PLSC 502 – Fall 2024

Introduction + How To Read Tables And Figures

August 26, 2024

Welcome!

- First (required) course in statistics and data analysis
- Meets Monday mornings from 9:00-12:00 ET in the Willard Building, Room 069
- Texts: Agresti (2017) [or Agresti & Finlay (2008)] (plus many articles; see the syllabus)
- All course materials: `https://github.com/PrisonRodeo/PLSC502-2024-git`
- Methods Preceptor: Morrgan Herlihy
- Software: R...
- Grading: Ten numbered homework assignments (@ 50 points), plus a final project (500 points), plus three "lettered" assignments (ungraded, but required)
- Contact me: `zorn@psu.edu`, or `@prisonrodeo`, or text (803) 553-4077

What are we about?

Basically, "introductory statistics"...

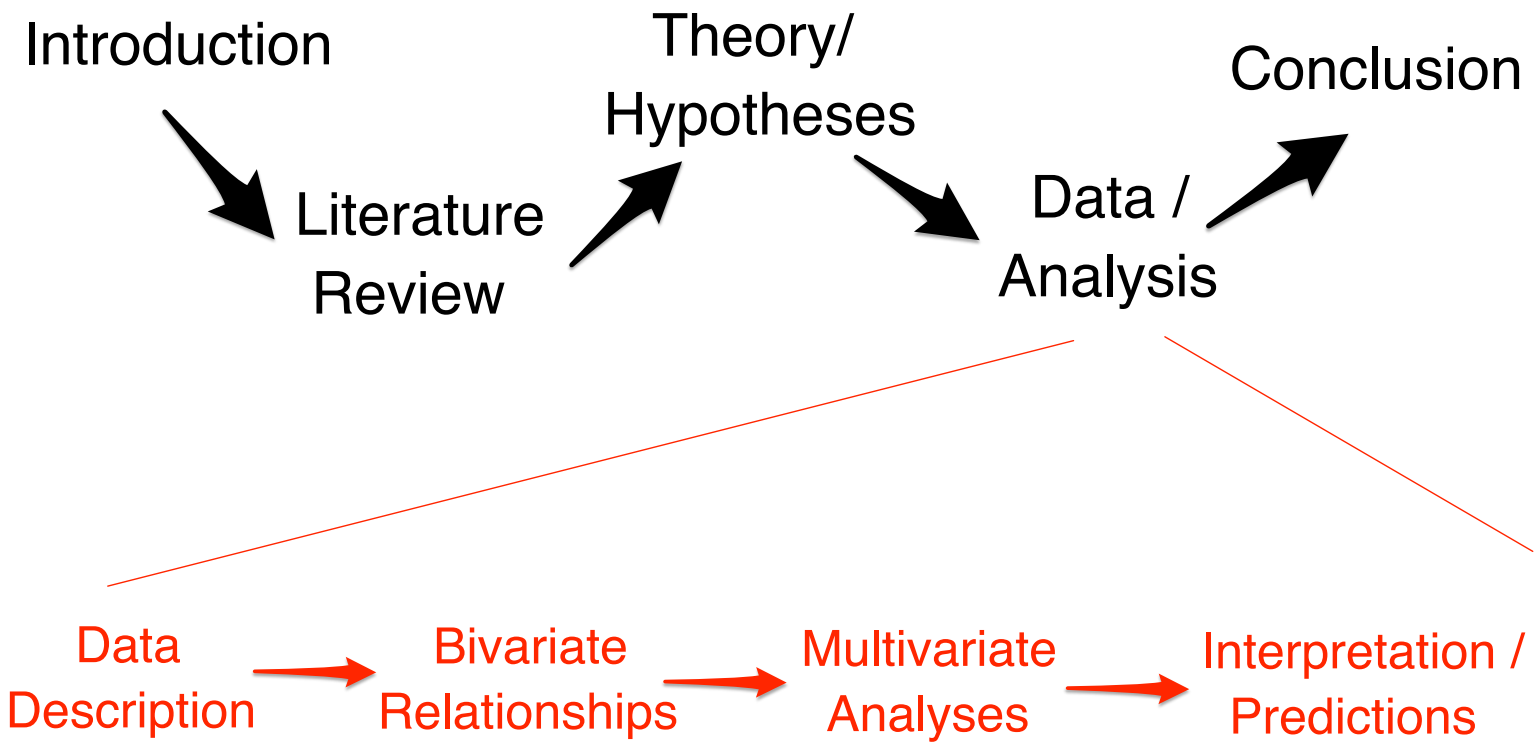
- Three general things:
  1. Data Management and Analysis
  2. Graphical Methods / Visualization
  3. Univariate / Bivariate / (Basic) Multivariate Statistics
- Topics...

About me...

About you...

How To Read Tables And Figures

Article Anatomy



Three key characteristics:

- **Content**. What is the author presenting with the table? Data? Coefficient estimates? A Model? Predictions?
- **Organization**. Columns and rows, of course, but always keep in mind what each one is.
- **Role**. What point does the table make? How does it fit into the larger argument or set of arguments that the author is trying to make?

Three Types of Tables

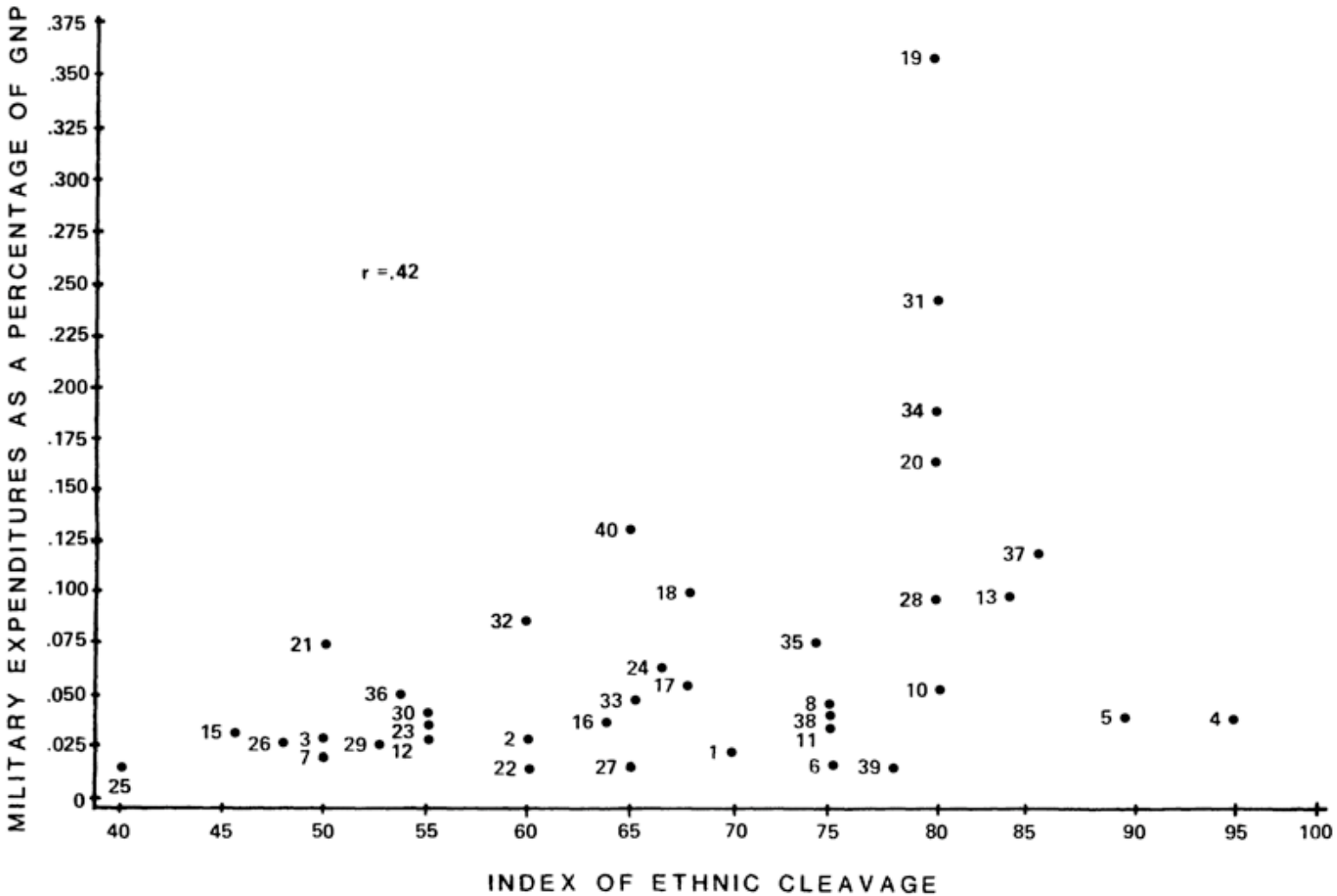
- Tables of Data
- Tables of Coefficient Estimates
- Tables of Predictions

Figures

- **Content**. Again: Data? A Model? Predictions? Coefficient estimates? Equilibria (as in game theory)?
- **Organization/Type**. This can take on a bunch of different forms, all of which we'll start discussing a bit later.
- **Role**. As with tables: What point does the figure make? How does it fit into the larger argument or set of arguments that the author is trying to make?

Rosh (1987) Scatterplot

Fig. 1. Plot of military burden and index of ethnic cleavage



Rosh (1987) Table 1

Table I. Country Scores

	Index of Ethnic Cleavage	Index of Economic Dependence	Index of Geographic Instability	Military Burden
1. Afghanistan	70	.02	8	.019
2. Algeria	60	.16	4	.022
3. Bolivia	50	.03	3	.025
4. Burma	95	.03	7	.035
5. Burundi	90	.27	4	.037
6. Cameroon	75	.05	4	.019
7. Canada	50	.05	1	.018
8. Chad	75	.05	4	.044
9. China	74	.05	7	.072
10. Congo	80	.08	4	.051
11. Czechoslovakia	75	.02	5	.030
12. Ecuador	55	.11	6	.022
13. Ethiopia	84	.02	4	.100
14. France	58	.008	5	.039
15. India	46	.006	7	.033
16. Indonesia	64	.17	7	.039
17. Iran	68	.11	9	.056
18. Iraq	68	.03	9	.097
19. Israel	80	.02	9	.353
20. Jordan	80	.02	9	.165
21. Morocco	50	.03	4	.070
22. Nepal	60	.09	7	.009
23. Nigeria	55	.04	4	.033
24. Pakistan	67	.02	7	.060
25. Papua New Guinea	40	.11	2	.015
26. Phillipines	48	.04	7	.024
27. Sierre Leone	65	.16	4	.014
28. South Africa	80	.04	4	.100
29. Spain	53	.008	5	.024
30. Sudan	55	.04	4	.033
31. Syria	80	.06	9	.242
32. Taiwan	60	.03	7	.088
33. Turkey	65	.01	8	.046
34. Uganda	80	.08	4	.185
35. USSR	72	.01	8	.107
36. UK	54	.005	5	.050
37. Vietnam	85	.06	7	.118
38. Yugoslavia	75	.006	5	.040
39. Zaire	78	.09	4	.015
40. Zimbabwe	65	.07	4	.129

Rosh (1987) Table 2

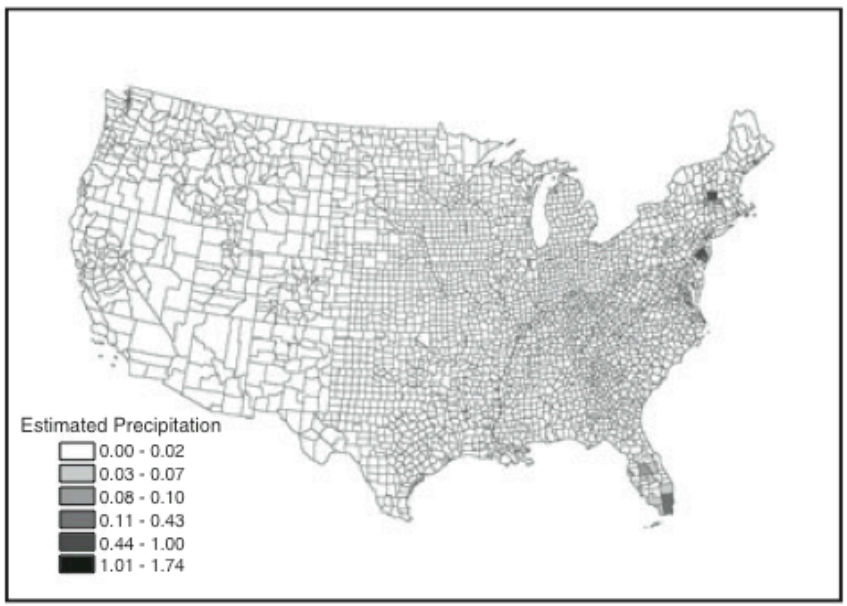
Table II. Results Of The OLS Model[a]

	Standardized Estimate	Unstandardized Estimate	Standard Error	Level of Significance
Intercept		−.10	.05	.04
Ethnic cleavage index	.32	.0016	.0007	.03
Geographic neighborhood index	.39	.012	.004	.01
Trade dependency index	−.16	−.000017	−.000015	.25

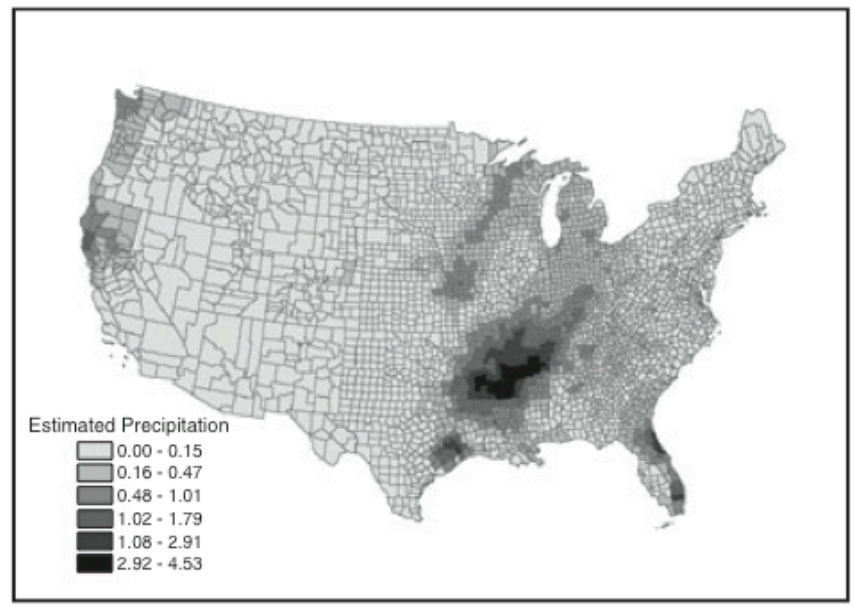
[a] The F Value for the model is 6.7. The coefficient of determination is .36

Gomez, Hansford, and Krause (2007) Figure 1

FIGURE 1 Maps of Election Days with Minimum and Maximum Rainfall



Minimum Rainfall – November 2, 1976



Maximum Rainfall – November 7, 1972

Gomez, Hansford, and Krause (2007) Table 1

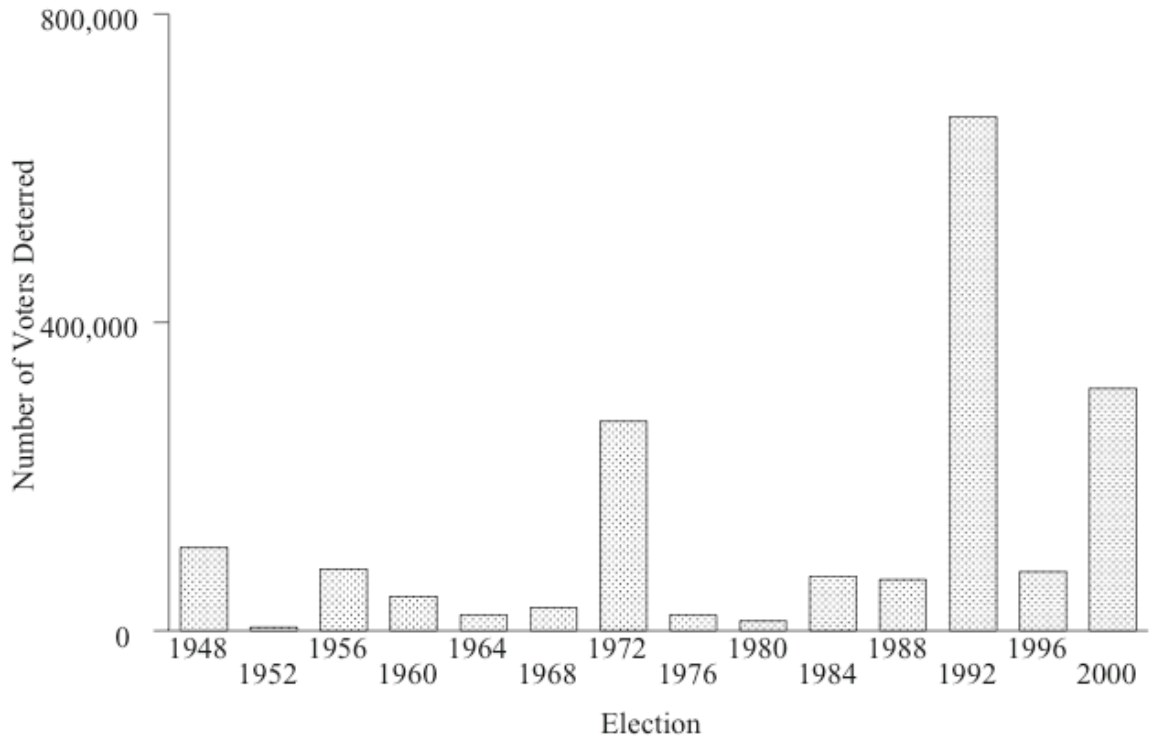
TABLE 1 Maximum-Likelihood Random Effects Model of County-Level Voter Turnout in U.S. Presidential Elections, 1948–2000

Independent Variable	Model 1 Coefficient Estimate (Standard Error)	Model 2 Coefficient Estimate (Standard Error)
Election Day Rain	−.833*	—
	(.107)	
Election Day Snow	−.152	—
	(.092)	
(Election Day Rain – Normal Rain)	—	−.885*
		(.109)
(Election Day Snow – Normal Snow)	—	−.452*
		(.093)
% High School Graduates	.536*	.553*
	(.045)	(.045)
Income	.234*	.222*
	(.092)	(.092)
% African American	−.029*	−.029*
	(.003)	(.003)
Rural	21.389*	21.938*
	(.917)	(.920)
Registration Closing Date	−.031*	−.032*
	(.001)	(.001)
Motor Voter	.037	.023
	(.111)	(.111)
Property Requirement	−3.093*	−3.095*
	(.318)	(.318)
Literacy Test	−.168	−.173
	(.107)	(.107)
Poll Tax	−6.085*	−6.116*
	(.154)	(.153)
Gubernatorial Election	−.083	−.077
	(.066)	(.066)
Senate Election	.016	.015
	(.051)	(.051)
Turnout_{t-1}	.758*	.757*
	(.004)	(.004)
Constant	13.187*	13.126*
	(.305)	(.303)
σ_μ	1.060*	1.075*
	(.056)	(.055)
ρ	.044*	.046*
	(.005)	(.005)
Number of Observations	43,340	43,340
Log-Likelihood	−131,289	−131,274
LR Test (chi-square, 27 d.f.)	91,363*	91,360*

*$p \leq .05$ (two-tailed test). Model also includes fixed effects for election; coefficient estimates can be obtained from the authors.

Gomez, Hansford, and Krause (2007) Figure 2

FIGURE 2 Estimated Number of Potential Voters Deterred by Precipitation (Rain and Snow) on Election Day, 1948–2000



Gomez, Hansford, and Krause (2007) Table 2

TABLE 2 **Maximum-Likelihood Random Effects Model of County-Level Republican Candidate Vote Share in U.S. Presidential Elections, 1948–2000**

Independent Variable	*Conventional Model* Coefficient Estimate (Standard Error)	*Two Effects Model* Coefficient Estimate (Standard Error)
(Election Day Rain – Normal Rain)	2.43*	−.797
	(.192)	(.613)
(Election Day Snow – Normal Snow)	.624*	.471
	(.163)	(.829)
(Election Day Rain – Normal Rain) × Previous Republican Vote Share	—	.075*
		(.014)
(Election Day Snow – Normal Snow) × Previous Republican Vote Share	—	.002
		(.015)
Moving Average of Previous Republican Vote Share in Three Previous Elections	.734*	.736*
	(.004)	(.004)
Constant	10.989*	10.973*
	(.223)	(.222)
σ_μ	1.582*	1.567*
	(.075)	(.075)
ρ	.032*	.031*
	(.003)	(.003)
Number of Observations	43,294	43,294
Log-Likelihood	−155,668	−155,652
LR Test (chi-square, 16 and 18 d.f., respectively)	47,807*	47,861*

*$p \leq .05$ (two-tailed test). Model also includes fixed effects for election; coefficient estimates can be obtained from the authors.

Other Things You Might Encounter

Tables:

- Conceptual Tables
- Tables of Predictions
- Tabular Summaries of Simulations

Figures:

- Conceptual Figures
- Scatterplot Matrices
- Coefficient Plots (e.g., from regression analyses)
- Marginal Effects Plots / Predicted Value Plots
- Simulation Plots (convergence, etc.)
- Many, many others...