

8.4 Did Support for Trump Priorities Vary by Party?

Name:

A poll done by [NPR/PBS NewsHour/Marist Poll](#) surveyed 1,387 adults in the US to ask them about how they felt about his “unprecedented and powerful mandate” to go through with some bold policy initiatives.

Respondents were also asked various demographic questions, including if they were a democrat, republican or independent. You can read more about the poll [here](#).

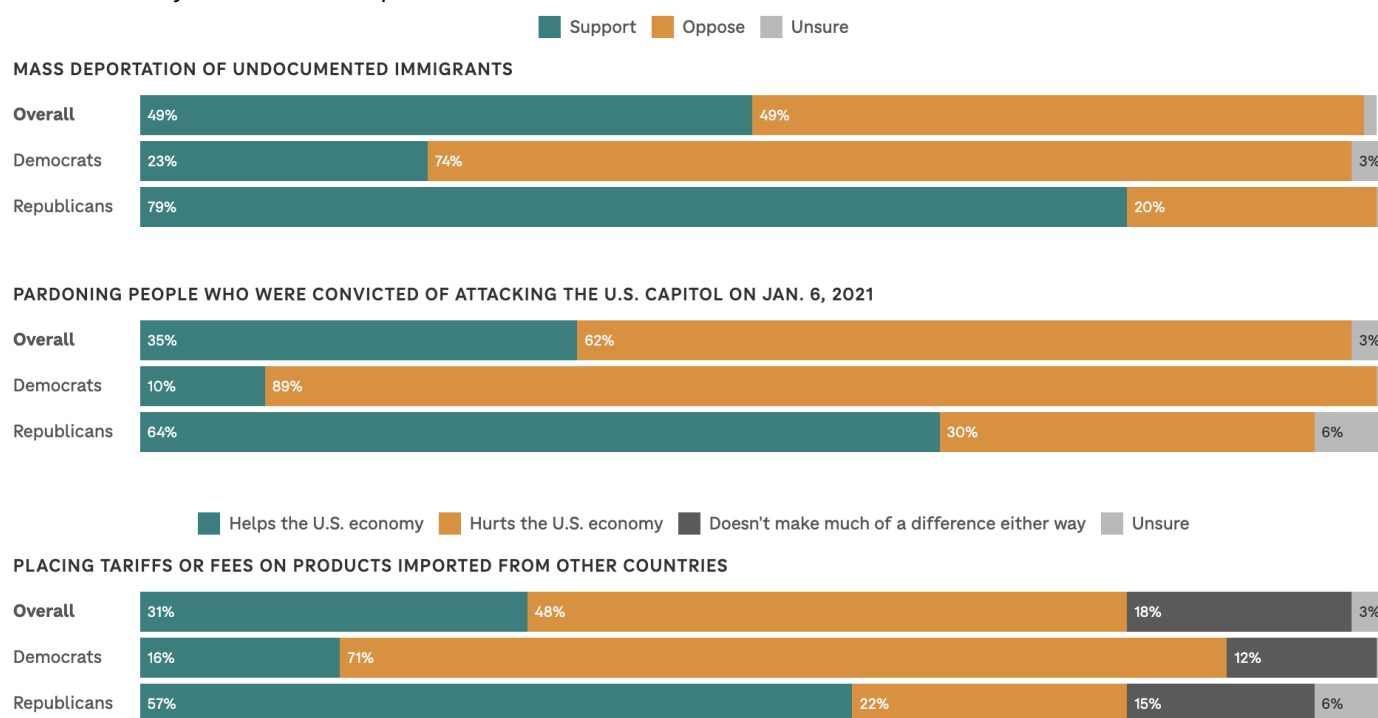
They found some results that seemed abnormal if there was **no association between which party a person identified with and their approval rating of Donald Trump’ actions for the following:**

- Group 1: Mass deportation of undocumented immigrants
 - Group 2: Pardoning people who were convicted of attacking the U.S. Capitol
 - Group 3: Placing tariffs or fees on products imported from other countries
1. If you were going to test to see if approval for your group’s assigned question was independent of party affiliation, what would your hypotheses be? Write them in plain old English.

H_o :

H_a :

Here are graphs showing the relationship between party affiliation and how people in various parties said they felt about Trump’s initiatives:



2. Does there appear to be an association between party affiliation and how someone will remember Trump? If so, describe it.

8.4 χ^2 Test of Independence

Breakdown

- There were 1,387 people that took the survey.
- The partisan breakdown for this survey among registered voters is **35% Democrat, 33% Republican**.

Mass Deportation

		National Adults		
		How much do you support or oppose the mass deportation of undocumented immigrants:		
		Strongly support/Support	Oppose/Strongly oppose	Unsure
		Row %	Row %	Row %
National Adults		49%	49%	1%
National Registered Voters		50%	48%	2%
Party Identification	Democrat	23%	74%	3%
	Republican	79%	20%	1%

Pardoning Rioters

		National Adults		
		Would you approve or disapprove of Donald Trump pardoning people who were convicted of attacking the U.S. Capitol on January 6th, 2021?		
		Approve	Disapprove	Vol: Unsure
		Row %	Row %	Row %
National Adults		35%	62%	3%
National Registered Voters		36%	61%	3%
Party Identification	Democrat	10%	89%	1%
	Republican	64%	30%	6%

Tariffs and Fees

		National Adults			
		In general, do you think placing tariffs or fees on products imported from other countries:			
		Helps the U.S. economy	Hurts the U.S. economy	Doesn't make much of a difference either way	Vol: Unsure
		Row %	Row %	Row %	Row %
National Adults		31%	48%	18%	3%
National Registered Voters		33%	48%	16%	3%
Party Identification	Democrat	16%	71%	12%	1%
	Republican	57%	22%	15%	6%

8.4 χ^2 Test of Independence

Observed and Expected Counts

- Find the **observed counts** for these two categories of approval for democrats and republicans using the counts and percentages on the previous page.
- Calculate the **expected counts**. Write those in the little rectangles.

	Support	Oppose	Total
Democrat	<div></div>	<div></div>	
Republican	<div></div>	<div></div>	
Total			

χ^2 Hypothesis Test for Independence

CHOOSE

CONDITIONS

CALCULATE

CONCLUDE

8.4 χ^2 Test of Independence

Big Ideas

1. State appropriate hypotheses and compute the expected counts and chi-square test statistic for a chi-square test based on data in a two-way table.
2. State and check the Random, 10%, and Large Counts conditions for a chi-square test based on data in a two-way table.
3. Calculate the degrees of freedom and p-value for a chi-square test based on data in a two-way table.
4. Perform a chi-square test for independence.
5. Choose the appropriate chi-square test in a given setting.

8.4 χ^2 Test of Independence

Check Your Understanding

For each of the following situations decide what type of χ^2 test is appropriate. Explain.

- Shopping at secondhand stores is becoming more popular and has even attracted the attention of business schools. A study of customers' attitudes toward secondhand stores interviewed separate random samples of shoppers at two second hand stores of the same chain in different cities. The two-way table shows the breakdown of respondents by gender.

		Store		
		A	B	Total
Gender	Male	38	68	106
	Female	203	150	353
	Total	241	218	459

- The General Social Survey (GSS) asked a random sample of adults their opinion about whether astrology is very scientific, sort of scientific, or not at all scientific. Here is a two-way table of counts for people in the sample who had three levels of higher education:

		Degree held			
		Associate's	Bachelor's	Master's	Total
Opinion about astrology	Not at all scientific	169	256	114	539
	Very or sort of scientific	65	65	18	148
	Total	234	321	132	687

- Casinos are required to verify that their games operate as advertised. American roulette wheels have 38 slots—18 red, 18 black, and 2 green. In one casino, managers record data from a random sample of 200 spins of one of their American roulette wheels. The table displays the results.

Color	Red	Black	Green
Count	85	99	16

8.4 χ^2 Test of Independence

4. For a class project, Abby and Mia wanted to know if the gender of an interviewer could affect the responses to a survey question. The subjects in their experiment were 100 males from their school. Half of the males were randomly assigned to be asked, “Would you vote for a female president?” by a female interviewer. The other half of the males were asked the same question by a male interviewer. The table shows the results.

Response to question	Gender of interviewer			
		Male	Female	Total
	Yes	30	39	69
	No	8	3	11
	Maybe	12	8	20
	Total	50	50	100

- State the appropriate null and alternative hypotheses.
- Show the calculation for the expected count in the Male/Yes cell. Then provide a complete table of expected counts.
- Calculate the value of the chi-square test statistic.