

# Considering Categorical Data

Mini-Assignment - MTH 361 A/B - Spring 2023

## Instructions:

- Please provide complete solutions for each problem. If it involves mathematical computations, explanations, or analysis, please provide your reasoning or detailed solutions.
- Note that some problems have multiple solutions or ways to solve it. Make sure that your solutions are clear enough to showcase your work and understanding of the material.
- Creativity and collaborations are encouraged. Use all of the resources you have and what you need to complete the mini-assignment. Each student must take personal responsibility and submit their work individually. Please abide by the University of Portland Academic Honor Principle.
- **Please save your work as one pdf file, don't put your name in any part of the document, and submit it to the Teams Assignments for this course. Your document upload will correspond to your name automatically in Teams.**
- If you have questions or concerns, please feel free to ask the instructor.

## I. Exploring Categorical Data

### Materials

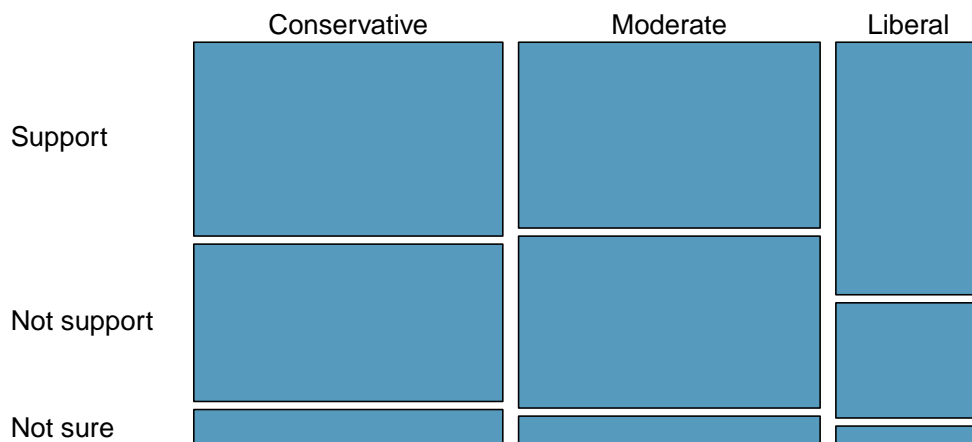
The exercises below are derived from the textbook [OpenIntro Statistics \(4th edition\)](#) by David Diez, Mine Cetinkaya-Rundel, and Christopher Barr.

### Exercises

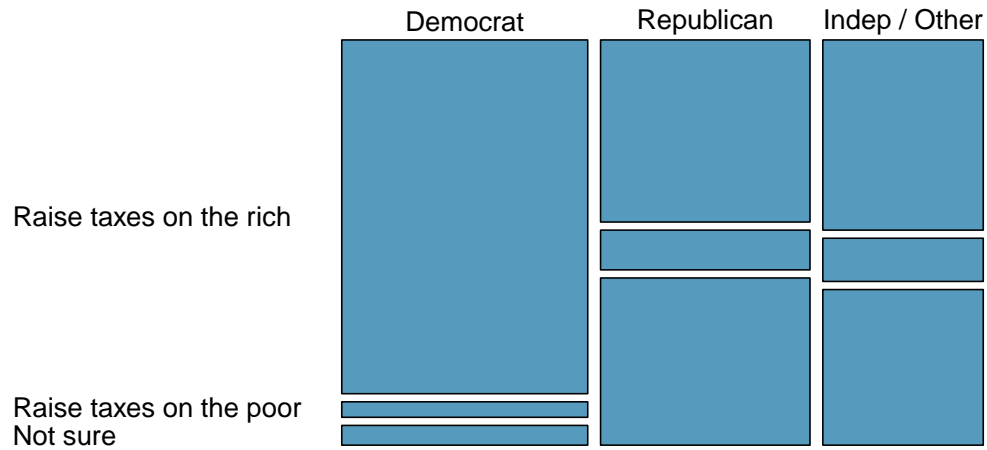
1. **Views on immigration.** 910 randomly sampled registered voters from Tampa, FL were asked if they thought workers who have illegally entered the US should be (i) allowed to keep their jobs and apply for US citizenship, (ii) allowed to keep their jobs as temporary guest workers but not allowed to apply for US citizenship, or (iii) lose their jobs and have to leave the country. The results of the survey by political ideology are shown below. (*SurveyUSA, News Poll #18927, n.d.*)

	Political ideology			Total
	Conservative	Moderate	Liberal	
(i) Apply for citizenship	57	120	101	278
(ii) Guest worker	121	113	28	262
(iii) Leave the country	179	126	45	350
(iv) Not sure	15	4	1	20
Total	372	363	175	910

- a. What percent of these Tampa, FL voters identify themselves as conservatives?
  - b. What percent of these Tampa, FL voters are in favor of the citizenship option?
  - c. What percent of these Tampa, FL voters identify themselves as conservatives and are in favor of the citizenship option?
  - d. What percent of these Tampa, FL voters who identify themselves as conservatives are also in favor of the citizenship option? What percent of moderates share this view? What percent of liberals share this view?
  - e. Do political ideology and views on immigration appear to be independent? Explain your reasoning.
2. **Views on the DREAM Act.** A random sample of registered voters from Tampa, FL were asked if they support the DREAM Act, a proposed law which would provide a path to citizenship for people brought illegally to the US as children. The survey also collected information on the political ideology of the respondents. Based on the mosaic plot shown below, do views on the DREAM Act and political ideology appear to be independent? Explain your reasoning. (*SurveyUSA, News Poll #18927, n.d.*)



3. (Outstanding Question) **Raise taxes.** A random sample of registered voters nationally were asked whether they think it's better to raise taxes on the rich or raise taxes on the poor. The survey also collected information on the political party affiliation of the respondents. Based on the mosaic plot shown below, do views on raising taxes and political affiliation appear to be independent? Explain your reasoning. ("Public Policy Polling," n.d.)



**References**

Public policy polling. (n.d.). In *Americans on College Degrees, Classic Literature, the Seasons, and More*. data collected Feb 20-22, 2015.

*SurveyUSA, news poll #18927*. (n.d.). data collected Jan 27-29, 2012.