

SESSION ZERO-PREPARATION FOR WORKSHOP

PRE-INSTALLATION OF SOFTWARE FOR DATA SCIENCE

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PRE-INSTALL SOFTWARE AND CLEAN YOUR DATA

1. Prepare an environment for your data cleaning/wrangling and analysis:
 - a. Install Anaconda navigator
 - b. In anaconda, prepare, at least, the following two environments-bamboolib and atoti
 - c. Install python 3.10 or higher
 - d. Install pandas
 - e. Install jupyter notebook
 - f. Install jupyter lab
 - g. Make a folder for your analysis (IFFs_analysis, international_Trade_Analysis)
 - h. Load the exercise data into this folder for ease of reference
 - i. Cross-check the path to your data. Mine is: **/Users/bishopakolgo/Desktop/IFFs_2024-Workshop/IFFs_Data_Customs**
2. Prepare and Clean your data(Exploratory Data Analysis-EDA)
 - a. Load your data in excel or csv for one year
 - b. Use bamboolib to load your data
 - c. Make the dataset a table for ease of manipulation(one sheet per workbook)
 - d. ensure the headings are uniform for all datasets and maximum two names joined by underscore;
3. Use bamboolib to verify the following summaries of the data:
4. Missing values
5. Number of Unique values
6. Number of columns and rows
7. Etc
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ANALYSIS TEAM MUST HAVE UNIFORM APPROACH

1. The analysis team must agree on the following before the analysis starts:
 - a. Headings for each import/export table
 - b. To include or exclude personal effects imports/exports
 - c. Threshold of values to include or all commodities
 - d. Commodities to include
 - e. Countries of destination to focus on
 - f. Sectors to focus on
2. Team must also agree on how to share or divide up work:
 - a. By sector(mining, agric, petroleum, health, consumables, industrial goods, etc)
 - b. By commodity(cocoa, gold, fish, used clothing, vehicles/spare parts, etc)
 - c. By imports/exports
 - d. By country of destination
 - e. By method (PCM-PFM)
 - f. Who does Data preparation
 - g. In the case of price filter method, whether to calculate the arm's length prices centrally or each person/team to carry out own calculation
 - h. In the case of partner country method, how to obtain partner country data-to buy or to activate data sharing agreements GSS, BOG or GRA has with their foreign counterparts;
 - i.

OTHER CONSIDERATIONS

1. Effective analysis of international trade data requires a multidimensional approach, considering these and other relevant metrics to form a comprehensive understanding of a country's trade performance and its implications for its economy and global trade dynamics. The following are some of the key metrics:
 - **Total Trade Volume:** This metric represents the sum of a country's exports and imports. It provides an overall view of a country's engagement in international trade.
 - **Trade Balance:** The trade balance is the difference between a country's exports and imports. A positive balance (surplus) indicates that a country is exporting more than it is importing, while a negative balance (deficit) suggests the opposite.
 - c. **Trade-to-GDP Ratio:** This ratio measures the significance of international trade in relation to a country's overall economic output (GDP). A higher ratio typically suggests a more open and trade-dependent economy.
 - d. **Exports and Imports Growth Rates:** Analyzing the annual growth rates of exports and imports can reveal trends in a country's trade performance. Rapid export growth, for instance, can be a positive indicator of economic vitality.
 - e. **Trade Partners:** Identifying a country's top trading partners is crucial. This can help understand the geographic distribution of trade and assess the impact of trade agreements or geopolitical shifts.
 - f. **Commodity Composition:** Analyzing the types of goods and services being traded is essential. This can help identify a country's comparative advantage and its exposure to specific industries or commodities.
 - g. **Trade Deficit/Surplus by Commodity:** Examining which specific commodities contribute most to a trade deficit or surplus can reveal areas where a country may need to adjust its trade policies.
 - h. **Trade Intensity Index:** This index measures the importance of a country's trade relationship with specific partners by comparing trade volume with the partner's GDP. It helps identify which trade relationships are most significant.
 - i. **Balance of Payments:** This comprehensive account includes the trade balance along with other financial transactions, like foreign investment and remittances. It provides a broader view of a country's economic interactions with the rest of the world.
 - j. **Exchange Rates:** Fluctuations in exchange rates can significantly impact international trade. Analyzing how currency values affect trade can be important for understanding trade dynamics.
 - k. **Trade Policy and Tariffs:** Assessing a country's trade policies, including tariffs, trade agreements, and non-tariff barriers, is crucial for understanding the regulatory environment and potential trade disruptions.
 - l. **Trade Elasticities:** Understanding how price changes affect the quantity of goods traded (price elasticity) and how changes in income affect demand for imports and exports (income elasticity) can provide insights into trade dynamics.
 - m. **Trade Imbalances Over Time:** Examining historical trade data can reveal long-term trends and cyclical patterns in a country's trade performance.
 - n. **Trade in Services:** Do not overlook the importance of analyzing trade in services, including sectors like finance, technology, and tourism, which can be significant contributors to international trade.
 - o. **Geopolitical Factors:** Consider geopolitical events, such as conflicts, sanctions, and trade disputes, as they can have a profound impact on international trade.
 - p. **Environmental and Social Metrics:** In recent years, there has been growing interest in assessing the environmental and social impact of international trade, such as carbon emissions associated with trade or labor conditions in the supply chain.
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