Democratic Institutions and Prosperity
The Special Case of the MENA Countries

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Even though it has been part of scholarly discourse for decades, theoretical and empirical evidence on the relationship between democratic institutions and economic prosperity remains ambiguous. The present study adds to this discussion by introducing a bundled approach for measuring institutions. This approach is especially insightful since it takes interrelations between institutions into account that tend to be overlooked in many empirical studies, which estimate effects of single indicators only. The index used in this paper allows for two level of bundled analyses - on the levels of the dimensions of political, economic and the societal institutions, and on the overall level of democracy. It is put to the test for the MENA countries, which are investigated with the regard to the determinants of their respective prosperity. We find that there is a negative relationship between democratic institutions and economic prosperity in the MENA and we show that there is more explanatory value to oil production than to democratic institutions in explaining the MENA countries' prosperity.

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1. Introduction

In past decades, the theoretical and empirical analysis of the relationship between democracy and economic performance yielded mixed evidence. While some scholars find conclusive evidence for a positive relationship, others establish a significant negative relationship between the two poles, or no relationship at all. Fueled by the emergence of new institutional economics, much of the debate has shifted towards the investigation of institutions as a possible channel of transmission between democracy and economic growth, for there is plenty of anecdotal evidence that points to a positive relationship. In democratic systems, certain institutions capture the essence of democracy rather than others, and these are precisely the institutions that presumably instigate economic growth and give democracies the advantage over autocratic systems.

Considering the literature on the subject, it is striking that only few studies analyze the simultaneous influence of multiple institutions, in other words the effects of bundles of democratic institutions at once. While bundled approaches are rare, the analysis of the effect of individual institutions is all the more common. Nevertheless, since institutions rarely exists outside of a whole system of rules, it is useful to analyze their joint effects. This is especially true for the analysis of the effects of democracy, for there is not one institution that establishes a political system as a democracy. Thus, a bundled approach is the intuitive choice for the analysis at hand.

While the present analysis aims at shedding new light on the relationship between democratic institutions and growth, using a bundled approach,it will be restricted to Middle-Eastern and North-African (MENA) countries. A much broader comparison of the link between democratic institutions and prosperity comparing including over 140 countries was conducted in a preceding paper (cf. Helfer, 2017). While such an approach is useful to identify tendencies on a global scale, it has inherent limitations in that the sample of observed countries is necessarily too heterogeneous to find conclusive evidence that applies to all countries. In order to generate such evidence, we resort to the analysis of specific country clusters. The MENA countries are one such cluster that is particularly interesting to study for two reasons: first, there are only few studies investigating the link between democratic institutions and prosperity in this very region, and second, a great many of the MENA countries are rich in natural resources and generate a significant size of their respective GDP relying on oil. Therefore it is fascinating to compare the effects of democratic institutions and natural resources on the prosperity of the MENA

countries.

A consistent definition of institutions remains elusive in economics research as of yet, but many scholars rally behind North's definition of institutions as "the rules of the game in a society or, more formally, [as] humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic (North, 1990, p. 3)". The term *institutions* will be employed in this paper following North's comprehensive definition. The course of action is as follows. The current literature on the complex nature of the relationship between democracy and growth is reviewed in section 2. Section 3 describes the data used in the analysis. Concerns of endogeneity will also be addressed in this section. The empirical strategy and the estimation results are also outlined in this section. Section 4 concludes.

2. Literature Review

Lipset's 1959 modernization theory sparked an academic debate on the relationship between political systems and economic prosperity. Until today, scholars have not been able to establish an unambiguous causal direction between these two poles, since theoretical and empirical investigations on the subject brought forward mixed evidence. Plenty of work on the relationship between democracy and prosperity was done in the past decades and quintessentials lines of argument that appeared in scholarly discourse in the past fifteen years are summarized as follows. Authors like Rodrik and Wacziarg (2005) distinguish between well-established and those democracies, that have been existing for less than five years. They find that a change in regime type towards democracy is beneficial because those countries categorized as a young democracies grew 0.87% faster than the established democracies. Rodrik and Wacziarg say that democratic structures emerge following periods of low economic growth and will not precede them (cf. Rodrik/Wacziarg, 2005, p. 50). Hence, they find themselves aligned with Hayek (1960), who was convinced that the benefits of democracy would appear in the long run. In general, the literature associated with this conviction is known as the *development theory of democratic government*. Papaioannou and Siourounis (2008) add to this strand of literature. They develop a dichotomous index of democracy from Freedom House and Polity IV data and analyze a panel covering 166 countries from 1960 to 2003. They estimate an annual effect of a 1% increase in GDP per capita growth. While they find that growth rates decline substantially during the transition period, they find growth rates that are

both stable and much higher after the transition period (cf. Papaioannou/Siourounis, 2008). Other researchers like Acemoglu et al. (2014) as well as Persson and Tabellini (2006) also estimate positive long-run effects of democratization on the growth of the GDP per capita. They show a growth in GDP per capita of 12.5% in a panel of 175 countries form 1960 to 2010 and 20% for a panel of 150 countries form 1960 to 2000 respectively. Persson and Tabellini furthermore distinguish between the two cases of presidential and parliamentary democracy, finding that newly established parliamentary democracies exhibit 1.5% less growth than young presidential democracies. In 2008, the authors show that a relapse into autocracy comes with a decline in the annual GDP per capita growth rate of 2% (cf. Acemoglu et al., 2014 and Persson/Tabellini, 2006). Gerring et al. also investigate the long-term influence of democracy. Since their initial estimation employing only Polity IV data does not yield conclusive results, they create a new democracy index using Polity II data and thereafter find a positive influence of democracy on the growth of the GDP per capita (cf. Gerring et al., 2005, p. 350).

It is well established by now that the relationship between democracy and economic growth is not a simple one, but that it is rather complex. Apart from the regional and industry scope of a study, differences in country development are subject of scholarly discussion. Gasiorowski (2000) assumes that there will be a heteroscedastic error term in a dataset that combines highly-developed and less-developed countries. He thus limits his panel to 49 underdeveloped countries from 1968 to 1991. His dependent variable is the growth of the level of GDP, not the GDP per capita. He finds that growth is slower in more-democratic societies compared to faster growth in less-democratic regimes (cf. Gasiorowski, 2000, p. 341). Acemoglu et al. (2014) share this view and also believe democracy to impair growth in developing countries (cf. Acemoglu et al., 2014). Evidence from a study by Tridico adds to the aforementioned evidence. He studies a panel of 48 fast-developing countries with an average growth rate of 4.9% from 1995 to 2006. His measure of democracy is the *Voice and Accountability* index that is found in the World Bank's World Governance Indicators. His analysis yields a negative relationship between GDP per capita growth and the level of *Voice and Accountability*. He himself criticizes his own methodology as flawed and argues against the use of the GDP per capita as a proxy for development, since this variable does not reflect inequality per se. He thus also uses the Human Development Index by the UNO as dependent variable (cf. Tridico, 2010). This evidence supports the negative perspective on democracy and growth, at least for the case of developing countries.

Adding to the complexity of the relationship between democracy and growth is evidence for the skeptical perspective that studies the transmission channels between the two poles. In his seminal 1996 study, Barro finds that free markets, the rule of law, human capital and low government consumption do have a positive influence on GDP per capita growth in a panel comprising 100 countries from 1960-1990. Interestingly, he finds a negative influence of overall democracy as approximated with Freedom House data, as soon as the aforementioned variables are kept constant. Adding to the negative perspective, his results also indicate that countries with little democratic institutions grow especially well economically (cf. Barro, 1996, p. 14). Doucouliagos and Ulubasoglu (2008) contribute to the skeptical perspective with their meta-study of 84 independent studies on the subject of democracy and growth that were conducted between 1985 and 2005. They find that while democracy does not exert a direct influence on economic growth, it has significant positive indirect effect through the stock of human capital, political stability, low inflation rates and economic freedom, all of which the authors find in the democracies they study (cf. Doucouliagos/Ulubasoglu, 2008). Other channels of transmission that are commonly analyzed include education possibilities in democratic countries (cf. Oliva/Rivera-Batiz, 2002 and Baum/Lake, 2003 and Acemoglu et al., 2014), health care systems, which are especially influential in poor countries (cf. Baum/Lake, 2003), investment and government spending (cf. Kurzman et al., 2002 and Acemoglu et al., 2014) as well as a stable rule of law, which attracts foreign investment (cf. Oliva/Rivera-Batiz, 2002). All of the aforementioned institutional channels of transmission are found to enhance economic growth. Krieckhaus (2004) also looks for clues other than the direct relationship and he explains the mixed empirical results on the relationship between democracy and growth with the respectively considered periods of time. He himself finds a negative relationship in the 1960's and a positive one beginning in the 1980's (cf. Krieckhaus, 2004, p. 653).

Furthermore, it is all but established that the assumed relationship between democracy and economic growth is linear. For example Plümper and Martin (2003) confirm Barro's (1996) finding of an inverted u-shaped curve describing the relationship and his conclusion that moderate democracies are most conducive to growth (cf. Plümper/Martin, 2003 and Barro, 1996). Further evidence is brought forward by Almeida and Ferreira (2002), who show that autocracies have both the highest and the lowest economic growth rates while democracies exhibit moderate growth in comparison (cf. Almeida/Ferreira, 2002). Libman (2012) states in his analysis of the case of Russia that regions with hybrid regimes show considerably lower growth rates than eihter autocratic or democratic

regimes (cf. Libman, 2012).

Some authors consider the effects of democracy on economic growth for specific sectors. Aghion et al. (2007) for example investigate output growth rates for 180 countries between 1963 and 2003. They find that democratic institutions are most conducive to growth in sectors close to the technological frontier. They name low market entry barriers, competition and innovation, which are promoted in democratic systems, as channels of transmission (cf. Aghion et al., 2007, p. 19). Other authors like Bates et al. (2012) limit their analysis to one particular region of the world to enhance the comparability, in their case to Africa. Their panel consists of 105 countries, among those 42 in Sub-Saharan Africa, from 1955 to 2007. They show that a one-unit rise of the Polity IV index promotes a rise in the GDP per capita of 1.5% (cf. Bates et al., 2012, p. 328). Rock focuses his attention on Asian countries from 1960 until 2004 and also uses Polity IV data in order to assess regime types. His interest is sparked by the fact that many non-democracies achieved high rates of GDP per capita growth in this region. He finds that autocracies do not grow faster than democracies, but by contrast he finds positive effects of democracy on growth (cf. Rock, 2009). These exemplary studies highlight a broader phenomenon: while there is a relatively well-developed literature on Sub-Saharan countries in Africa, and an emerging literature studying Asian countries and other developing regions like the Caribbean and South America, literature on the MENA region in particular is scarce in comparison.[1] Among the notable the exceptions is a recent study by Rachdi and Saidi (2015), who find a robust and negative relationship between democracy and economic growth for 17 MENA countries between 1983 and 2012 (cf. Rachdi/Saidi, 2015). Unlike the Rachdi and Saidi approach, other studies take natural ressources and democracy into joint account, but are not necessarily limited to MENA countries. An example is the empirical investigation by Collier and Hoeffler (2009) who show for global panel of ressource rich countries that the combination of ressource richness and an open democratic system is growth-reducing in developing countries. While they find that strong democratic features building on checks and balance offset this effect, they conclude that these have public goods-character and are thus undersupllied, especially in young democracies (cf. Collier/Hoeffler, 2009). The analysis at hand bridges the gap between both approaches by explicitly taking the natural resources as a determinant of prosperity into account, but by limiting itself to MENA countries. Aside from broader approaches, democracy and economic development

[1] Of course, this statement relates only to the study of democratic institutions and their effects, literature on natural resources in the MENA region exists in abundance.

in MENA countries is also subject of case studies. A study issued by the Center of Democracy, Development and the Rule of Law at Stanford University presents evidence for Egypt and the Lebanon with regard to private enterprises that strengthen democracy through their economic activities (cf. CDDR, 2012).

3. Data and Empirical Strategy

3.1. Variables

The panel-dataset the present analysis builds on is based on 22 MENA countries and covers the years from 1995 to 2010.[2]

Economic prosperity is the dependent variable in this analysis. It will be displayed as the level of the real PPP adjusted GDP per capita, for which the natural logarithm is used. Using real GDP data is a prerequisite to explain cross-country differences. The GDP data is taken from the Penn World Table, mark 8.1 (cf. Feenstra et al., 2015). Table 1 provides the summary statistics.

Table 1: Summary Statisticsof Dependent Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
ln_GDPpc	352	8.9	1.143	7.097	11.557

Democracy is the independent variable in this analysis. The index used in this study is the novel Social Market Economy Index (SMEI). The name of the index references the social and economic order that was the foundation of German prosperity in the wake of WWII. The index aims specifically at measuring economic performance-enhancing institutions that exist within the realm of democratic political structures. Even though some of these institutions are imaginable in autocratic contexts as well, there is one key difference, and that concerns the credibility of those institutions that might exist in both regime types for an autocrat cannot credibly commit to adhere to the institutions. The SMEI and its three dimensional sub-indices, which are the bundles that this analysis focuses on, are based on a balanced panel that comprises data for 148 countries from 1995 to 2010. Countries with less than 500.000 inhabitants and countries with a disputed

[2]These countries are Armenia, Azerbaijan*, Bahrain, Cyprus, Djibouti, Egypt*, Iran*, Iraq*, Israel, Jordan, Kuwait*, Lebanon, Mauritania, Morocco, Oman*, Qatar*, Saudi-Arabia*, Sudan*, Syria*, Tunisia, Turkey and Yemen*. Data on oil production is only available for star-marked countries.

status in the international community are excluded from the panel.[3] Table 2 lists the sources for the 12 single institutions that form the SMEI.[4]

Dim.	**Institution**	**Direct or Proxy**	**Source**
PIQ	Political Rights (PR)	Direct	Freedom House
PIQ	Civil Liberties (CL)	Direct	Freedom House
PIQ	Freedom from Corruption (FC)	Direct	Heritage Foundation
PIQ	Reasonable Government Spending (GS)	Direct	Heritage Foundation
EIQ	Financial Freedom (FF)	Direct	Heritage Foundation
EIQ	Business Freedom (BF)	Direct	Heritage Foundation
EIQ	Reasonable Monetary Policy (MF)	Direct	Heritage Foundation
SIQ	Education (EDU)	Direct	UNDP
SIQ	Societal Participation (WP)	Proxy	UNO MGD
SIQ	Health Care (HC)	Proxy	The World Bank
SIQ	Freedom of the Press (PF)	Direct	Freedom House
SIQ	Environmental Sustainability (ES)	Proxy	The World Bank

Table 2: Composition of the SMEI Data.

Like any other index, the SMEI is not immune to criticism. Among other aspects, it is criticised for its short time dimension, for its aggregation methodology and for the fact that on three occasions effects instead of causes are used to approximate institutions. Since the SMEI is based on the assumption that it is not only the mere existence of an institution that is a determinant for economic prosperity, but its quality, the model investigates the institutional quality in its respective dimensions. Thus, the three dimensions are named Political Institutional Quality (PIQ), Economic Institutional Quality

[3]See appendix A for a detailed list.
[4]See appendix B for a brief description of the data.

(EIQ) and Societal Institutional Quality (SIQ). By no means does this study claim that its treatment of democratic institutions is exhaustive. The only claim is that it attempts to combine essential elements of a democratic institutional framework in the following (cf. Helfer, forthcoming) for a detailed description of the index methodology and the reasoning behind the choice of institutions). Table 3 displays the summary statistics of the independent variables.

Table 3: Summary Statistics of Independent Varibales

Variable	Obs	Mean	Std. Dev.	Min	Max
EDU	352	5.789	1.417	2.571	8.641
MF	351	7.407	1.733	1	9.46
GS	352	6.797	1.592	1	9.559
BF	352	6.935	1.137	4.213	10
FC	352	4.543	1.719	1.9	9.1
FF	352	5.218	1.779	1.9	9.1
WP	352	2.087	1.067	1	5.968
PF	352	4.165	1.525	1	8.56
HC	352	7.352	.547	6.085	8.344
ES	352	9.23	1.154	3.817	9.991
PR	352	3.621	2.499	1	10
CL	352	4.017	2.127	1	10
PIQ	352	4.745	1.231	1.454	8.42
EIQ	352	6.519	1.176	2.5	8.773
SIQ	352	5.725	.631	4.607	7.602
SMEI	352	5.579	.898	2.652	7.924

The SMEI is quite comprehensive and contains many variables that serve as standard control variables in many other empirical studies. In general, a *kitchen sink approach* of including too many variables in the model should be avoided. The prime control variable used in this analysis is a measure for oil production in barrels per capita taken from British Petroleum data (cf. British Petroleum, 2015). This variable allows us to control for the effect of oil production on the prosperity of the MENA countries. For the most part, MENA countries are rich in natural resources such as oil and natural gas, but mostly oil is exploited. Therefore, oil will serve as a proxy for the usage of natural resources in this group of countries.

This study contains a set of three additional control variables that are standard in growth literature (cf. Justesen/Kurrild-Klitgaard, 2013, p. 458) and include a measure for regime stability taken from the Database of Political Institutions (cf. Beck et al., 2001) as well as measures for population growth and trade volume taken from the Penn World Table, mark 8.1 dataset (cf. Feenstra et al., 2015). To take convergence effects into account (cf. Barro, 1996), the natural logarithm of the 1990 GDP per capita is

included as initial value. Table 4 presents the respective summary statistics, including those of the oil-data. Additionally, multiplicative interaction terms are used to control for nonlinearities. Since the effect of the bundles on both levels and growth of GDP might be different in rich MENA countries compared to poorer MENA countries, interaction terms between the four bundles and the MENA country's level of development, proxied for by the initial GDP per capita value, are created (cf. Munck, 2007).

Table 4: Summary Statistics of Control Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
OILpc	192	285.557	430.094	.084	1513.372
ln Init. GDP	352	8.447	1.016	6.392	10.082
POP Growth	352	2.404	2.525	-3.534	20.428
TV	352	.582	.32	.011	1.632
RS	350	15.774	13.175	1	62

Table C.1 in the appendix displays the pairwise correlation matrix of all explanatory variables. The correlation coefficients allow for assumptions regarding the separation precision of the variables. High correlations indicate low separation precision. According to Grogan and Moers (2001), coefficients with a value greater 0,70 are of concern in that regard. Highest correlations among the bundles and their components are of not surprise. Generally, institutional factors related to economic prosperity are hard to separate and there exist content-related overlaps. While most correlation coefficients in the table are not remarkable and indicate a good separation precision, freedom of the press and political rights as well as civil liberties are highly correlated. This is hardly surprising, since the guarantee of political rights usually entails the guarantee of a free press to report on the adherence to political rights and civil liberties by all relevant members of society. Political rights and civil liberties are also highly correlated, which is again intuitive.

Using the Variance Inflation Factor (VIF) test, the independent variables were tested for multicollinearity. This is important to consider since an increase in the degree of multicollinearity potentially leads to instability in the estimates of the coefficients and to inflated standard errors. As a heuristic, a VIF value greater than 10 is considered worrisome and demands further investigation. Only the variables of political rights, civil liberties and freedom of the press display such values and again it is feasible that these are highly correlated with more than one other variable due to their inherent democratic nature. Table 5 presents the scores.

Table 5: VIF scores.

Var.	VIF	Var	VIF
OILpc	2.78	OILpc	2.08
TV	2.11	TV	1.77
PIQ	2.04	G_POP	1.27
EIQ	1.84	SMEI	1.21
SIQ	1.64	RS	1.07
G_POP	1.34		
RS	1.18		

Taking the existing correlations via scatterplot-analysis into account, there appears to be a positive relationship between the level of GDP per capita and the SMEI score, as indicated by the fitted values.

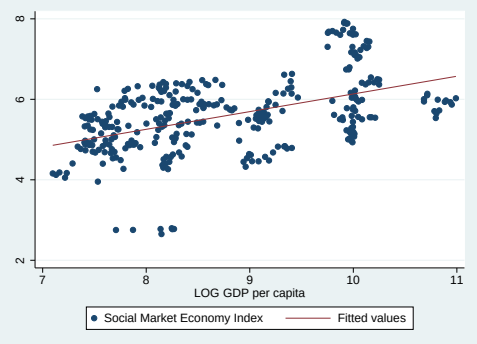

Figure 1: Scatterplot SMEI.

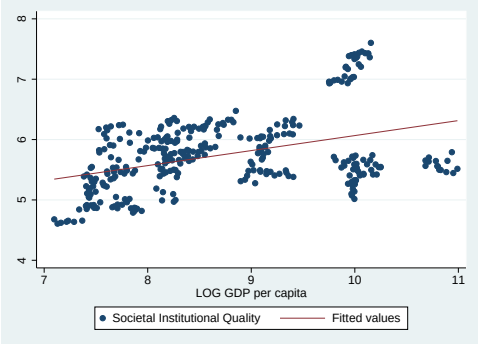

Figure 2: Scatterplot SIQ.

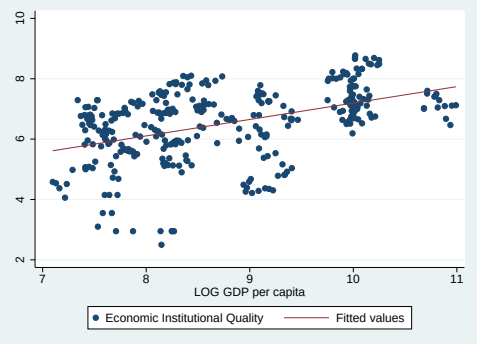

Figure 3: Scatterplot EIQ.

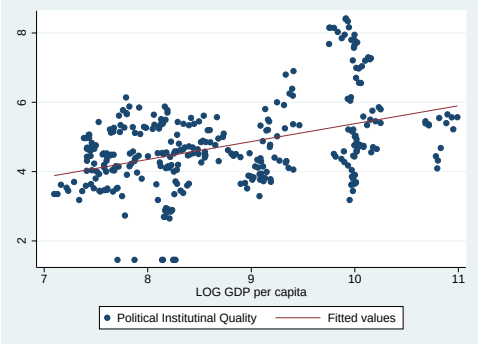

Figure 4: Scatterplot PIQ.

It is furthermore noticeable that the relationship with the GDP appears to become weaker when displaying the EIQ in correlation with the GDP per capita, and even weaker when displaying the PIQ in correlation with the GDP per capita, while it remains strong with the SIQ. It is plausible that institutions have a strong joint effect, and that this effect is strongest when they are measured simultaneously, since they constitute a

particular order of democratic institutions and interact with one another.

3.2. Addressing Data-related Concerns

Dealing with data on democracy and prosperity entails endogeneity concerns since causality may plausibly run in both directions, thus assuming correlation between the independent variables and the error term. Usually, this concern can be alleviated using fixed-effects instrumental variables regression, such as 2SLS, but this would require an adequate external instrument for the three institutional bundles and for the overall index. The use of instruments in institutional analysis is scarce. Table 6 presents an overview of the few instruments that exist.

Table 6: Instruments in Institutional Analysis.

Authors	**Instrument**	**Intuition**
Acemoglu et al. (2001)	Settler Mortality	Low mortality rates were an incentive for long-run settlements and therefore investments in good institutions
Fang & Zhao (2007)	Enrollment in Christian Missionary Schools	China's "modernization" was based on western ideas, enrollment reflects western influence in the early 20th century
Hall & Jones (1998)	Characteristics of Geography	Europeans were more likely to settle in areas with a similar climate
Hall & Jones (1998)	% of Western European Languages as a mother tongue	"correlation seems perfectly natural"
Mauro (1995)	Ethnolinguistic Fractionalization	Individualism vs collectivism
Miguel et al. (2004)	Rainfall Variation	In economies that agriculturally largely depend on rainfall, weather shocks influence GDP growth

Considering the instruments, that none of them are adequately applicable to the MENA regions set of democratic institutions. For the lack of a suitable external instrument, this study will resort to GMM regression, in which lagged levels of the endogenous regressors

are used as internal instruments. This makes the endogenous variables pre-determined and thus not correlated with the error term. A second problem could occur due to fixed-effects being correlated with the independent variables. Using difference GMM, first differences are used to remove the fixed effects, which do not vary over time. A third problem could arise from autocorrelation from the lagged dependent variable that is included through the initial GDP value. Using GMM, the lagged dependent variable is also instrumented with its past levels.

3.3. Empirical Strategy and Results

The baseline model for estimation using the log GDP per capita as dependent variable follows

$$\begin{aligned} lnGDPpc_{i,t} = \beta_0 + \beta_1 PIQ_{i,t-4} + \beta_2 PIQ_{i,t-4} \times InitlnGDPpc \\ + \beta_3 EIQ_{i,t-4} + \beta_4 EIQ_{i,t-4} \times InitlnGDPpc \\ + \beta_5 SIQ_{i,t-4} + \beta_6 SIQ_{i,t-4} \times InitlnGDPpc \\ + \beta_7 SMEI_{i,t-4} + \beta_8 SMEI_{i,t-4} \times InitlnGDPpc + \beta_9 OILpc_{i,t-4} + C_{i,t}\beta_1 0 + \mathcal{U}_{i,t} \end{aligned}$$

where C_{it} is the vector of the three additional control variables and $\mathcal{U}_{i,t}$ designates a composite term consisting of time and country fixed effects as well as of the error term.

The baseline model for estimation using GDP growth as dependent variable follows

$$\begin{aligned} G\_GDP_{i,t} = \beta_0 + \beta_1 PIQ_{i,t-4} + \beta_2 PIQ_{i,t-4} \times InitlnGDPpc \\ + \beta_3 EIQ_{i,t-4} + \beta_4 EIQ_{i,t-4} \times InitlnGDPpc \\ + \beta_5 SIQ_{i,t-4} + \beta_6 SIQ_{i,t-4} \times InitlnGDPpc \\ + \beta_7 SMEI_{i,t-4} + \beta_8 SMEI_{i,t-4} \times InitlnGDPpc + \beta_9 OILpc_{i,t-4} + C_{i,t}\beta_9 + \mathcal{U}_{i,t} \end{aligned}$$

where again C_{it} is the vector of additonal control variables and $\mathcal{U}_{i,t}$ designates a composite term consisting of time and country fixed effects and the idiosyncratic shock. Notice that unlike in the regression with the level of GDP per capita, where the effect of

the population is already controlled for, population growth is now part of the control variables. Note that the institutional bundles are included in their fourth lag. This is again done to alleviate concerns of endogeneity. The number of lags was chosen with respect to the stereotypical economic cycle, which lasts between three and five years as well as with respect to electoral cycles, which also last four or five years in many electoral systems around the world. Thus, autocorrelation can be reduced using the fourth lag.

Tables 7 and 8 present the baseline regression results of a simple and familiar OLS estimation for reference. The logarithmic GPD per capita is employed as dependent variables and the tables display the results without and with per capita oil production as control variable respectively. In the regression without the oil control, the coefficients for the dimensional bundles are positive with the exception of SIQ, albeit only the coefficients for economic institutional quality and for the overall index are significant at the 10% level. For the significant coefficients, the interpretation is straightforward: there is a positive relationship between both political institutions and the level of GDP per capita, and between the overall index measuring a democratic order and the level of GDP per capita. The interpretation of the coefficients of the interaction terms is less straightforward: they all carry the negative sign except for the EIQ interacted term, and we observe 10% level significance for the interacted PIQ, 1% level significance for the interacted SIQ and 10% level significance for the interacted SMEI, only the interaction coefficient for EIQ is insignificant. This implies that the higher the initial level of GDP, the smaller is the influence of the two dimensions of PIQ and SIQ and of the overall index on the average level of GDP per capita. Intuitively, this makes sense, since MENA countries, which have a high level of GDP might on average already have a set of good institutions, so that there is not much room for an increase in institutional quality. Looking at the controls, trade volume is consistently significant at the 10% or 5% level and carries a positive sign.

In the regressions in which we control for the oil production, we loose all significance for our institutional bundles, interacted and not-interacted alike. inconsistencies in the sign of the coefficients. Also, the coefficients for the not-interacted bundles of PIQ, EIQ, SIQ and SMEI all carry the negative sign, the interacted coefficients are positive except for the interacted coefficient for the overall index. Again, the interpretation hints at a necessary distinction with respect to the level of development of the MENA countries:

Table 7: OLS Estimation with log GDP per capita (no oil).

VARIABLES	(1) ln_GDPpc	(2) ln_GDPpc	(3) ln_GDPpc	(4) ln_GDPpc
PIQlag4	0.0351			
	(0.0296)			
EIQlag4		0.0437*		
		(0.0253)		
SIQlag4			-0.00359	
			(0.0853)	
SMEIlag4				0.109*
				(0.0623)
PIQlag4xD_IGDPpc	-4.91e-06*			
	(2.68e-06)			
EIQlag4xD_IGDPpc		4.46e-07		
		(4.92e-06)		
SIQlag4xD_IGDPpc			-1.81e-05***	
			(6.16e-06)	
SMEIlag4xD_IGDPpc				-9.88e-06*
				(5.00e-06)
TV	0.203*	0.223*	0.261**	0.197*
	(0.103)	(0.108)	(0.116)	(0.107)
RS	0.00187	0.00216	0.00237*	0.00237
	(0.00158)	(0.00156)	(0.00138)	(0.00166)
Constant	8.976***	8.385***	9.437***	8.513***
	(0.0905)	(0.276)	(0.415)	(0.280)
Observations	262	262	262	262
R-squared	0.526	0.552	0.539	0.541
Country FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

the higher the initial level of GDP, the smaller is the influence of the institutions on the average level of GDP growth. This is intuitive, since high GDP per capita countries oftentimes display a higher democratic institutional quality than poorer countries. Also the lack of significance makes sense. While the interpretation of the signs may be accurate, it is simply not significant in the case of the MENA countries which cannot be described as fully democratic for the most part. Many countries are either rather young democracies (like Tunisia) or are still under autocratic rule (like Saudi Arabia). Considering the influence of oil production, we find its influence on the level of GDP to be positive and significant at the 10% level in the regression with economic institutional quality, but the effect is rather small. We find positive signs but no significance for the other controls.

Table 8: OLS Estimation with log GDP per capita.

VARIABLES	(1) ln_GDPpc	(2) ln_GDPpc	(3) ln_GDPpc	(4) ln_GDPpc
PIQlag4	-0.0439			
	(0.0400)			
EIQlag4		-0.0236		
		(0.0316)		
SIQlag4			-0.130	
			(0.180)	
SMEIlag4				-0.0618
				(0.0766)
PIQlag4xD_IGDPpc	5.18e-06			
	(4.32e-06)			
EIQlag4xD_IGDPpc		1.23e-05		
		(8.64e-06)		
SIQlag4xD_IGDPpc			8.46e-06	
			(1.68e-05)	
SMEIlag4				-0.0618
				(0.0766)
SMEIlag4xD_IGDPpc				1.96e-05
				(1.61e-05)
OILpc	0.000968	0.00112*	0.000888	0.00120
	(0.000585)	(0.000575)	(0.000573)	(0.000708)
TV	0.201	0.197	0.199	0.230
	(0.214)	(0.191)	(0.224)	(0.206)
RS	0.00175	0.00161	0.00181	0.00159
	(0.00205)	(0.00252)	(0.00227)	(0.00191)
Constant	8.507***	7.964***	9.299***	8.364***
	(0.250)	(0.575)	(0.394)	(0.526)
Observations	142	142	142	142
R-squared	0.578	0.629	0.574	0.607
Country FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Considering the previously outlined endogeneity concerns, there is room for enhancement of the estimations. Therefore, tables 9 and 10 present results from the system GMM estimation for levels of GDP without and with the control for oil respectively. At this point, we opt for system GMM instead of difference GMM. Since the panel consists only of 16 years and since the use of the fourth lag reduces the number instruments obtained from difference GMM even further, we resort to system GMM to increase the number of instruments. The system GMM estimator obtains a system of two equations,

one in differences and one in levels, and by adding the second equation in levels to the equation in differences, we gain additional instruments. We use a two-step estimator so that the standard covariance matrix is robust to panel-specific autocorrelation and heteroskedasticity, which is common in panel data (cf. Mileva, 2007, pp. 6-7).

Table 9 presents estimation results for the regressions with the level of GDP per capita as dependent variable and without controlling for oil. As expected through path dependency, the initial level of GDP per capita has a positive relationship with the current level of GDP per capita, but we only observe significance in the second and the third specification. For the bundles of institutions, we find a positive sign for PIQ, EIQ and the overall index, the former and the latter being statistical significant. The coefficient for societal institutional quality is positive and significant at the 1% level, and displays the largest effect. We see a reversal of signs when we look at the coefficients of the interaction terms. Those are all positive except for SIQ, and once again, the economic institutional quality lacks significance. The effect of the interacted SIQ is once more the largest in comparison. We resort to the interpretation that there is a negative relationship between political and economic democratic institutions, and a positive relationship between the democratic societal institutions in MENA countries. This is also found in the Rachdi and Saidi (2015) study and reflects anecdotal evidence: while there might be a lack of political end economic freedom in the MENA countries, there might be social institutions like health care that are well-developed in these countries. For those MENA countries with a high initial GDP the effect of additional institutional improvement in the areas of politics or economics is large and small for societal improvement. In that respect, the marginal effects are noteworthy. Inserting the estimated coefficients into the first derivative of the estimation equation gives the marginal effect of a rise in the level of PIQ for any given level of the natural log of initial GDP per capita:

$$\frac{d(lnGDPpc_{i,t})}{dPIQ_{i,t-4}} = -1.330 + 0.145 * InitlnGDPpc,$$

and this is negative for any $InitlnGDPpc < 9.2$. That is, for any country the initial natural log of the GDP per capita is higher than 8.9, a marginal increase in the level of political institutional quality raises the level of GDP per capita. If the initial natural log of the GDP per capita is lower, we observe a decrease in GDP per capita. In case of the SMEI this is true for any $InitlnGDPpc < 8.6$ and in case of the statistically insignificant EIQ, it is true for any $InitlnGDPpc < 7.0$. For the SIQ, this is reversed.

The marginal effect of a rise of SIQ is positive for any $InitlnGDPpc < 8.2$. If the initial natural log of the GDP is higher, we observe the decrease in GDP.

Table 9: System GMM Estimation with log GDP per capita (no oil).

VARIABLES	(1) ln_GDPpc	(2) ln_GDPpc	(3) ln_GDPpc	(4) ln_GDPpc
ln_D_IGDPpc	0.256	0.583**	3.157***	0.0874
	(0.282)	(0.243)	(0.504)	(0.373)
PIQlag4	-1.330**			
	(0.483)			
EIQlag4		-0.241		
		(0.370)		
SIQlag4			3.452***	
			(0.722)	
SMEIlag4				-1.520***
				(0.454)
PIQlag4xln_D_IGDPpc	0.145**			
	(0.0570)			
EIQlag4xln_D_IGDPpc		0.0346		
		(0.0431)		
SIQlag4xln_D_IGDPpc			-0.422***	
			(0.0909)	
SMEIlag4xln_D_IGDPpc				0.177***
				(0.0531)
TV	0.449***	0.246***	0.431***	0.504***
	(0.0620)	(0.0695)	(0.0529)	(0.0665)
RS	0.00535***	0.00931***	0.0236***	0.00501***
	(0.00133)	(0.00208)	(0.00179)	(0.000748)
Constant	6.865***	3.411	-17.57***	7.898**
	(2.333)	(2.054)	(4.040)	(3.259)
Observations	262	262	262	262
Instruments	115	115	115	115
AR(1)	0.109	0.023	0.742	0.012
AR(2)	0.130	0.079	0.854	0.203
Sargan Test	0.000	0.000	0.000	0.000
Hansen Test	1.000	1.000	1.000	1.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Both the Sargan and the Hansen test have the null hypothesis that the instruments are exogenous. While the Sargan test confirms the null, the Hansen test rejects it, although the latter is weakened by the number of instruments. The Arellano-Bond test for autocorrelation has a null of no autocorrelation. The test for AR(1) processes in first

differences party rejects the null at the 5% level, except for the first and the third specification where it cannot be rejected. The test for AR(2) processes can find autocorrelation in levels. Here, it rejects the null at the 10% level in the second specifications.

A different pattern emerges for the estimations in which we control for the relationship between oil production and the level of GDP per capita in table 10. We surprisingly observe no more significance all coefficients relating to the institutional bundles. Much of the explanatory value now stems from the oil production coefficients. All of them are significant at the 1% level, although their effect is not strong. This hints at a central finding - the main determinant of prosperity in MENA countries as visible in the underlying dataset appears to be the oil production rather than bundles of democratic institutions. Furthermore, we find some strong significance of trade volume in the estimations with the institutional bundle of political institutions and the overall respectively, and we find the regime stability coefficient small but significant in the estimation with the societal institutional quality.

Table 10: System GMM Estimation with GDP Growth.

VARIABLES	(1) ln_GDPpc	(2) ln_GDPpc	(3) ln_GDPpc	(4) ln_GDPpc
ln_D_IGDPpc	0.529	0.326	0.655	1.088
	(0.306)	(0.338)	(1.410)	(0.661)
PIQlag4	0.567			
	(0.522)			
EIQlag4		-0.264		
		(0.425)		
SIQlag4			-0.0777	
			(2.717)	
SMEIlag4				1.427
				(1.081)
PIQlag4xln_D_IGDPpc	-0.0386			
	(0.0538)			
EIQlag4xln_D_IGDPpc		0.0376		
		(0.0504)		
SIQlag4xln_D_IGDPpc			-0.0140	
			(0.279)	
SMEIlag4xln_D_IGDPpc				-0.124
				(0.113)
OILpc	0.00134***	0.00110***	0.00139***	0.00124***
	(0.000338)	(0.000315)	(0.000305)	(0.000200)
TV	0.719***	0.222	0.363***	0.538***
	(0.0656)	(0.130)	(0.0590)	(0.0758)
RS	0.000664	-0.00572	0.00786***	0.00104
	(0.00156)	(0.0124)	(0.00246)	(0.00121)
Constant	2.946	5.708*	3.906	-2.578
	(2.793)	(2.608)	(13.84)	(6.165)
Observations	142	142	142	142
Instruments	138	138	138	138
AR(1)	0.388	0.017	0.022	0.832
AR(2)	0.680	0.102	0.173	0.982
Sargan Test	0.000	0.000	0.000	0.000
Hansen Test	1.000	1.000	1.000	1.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4. Further Research and Conclusion

Despite its promising results, the study does have inherent limitations. Even though the concerns surrounding endogeneity have been addressed in the study at hand and

some have been alleviated, omitted variable bias (OVB) remains a possible source of endogeneity. Especially considering the set of heterogeneous MENA countries covered, possible OVB should be addressed in future research. Studying MENA countries that are culturally close could help to alleviate the concern of OVB.

The aim of this paper was twofold: first, the nature of the relationship between democratic institutions and prosperity was discussed and detailed analysis of this relationship with respect to the MENA countries was identified as a research gap. Second, the utility of explicitly taking oil production as a control variable into account was highlighted through the empirical analysis of this relationship for the sample of MENA countries. Overall, we found that there is a mostly negative relationship between the bundles of democratic institutions and the level of GDP per capita in MENA countries. Also, the higher the initial level of GDP, the larger is the effect of political and economic institutions on the level of GDP. For societal institutions, this effect is reversed. Furthermore, we have shown that once we control for the per capita oil production, the coefficients relating to democratic institutions loose their significance. Most of the explanatory value with regard to the level of GDP per capita now results from the exploitation of the natural resource.

It should be of value to add more years to the panel in future research. This panel at hand comprises only 16 years of observation from 1995 to 2010, and the composition of MENA countries experiencing growth or high GDP levels, and those that do not, did not undergo radical changes in the observation period. If the panel were enlarged to cover a time period beginning in the 1960's, this is likely to change, since also those countries, that now exhibit high levels of GDP per capita and small growth rates did grow substantially in the past 50 years. While results are only representative for a rather short panel, they nevertheless reveal that there is merit to a bundled approach.

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Appendices

A. Table of Excluded Countries

Country	Population (2012)	Reason for exclusion
Afghanistan	-	Data constraints
American Samoa	55,128	Number of inhabitants
Andorra	78,360	Number of inhabitants
Antigua and Barbuda	89,069	Number of inhabitants
Aruba	102,384	Number of inhabitants
Barbados	283221	Number of inhabitants
Bermuda	64,798	Number of inhabitants
Brunei Darussalam	412238	Number of inhabitants
Cabo Verde	494401	Number of inhabitants
Cayman Islands	57,570	Number of inhabitants
Channels Islands	161,235	Number of inhabitants
Cuba	-	Data constraints
Curacao	152,056	Number of inhabitants
Cyprus (Turkey)	294,906	Number of inhabitants
Democratic Republic of Congo	81,680,000	Data constraints
Dominica	71,684	Number of inhabitants
Eritrea	-	Data constraints
Faeroe Islands	49,506	Number of inhabitants
French Polynesia	273,814	Number of inhabitants
Guam	162,810	Number of inhabitants
Guyana	-	Data constraints
Greenland	56,810	Number of inhabitants
Grenada	105,483	Number of inhabitants
Haiti	-	Data constraints
Hong Kong	7154600	Status unclear
Iceland	320,716	Number of inhabitants
Isle of Man	85,284	Number of inhabitants

Country	Population	Reason for exclusion
Kiribati	100,786	Number of inhabitants
Kosovo	1807106	Status unclear
Libya	-	Data constraints
Liechtenstein	36,656	Number of inhabitants
Marshall Islands	52,555	Number of inhabitants
Macau	556,783	Number of inhabitants
Maledives	338442	Number of inhabitants
Monaco	37,579	Number of inhabitants
Myanmanr	-	Data constraints
Micronesia	103,395	Number of inhabitants
Nauru	9,488	Number of inhabitants
Nicaragua	-	Data constraints
North Mariana Islands	53,305	Number of inhabitants
New Caledonia	258,000	Number of inhabitants
Palau	20,754	Number of inhabitants
Papua New Guinea	-	Data constraints
People's Republic of Korea	24,895,000	Data constraints
Puerto Rico	3,651,545	Status unclear
Saint Kitts & Nevis	53,584	Number of inhabitants
Saint Martin (French Part)	30,959	Number of inhabitants
Samoa	188,889	Number of inhabitants
San Marino	31,247	Number of inhabitants
Sao Tome and Principe	188,098	Number of inhabitants
Seychelles	88,303	Number of inhabitants
Sint Maarten	39,088	Number of inhabitants
Somalia	-	Data constraints
Solomon Islands	-	Data constraints
South Sudan	11,562,695	Status unclear
St. Lucia	180,870	Number of inhabitants
St. Vincent and the Grenadines	109,373	Number of inhabitants
Taiwan	23,367,320	Status unclear

Country	Population	Reason for exclusion
Timor Leste	-	Data constraints
Tonga	104,941	Number of inhabitants
Turks and Caicos Islands	32,427	Number of inhabitants
Tuvalu	9,860	Number of inhabitants
The Bahamas	371,960	Number of inhabitants
United Arab Emirates	-	Data constraints
USSR	?	No longer existing
Vanuatu	247,262	Number of inhabitants
Virgin Islands	105,275	Number of inhabitants
West Bank & Gaza Strip	4,046,901	Status unclear
Yugoslavia	?	No longer existing

Table A.1: Excluded Countries

B. Data Description

Freedom House, Freedom in the World Index

Political Rights and Civil Liberties: The index covers 114 countries and 14 territories. It relies on national and international surveys, scientific studies, studies issued by NGO's and think tanks as well as on expert interviews and on site-visits. With every new publication, there a minor changes in the index in terms of the sample or the methodology. Unfortunately, there no retroactive adjustment is made. In order to create the index, 10 questions regarding Political Rights in the categories Electoral Process, Political Pluralism and Participation and Functioning of Government, and 15 question on Civil Liberties in the categories Freedom of Expression and Belief, Associational and Organizational Rights, Rule of Law, Personal Autonomy and Individual Rights are analyzed. The questions are adjusted to the political systems of the different countries, e.g. in terms of democracy or monarchy. A value between 0 and 4 is assigned to each subcategory, and the values will be added to form an aggregate value that can reach a maximum of 100 (100 = 4*10 + 4*15). In accordance with the aggregate value, an index value between 1 (high) and 7 (low) is assigned (Freedom House, 2012).

Freedom of the Press Index: The index covers 197 countries. It relies on regional visits, expert opinions, studies issued by NGO's, national and international media as well as on government and other reports. In the creation of the index, 23 questions in the categories Legal Environment (max. 30 points), Political Environment (max. 40 points) and Economic Environment (max. 30 points) are analyzed. Not every question has to be answered. The questions just offer orientation as to the assessment of the situation in the various countries. The aggregate index can reach a maximum value of 100 after addition of the category-points. The index values range between 0 (high) and 100 (low). The index values are then labeled Free (0-30 points), Partly Free (31-60 points) and Not Free (61-100 points) (Freedom House, 2014).

Heritage Foundation, Index of Economic Freedom[5]

Freedom from Corruption: The index is calculated on a scale from 0 (very corrupt) to 100 (not corrupt) from Transparency International's Corruptions Perceptions Index (CPI). In countries, in which the CPI is not reported, the index is calculated using national indicators. The sources include the Corruptions Perception Index, the Country

[5]The equations used in the creation of each of the Heritage indices can be found in the document mentioned in the references.

Commerce Index (Economist Intelligence Unit), the Country Commercial Guide (US Department of Commerce), the National Trade Estimate Report on Foreign Trade Barriers (Office of the US Trade Representative). The final index values is determined as a mean of the current value and the two previous values. Due to changes in the CPI methodology, comparability is impaired.

Financial Freedom: The index ranges between 0 (low) and 100 (high) and it analyzes five topics: the extent of government regulation of financial services, the degree of state intervention in banks and other financial firms through direct and indirect ownership, the extent of financial and capital market development, government influence on the allocation of credit, and openness to foreign competition Sources include the Staff Country Report (IMF), the Country Commerce and Industry Report Financial Services (Economist Intelligence Unit), the Country Commercial Guide (US Department of Commerce), the National Trade Estimate Report on Foreign Trade Barriers (Office of the US Trade Representative) as well as other national and international studies.

Government Spending: The index ranges between 0 (low) and 100 (high). Its methodology treats zero government spending as the benchmark. Underdeveloped countries, particularly those with little government capacity, may receive artificially high scores as a result. However, such governments, which can provide few if any public goods, are likely to receive low scores on some of the other components of economic freedom that measure aspects of government effectiveness. Sources include Organization for Economic Co-operation and Development data, Eurostat data, African Development Bank data, the Staff Country Report (IMF) and the World Economic Outlook Database.

Business Freedom: The index ranges between 0 (low) and 100 (high). It is calculated as the arithmetic mean of ten equally weighted factors mostly from the World Bank's Doing Business report. For the six countries that are not covered by the World Bank's Doing Business report, business freedom is scored by analyzing business regulations based on qualitative information from reliable and internationally recognized sources. Overall, sources include Doing Business (World Bank), the Country Commerce and Industry Report Financial Services (Economist Intelligence Unit), the Country Commercial Guide (US Department of Commerce), and official government publications of each country.

Monetary Freedom: The index ranges between 0 (low) and 100 (high). Its score is based on two factors, the weighted average inflation rate for the most recent three years

and price controls. The index relies on International Financial Statistics Online (IMF), World Economic Outlook (IMF), Views-Wire (Economist Intelligence Unit), and official government publications of each country as sources (Heritage Foundation, 2014).

World Bank, World Development Indicators

The indicators are based on data obtained from national sources like central banks or governments that publish key performance figures. They are calculated as a sum or weighted mean of single indicators.

Central government debt: Debt is defined as the entire stock of direct government fixed-term contractual obligations to others outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares, and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. Because debt is a stock rather than a flow, it is measured as of a given date, usually the last day of the fiscal year. It is measured as a percentage of the GDP. Sources include the Government Finance Statistics Yearbook and data files (IMF), and the World Bank and OECD GDP estimates.

Life Expectancy: Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. The necessary data is derived from male and female life expectancy at birth from sources such as United Nations Population Division's World Population Prospects, the United Nations Statistical Division's Population and Vital Statistics Report, census reports and other statistical publications from national statistical offices, like Eurostat, the Secretariat of the Pacific Community and the U.S. Census Bureau.

CO_2 Emissions: Carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring. The index measures the emission in metrics tons per capita. It relies on the Carbon Dioxide Information Analysis Center, Environmental Sciences Division, Oak Ridge National Laboratory, Tennessee, United States for data (World Bank, 2014).

United Nations Development Program, Human Development Index

Education Index: The education index within the HDI is calculated using mean years of schooling and expected years of schooling. Mean years of schooling is defined as the average number of years of education received by people ages 25 and older, converted from education attainment levels using official duration of each level. Expected years of schooling is defined as the number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrollment rates persist throughout the child's life. The main data source is data from the UNESCO (UNDP, 2014).

United Nations, Millennium Development Goals Database

Women in Parliament: The indicator measuring the seats held by women in national parliaments is part of the third target of the Millennium Development Goals ("Promote gender equality and empower women"). The proportion of seats held by women in national parliaments is the number of seats held by women members in single or lower chambers of national parliaments, expressed as a percentage of all occupied seats. National parliaments can be bicameral or unicameral. This indicator covers the single chamber in unicameral parliaments and the lower chamber in bicameral parliaments. It does not cover the upper chamber of bicameral parliaments. Seats are usually won by members in general parliamentary elections. Seats may also be filled by nomination, appointment, indirect election, rotation of members and by-election. Seats refer to the number of parliamentary mandates, or the number of members of parliament. The proportion of seats held by women in national parliament is derived by dividing the total number of seats occupied by women by the total number of seats in parliament. There is no weighting or normalizing of statistics. The data used are official statistics received from parliaments (UN, 2014).

Table C.1: Pairwise correlations.

Variables	EDU	MF	GS	BF	FC	FF	WP	PF	HC	ES	PR	CL	PIQ	EIQ	SIQ	SMEI	OILpc	RS	POP	T
EDU	1.000																			
MF	0.265	1.000																		
GS	-0.198	0.149	1.000																	
BF	0.362	0.266	-0.109	1.000																
FC	0.438	0.451	-0.283	0.494	1.000															
FF	0.378	0.370	-0.025	0.414	0.393	1.000														
WP	0.030	0.060	-0.018	-0.013	-0.047	-0.088	1.000													
PF	0.443	0.268	-0.297	0.292	0.357	0.477	0.065	1.000												
HC	0.868	0.247	-0.260	0.428	0.440	0.291	0.002	0.389	1.000											
ES	-0.372	-0.128	0.152	-0.225	-0.487	-0.126	0.344	-0.124	-0.439	1.000										
PR	0.437	0.152	-0.346	0.210	0.280	0.402	0.115	0.874	0.334	0.050	1.000									
CL	0.522	0.227	-0.188	0.218	0.267	0.500	0.164	0.842	0.436	0.048	0.867	1.000								
PIQ	0.536	0.381	-0.032	0.338	0.515	0.549	0.107	0.836	0.427	-0.075	0.868	0.904	1.000							
EIQ	0.437	0.763	0.025	0.661	0.579	0.819	-0.020	0.466	0.405	-0.199	0.345	0.433	0.572	1.000						
SIQ	0.688	0.265	-0.228	0.291	0.252	0.375	0.509	0.726	0.592	0.179	0.733	0.790	0.727	0.412	1.000					
SMEI	0.610	0.583	-0.039	0.499	0.564	0.702	0.162	0.797	0.510	-0.077	0.767	0.835	0.934	0.801	0.774	1.000				
OILpc	0.477	0.234	-0.331	0.255	0.616	0.363	-0.462	0.638	0.523	-0.933	0.376	0.238	0.411	0.359	-0.197	0.344	1.000			
RS	0.204	0.145	-0.457	0.239	0.358	0.054	0.030	0.339	0.225	0.006	0.385	0.256	0.283	0.176	0.307	0.289	0.011	1.000		
POP	0.068	0.045	-0.006	0.006	0.176	0.051	-0.205	-0.058	0.088	-0.522	-0.098	-0.129	-0.046	0.050	-0.242	-0.060	0.445	0.001	1.000	
TV	0.352	0.415	-0.164	0.323	0.413	0.333	-0.084	0.193	0.368	-0.488	0.060	0.094	0.162	0.476	0.108	0.294	0.628	0.034	0. 300	1.000