Women's Leadership and Logistical Participation in Armed Rebellion*

Analysis of the Women's Activities in Armed Rebellion Dataset, 1946–2015

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This paper uses the Women's Activities in Armed Rebellion (WAAR) dataset to study whether rebel organizations with women in leadership positions are more likely to increase women participating in logistical roles. I fit a simple logistic regression model, with women's logistical participation as the outcome and women's leadership as the main predictor, also controlling for coalition membership and the presence of women's wings. The results show that even after controlling for basic organizational characteristics, a significant positive correlation remains between women's leadership position and women's logistical involvement.

1 Introduction

1.1 Overview paragraph

Women's participation in armed insurgent organizations takes many forms, ranging from frontline combat to political organization and logistical support. The "Women's Activities in Armed Insurgents" dataset, covering over 370 insurgent organizations from 1946 to 2015, documents the extent and manner of women's participation in these organizations. This paper focuses on a key variable of participation: whether women are involved in logistical work, such as transportation, supply, or other support activities. Furthermore, this paper examines whether women hold leadership positions within these organizations. My primary objective is to describe and model the relationship between women's leadership and women's logistical participation in insurgent organizations.

*Code and data are available at: https://github.com/RohanAlexander/starter_folder.

1.2 Estimand paragraph

Formally, let Y_i be a binary indicator equal to 1 if women are recorded as participating in logistical roles in organization i, and 0 otherwise. Let lead_i indicate whether women are recorded in leadership positions, wwing_i indicate whether the organization has a women's wing, and coalition_i indicate whether it is part of a broader coalition or front. I estimate a logistic regression model in which Y_i is the outcome, lead_i is the main predictor, and wwing_i and coalition_i are controls. The primary estimand of interest is the conditional association between women's leadership and women's logistical participation, summarized by the coefficient on lead_i and the change in the predicted probability of $Y_i = 1$ when lead_i changes from 0 to 1, holding the other variables fixed.

1.3 Results paragraph

Based on the modeling methods described above, the analysis results show a significant positive correlation between female leadership and female logistical participation. In the original data, rebel organizations with female leaders were approximately four times more likely to have women documented as participating in logistical work compared to organizations without female leaders. Even after controlling for alliance affiliation and the presence of female personnel, this positive correlation remained large and statistically significant in the logistic regression model. In other words, even with roughly similar organizational structures, rebel organizations with female leaders are more likely to involve women in logistical work.

1.4 Why it matters paragraph These findings are important for several reasons.

First, they suggest that women's entry into leadership positions may be related to gender roles within insurgent organizations, particularly in logistical and support roles. This provides new evidence for discussions on how gender shapes insurgent governance, mobilization, and internal organizational structures. Second, this paper demonstrates how to conduct statistical analysis of systematic correlations within limitations. More generally, research on the positions and modes of women's participation within armed groups can contribute to further theories of gender and conflict.

1.5 Telegraphing paragraph:

The remainder of this paper is structured as follows. Section 2 describes the WAAR dataset, the key variables used in the analysis, and the construction of the analytical sample. Section 3 presents the logistic regression model and discusses estimation and its interpretation. Section 4 shows the main results. Section 5 concludes with a discussion of implications, limitations, and directions for future research.

2 Data

2.1 Overview

We use the statistical programming language R (R Core Team 2023)…. Our data (Toronto Shelter & Support Services 2024)…. Following Alexander (2023), we consider…

Overview text

2.2 Measurement

Some paragraphs about how we go from a phenomena in the world to an entry in the dataset.

2.3 Outcome variables

Add graphs, tables and text. Use sub-sub-headings for each outcome variable or update the subheading to be singular.

Some of our data is of penguins (Figure 1), from Horst, Hill, and Gorman (2020).

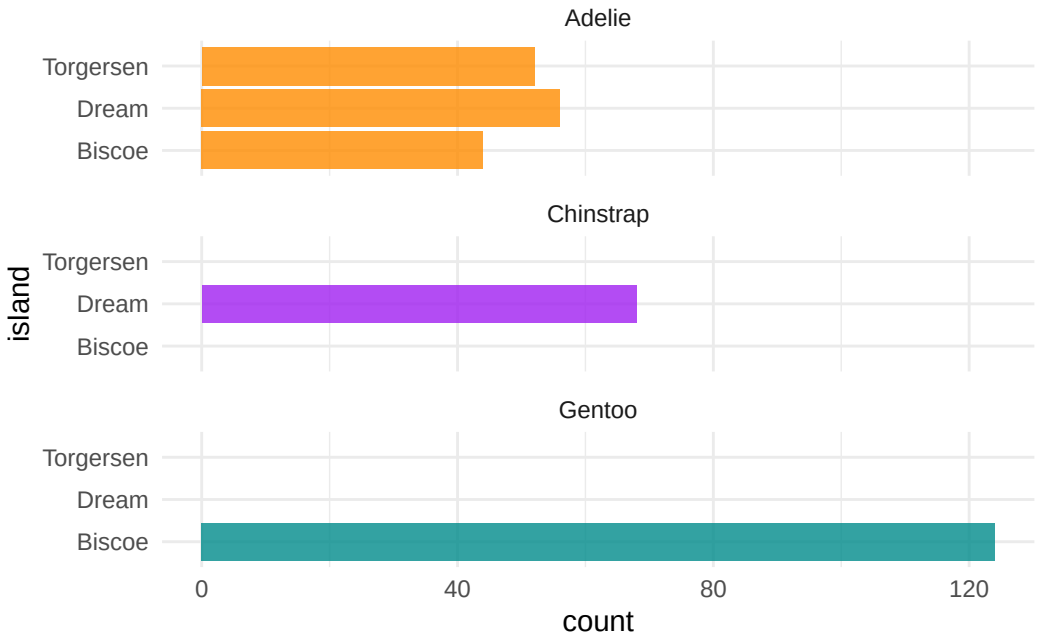

Figure 1: Bills of penguins

Talk more about it.

And also planes (Figure 2). (You can change the height and width, but don't worry about doing that until you have finished every other aspect of the paper - Quarto will try to make it look nice and the defaults usually work well once you have enough text.)

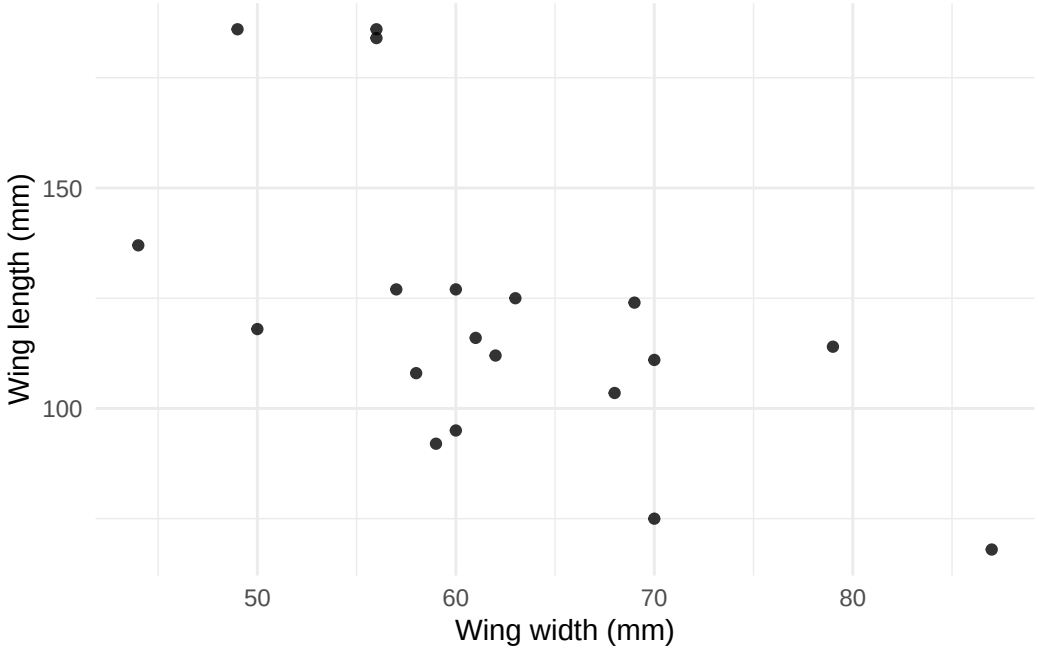

Figure 2: Relationship between wing length and width

Talk way more about it.

2.4 Predictor variables

Add graphs, tables and text.

Use sub-sub-headings for each outcome variable and feel free to combine a few into one if they go together naturally.

2.5 Model

The goal of our modelling strategy is twofold. Firstly,...

Here we briefly describe the Bayesian analysis model used to investigate... Background details and diagnostics are included in Appendix B.

2.6 Model set-up

Define y_i as the number of seconds that the plane remained aloft. Then β_i is the wing width and γ_i is the wing length, both measured in millimeters.

$$y_i|\mu_i, \sigma \sim \text{Normal}(\mu_i, \sigma) \tag{1}$$
$$\mu_i = \alpha + \beta_i + \gamma_i \tag{2}$$
$$\alpha \sim \text{Normal}(0, 2.5) \tag{3}$$
$$\beta \sim \text{Normal}(0, 2.5) \tag{4}$$
$$\gamma \sim \text{Normal}(0, 2.5) \tag{5}$$
$$\sigma \sim \text{Exponential}(1) \tag{6}$$

We run the model in R (R Core Team 2023) using the `rstanarm` package of Goodrich et al. (2022). We use the default priors from `rstanarm`.

2.6.1 Model justification

We expect a positive relationship between the size of the wings and time spent aloft. In particular...

We can use maths by including latex between dollar signs, for instance θ.

2.7 Results

Our results are summarized in **?@tbl-modelresults**.

2.8 Discussion

2.9 First discussion point

If my paper were 10 pages, then should be be at least 2.5 pages. The discussion is a chance to show off what you know and what you learnt from all this.

2.10 Second discussion point

Please don't use these as sub-heading labels - change them to be what your point actually is.

2.11 Third discussion point

2.12 Weaknesses and next steps

Weaknesses and next steps should also be included.

.1 Appendix

A Additional data details

B Model details

B.1 Posterior predictive check

In **?@fig-ppcheckandposteriorvsprior-1** we implement a posterior predictive check. This shows…

In **?@fig-ppcheckandposteriorvsprior-2** we compare the posterior with the prior. This shows…

B.2 Diagnostics

?@fig-stanareyouokay-1 is a trace plot. It shows… This suggests…

?@fig-stanareyouokay-2 is a Rhat plot. It shows… This suggests…

References

Alexander, Rohan. 2023. *Telling Stories with Data*. Chapman; Hall/CRC. https://tellingstorieswithdata.com/.

Goodrich, Ben, Jonah Gabry, Imad Ali, and Sam Brilleman. 2022. "rstanarm: Bayesian applied regression modeling via Stan." https://mc-stan.org/rstanarm/.

Horst, Allison Marie, Alison Presmanes Hill, and Kristen B Gorman. 2020. *palmerpenguins: Palmer Archipelago (Antarctica) penguin data*. https://doi.org/10.5281/zenodo.3960218.

R Core Team. 2023. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Toronto Shelter & Support Services. 2024. *Deaths of Shelter Residents*. https://open.toronto.ca/dataset/deaths-of-shelter-residents/.