



Who Shapes the Collection? A Statistical Analysis of Philanthropy vs. Institutional Purchasing at The Metropolitan Museum of Art (1900–2025)

INTRODUCTION

This project examines how The Metropolitan Museum of Art grows its permanent collection and the extent to which that growth depends on private philanthropy. Museums often present themselves as public institutions, but their collecting practices are heavily influenced by donors, trustees, and private wealth.

The Met provides an unusually transparent dataset documenting more than 455,000 acquisitions. This allows for a quantitative exploration of who funds the collection, how these patterns shift across time, and which departments are most reliant on gifts versus purchases.

While cultural institutions benefit from philanthropy, donor-driven acquisition patterns raise questions about representation, curatorial autonomy, and long-term equity in collection-building. This project uses statistical analysis to evaluate whether The Met's collection growth depends more on philanthropy than institutional purchasing. By examining decade-level trends and department variation, the study quantifies how donor influence shapes the museum's collecting patterns over time.

DATA & METHODOLOGY

Dataset:

The Metropolitan Museum of Art Open Access (455,831 objects; variables include Department, AccessionYear, Credit Line).

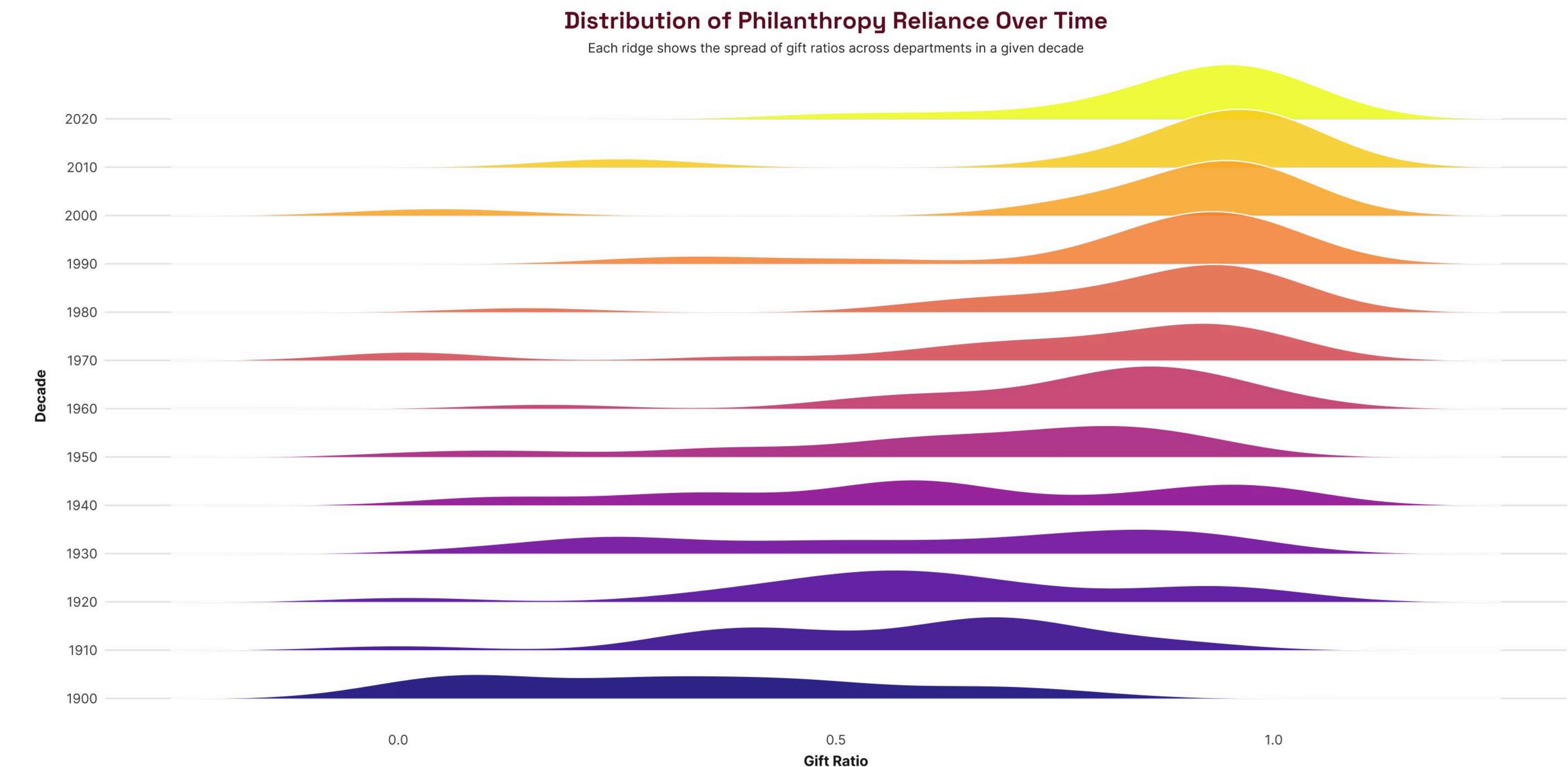
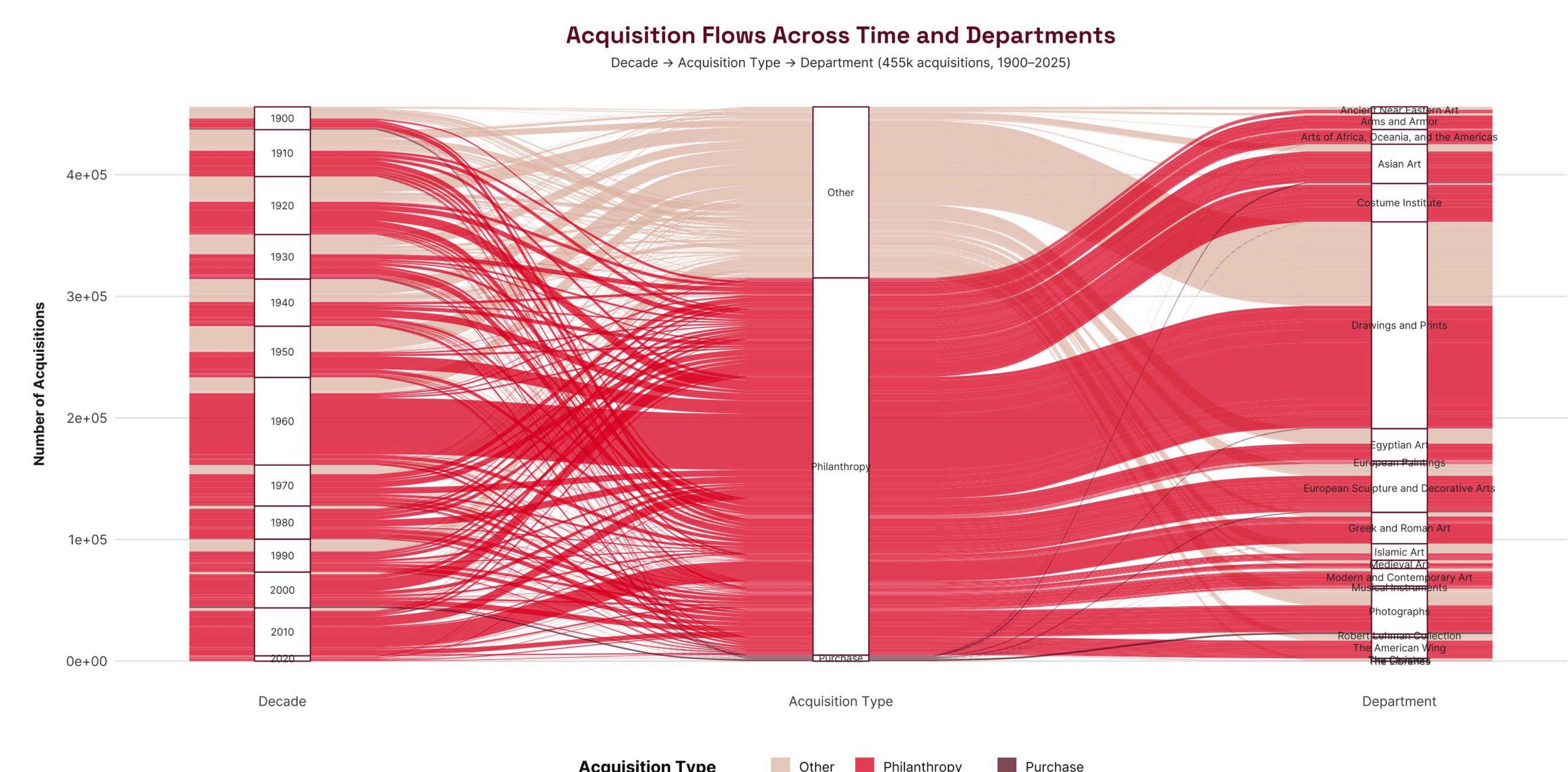
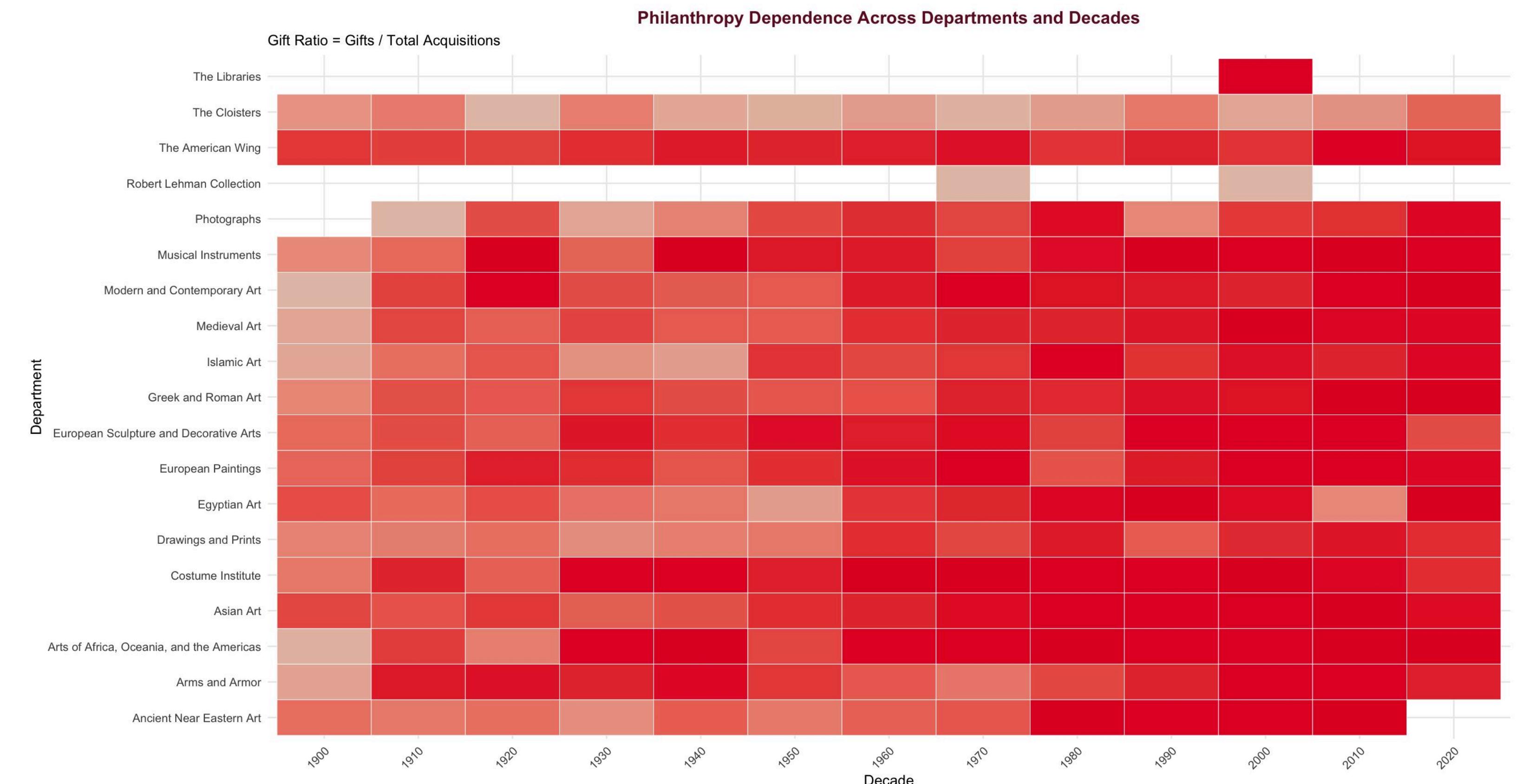
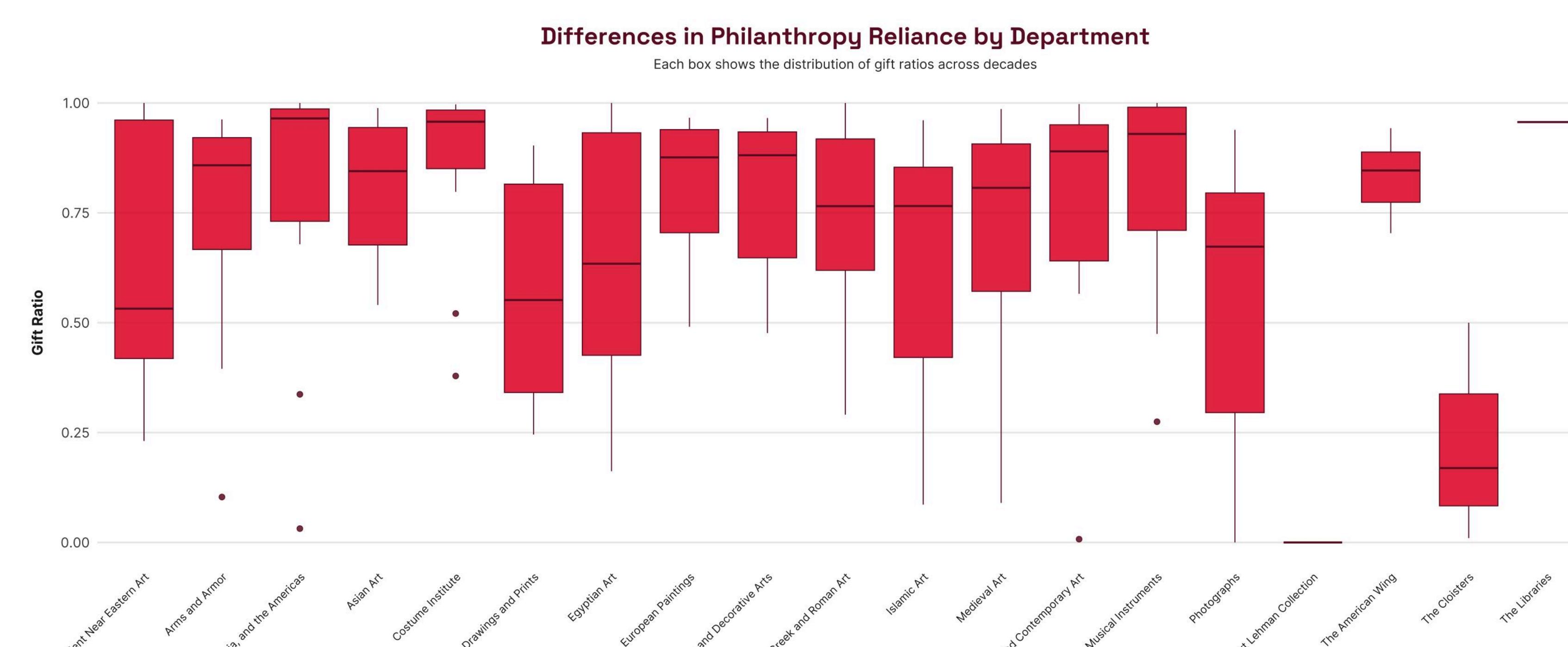
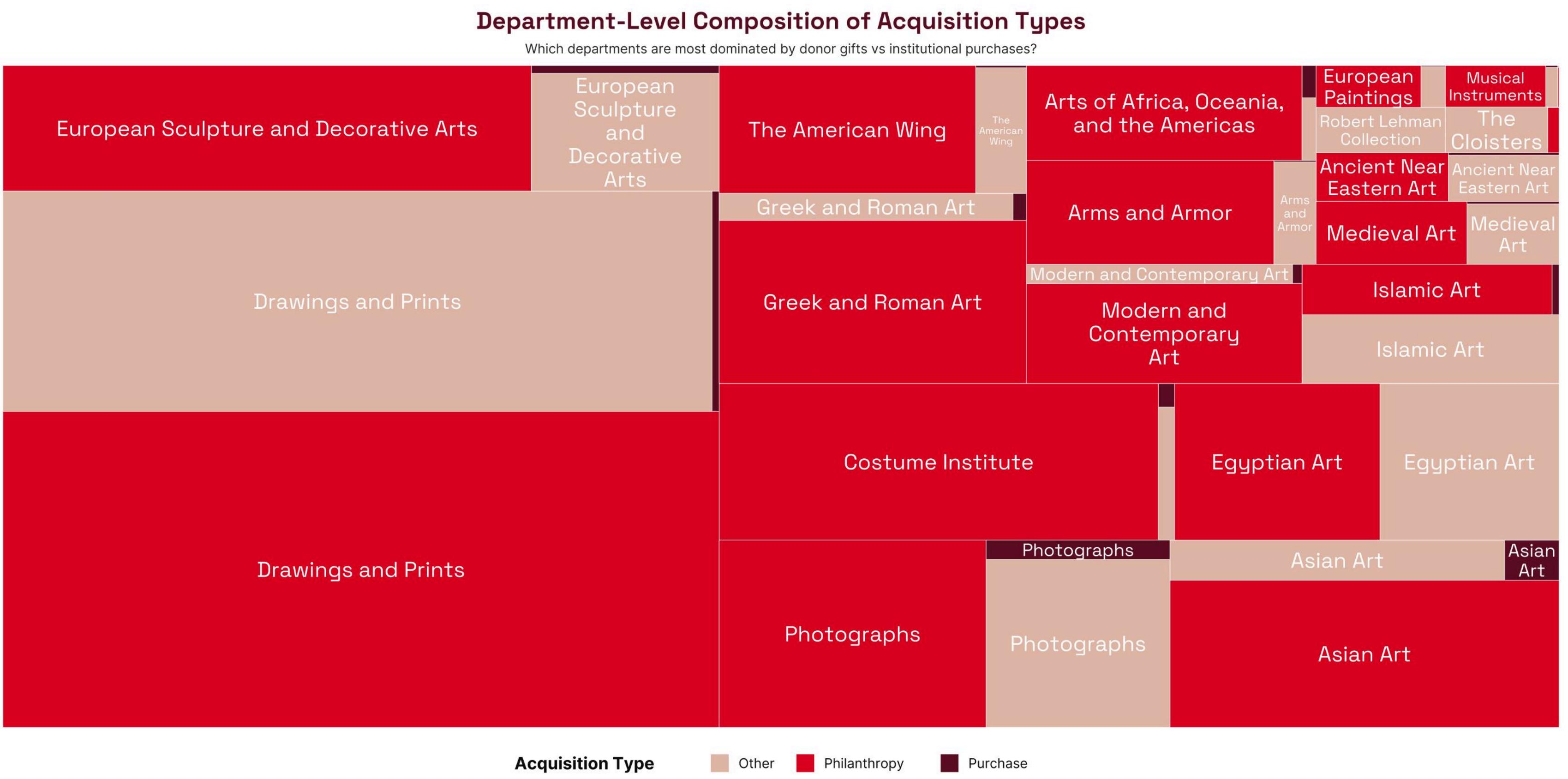
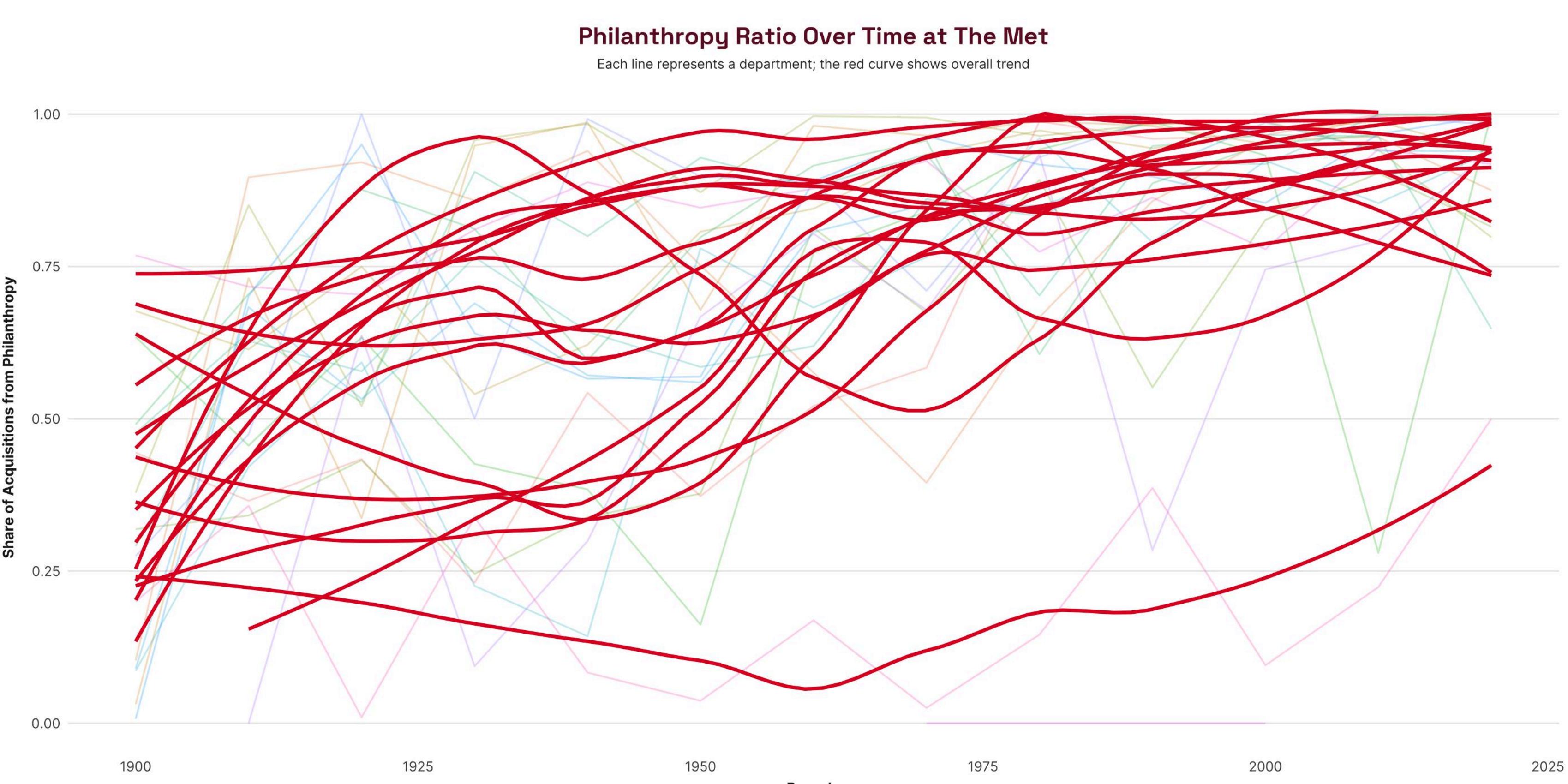
Processing steps:

1. Converted accession dates to numeric decades
2. Classified acquisition method as:
 - Philanthropy (Gift, Bequest, Donation), Purchase, Other
 - Calculated gift ratio per department and decade
 - Produced summary tables and visualization layers
3. Conducted:
 - ANOVA to test department differences
 - Multiple regression to test predictors of gift ratio
 - Chi-square test for association
 - Visual analyses via treemap, heatmap, alluvial flow, ridge density, trend lines

LIMITATIONS

- "Other" category includes ambiguous credit lines not classifiable as gift/purchase
- Does not measure donor influence on what gets collected
- Missing acquisition price data limits purchase analysis
- Does not capture shifts in curatorial policy or external funding changes

DATA ANALYSIS & VISUALIZATION



RESEARCH QUESTION

Has The Met's collection growth depended more on private philanthropy than on institutional purchases, and how has this balance changed across decades and departments?

HYPOTHESES

Null Hypothesis (H_0):

Acquisition method (gift vs purchase) is independent of department and decade. There is no meaningful variation in reliance on philanthropy.

Alternative Hypothesis (H_1):

The Met relies significantly more on philanthropy than institutional purchasing, with strong differences across time and department.

INTERPRETATION

Taken together, the statistical evidence makes the pattern unmistakable: The Met's collection has been profoundly shaped by private donors for more than a century, and its reliance on philanthropy has intensified over time.

This matters because it reframes collecting not as a neutral cultural process, but as a system influenced by wealth, personal networks, and donor priorities. Entire departments grow according to where philanthropic energy flows, not only to curatorial strategy.

CONCLUSION

The Met's collection is overwhelmingly donor-built. Over 100+ years, philanthropy—not institutional purchasing—has shaped the scale, composition, and direction of the museum's holdings. Different departments follow distinct donor ecosystems, and donor behavior has grown more dominant each decade.

These findings contribute to broader conversations about transparency, cultural equity, and how private wealth infrastructures influence what becomes part of our shared cultural heritage.

It is every scientist's responsibility to improve their research practices in order to increase the reproducibility of their research. It is essential to remember that the goal of research is not to find a significant result; rather, it is to ask and answer questions about nature in the most truthful way possible. Most of our hypotheses will be wrong, and we should be comfortable with that, so that when we find one that's right, we will be even more confident in its truth.

ANALYSIS & FINDINGS

1. The Met is structurally donor-driven

Across the entire dataset:

- Philanthropy: 310,243 acquisitions
- Purchases: 4,977 acquisitions
- Other/Unknown: 140,611 acquisitions

Purchases represent barely 1% of all acquisitions. Philanthropy clearly dominates.

2. Donor dependence increased over time

Trend-line analysis shows:

- Early 20th century = mixed acquisitions
- Post-1950 = philanthropy consistently above 70%
- 1980s-2020s = plateau around 80-95% donor-driven activity

The LOESS curve confirms a long-term upward trend.

3. Departments vary dramatically

ANOVA: $F(18,203) = 6.261, p < 0.001$

→ Department significantly predicts gift ratios.

Treemap & boxplots show:

- High reliance: Costume Institute, Modern & Contemporary, American Wing, Musical Instruments
- Lower reliance: Photographs, Egyptian Art, Islamic Art
- Extreme case: Robert Lehman Collection (historically gift-based endowment)

4. Time + Department best explain the pattern

Regression model ($R^2 = 0.62$):

- Decade ($\beta = 0.0039, p < 0.001$)
- Several departments show significant coefficients

→ Reliance on philanthropy increases over decades even when controlling for department.

5. The entire collecting ecosystem is donor-shaped

The alluvial diagram shows:

- Philanthropy flows dominate every decade
- Purchases remain visually tiny in all periods
- Certain departments receive disproportionate donor attention

6. Chi-square confirms dependence

$\chi^2(17) = 6275.5, p < 2.2e-16$

→ Acquisition method and department are not independent.

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QR CODE

Scan to view the full analysis, extended visualizations, R scripts, and the complete project repository.



REFERENCES

I. Statistical Methods & Course Texts

Core Textbooks

- Llaudet, E., & Imai, K. (2023). Data Analysis for Social Science: A Friendly and Practical Introduction. Princeton University Press.
- Poldrack, R. (2024). Statistical Thinking for the 21st Century. <https://statthinking21.github.io/statthinking21-core-site/index.html>

R Graphics & Methods

- Chang, W. (n.d.). R Graphics Cookbook (2nd ed.). <https://r-graphics.org/>
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- Lauermann, J. (2025). INFO-610 Student Resources. <https://github.com/johnlauermann/student-resources/blob/main/info-610/intro-to-statistics/google-drive-for-r.md>

II. Data Sources Used in Analysis

Met Open Access Data

- The Metropolitan Museum of Art. (2017). Open Access – Select Datasets. <https://www.metmuseum.org/hubs/open-access>
- metmuseum. (2016). Open Access: GitHub Repository. <https://github.com/metmuseum/openaccess>
- The Metropolitan Museum of Art. (2018). Collection API. <https://metmuseum.github.io/>

III. Financial, Institutional, and Governance Context

Museum Financials & Governance

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- Foundations and Trusts – The Metropolitan Museum of Art. (2021). <https://www.metmuseum.org/support/foundations-and-trusts>
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