**Relationship between Governance indictors (see 6 dimensions below) and GDP growth in Egypt (1996-2016):**

**Estimation Approach:**

* The study applied a combination of analytical and econometric methods to assess the indicators of Worldwide Governance Indicators (WGI) from World Bank and economic indicators from Intelligent Economic Unit (EIU) database over the period 1996 to 2016. The analyses also examine the trends and directions of the indicators, as well as correlations between them, and determine causation relationship between governance and economic growth.
* A vector error correction model (VECM) is applied to assess the causal relationship between governance and economic growth following the study by *Law, S.H., Lim, T.C. and Ismail, N.W. (2013) Institutions and Economic Development: A Granger Causality Analysis of Panel Data Evidence.*
* The first step is conducting a unit root test on each variable to determine the order of integration using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests.
* If all variables are integrated of the same order, the second step is to estimate a co-integrating equation, and test whether the residual of the model is stationary. The purpose of this step is to implement an Engel Granger approach for co-integration to test whether the data have a long run relationship or not. These tests make sure that either all-time series variables in the model are stationary or they are co-integrated, If this is the case, then the model defines a long-run equilibrium relationship among the co-integrated variables.
* Following the confirmation of co-integration between the variables, the causal relationship between governance indicators and growth (GDP) is determined through the analysis of Granger causality (Multivariate Granger Causality).

**Data sources and Variables:**

The World Governance Indicators (WGI) dataset developed by World Bank researchers is the most comprehensive dataset on governance.

The governance dataset captures three dimensions of governance, The dataset measures six indicators (two each) corresponding to these dimensions by reducing the measures through an unobserved components model, resulting in a total of six dimensions of governance, and is available for the periods 1996 to 2016. These dimensions are: The first aspect reflects Voice and Accountability [VA], Political Stability and Absence of Violence/Terrorism (PV), while the second focus on Government Effectiveness (GE) and Regulatory Quality (RQ), and the third, Rule of Law (RL) and Control of Corruption (CC).

**Questions: Please do the following:**

1. Descriptive statistics of governance indicators (6 dimensions in total as described above) and GDP growth.
2. Summary of governance indicators (6 dimensions in total as described above) in Egypt by score (1996-2016).
3. Matrix of correlation coefficients between governance indicators (6 in total as described above) according to the units of measurement and GDP growth in Egypt during the period (1996-2016).
4. Correlations between each pair of governance indicators
5. ADF and PP Test results (5% and 10% significance level)
6. Summary results of causality patterns between economic growth and governance indicators

Appenidx:

1. **Governance Indicators by Score, GDP Growth and GDP per Head in Egypt from 1996 to 2016**
2. **Granger Causality Test Results on Error Correction Models (ECM) (5% significant level)**