**China in the Development World: An Overview**

**PPOL 5202: Data Visualization for Data Science**

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McCourt School of Public Policy, Georgetown University

Irene Chen, Crystal Lou, Vaishnavi Singh, Gabriel Soto, Tian Tong

## Background

The People’s Republic of China (PRC) has been noticeably investing in the developing world since the 2000s, right after their economic and industrial revolution. With 20,985 projects across 165 low-to-middle income countries, China has poised itself as a leader in spearheading development in vast regions in Africa and Latin America. These loans, grants and projects are valued around $1.34 trillion from 2000 to 2021, showing the compromise of the Asian giant to become a key player in development.

## Methodology

For this project we will be exploring a subset of this dataset, which we think is the more relevant for the international community due to the amount invested and the socioeconomic impact they have. We are targeting projects in which investment is valued over $10,000,000.00 and that have specifically precise geospatial data (as some projects might be credit loans to improve monetary policies and not have georeferences). We are also filtering by projects that fall within the definitions of ODA and OOF, as we want to see how China’s diplomacy arm leverages these endeavors in other countries.

## Data Sources

Our main data source is a database of every development project implemented by China in the world. It groups aid, grants loans and development projects that can be defined under the OECD ODA (Official Development Assistance) and OOF (Other Official Flows) definitions. The data source comes from AidData, which is a research lab that focuses on research in development based on William & Mary’s Global Research Institute. This is the third version of the dataset which is the most comprehensive version as of today. It gathers more than 10 different sources for each one of the projects collected for this task.

AidData has come with a methodology called TUFF, which stands for Tracking Underreported Financial Flows. This methodology has the objective to gather information about development projects financed by donors that have traditionally not followed international multilateral standards on reporting. The process of TUFF takes into consideration a multifaceted approach and multistakeholder perspective on collecting, verifying and validating reports and updated data about the reports.

Each one of the records (projects) have been curated by as much as 50 different sources (both public and official one’s) from the Recipient Country (where the investment is taken place) and the Donor Country (China). This dataset relies on information from academia as well such as Duke, Harvard universities. On the other hand AidData also leverages reports from Multilateral agencies like the World Bank, Asian Development Bank and InterAmerican Development Bank. Furthermore, the research lab relies on local think tanks, government agencies and local newspapers where they can verify and get more localized data about the projects.

The TUFF methodology is very thorough and as a result gives a highly curated process with several safeguards. Through TUFF we get a very robust dataset which reliability for any research around this topic will have a high confidence.

## Findings

#### **Sector-Wise Regional Variations**

Using the **"Investment by Sector"** bar chart and filtering on individual regions, we can observe *which sectors dominate funding* and *whether distinct regional trends emerge*. The dominance of **"Energy"** and **"Industry, Mining, and Construction"** in most regions signals a focus on infrastructure and energy development, which aligns with China's development strategies under its global initiatives, such as the Belt and Road Initiative (BRI).

Inspecting the regions individually, we discover these commonalities:

* **Africa and Asia:**
  + These regions predominantly feature projects in **Energy** and **Industry, Mining, and Construction**, with great emphasis on large-scale infrastructure project. For example, pipeline or commitment projects in these sectors often involve significant investments exceeding $2 billion.
  + This focus reflects the developmental priorities of these regions, which are heavily invested in infrastructure to **meet rapidly growing urbanization and industrial demands**.
* **Europe and the Middle East:**
  + Europe exhibits a shift toward **Transportation and Storage** and **Social Infrastructure and Services**, highlighting mature infrastructure systems. The lower focus on energy projects may indicate that these regions already have established energy infrastructure and are now investing in urban mobility or sustainable projects.
  + In the Middle East, **Transport and Storage** also plays a key role, but there remains a notable share in energy-related projects, which reflects the region's historical dependency on and transition from fossil fuel-based economies to broader infrastructure.
* **Oceania and America:**
  + Investment in Oceania and America is less diverse, with a focus on specialized sectors such as **Water Supply and Sanitation**, **Agriculture**, and **Fisheries**. This likely reflects specific regional priorities, such as natural resource management and food security.

These regions show less emphasis on industrial or energy projects, aligning with their smaller population sizes and lesser industrial demands

#### **Project Status and Investment Patterns**

When filtering by **project status**, clear trends emerge. **Pipeline or commitment-phase projects** are generally high-value and heavily focused on infrastructure-intensive sectors, such as energy and industry. These projects are most prominent in Africa and Asia, where development priorities align with such large-scale initiatives. In contrast, **completed projects** show a broader sectoral distribution, encompassing education, social infrastructure, and smaller-scale energy projects. This indicates that smaller, region-specific projects are more likely to be completed on time and within budget.

**Implementation-phase projects,** on the other hand, continue to be dominated by the **energy sector**, reflecting ongoing efforts to address global energy needs and support the transition to sustainable solutions.

The above differentiations also align with the observations of **Investment Size**. Moving around the **investment slider** provides us with some additional insight into the relationship between project value and sectoral focus:

1. **High-Investment Projects:(> $4 billion)**
   * Projects exceeding $4 billion are largely concentrated in **Energy** and **Transport and Storage**, and are also more prominent in Africa and Asia.
   * This concentration underscores the **capital-intensive nature** of these sectors and their **strategic importance** in China’s global investment scheme.
2. **Low to Mid-Investment Projects:(< $3 billion)**
   * The sector distribution becomes more varied, with smaller investments covering diverse sectors, such as **Agriculture**, **Education**, and **Health**.
   * This suggests that lower-budget projects address localized and region-specific needs, often focused on social or environmental development.

## Conclusions

The dominance of **Energy** and **Industry, Mining, and Construction** projects is evident globally, which underscores their central role in infrastructure building, resource management, and regional connectivity. Sectors like **Education** and **Health** consistently receive less funding across most regions, pointing to gaps in developmental priorities.

However, **Europe** and parts of the **Middle East** show a more diversified investment portfolio, **reflecting mature economies with balanced infrastructure needs.** Investments in these regions are less concentrated in energy but focus on transport and social services.

## Limitations

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## References

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