# Independent Analysis Project Guidelines

Winter 2026
GPCO 454 - Quantitative Methods II (QM2)

## Overview

Foreign aid has long been a key instrument of international development policy, with billions of dollars allocated annually to promote economic growth, improve governance, and reduce poverty worldwide. Yet, the effectiveness of aid remains highly contested. Some argue that aid fosters development, strengthens institutions, and alleviates suffering. Others contend that aid creates dependency, fuels corruption, or fails to achieve meaningful long-term outcomes.

While the United States has historically been one of the largest foreign aid providers, other global powers—most notably China—have expanded their own development finance programs. Through initiatives such as the *Belt and Road Initiative (BRI)* and *state-led infrastructure financing*, China has redefined the global aid landscape. Unlike traditional Western aid, which often comes with governance and transparency requirements, Chinese development finance tends to be characterized by *large-scale infrastructure projects, resource-backed loans, and state-to-state agreements* with fewer political conditions. This raises important questions not only about the **impact of Chinese aid** but also about **why and how China allocates aid in the first place**.

### What Drives Chinese Aid?

A fundamental empirical question concerns the **determinants of Chinese aid flows**. Does China allocate development finance based on recipient need—prioritizing *poverty alleviation* and *economic distress*—or do strategic interests, such as *trade relationships, political alignment, or natural resource availability*, drive aid decisions?

This project invites you to examine how **cross-country factors** shape China's aid allocation decisions using real-world data. You might explore:

- Does corruption influence how much aid a country receives? (*Measured using the Corruption Perception Index*)
- Are democracies or autocracies more likely to receive Chinese aid? (*Measured by the Political Regime Index or the Democracy Index*)
- Does economic inequality predict aid allocation? (*Measured by the Gini Index*)
- Does China prioritize aid to poorer countries? (*Measured by the Share of Population in Extreme Poverty*)
- Do wealthier countries receive more or less Chinese aid? (*Measured by GDP per capita*)

### What Are the Consequences of Chinese Aid?

Beyond understanding what **drives Chinese aid flows**, this project may also explore whether Chinese aid has **meaningful impacts on recipient countries**. Some argue that Chinese development finance fuels economic growth, expands infrastructure, and increases investment, while others worry that it exacerbates debt burdens, fosters corruption, and undermines democratic governance.

Your analysis might investigate:

- Does receiving Chinese aid lead to improvements or declines in governance? (*Measured by Political Regime Index or the Democracy Index*)
- Does Chinese aid reduce poverty, or does it primarily benefit elites? (*Measured by Share of Population in Extreme Poverty*)

- Does Chinese development finance increase or decrease corruption? (*Measured by the Corruption Perception Index*)
- Does Chinese aid exacerbate economic inequality? (*Measured by the Gini Index*)
- Does Chinese aid contribute to or help reduce debt burdens? (*Measured by GDP per capita*)

# Deliverables

You will submit the following:

- **Policy Memo** (maximum 1,500 words; shorter is fine, but do not exceed this limit): Clearly summarize your research question, methodology, key findings, and takeaways. Write concisely and ensure the memo is accessible to a non-technical audience.
- **Supporting Figures and Tables** (2-5 items): Include in your policy memo at least one figure and one regression table that illustrate your findings. Captions should be self-explanatory.
- **Appendix: Regression Diagnostics**: Demonstrate all diagnostic tests conducted to ensure that Gauss-Markov (G-M) assumptions are plausibly met.
- **Reproducible Code** (`.R` file): Ensure your analysis can be replicated. Your R script must be fully annotated with comments explaining each step.

# General Guidelines

- **Use the Provided Dataset**: You must use the AidData Global Chinese Development Finance Dataset v3.0 merged with relevant variables from Our World in Data. Your analysis must integrate data from both sources—you cannot rely solely on one dataset. This means you will need to merge the datasets appropriately based on your causal question, ensuring that the variables align at the country level. Carefully consider how to structure the merged dataset, whether through aggregating, averaging, or transforming variables, to create a meaningful cross-sectional analysis.

- **Formulate a Causal Question**: Your analysis must focus on a single well-defined causal question in the form: Does X cause Y? While you will control for other confounding variables in your multiple regression model, your study should revolve around answering one primary causal question.

  In the Overview, you were provided with several possible causal questions, but you may also formulate your own, provided it is answerable using the provided datasets.

  Be mindful that you may be tempted to explore multiple causal relationships within your analysis—this is strongly discouraged. A well-executed study requires depth over breadth; your goal is to rigorously test and interpret a single causal relationship rather than attempting to answer multiple research questions.

- **Use Cross-Sectional Data**: The dataset is structured at the entity-year level, meaning it contains observations for multiple years for each country where data is available. However, for this project, you must transform the data into a cross-sectional format, ensuring that each entity (country) is represented by a single observation. This may require aggregating, averaging, or standardizing variables over time. You should carefully justify your approach—whether by taking means, medians, last available values, or constructing z-scores—to ensure consistency and interpretability. No time series or panel analyses are allowed; your final dataset should reflect a single cross-section of countries.

- **Regression Model Requirements**: Your analysis must begin with a bivariate regression testing your causal question. Then, you must progressively build a multiple regression model, adding relevant control variables based on theoretical justification. Consider potential issues such as multicollinearity when selecting controls. The final model should be a well-specified multiple regression that appropriately accounts for confounding factors.

- **Diagnostic Tests**: You must check and report any violations of the Gauss-Markov assumptions and either correct them or justify why they are not problematic.

- **Keep It Concise**: Focus on clarity over complexity. Avoid unnecessary jargon and keep your writing direct and engaging.

- **Cite Sources**: If you use external references, cite them properly following academic integrity standards.

## Structure of Your Analysis

Your memo should follow a simple and logical structure:

1. **Introduction**: Clearly state your causal research question and explain its significance. Why is this question important? Provide motivation for your study.

2. **Theory and Hypotheses**: Briefly outline the theoretical reasoning behind your causal question. What mechanisms might explain the relationship between X and Y? Based on this theory, state one or more **specific hypotheses** that your analysis will test.

3. **Data Description**: Describe the datasets you are using, how they were merged, and the key variables in your analysis. Explain any transformations, aggregations, or standardizations you applied to create a cross-sectional dataset.

4. **Methodology**: Describe your regression strategy, beginning with a **bivariate regression** and progressively incorporating relevant control variables. Justify the inclusion of controls and discuss potential issues such as multicollinearity.

5. **Findings**: Present your key regression results with interpretation. Include a properly formatted regression table with **progressive model specifications** and discuss how your findings support or refute your hypothesis.

6. **Limitations and Conclusion**: Discuss potential limitations of your analysis, such as omitted variable bias, measurement issues, or external validity concerns. Summarize key takeaways and their implications for understanding the drivers or consequences of (Chinese) aid.

7. **Appendix: Regression Diagnostics**: Detail your approach to checking Gauss-Markov (G-M) assumptions, including relevant tests (e.g., heteroskedasticity, multicollinearity, omitted variable bias) and any corrective measures taken.

# Submission Details

- **Submission Method**: All components must be submitted electronically via Canvas. Ensure that your submission includes the required policy memo, figures, tables, regression diagnostics, and reproducible R script.

- **Deadline and Late Submission Policy**: The **Independent Analysis Project** is due on **March 13th at midnight (11:59 PM, PST)**. You have **one month** from the release date to complete this project. **Plan accordingly**, as Homework 3 is due on **March 11th**, and the final exam is on **March 17th**.

  **Late Submissions and Penalties:**

  1. Submissions between **March 14th (12:00 AM)** and **March 14th at 11:59 PM** will have a **maximum possible grade of 90%** of the full score.
  2. Submissions between **March 15th (12:00 AM)** and **March 15th at 11:59 PM** will have a **maximum possible grade of 75%** of the full score.
  3. Submissions after **March 15th at 11:59 PM** will receive a **0%**.

  **No exceptions will be granted beyond these deadlines, except in cases of documented medical emergencies with official UCSD Health documentation.** Private doctor's notes or non-UCSD Health documentation will not be accepted. If you submit late, there is no need to provide an explanation—simply submit your work and understand the associated penalty.

- **Academic Integrity**: This is an **individual assignment**. **Collaboration, discussing your analysis with others, or sharing code is strictly prohibited.** Your submission will be checked for plagiarism and code similarities. Any violation will result in an automatic **zero on the project** and may lead to further academic consequences.

# Acknowledgment and Rules

Submission of your project indicates that you understand and attest to the following:

1. I have worked independently on this project and have not discussed or shared information about this assignment with anyone else.

2. I understand that my final report will be screened for plagiarism and unfair collaboration via Turnitin.com and manual inspection.

3. I have not used anyone else's materials as guidelines, including past and present students at GPS.

4. I understand that I am not allowed to ask the TAs or professor for any help on this project beyond what is discussed in lectures, review sessions, and lab sessions. The only exceptions are clarifications on dataset structure (e.g., variable definitions, merging guidance) and language translation questions related to the data.

5. I have not asked other faculty for guidance on this analysis.

6. I have fully and correctly cited all external sources that have contributed to my thoughts, development, and presentation of this analysis.

7. I understand that failure to abide by any of these rules will result in automatic failure of both the project and the course.