Institutions Department, West and Central Africa (EAWG2)

Intern – Public Finance/Economist/Data Analytics

**Motivation:** This document provides instructions for a brief quantitative assessment to be completed by all candidates for the intern position (Req 31162) in the Institutions Department, West and Central Africa (EAWG2). The objective of this assessment is to understand your analytical thinking, your programing skills, and your ability to prepare data for analysis.

There are not necessarily any correct responses. Your answers will instead be assessed based on their organization, thoughtfulness, and how well you prepare the code that led you to them.

**Instructions:** One of your colleagues asked you to analyze how justice institutions affect corruption. In particular, the colleague is interested in understanding how the quality of justice institutions can reduce corruption among elected officials. For this exercise, please find the attached files…

* **WJP Indicators.xlsx** – This file contains historical data on the World Justice Project’s (WJP) cross-national indicators. These indicators capture various dimensions of a country’s justice system. For more information, please see [World Justice Project](https://worldjusticeproject.org/rule-of-law-index/global/2022/Criminal%20Justice/). (Please note that this data skips the year 2017, which is fine for the purposes of this analysis.)
* **WB Regions.xlsx** – This file contains the World Bank’s latest regional and income groupings.
* **CPI Indicators.xlsx –** This file contains historical data from [Transparency International’s Corruption Perception Index](https://www.transparency.org/en/cpi/2024) (CPI).

***Please conduct the analysis in a replicable script from either R or STATA where each step is commented and explained. R is preferred, but you may also use STATA if you are more comfortable.***

With these data, please answer the following questions…

1. Create the following three figures…
   1. Bar graph comparing the regional averages of the **WJP Rule of Law Index: Overall Score** for the latest year in the WJP data. There should be one bar per region.
   2. Bar graph comparing the income group averages of the **Factor 1: Constraints on Government Powers** indicator for the two latest years in the WJP data. There should be two bars per income group (one for the latest year, one for the second latest year).
   3. Line graph comparing the change over time in the **WJP Rule of Law Index: Overall Score** indicator for Ghana, Sierra Leone, Liberia and the overall average for countries in sub-Saharan Africa. The line graph should cover the entire time period in the WJP data.
2. What is the statistical relationship between the **WJP Rule of Law Index: Overall Score** and Transparency International’s **Corruption Perception Index**? How does the rule of law affect corruption perceptions, according to these data? Your colleague is concerned that any relationship may be driven by confounders such as GDP, population, and region-specific trends. Please locate and download the relevant data from the World Development Indicators database [here](https://datatopics.worldbank.org/world-development-indicators/) to control for these variables and address these concerns. (See the “Bulk downloads” section under the “Access Data” header halfway down the page.) How does the relationship change, if at all?

Please share the following as your answers…

1. Short PowerPoint (i.e. 3-4 slides) containing (a) the three bar graphs from Question #1 and (b) a brief response to Question #2.
2. All programing code that you used to merge the datasets, prepare the files, and conduct the analysis. The code should be in the form of a *.R script* (if you used R) or a *.do file* (if you used STATA).

If you have any questions, please email [srussell2@worldbank.org](mailto:srussell2@worldbank.org). Best of luck!