# Community Mapping Assignment 2 – Joining Tables

# Abortion Patterns in the USA, 2014

- by Shweta Chopra

Abortion remains a contentious political and policy question in the United States, even today. As per a Gallup Survey in 2018, the percentages of the US Population that were 'pro-choice' (for decriminalized abortion) or pro-life (for criminalization of abortion) were equal (at 48%), but more people considered abortion morally wrong (48%) than morally acceptable (43%). These divergent views are seen to have some correlation with party leanings, with the Republican Party leaning towards a more 'pro-life' stance, and the Democratic Party leaning towards a 'pro-choice' stance. Though abortion has been legalized across all states in the US, the time-frame within which women may avail of an abortion once pregnant, varies across states, and the availability of abortion services and clinics varies drastically as well, across the country. This leads to several women being cut off from access to abortion services within a safe time frame. The effects are faced disproportionately by women from marginalized communities.

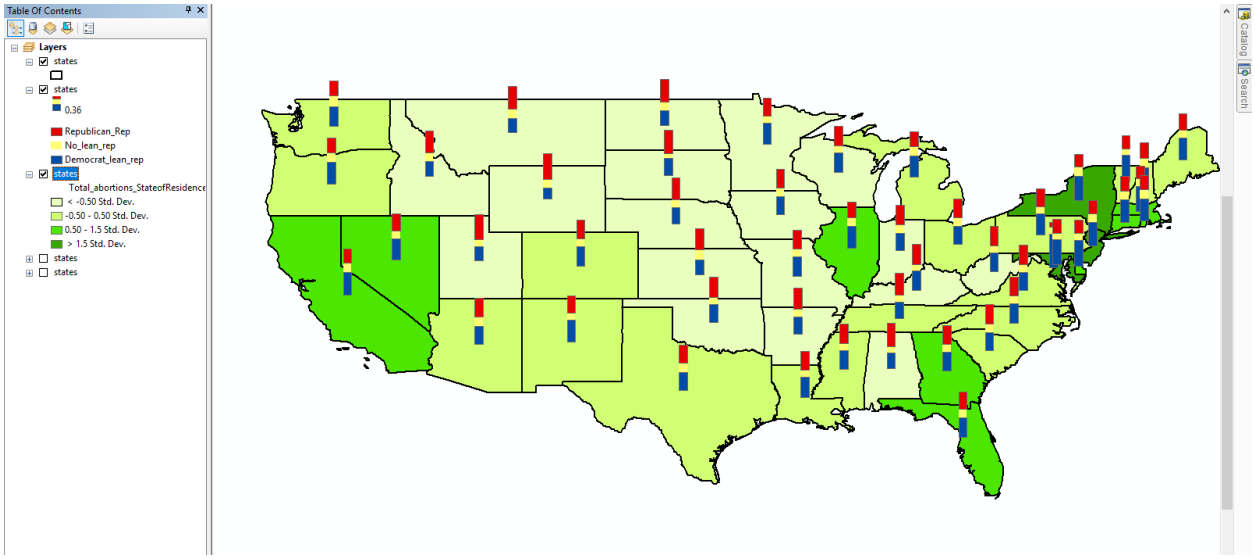
This assignment attempts to explore spatial patterns associated with Abortions in the United States, to tell this story through compelling visuals. The focus will be on the mainland US States, and so though data on Alaska and Hawaii are available, they will not be depicted.

## Data

The data for the below maps comes from several sources that have been merged together. All the data used for visualization in the maps, is for the year 2014. The shape file for the States plus the District of Columbia has been sourced from Esri Data & Maps for ArcGIS 10. The data on Abortions provides statistics on the availability of abortion services, and counts of abortions for each state in the year 2014. This data has been sourced from the Guttmacher Institute's Data Center. The Guttmacher Institute is a research and policy organization that focuses on sexual and reproductive health and rights in the United States. Population Demographic data for the different states has been collected from the American Fact Finder that leverages US Census Data. And finally, data on the political party leanings of representatives in each state has been sourced from the Pew Research Center's Religious Landscape Study that outlines party leanings by state. All these different sources of data were joined using ArcGIS, on the column that identified the US States.

## Maps

### *I. Total Abortions as a Proportion of the Female Population versus Political Party Leanings*




This map begins our enquiry into spatial patterns of abortion in the United States.

In the underlying layer, the map depicts the total number of abortions in a state in 2014, as compared to the total female population in a state in 2014 using graduated color (Green) and Standard Deviation based classification. Thus, the map visualizes the rate of abortions in each state, with the colors revealing the distance of each state from the average rate of abortion across all states. Rates were depicted instead of counts, to neutralize the effects of different population sizes on the total number of abortions in each state. The states colored in lighter greens have fewer abortions as a proportion of the female population, while those in darker shades witness a larger number of abortions as a proportion of the female population. The colors have been chosen to highlight the differences between states. Through this map, we can see that the Midwest and its western neighboring states are characterized by a low rate of abortion, while states on the east and west coast witness a greater rate.

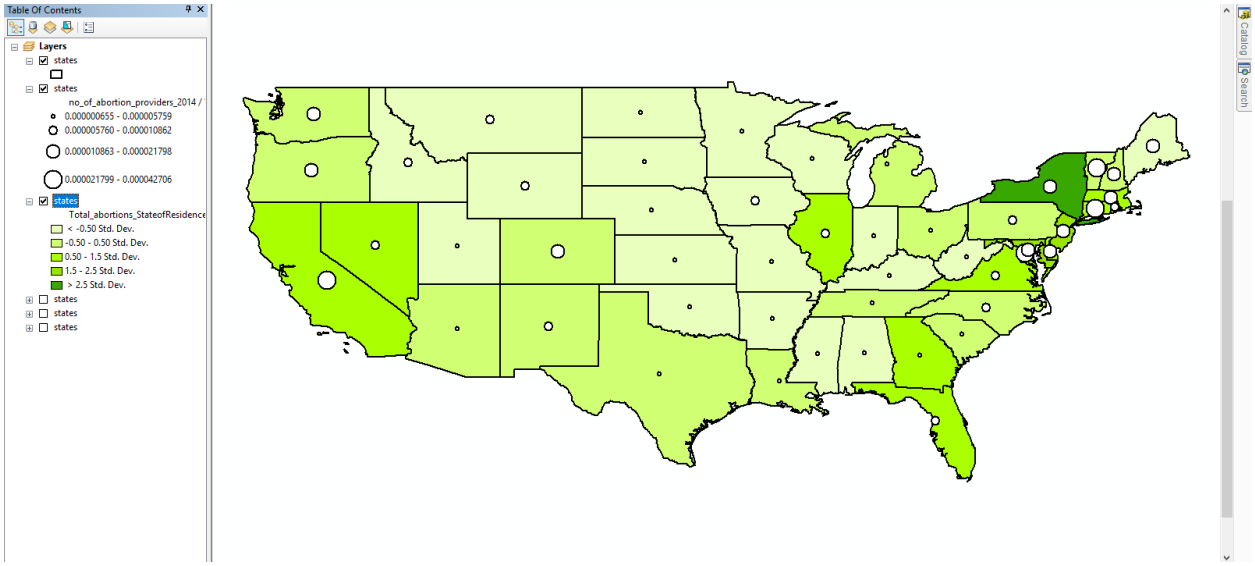
The map juxtaposes a layer to visualize the political leanings of each state depicted through stacked bar charts. The data on political leanings consists of the percentage of Republican, Democratic and Neutral leaning political representatives in the state, which has been depicted through the red, blue and yellow segments of the stacked bar charts. These allow us to spot which states lean more towards the Democratic party, and which lean more towards the Republican party. The colors for the bars have been chosen to continue with the red and blue norm commonly used to depict the Republican and Democratic parties, respectively.

The map reveals an interesting spatial pattern. States with greater Republican leaning (larger red segment of the bar) witness a lower number of abortions as a proportion of the female population, as compared to states with greater Democratic leaning (larger blue segment). Thus, in terms of abortion

rates, Democratic leaning states like California, Nevada, New York and New Jersey are in sharp contrast to Republican leaning states like Montana, Wyoming and North and South Dakota.

Since the map depicts the rate of abortion, it already takes female population differences across states, into account. It is worthy of further investigation to understand why different states may witness different rates of abortion, and what role politics may play.

## *II. Count of Abortion Providers versus Total Abortions, as proportions of the Total Female Population*



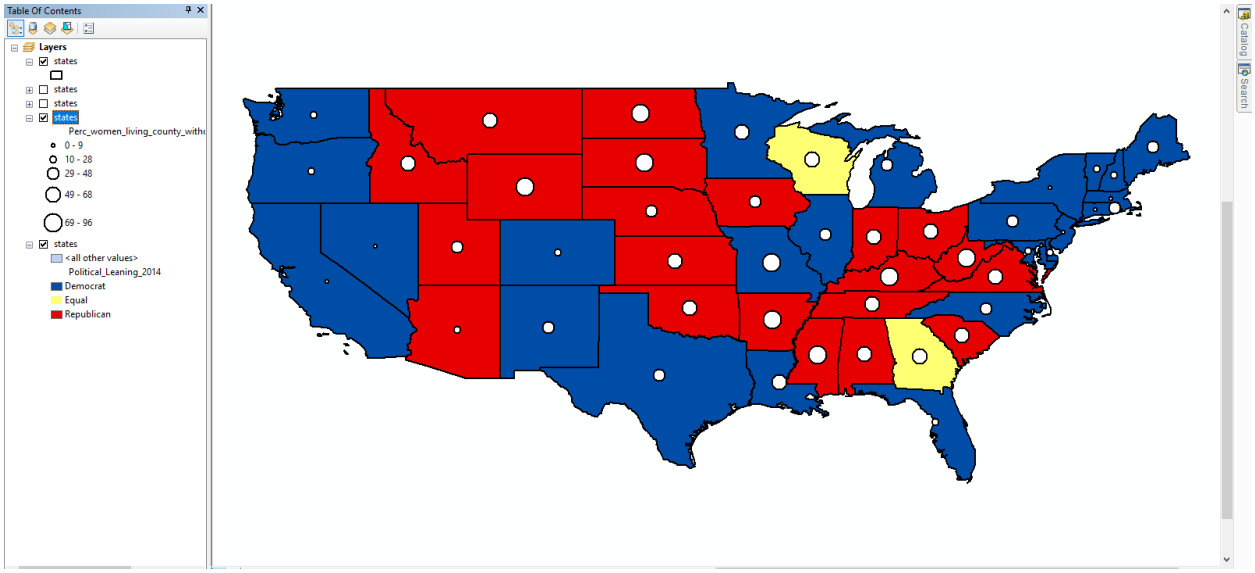

This map delves deeper into the question of why there is a disparity between states, in terms of the number of abortions as a proportion of the total female population. The underlying layer of this map is similar to the first, depicting the total number of abortions in a state in 2014, as compared to the total female population in a state in 2014 using graduated color (Green) and Standard Deviation based classification.

Upon this layer, we add a layer depicting the count of adoption providers in a state in 2014, as compared to the total female population, shown using graduated symbols (white circles) and natural breaks-based classification. Natural breaks have been used to compensate for the skewed nature of the data.

The spatial pattern reveals that indeed there seems to exist some correlation between the rate of abortion in a state, and the availability of abortion services via providers. States on the east and west coast which witness a greater proportion of abortions, also experience a relatively greater proportion of abortion providers. The pattern, however, is not perfect with some states witnessing a higher rate of abortion, having very low availability of providers. The statistical fallacy that correlation does not imply causation, is important to keep in mind here. The spatial pattern does not tell us that differential access to abortion services causes differential abortion rates across states. However, the pattern does provide food for thought, and an area for further investigation.

Examining the numbers on the availability of abortion services, we see that there are several states like Mississippi, Kentucky, Wyoming, North Dakota and South Dakota that have 3 or less abortion providers across the whole state. That translates to 1 provider for hundreds of thousands of women in these states, and is why our rates are running into several decimals on the map. In an economically advanced country like the United States, differential and severely limited access to a health service like abortion, is worrying. It would be useful to delve deeper within state boundaries to understand this spatial pattern at the county or neighborhood level. It is likely that race/ethnicity and income patterns may provide further insight on the communities affected by this scarcity of service.

### *III. Percentage of Women Living in Counties without any Abortion Provider versus Political Party Leaning of States*




Our last map investigates whether availability of abortion services has any relationship with the political party leaning of states.

Here, the underlying layer depicts the predominant political party leaning in a state, depending on the percentage of representatives that have Republican, Democratic or no leaning. In cases where the percentage of Republican and Democratic leaning representatives is equal, the state has been characterized as 'Equal' in terms of leaning. Since this is categorical data, these three unique values have been mapped with the traditional red and blue colors for the Republican and Democratic party, respectively, and yellow for equal leaning states.

The other layer depicted in this map visualizes the percentage of women in each state, who live in counties that have no abortion provider. This has been depicted using graduated symbols (white circles) and Equal Interval classification, using 5 classes. The equal intervals help with clearly discerning the distinction between states. It is important to note that in some states the percentage of women without access to an abortion provider falls in the range of 69-96% which is a very high proportion.

Together these layers reveal that there does seem to be some relationship between a state's political leaning, and the access to abortion providers that it provides. Republican leaning states have a higher percentage of women without access to abortion providers in the counties where they reside. We know that, on average, the Republican party sides with the 'pro-life' movement while the Democratic party sides with the 'pro-choice' movement. It is possible that these ideological sides translate into the decisions taken by politicians, on the provision of abortion services. As a political narrative this could be a powerful visual to communicate that the decision on whom to vote for is critical and directly influences the lives of people.

## Conclusion

The maps discussed above provide a primitive exploration of abortion data in the United States, and juxtapose that with political leanings across states. Though they do not reveal any causal relationships, they do seem to suggest that political leanings and thus ideologies regarding abortion, have some relationship with access to abortion services. Further, it is also seen that where abortion services are scarce, the rates of abortions taking place are much lower. While 'pro-life' supporters may view this as a success of their movement to limit access to abortion, that also means that some women in the United States are faced with unequal to no access to this service.

This inquiry, however, is limited. The data on abortion rates by race, as collected from the Guttmacher Institute, was incomplete and thus could not be investigated. More importantly, an inquiry that is limited to the State level averages out patterns and trends at the county or neighborhood level, reducing the insights that can be mined. Considering the nature of community segregation in the United States, it is likely that patterns related to income, race and ethnicity would be found in an inquiry that goes deeper, beyond the state level. That would provide another dimension to this conversation, by exploring who is really impacted by the current state of abortion services in the United States.

Another measure of access to abortion that could be used in this analysis, would be - distance to an abortion provider. Given several states have a total number of providers in single digits, distance would provide a more relate-able measure for individuals to understand how difficult it is for women to avail of this health service. Mapping state laws against abortion rates and provision may also be an interesting direction to take.

Thus, there is potential for this inquiry to be extended in several ways. With more data becoming available regarding abortion patterns in the US, maps can be used to add a visually compelling dimension to this conversation.