0.17462	0.791432
_cons	-2.41364	1.958348	-1.23	0.235	-6.54539	1.718117