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MEDIA FRAMING AND PUBLIC OPINION EFFECTS IN THE CONTEXT OF
MEDICAL MARIJUANA LEGALIZATION

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ABSTRACT

This study examines the impact of media framing on public opinion about the issue of medical marijuana legalization. A case study of the legalization process in two states, this thesis depicts correlations between various types of frames and their respective effects on the level of support for legalization, measured through public polling results. While it is known that the media can be highly effective at influencing the public's political attitudes, the salience of different frames, especially in the issue of medical marijuana legalization, has not previously been studied. This study determines correlations between the utilization of pro-legalization frames and increasing support for legalization, although the effectiveness of frames varies by level utilized and by state.

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Chapter 1

Background

In recent years, a significant number of states have legalized marijuana either for medicinal or recreational usage, despite it still being largely illegal at the federal level. As of December 2019, eleven states have legal marijuana for recreational usage, and 31 states have legalized medical marijuana to some degree. This trend of legalization has created both a unique federalism question and the unprecedented scenario of a medicine being legislated onto shelves, rather than through regulators such as the FDA. This thesis suspects that shifts in public opinion of medical marijuana has aided in creating this situation. Some scholars argue that the media plays a large role in shaping public opinion, and that public opinion is a substantial motivator of legislative action. Thus, this thesis will examine the frames with which medical marijuana is marketed to the public, and their respective impacts on public support for medical marijuana legalization. A frame is defined as a way of presenting a side to an argument to enhance one view and discourage the opposite view. This thesis hypothesizes that both the frequency and type of frame utilized will impact public opinion, with different frames and frequencies having unique directional impacts on public opinion. As such, this thesis will analyze state medical marijuana laws and the frames with which they were presented to the public by the media. States that have further legalized or relaxed marijuana laws after previously legalizing medical marijuana will be examined, in order to determine if shifts in public opinion lead to future broadening of marijuana legalization. One state with broadly legalized medical marijuana and one state with narrow legalization will be sampled for this study. To briefly qualify these terms, medical marijuana is

either legalized broadly or narrowly, with more availability, options for consumption, and less regulation existing with broader legalization. Data to determine the media frames utilized will be compiled from printed articles from the time of the first introduction of legislation for medical marijuana legalization to the time of its passage. Public support for medical marijuana laws will be determined through state level public polling data. Thus, this will be an empirical archival research study, and considering the limited number of data points that comes from the unit of analysis being states and years, and with the limited amount of polling available, this thesis can also be considered a case study of media framing's impact on public opinion, focusing on the issue of medical marijuana legalization.

Chapter 2

Literature Review

As medical marijuana continues to become legal in more states, the body of literature and studies on the legalization process, especially with respect to the impact of public opinion on its legalization, will continue to expand. While the current literature is sparse on this topic, there is a vast catalog of research on the effect of the media and framing on public opinion with a focus on other issues. This section assesses some of the current body of literature to help inform this thesis on previous studies about the media and public opinion, in order to glean the methods utilized and trends revealed, as well as to justify the connection between public opinion and policy and to expand general knowledge about studying the legalization process of medical marijuana.

It is first necessary to prove that the media can influence public opinion. Research dating back to the 1940s found that the public largely had strong attitudes about issues and candidates

that were not easily swayed, meaning that the media has a “minimal effect.” Modern research has also debated the existence and prevalence of the minimal effects hypothesis, as Bennett and Iyengar argued in “A New Era of Minimal Effects? The Changing Foundations of Political Communication” that increased detachment from traditional institutions such as public schools and political parties has individualized responsiveness to media messaging, meaning that the minimal effects hypothesis still holds true. And Arceneux and Johnson found in “Does Media Fragmentation Produce Mass Polarization? Selective Exposure and a New Era of Minimum Effects” that the modern fragmented media, where individuals can choose to not consume political news at all, also creates media minimum effects. However, these studies are in the minority of modern thought and research, as clearly depicted in Holbert et. al’s “Response to Bennett and Iyengar,” which states that the Elaboration Likelihood Model of persuasion (ability to change attitude based on motivation and ability of receiver to process information), refutes minimal effects, in that those who care about and relatively understand an issue can have their attitude on it changed by the media. In “What Moves Public Opinion,” Page et. al found specific media effects on public opinion in a panel study, with different news sources having different positive and negative effects. The study found that network television, whose coverage largely follows newspapers, accounts for a significant amount of the shifts in public opinion. Focusing in on a specific issue, Blidook’s “Media, Public Opinion and Health Care in Canada: How the Media Affect ‘The Way Things Are,’” determined significant shifts in public opinion about the health care system based on how it was covered in the media. The “how” of issue coverage is the focus of this thesis, specifically in terms of the persuasive arguments made by the media to change the public’s attitude on an issue, called frames.

There is a robust and heavily studied connection between media framing and public opinion. While there is some evidence, such as in Hopkins et. al's "Does Newspaper Coverage Influence or Reflect Public Perceptions of the Economy?" that how an issue is framed follows public opinion rather than leading it, but public opinion on how the economy is doing (good vs. bad) is different than a specific policy preference, like the one this thesis studies. Therefore, it is likely to be more pertinent to focus on previous studies that analyzed more specific policy areas. Baumgartner et. al's "The Decline of Death Penalty and the Discovery of Innocence" heavily informs the methods for this thesis, in that it analyzes media coverage to assess shifts in public opinion of the death penalty, and that shift's resulting effect on juries' utilization of the death penalty as punishment. The same process will be undertaken in this thesis, instead assessing the effects of public opinion shifts on the extent of medical marijuana legality. But the premise is the same, and Baumgartner et al.'s findings directly justify the studying of framing effects on other issues. In a very similar vein but focusing on women's right issues from the 1950s to 1990s, Terkildsen and Schnell's "How Media Frames Move Public Opinion: An Analysis of the Women's Movement" demonstrates that different frames can affect public opinion in different ways and provides an experimental method with which to test the salience of frames, which is important given that the salience of different frames is the crux of this thesis' argument. This is again another justification for this thesis, as opinion on a relatively niche issue was shown to be malleable to framing effects. Baumgartner and Rose's "Framing the Poor: Media Coverage and U.S. Poverty Policy, 1960-2008" is another prime justification, as it found substantial evidence that evolving framing over time, especially transitioning from positive to negative framing of an issue, can alter policy on that issue over time.

This leads to the next important connection that needs to be established by this study – the one between public opinion and policy. While it is not the primary concern of this thesis, the time intervals and media frames studied in this thesis correspond with specific policy initiatives to legalize medical marijuana, so this connection needs to be made to justify why changing public opinion matters in the first place. Lax and Phillips establish this relationship in “Gay Rights in the States: Public Opinion and Policy Responsiveness,” which found that some types of policies are highly responsive to high public support for that policy. However, Lax and Phillips also found that in some cases, when policy is more conservative than desired than even by a supermajority of the public, that policy may not be adopted. This is important to note for this thesis when examining conservative states, as it may be seen that even high levels of support for medical legalization prevent its adoption. Largely corroborating this is Caughey and Warsaw’s “Policy Preferences and Policy Change: Dynamic Responsiveness in the American States: 1934-2014,” which determined that in economic and even more in social issues (marijuana legalization can be framed as both), public opinion does predict change in policy. The study found that this is especially true in liberal states, meaning that a more progressive public that has more liberal views on issues leads to more liberal policy-making. This is again also evidence that there is less responsiveness by policy-makers to public opinion in conservative states.

The existing studies on why states adopt medical marijuana laws offers some insight into how public opinion on medical marijuana can be shaped. Mallinson and Hannah’s “Defiant Innovation: The Adoption of Medical Marijuana Laws in the American States” explores the motivations of states for legalizing medical marijuana, with the finding that political and institutional capital drives legalization more than the medical and fiscal benefits. While this thesis will address the medical and fiscal benefits as two different media frames, this paper

makes the case that factors such as trust between legislature and public push legalization. It follows that a legislature will be trusted more if it acts on high public support for issues, so when support for medical marijuana legalization is high, the legislature is likely to pass it. Bostwick's "Blurred Boundaries: The Therapeutics and Politics of Medical Marijuana" supports this assertion, explaining that public approval is largely driving the legalization of medical marijuana, and since politicians are driven by the need to keep the approval of the people. Bostwick also points out that medical marijuana is being legalized largely without the scientific community's consideration or consent that is almost always required for the approval and legalization of a new medicine, indicating that media frames that discuss the efficacy of medical marijuana are likely to be less prevalent. In terms of methodology, Bostwick employed a text analysis, which will also be conducted for this thesis and provides valuable information on how to code data.

On the other hand, the basis for an anti-legalization frame can be found in Chu's "The Effects of Medical Marijuana Laws on Illegal Marijuana Use," which uncovered that in states with legal medical marijuana, marijuana arrests increased for adult males by 15-20%, and admissions to rehabilitation facilities increased by 10-15%. Frames that depict the "gateway" effect of marijuana and its legalization are justified through this study. Building on this, Cobb and Kuklinski's "Changing Minds: Political Arguments and Political Persuasion" found that arguments against an action are more persuasive than arguments for an action. In terms of framing medical marijuana, this finding means that anti-legalization frames will likely be more impactful on public opinion than pro-legalization frames. This could mean that given an equal number of pro- and anti-legalization frames, support for legalization will decrease. In this same conceptual vein, Kim et al.'s "It's Time to Vote: The Effect of Matching Message Orientation and Temporal Frame on Political Persuasion" determined that persuasive messages, or frames,

are more successful when they use “why” based appeals further away from the decision/voting date, and “how” based appeals closer to the decision/voting date. As such, frames that focus on why medical marijuana should be legalized may be more prevalent further away from election days and/or legislative deadlines, while how legalization is going to affect people and the state may become more prevalent closer to key dates.

Chapter 3

Theory and Hypotheses

Based on the existing literature, this thesis theorizes that there is a relationship between media frames and public opinion. Specific to this analysis, the framing of medical marijuana legalization by the media in certain states, both in terms of type and frequency, has an impact on public opinion towards medical marijuana legalization. To operationalize and test this theory, this thesis first needs to establish several underpinnings of modern political thought. While results that reflect the following theories were described above, this section will focus more on the concepts behind those findings that led to the theory and hypotheses of this study. Firstly, public opinion should be considered a salient motivator of legislative action. The foundation of democracy, as elucidated by Rousseau, holds that the “general will” of the people should guide policy and action by political leaders. This is backed up by the delegate model, which states that politicians cater to voters’ desires out of fear of being voted out of office. However, many political scientists have argued against this optimistic view of a functioning democratic system, citing the trustee model of elites deciding issues using their own expertise and opinions, without and sometimes in contrast with public opinion. This analysis assumes both models can be

accurate. The delegate model establishes the connection between shifting public opinion and legalization of medical marijuana, as the state legislature is more likely to pass medical marijuana legislation when more voters are in favor of it. On the other hand, the trustee model can curb public opinion effects if some elected officials are ambivalent to public opinion. The trustee model can also lead to media framing, as the media reports on the decisions of politicians and gives political elites a platform with which to frame issues to the public.

Both models at least partially presuppose that voters are rational activists, meaning that they are highly informed and vote for candidates that best reflect their issue positions. The most pessimistic scholars such as Walter Lippmann have argued that “democracy is too important to be left to public opinion,” which is backed up by Phillip Converse’s Non-Attitudes Theory. The Non-Attitudes Theory holds that the public is ultimately unintelligent and does not hold consistent issue positions, based on evidence of seemingly random survey answers in panel studies. Converse argues that public opinion is meaningless and should not be taken into account as justification for legislative action. However, this thesis refutes this argument with Zaller and Feldman’s Sampling Theory, which states that public opinion, as measured in surveys, is strongly influenced by the most available considerations that people have at the time of taking the survey, meaning that people simply have malleable attitudes, rather than no attitudes. If Zaller and Feldman are correct, then the media can be hugely influential on public opinion by creating more accessible considerations for the public.

This leads to the second key underpinning of this thesis’ theory – the media is a key influencer of public opinion. The dominant media theory of the mid-20th century was the Hypodermic Model, which saw the media as playing a huge role in shaping public opinion. Of course, the more centralized and objective media landscape contributed to the salience of this

model, which was rebuffed by the Minimal Effects Model as fragmentation started to occur. The Minimal Effects Model believes that people's preconceived biases largely prevent the media from being influential, but this thesis supports the most modern model of media influence, the Mixed Effects Model. This model holds that in such a diverse and fragmented media landscape, the media primarily confirms and strengthens biases. This is why the frequency and tone of frames is important, as seeing certain frames and types of frames more often will further entrench the bias that it supports, as well as to sway undecided or more neutral voters.

Media frames to be analyzed for this study were realized through the inductive approach of conducting an exploratory analysis of existing data. Namely, reading articles about medical marijuana during Pennsylvania's legalization process to determine which arguments appeared often allowed this thesis to create a baseline of likely prevalent frames in other states. This exploratory data analysis technique will also be applied in the states of interest in order to capture all frames presented, rather than attempting to determine all existing frames beforehand. This method can capture more nuanced arguments in articles and create a broader picture of the framing of medical marijuana, but it reduces the replicability of the study. This process of realizing frames is outlined in Simon and Xenos' "Media Framing and Effective Public Deliberation". Through the initial exploratory analysis and corroborated by the literature above, this analysis suspects that five frames of medical marijuana will appear most prominently in the media – the marginalized groups frame, the fiscal frame, the gateway frame, the freedom frame, and the efficacy frame. The marginalized groups frame references (often as anecdotes) children with rare diseases, veterans with PTSD, underprivileged and minority communities, and others with special conditions that would benefit from or need medical marijuana for their health and well-being. This frame can be considered the liberal frame. Based on the relatability and

emotional appeal of this frame, this thesis hypothesizes that the more the marginalized groups frame is utilized, the more public opinion will increase. This thesis hypothesizes that this frame will contribute to the most positive shifts in public opinion across all three types of states analyzed, and that it will be the most utilized frame. The fiscal frame focuses on the revenue and tax benefits that legalization will bring a state and can be considered a neutral/moderate frame. Based on voters often voting with their pocketbooks, this thesis hypothesizes that the more the fiscal frame is employed, the more public opinion will increase. This thesis hypothesizes that this frame will contribute to positive shifts in public opinion across all three types of states analyzed, and that it will be the second most utilized frame. The gateway frame is defined as any media source that depicts medical legalization as a ploy for politicians to eventually attempt to recreationally legalize marijuana. This should be considered the conservative frame, with the hypothesis that the more it is used, the more it will contribute to negative shifts in public opinion. In fact, this study believes that the gateway frame will be the only frame to negatively affect public opinion towards the issue. The freedom frame, which is the libertarian frame, argues that legalization helps to eliminate unnecessary federal regulations and gives people more freedom to do what they want with their own lives. Due to low numbers of prominent libertarians, this thesis hypothesizes that this frame will have a low frequency and thus will have a very small positive impact on public opinion. This is expected to be the most infrequent frame of the five. Finally, the efficacy frame focuses on actual scientific data that proves the effectiveness of medical marijuana to treat various conditions as justification for its legalization. One would think that this should be a common and non-partisan frame, but due to an overall lack of scientific data that proves the efficacy of medical marijuana, especially in some of the forms included in broader legalization, this thesis expects the frequency of this frame to be small. However, the hypothesis

holds that the more it is utilized, the more public opinion will increase. While the frames may be considered more liberal (pro-legalization and positive) or conservative (against legalization and negative), this analysis does not expect to see a difference in the salience of the various frames between each of the states analyzed, despite the ideological differences of the states being analyzed. Rather, it is expected that the more conservative frames will have higher frequencies in the states analyzed with stricter legalization.

Chapter 4

Data

The analysis for this thesis seeks to correlate shifts in public opinion on the legalization of medical marijuana, the dependent variable, with the frequency of various frames utilized by the media, the independent variable. Public opinion was measured by public polling data in selected states with a specific question about medical marijuana legalization, i.e. “Do you support the legalization of medical marijuana in this state?” Media frames were measured through human analysis, determining frames via the inductive process described above. As such, criteria to determine a frame is a broad interpretation based on the definition of a frame, rather than being strictly limited to a preset codebook. For example, an article may not directly state that legalizing marijuana will benefit children with epilepsy, but it could be a story about a child with epilepsy and their family’s struggle to live a healthy life with only the medicines they have been prescribed. Both cases would be an example of the Groups frame. The names of each frame are specific to this thesis and follow the given definitions, which are based on the various arguments made in support or against the legalization of medical marijuana. Frames were

analyzed from newspaper stories archived on LexisNexis that reference medical marijuana, during the time frame that public polling data was available. The newspapers were also narrowed down to those circulated in the selected states, as that is the only way that they could have an impact on the public opinion of citizens in those states.

Two states were chosen as case studies for this analysis – Massachusetts and Texas. Both states were selected for their availability and robustness of polling and media data, ideological and structural differences, and time frame of legalization. In Massachusetts, public polling data came from Public Policy Polling and Suffolk University, and all of the available polls on medical marijuana took place in 2012, the year in which medical marijuana legalization was put to a referendum in the state. In the earlier polls, the question was phrased as “Would you support or oppose a proposal to legalize medical marijuana in Massachusetts?” In polls once the ballot question was set, the survey question was phrased as “Question 3 would eliminate state criminal and civil penalties for the medical use of marijuana by qualifying patients. If the election was today, would you vote yes or no on Question 3?” The answer choices for all polls were “Support”, “Oppose”, and “Not Sure”. Six polls including one of these questions were conducted, with the first being released on March 27th, and the final one published on October 30th. The actual ballot results on election day were also included as a direct measure of public opinion. Analyzed newspaper articles ranged from January 1st, 2012 to November 6th, 2012, which was election day, and that time period saw 110 articles published that discussed medical marijuana. Because polls were not published at regular time intervals and because different numbers of articles were published in each time frame between polls, frames will be reported as a percentage of the total number of frames rather than in absolute frequencies.

Massachusetts was also selected for analysis to represent public opinion in a traditionally “liberal” state, meaning that its representation in Congress is often members of the Democratic Party, it is considered a safe blue state in Presidential elections, and the majority of its citizens hold more progressive policy views than the nation as a whole. Marijuana legalization is often considered a progressive issue as a counter to the conservative war on drugs, among a litany of other reasons, meaning that one can assume that legalization would be an easier task in Massachusetts. On election day in 2012, registered Democrats in Massachusetts outnumbered Republicans by more than a 3:1 ratio. Structurally, Massachusetts also represents the process of legalization through referendum, meaning that voters directly affect the law of the state. This makes what people think about marijuana legalization, and the groups that try to impact what people think, directly relevant in the legalization process. Legalization via referendum and a more progressive state composition both lead to a broader medical marijuana law. Massachusetts finally makes an excellent case study due to the time frame of its legalization process, as it all occurred within one calendar year, from speculation of a ballot question in January to legalization in November. This time span is long enough to notice shifts in public opinion and frames utilized but short enough to not create an overwhelming pool of data. Interestingly, medical marijuana was placed on the ballot exactly four years after possession of marijuana was decriminalized in 2008, and four years before recreational marijuana was legalized in 2016, allowing for speculation on how increasing public opinion allows for increasingly broad legalization.

Texas was selected as a near perfect foil to Massachusetts, except in terms of the quality of data. Texas’ public polling data on medical marijuana was produced in a joint effort by the University of Texas and the Texas Tribune, which releases a yearly poll (with the exception of

2016) that includes a question about marijuana legalization. The question is simply phrased as “Should marijuana be legal in Texas?” with the answer choices being “Illegal in all cases”, “Legal for medical purposes only”, “Legal in small amounts for any purpose”, and “Legal in any amount for any purpose”. This thesis assumes that respondents who support legalization in small amounts for any purpose and any amount for any purpose also support medical legalization and thus condenses those responses together to create a simple dichotomy of support and oppose. Medical marijuana was first very narrowly legalized in Texas in 2015, with subsequent pushes for broader legalization, so polls from 2015, 2017, 2018, and 2019 are included in this study. The 2014 poll is also included to provide a baseline level of support before any legalization occurred. Analyzed newspaper articles ranged from the publication of the 2014 poll on February 26th, 2014, to the most recent expansion of medical marijuana legalization on June 14th, 2019. However, the 2019 poll was released in February, so articles from after the 2019 poll to the legalization cannot be correlated with a shift in public opinion. As such, 224 were analyzed between the 2014 and 2019 polls, with an additional 33 articles from February to June 2019 that can only be anecdotally discussed. It is interesting to note that despite the time span of analysis for Texas being five times that of Massachusetts, only approximately double the number of articles were published. Again, because polls were not published on the same date every year and because different numbers of articles were published in between each poll release, frames will be displayed in the results section as a percentage of the total number of frames in each time interval, rather than in frequencies.

To counter the majority partisan and ideological views in Massachusetts, Texas was selected to represent a traditionally conservative state, meaning that much of its representation in Congress (with the exception of urban areas) and voting in Presidential elections favors the

Republican party, and the majority of its voters hold more socially and fiscally conservative viewpoints than the country as a whole. While this does not bode well for marijuana legalization, as the traditional conservative viewpoint sees legalization at odds with law and order and family values, more libertarian Republicans and Texan Republicans, who strongly value their freedom view legalization as a way to usurp the federal government and increase personal freedom. Texas also does not have a law that permits referendums, so all new state laws must come from the state legislature, which again is dominated by Republicans and meets in odd numbered years. Because of this, public opinion affects legislation with the assumption that legislators will listen to the will of the people or risk being voted out of office. However, partisan gerrymandering, lack of political attention, and other factors can cause slower responsiveness to public opinion and thus a slower and narrower legalization process. This is evident in Texas, with a very narrow medical legalization occurring in 2015, with a minor expansion of the law in 2019, and other measures failing in each legislative cycle. This time frame is obviously much longer than Massachusetts' legalization time frame, but because of the legalization that occurred, the availability of polling, and the fact that the state legislature only meets for 140 days (maximum) every other year, this time frame is well-suited to capture enough relevant media framing and corresponding shifts in public opinion. Prior to the 2015 legislation that made low THC cannabis oil legal for epilepsy patients (only after traditional medications proved ineffective), the only marijuana reform that Texas had implemented was a 2007 reduction for possession of marijuana charges, although many police departments still continued to issue harsher penalties than necessary. The 2015 medical legalization was expanded in the 2019 legislative session to include a multitude of other debilitating conditions, including Autism, ALS, and Parkinson's. A prominent failed legalization effort was a 2015 recreational legalization bill that failed to reach

the House floor despite substantial support with the religious argument by Tea Party Conservative Dave Simpson “when God made marijuana, [I don’t believe] he made a mistake that government needs to fix.” However, when the Trump Administration legalized industrial hemp for production of CBD products in 2018, the Texas state legislature supported the federal legislation and backed it with a concurrent legalization in their 2019 legislative session. While each of these legalization bills is different in nature, the trend of broadening marijuana legalization over time is also evident in Texas.

Chapter 5

Results and Analysis

Just like in the previous section, the results will be broken down by state and then synthesized to attempt to find similarities and contrasts between the types of frames utilized in each state, and their respective effects (if any) on public opinion. However, the available data compiled for this thesis makes exactly quantifying those effects quite difficult. Due to the low number of observations on the dependent variable, the public polling results, running a regression analysis would be inaccurate. Most obviously, it is challenging to plot an accurate trend line and generate reliable coefficients with only seven and four polls available from Massachusetts and Texas, respectively. In addition, the number of predictors would be limited by the low degrees of freedom (six for Massachusetts, three for Texas), meaning that several frames and factors such as ideological composition of the state could not be accounted for in the model. These same limitations also prevent a reliable ANOVA model from being created, as there are not enough data points to verify the assumptions of the model. This is especially true in the

Texas data, where there aren't even enough degrees of freedom to generate the statistics for the residuals and return a p-value. While all of the groundwork for this observational study design is robust, there simply isn't enough real data to employ the traditional testing methods. As such, this thesis will rely on an exploratory data analysis that through visualizations and delving into the descriptive statistics, can tell the narrative of the data without a formal model or traditional hypothesis testing.

Massachusetts:

Medical marijuana was legalized by referendum in Massachusetts on November 6th, 2012, and all polls that asked about medical marijuana legalization were also published in 2012 as a way to measure whether the ballot initiative would be successful. The first of these polls was released on March 27th, with 53% of respondents supporting the legalization of medical marijuana, 35% in opposition, and 11% not sure. The next poll was not released until over three months later on June 29th, when 57% supported legalization, 33% opposed, and 10% were not sure. Just under two months later on August 22nd, the next poll was released, with a nominal increase in support, 57%, a substantial drop in opposition to legalization, 27%, which could only be offset by an increase in not sure respondents at 15%. This increase in not sure respondents is likely due to adding more specificity to the survey question. The previous polls had simply asked if the respondent would support medical marijuana legalization, while the August poll and future polls used the specific wording that would appear on the ballot in November ("eliminate state criminal and civil penalties for the medical use of marijuana by qualifying patients"). With election day approaching, the frequency of polling increased, with the next release on September

18th. Support again increased to 60%, opposition held steady at 27%, and not sure dropped to 14%. On October 11th when the next poll was published, the trend started to reverse. Support for legalization fell to 57%, opposition grew to 31%, and not sure dropped down to 12%. The final poll before election day saw this downward trend continue, with 55% supporting legalization, 36% opposing, and 9% not sure. The margin of error for each of these polls was around +/- 3%. However, despite the apparent reduction in support in the lead up to election day, the referendum passed by a margin of 63.3% to 36.7%, higher than any poll had indicated. This could point to the inaccuracy of the public polling, but Public Policy Polling and Suffolk University respectively have a B and A- rating from fivethirtyeight, meaning that their polls have a relatively high empirical performance (past accuracy) and strong methodological characteristics. Rather, it is more likely that the 9% of not sure respondents in the October 30th poll almost all entirely voted in favor of the referendum (55% supporting + 9% not sure = 64%, close to the 63.3% that voted in favor of legalization). The overall trend of the support for legalization of medical marijuana, the dependent variable, is visualized in Figure 1 below.

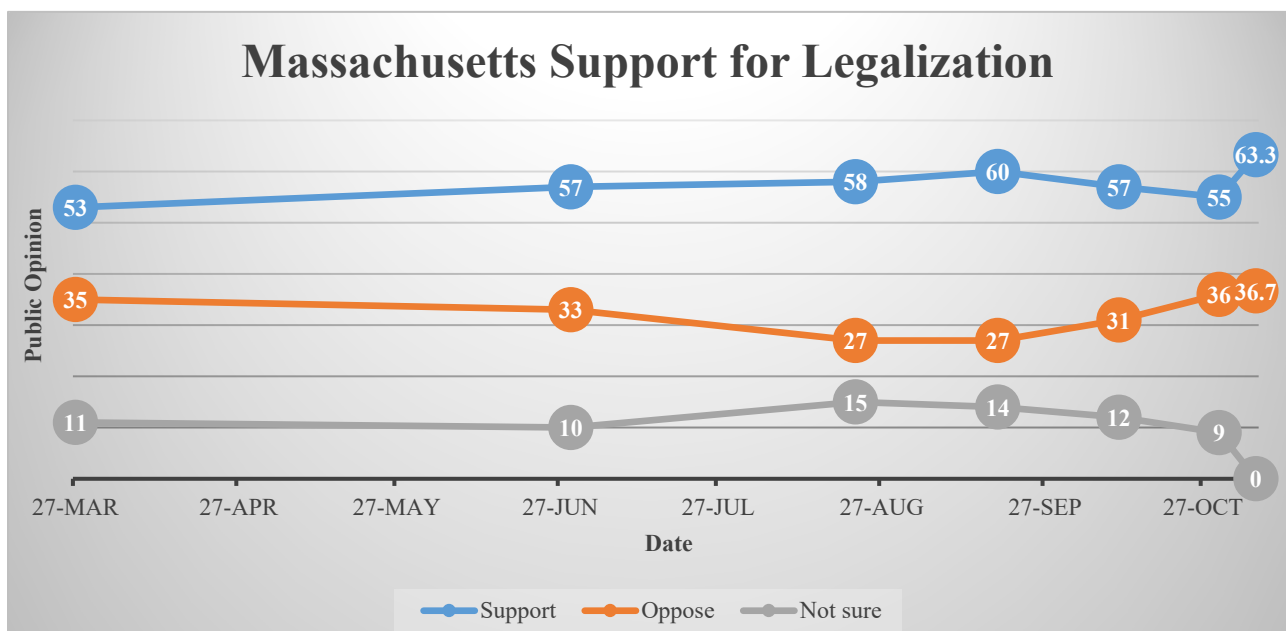


Figure 1: Massachusetts Support for Legalization

Across all polls, the sample arithmetic mean level of support for medical marijuana legalization was 57.61% of respondents, with a standard deviation of 3.34. Not surprisingly, this standard deviation value is nearly the same as the margin of error for the polls. While it was never a question of whether the referendum would pass, the level of support had a 10.3% range from the March 27th poll to election day on November 6th, which is more than three times the standard deviation and margin of error, indicating that public opinion was influenced over time, leading this thesis to look into if media framing played a role in this change in support for legalization over time.

This thesis theorized that five prominent frames would be utilized by the media in attempt to shift public support for medical marijuana legalization - referencing the benefits to marginalized groups, citing the boost to fiscal policy legalization could bring, referencing marijuana as a gateway drug or medical legalization as gateway legislation to more legalization, arguing that the government should not be intervening in people's freedom to access marijuana, and citing the efficacy of medical marijuana. While each of these frames was prevalent in Massachusetts, the data collection process revealed several additional frames that this thesis had not anticipated. The first additional uncovered frame is the compassion frame. While similar to the groups frame, instead of referencing a specific group, it merely makes the argument that legalizing medical marijuana would be a compassionate act, often accompanied by the jargon, "compassionate use." While not highly prevalent, this frame was noticed enough to change the tone and meaning of several articles. Another similar frame is the opioids frame, which argues that medical marijuana will help alleviate the opioid crisis. Finally, two very minor frames, but nevertheless still important to mention, are the lobbying frame and the federalism frame. The lobbying frame negatively discusses interest groups attempting to influence legislation, usually

through referencing the amount of money they have contributed to advocating for the cause. The federalism frame is also an anti-legalization frame and points out how legalizing marijuana would put the state in direct conflict with federal law, which could endanger citizens and prevent the enforcement of the law. On top of these additional frames, some of the anticipated frames were broken down into positive and negative contexts. For example, the groups frame is mainly a pro-legalization frame, but some articles referenced how groups could be damaged by legalization (i.e. medical marijuana dispensaries could open next to schools and endanger children), which will be referred to as the Groups- frame. The efficacy- frame refers to any article that makes the case that medical marijuana is not effective in treating various diseases that it is claimed to be able to treat, or that the benefits are overstated or inconclusive. The fiscal- frame occurs when an article states that legalization would not boost the revenue of the state, or even worse, create more costs than fiscal benefits. There were no other examples of dichotomous frames in the Massachusetts media.

Of the 109 articles analyzed, 90 frames were recorded. 60 of the 109 articles did not have any frame, meaning that the majority of the recorded articles were purely neutral when discussing medical marijuana. This also means that of the 49 articles that did include a frame, several had multiple frames. As such, the percentages below reflect the ratio of that frame to all frames, not all articles, and when discussing the frames in specific time intervals, the percentages reflect the ratio of that frame to all frames in the specific time interval. In the period before the first poll, from January 1st, 2012 to March 27th, 2012, only seven articles discussed medical marijuana, with two total frames. From March 27th to the June 29th poll, 25 medical marijuana-related articles were published, with exactly 25 frames. However, from that time until the August 22nd poll, again only seven articles and one frame were recorded. In the window before the

September 18th poll, ten articles were published with exactly ten frames, and from the 18th to October 11th, another ten articles were published but this time with 11 total frames. Now with election day less than a month away, the number of articles jumped up to 26 in the October 11-30th period, with 26 frames. In the final week before election day, 20 articles were published about medical marijuana and with 15 frames. The articles and frames over time can be seen below in Figure 2.

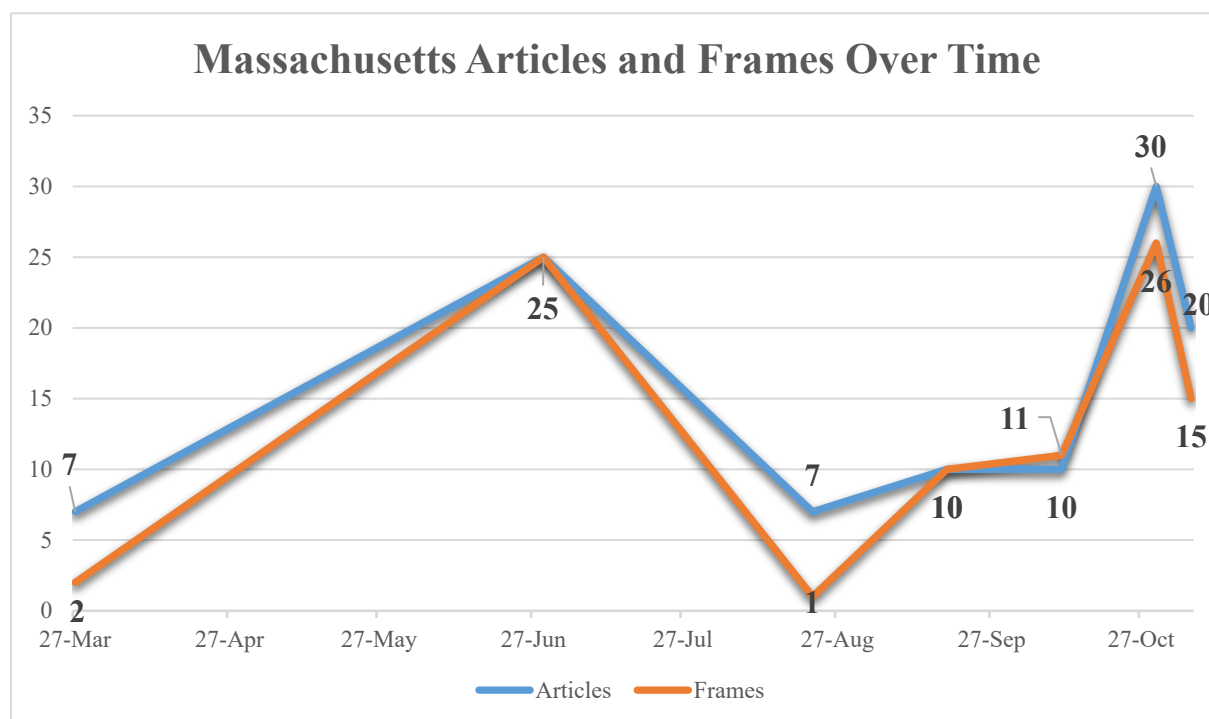


Figure 2: Massachusetts Articles and Frames Over Time

The most utilized observed frame was the gateway frame, which appeared in 31.11% of all frames (28 times). Second most prevalent was the groups frame, which was 20% of all frames (18 times). The efficacy- frame was 12.22% of all frames (11 times), the groups- frame appeared in 7.78% of all frames (7 times), and the compassion frame was 6.67% (6 times). The other frames utilized were: efficacy (4 times, 4.44%), federalism (4 times, 4.44%), opioids (3 times, 3.33%), money (3 times, 3.33%), freedom (3 times, 3.33%), fiscal (2 times, 2.22%), and fiscal-

(1 time, 1.11%). Overall, positive frames (groups, compassion, efficacy, opioids, freedom, fiscal) were employed 40% of the time, or 36 frames. Negative frames (gateway, efficacy-, groups-, federalism, money, fiscal-) were the other 54, or 60%. Figure 3 below reflects these numbers.

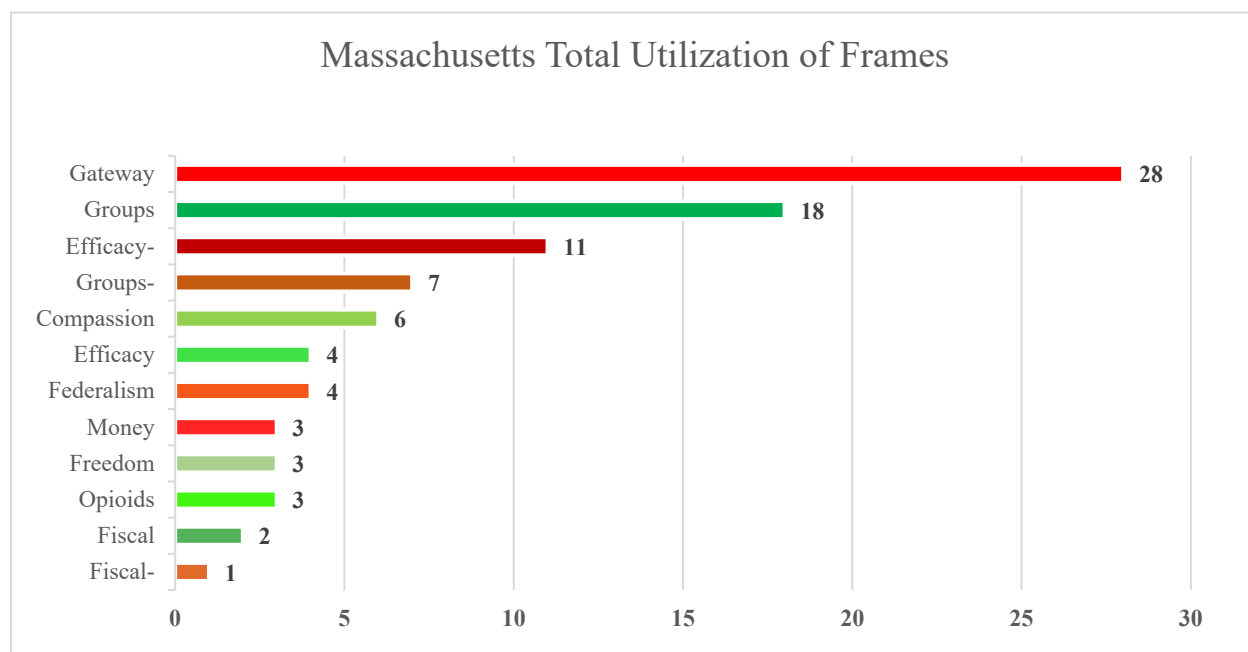


Figure 3: Massachusetts Total Utilization of Frames

By just looking at the big picture of the data, there does not appear to be a connection between media framing and public opinion, because with a majority of the frames being anti-legalization, it is expected that public support for legalization should decrease, but a 10.3% overall increase in support was observed. As such, a deeper exploration of each time interval is needed to better analyze a possible correlation.

In the first time period, January 1st-March 27th, only two frames were utilized once each, freedom and fiscal. Assuming that these two frames, both in a single story, did not have a huge effect on public support for legalization, the March 27th poll results essentially serve as the baseline level of support for legalization. In the March 27th-June 29th interval, the groups frame was 40% of all frames, gateway 24%, compassion 8%, efficacy 8%, efficacy- 8%, federalism 8%,

and money 4%. From June 29th-August 22nd, we again only have one observed frame, federalism. From August 22rd-September 18th, the groups, compassion, and gateway frames each totaled 20%, while efficacy-, groups-, money, and federalism each were 10%. In the September 19th-October 11th window, frames were dominated by gateway (45.45%) and efficacy- (36.36%), with the only other two frames being groups and compassion (9.09% each). From October 12th to the 30th, gateway again had the clear plurality with 42.31% of all frames. Groups- was also prevalent with 15.38%, while groups, opioids, and efficacy+ and – totaled 7.69%. Rounding out the data, money, freedom, and fiscal had 3.85%. In the final interval between October 31st through November 6th, the gateway frame again was most prevalent at 26.67%, but the groups frame was just behind at 20%. Also fairly prevalent were the efficacy- and groups- frames, both at 13.33%, while compassion, opioids, freedom, and fiscal- each had 6.67%. These percentages can be seen below in Figure 4.

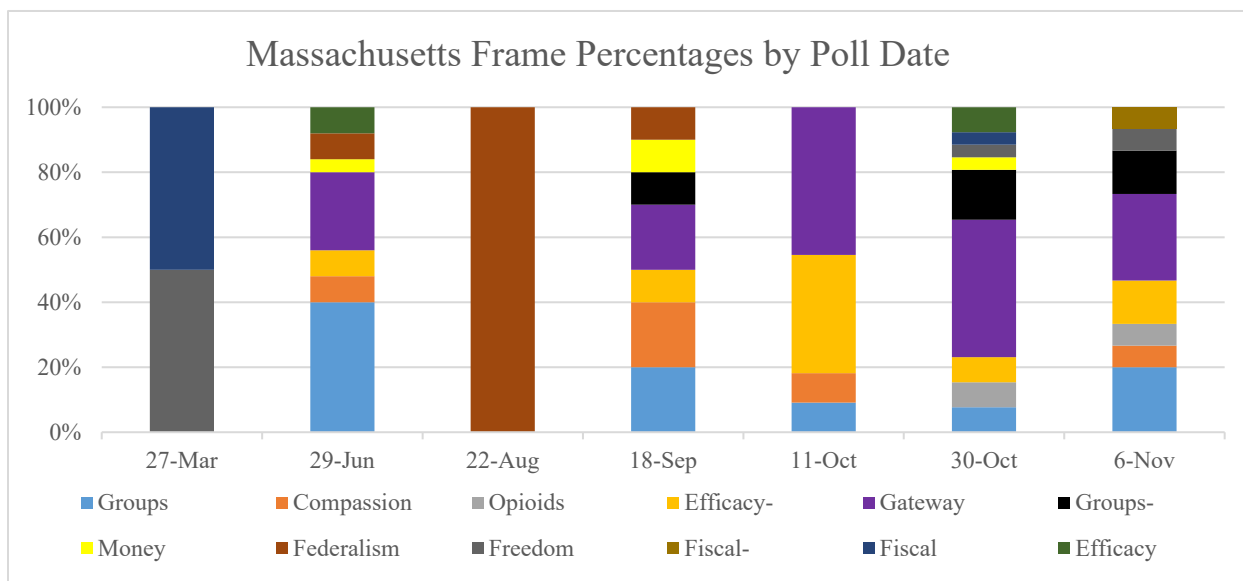


Figure 4: Massachusetts Frame Percentages by Poll Date

Condensing all of the frames into pro-legalization (positive) and anti-legalization (negative), the first time interval was 100% positive (but again only two frames), the interval

before the June 29th poll included 56% positive frames, and the August 22nd poll time interval was 100% negative but only one frame, and the September 18th interval was only 40% positive. The next two time intervals were even more negative, with only 18.18% of frames being positive in the October 11th interval and only 30.77% of frames positive in the October 30th interval. The final week of observation saw a slight increase in positive frames to 40%, but the majority of frames remained negative, as they did since the June 29th poll. Figure 5 below shows the breakdown of positive-negative stories over each interval.

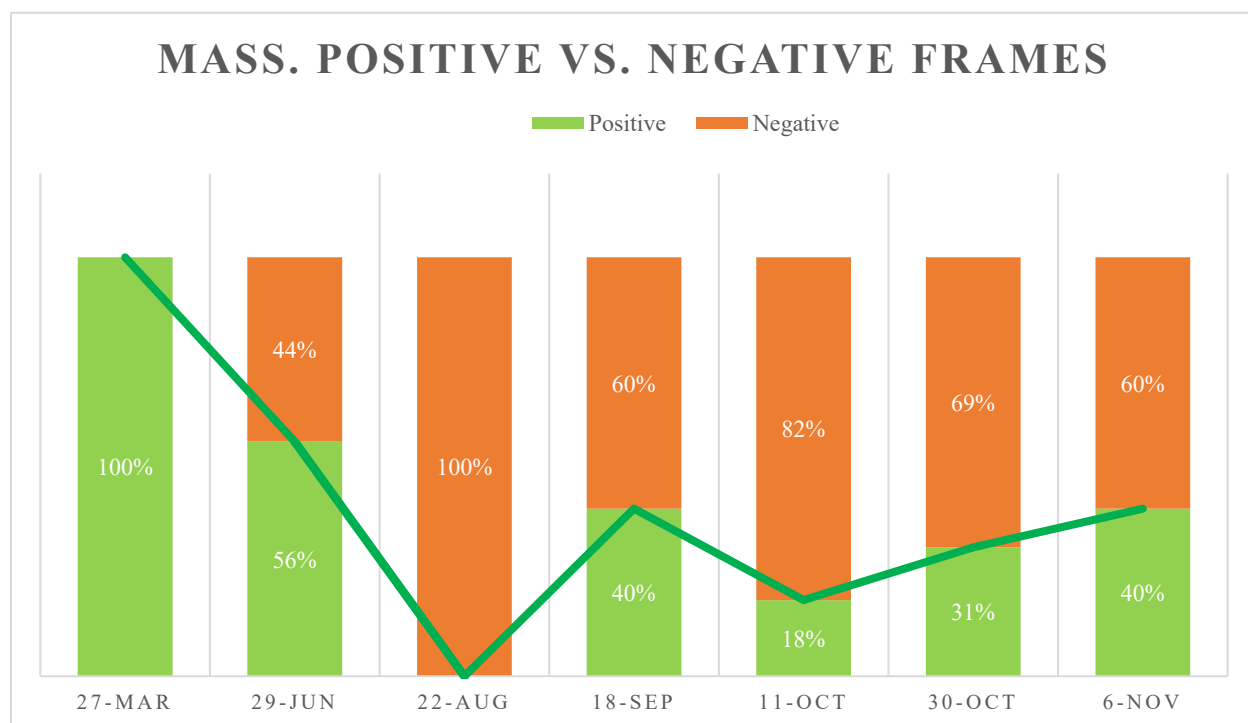


Figure 5: Massachusetts Positive Vs. Negative Frames

In comparing the frame percentages in each time interval, specifically the positive and negative frame percentages, with the poll numbers for supporting and opposing medical marijuana legalization, several interesting trends are noticed. As stated previously, due to the low number of frames in the January 1st-March 27th interval that were unlikely to heavily influence public opinion, if at all, the 53% support for legalization in the March 27th poll will be

considered the baseline level of support before framing effects. The June 29th time interval is the only interval that has a majority of positive frames, other than the first interval, and not surprisingly, the June 29th poll reflected the largest pre-election day jump in support for legalization, by 4 percentage points to 57%. This level of support only increased by 1% for the August 22nd poll, and this thesis has previously made the decision that the drop in opposition and increase in not sure respondents most likely reflects the change in the questionnaire wording, not media framing effects. This again makes sense, since only one frame was recorded in this interval, meaning that the effect of that frame likely was not significant. The next interval, between August 22nd and September 18th, the frame majority shifted to become slightly anti-legalization, but support for legalization still nominally increased to 60%, while opposition remained unchanged, and not sure dropped by 1%. While this could be evidence against the salience of framing effects, it could also mean that the ratio of positive to negative frames needs to tilt even more negative to have an reversing influence on public opinion, as attitudes in Massachusetts are overall more progressive and could need less evidence to think positively about legalization and more evidence to think negatively about it. Case in point – the October 11th interval saw a 3% drop in support and a 4% increase in opposition (2% drop in not sure). This was the largest reduction of support for the medical marijuana referendum of any poll. This interval also saw the highest percentage of negative frames of any of the intervals, seeming to indicate that overwhelmingly negative framing of legalization will reduce public support for legalization. Support for legalization dropped again by 2% in the October 30th poll, and opposition increased by 5%, its largest increase of any poll. Frames were again heavily anti-legalization, corroborating the relationship observed in the previous interval between a high negative frame ratio and levels of support. The final interval included a higher percentage of

positive frames, returning to the same ratio from the August-September interval, which seemingly did not have a negative effect on support for legalization. The referendum results reflect this, as the ballot initiative was easily passed and by a higher margin than the polls predicted (but arguably due to nearly all of the not sure voters choosing to support the measure). Based on these results, there is a reasonable correlation between the degree of negative framing and support for medical marijuana legalization in Massachusetts, although the percentage of negative frames needs to be higher than 60% of all frames in the interval to have an effect. These comparisons can be visualized in Figure 6 below.

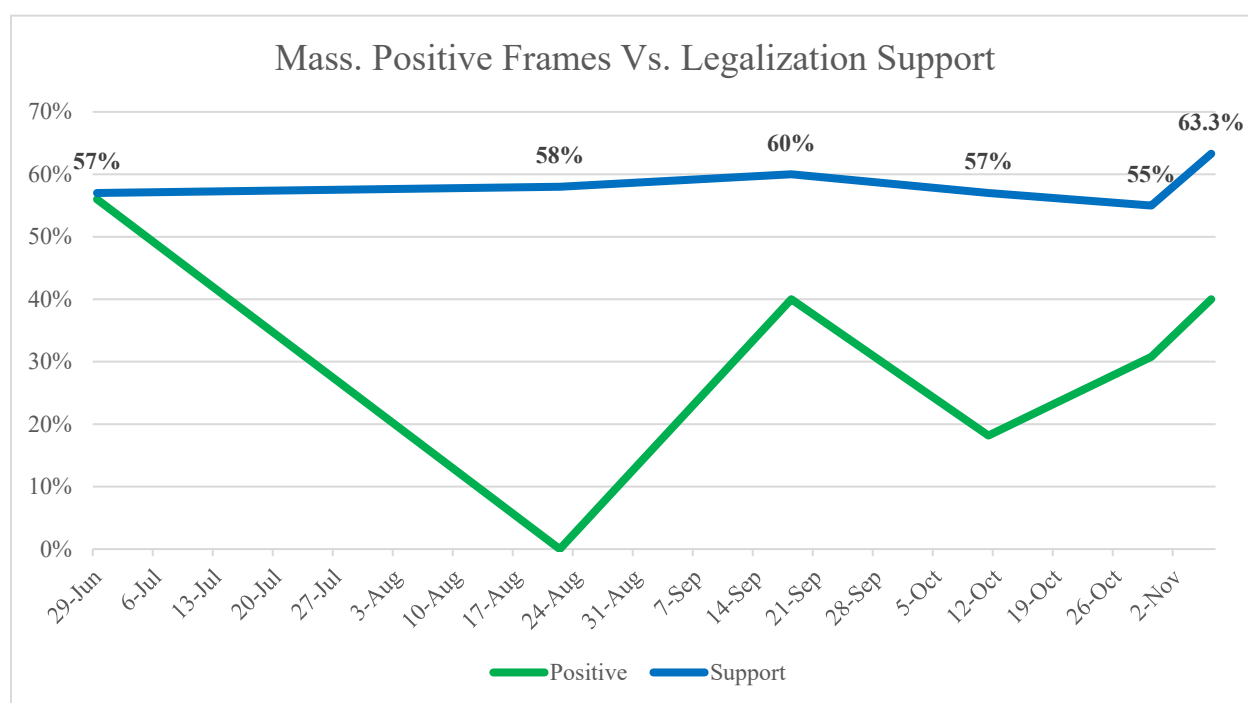


Figure 6: Massachusetts Positive Frames Vs. Legalization Support

In terms of the specific frames, the groups frame appears to be the most effective at increasing support for legalization, as the largest increase in support before election day was accompanied by the groups frame being the dominant frame, support increased less or fell when the frame was less utilized, and the election day jump in support was accompanied by more than double the percentage of groups frames over the previous time interval. The compassion frame,

although not as prevalent or consistent, has a similar effect, in that support largely increased when utilization of the compassion frame increased. On the negative side, it is easy to point to the gateway frame as being the most effective and decreasing support, since it was the most utilized negative frame. Yes, support did decrease when the gateway frame had its highest percentages, but it had a relatively high percentage in the June 29th period, when support increased substantially. The groups- and efficacy- frames are also prevalent in the intervals that support decreased, but their utilization was inconsistent. For example, the groups- frame did not appear in the first interval that support decreased, whereas the efficacy- frame had a massive 36% in that period, but then dropped down to 8% in the next period, as support continued to decrease. All of the remaining frames are also inconsistent or do not show up prevalently in enough intervals to draw any reasonable correlation. This does not mean that these frames had no effect on public opinion, rather that their effect may only be realized at the more macro positive/negative level, given the quantity of data. The percentages of each frame in each interval can be viewed in Appendix 1.

Massachusetts has since legalized marijuana for recreational usage in November 2016, four years after legalizing medical marijuana. This expansion of the legal status of marijuana was also passed through referendum, although by a much smaller margin of 53.7% in favor to 46.3% opposed, nearly 10% lower support than medical legalization received in 2012. Still, only four years later, a much broader legalization effort received majority support. While this lower support for the ballot initiative could be due to overall lower public support for recreational marijuana usage, negative framing of the issue could have also played a role. It could also be true that over time, legalizing medical marijuana increased public support for recreational marijuana legalization. If public support remained unchanged by the medical legalization, then recreational

legalization would have also passed in 2012. However, it is likelier true that majority support for recreational legalization did not exist in 2012, and legislators knew that calling for medical legalization first would be more successful. But this is all merely speculation, and this topic should be studied further.

Texas:

Medical marijuana was first legalized very narrowly in Texas in June 2015, only in 0.5% THC or less oil and only for use by epilepsy patients that did not find relief with traditional treatments. In June 2019, the law was expanded to include many more qualifying conditions for the cannabis oil. As such, this thesis examined the annual (except 2016) poll in that interval that asked Texans about their attitudes towards marijuana legalization. The 2014 poll (published February 26th) is also included as the baseline indicator of support. In this poll, only 23% of those polled believed that marijuana should be illegal in all cases, meaning that 77% of respondents supported at least the legalization of medical marijuana (the other answers being in favor of recreational legalization, which implies support for medical legalization). Given the traditionally conservative leanings of the state, this is a huge level of support for legalization and higher than any of Massachusetts' poll legalization support numbers in 2012. Support marginally dropped in the 2015 poll (published September 24th) to 76%. By the 2017 poll (published February 21st) almost two years later, support for legalization jumped all the way up to 83%. This upward trend continued in the June 27th 2018 poll, where support reached its peak of 84%. However, by the next release in February 2019, support dropped back down to 80%. The margin of error for each poll was +/- 2.83%. The University of Texas polling received a B/C

grade from fivethirtyeight, meaning that it has not yet published enough polls to receive a robust grade, but its initial results are average compared to other pollsters. However, it has an advanced +/- of -5, which means that compared to other polling organizations who have conducted similar surveys, University of Texas' results are of higher quality. As such, these results can be considered reliable. The change in public support for medical marijuana legalization over time can be seen in Figure 7 below.

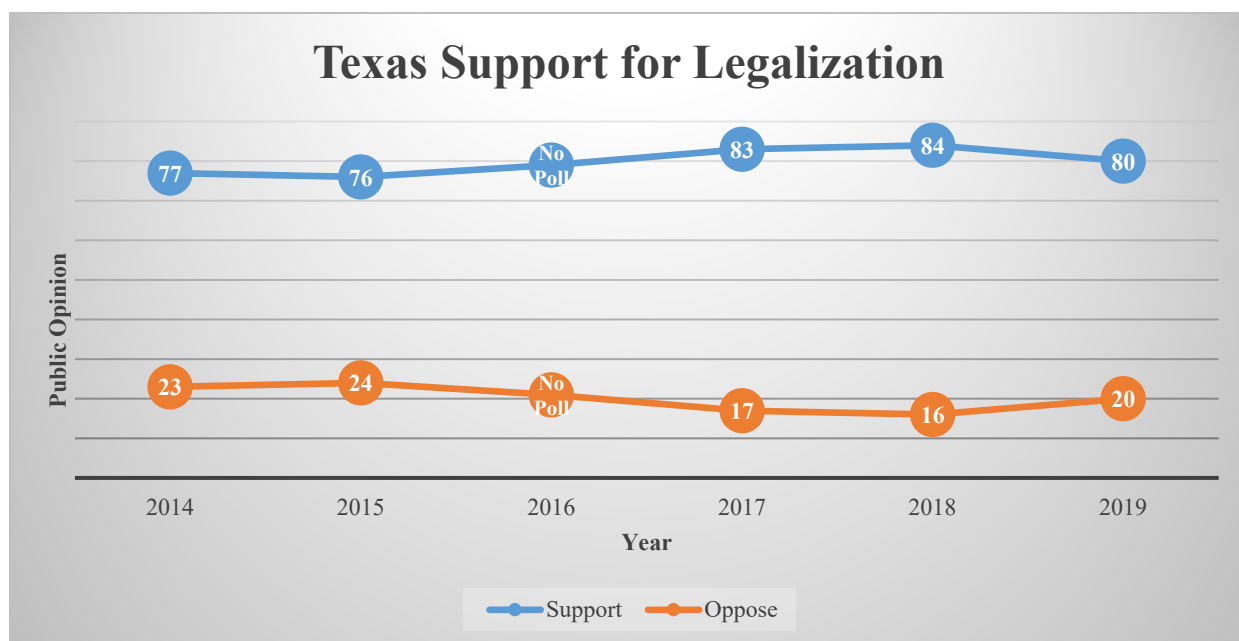


Figure 7: Texas Support for Legalization

Across all polls, the sample arithmetic mean level of support for medical marijuana legalization was 80% of respondents, with a standard deviation of 3.54, which is above the margin of error of each of the polls. With this consistent high level of support, one would assume that marijuana legalization would easily pass, but in a non-referendum state with a conservative and part-time state legislature, the entire process is slower. Politicians can be less responsive to public opinion and often want to see long-term, consistent support for a policy position to enact change, especially a policy that goes against the traditional conservative platform. While support ranged by 8% across all polls, from 2014 to 2019 support only increased by 3%, just above the

poll margin of error and less than the standard deviation between each of the polls. This likely means that the aggregate data will not show strong correlations between frames and public support, and it is more likely than any correlations will be revealed in the shifts between individual polls.

In addition to the five originally theorized prominent frames and those previously defined in the Massachusetts section (groups, gateway, fiscal, freedom, efficacy, compassion, opioids, money, federalism, groups-, efficacy-, fiscal-), three additional frames were quite prominent in the Texas newspaper articles. The restrictive frame cites the 2015 medical marijuana law as not doing enough to actually provide treatment to the Texans that need access to medical marijuana, often using the exact name of the frame – that the current law is too restrictive. The economy frame is similar to the fiscal frame, but instead of pointing out the potential benefits of legalization to the state’s budget, the economy frame argues that legalizing medical marijuana will create jobs and direct investment in Texas. Finally, the gateway+ frame takes the opposite stance as the gateway frame, making the case that more legalization will help more people, and that even legalizing a restrictive law or taking small steps to expand that law are less than some people want and do not fully solve the problem, they are still steps in the right direction and will lead to future legalization. Naturally, this is an argument made more often by more progressive authors and newspapers and best heard by the progressive minority in Texas. Each of these three additional frames is considered a pro-legalization (positive) frame. No additional negative frames were observed, and in fact, the fiscal- frame did not show up in any of the articles in the time interval studied with polling data, or the beginning of 2015 to February 2019. But interestingly, it heavily appeared in the studied articles after the 2019 poll. All of the other previously discussed

frames, while in some cases not as prominent as in Massachusetts, were observed in some capacity.

Of the 224 articles analyzed in the time interval with available polling, 50 of the 224 articles did not have any frame, meaning that the recorded newspaper articles in Texas are much more persuasive in nature than in Massachusetts, as Texas had ten less neutral articles with 115 more articles. Of the 174 articles that did include at least one frame, 302 frames were recorded, meaning that the average article had 1.74 frames. This does not mean that the majority of articles included more than one frame, as the mode of frames per article was still just 1. Rather, it means that several, typically longer articles included a multitude of frames, with the maximum number of frames per article being nine. Again, the percentages referenced below indicate the ratio of a specific frame to the total number of recorded frames in the given time interval. In the first time interval, January 1st, 2015 to September 23rd, 2015, 55 medical marijuana-related articles were published, with 70 frames. From September 24th, 2015 to February 20st, 2017, 53 articles were published with a total of 55 frames. It is interesting that for a substantially longer time period, fewer articles were published. However, the first time interval includes the legislative session in which the first medical marijuana law was passed, while this time interval includes a year in which the legislature did not meet and ends while the 2017 legislative session was just starting. Likely, newspaper editors did not find stories about medical marijuana as “newsworthy” during this interval. From February 21st, 2017 to June 27th, 2018, the next polling window, a substantial increase to 97 articles were published, with a massive 152 frames included in those articles. In the final time interval from June 28th, 2018 to February 21st, 2019, only 19 articles were published with 25 frames. For being the shortest interval, it makes sense that this period has the lowest number articles and frames. To include the articles from February 22nd, 2019 to June 30th,

2019, 34 additional articles were published with 71 frames. The articles and frames over time

can be seen below in Figure 8.

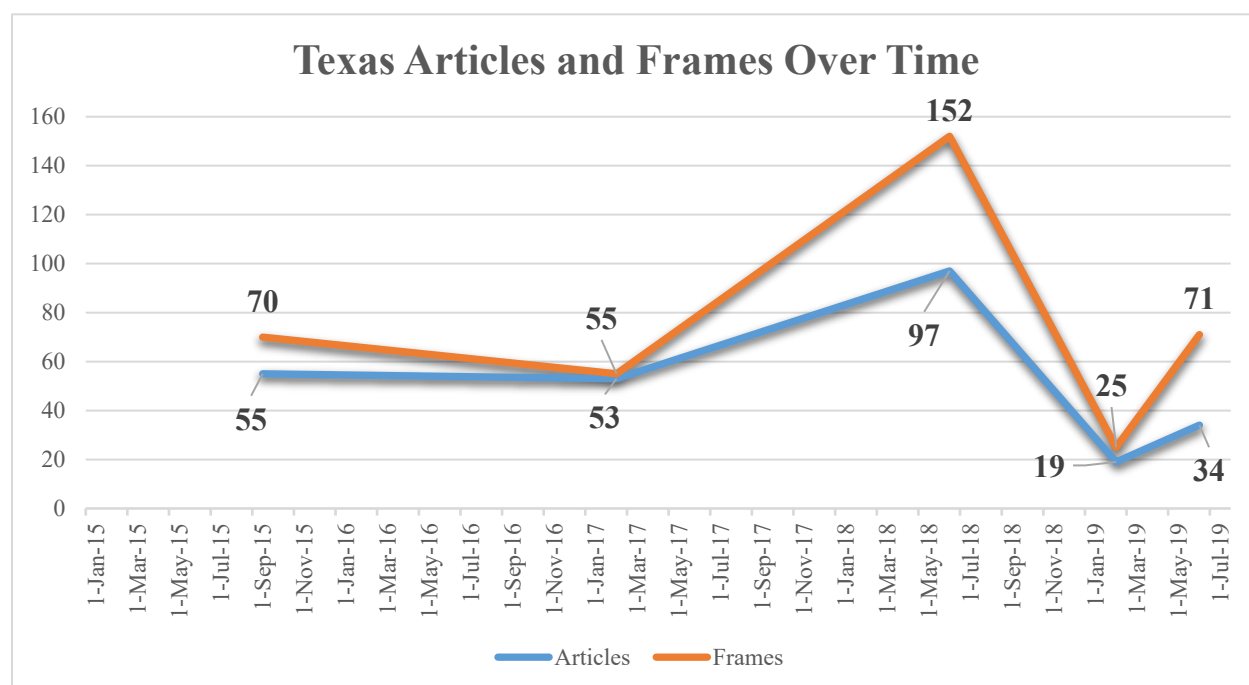


Figure 8: Texas Articles and Frames Over Time

The frame that was employed most was the groups frame, which appeared in 30.79% of all frames (93 frames) – more than twice as much any other frame. The restrictive frame came in second place, at a usage rate of 14.24% (43 frames), and just behind it was the economy frame at 11.59% (35 frames). As such, two frames that did not appear at all in Massachusetts were the second and third most prevalent frames in Texas. No other frame was utilized in more than 10% of all frames, but the freedom frame came quite close at 9.93% (30 frames). At 5.63% (17 frames) of all frames, the efficacy- frame comes next, which is also the most prevalent negative frame. Just behind are the opioids frame at 4.97% or 15 frames, and the federalism frame at 4.64% (14 frames). The only other frames that reached double digits were the fiscal and money frames, at 12 and 10 frames respectively, or 3.97% and 3.31%. The compassion and efficacy frames both were observed in 2.65% of all frames (8 frames), and the gateway and gateway+

frames each totaled 2.32%, or seven frames. And finally, the least prevalent frame was the groups- frame at a mere .99%, or just three frames. Overall, frames were overwhelmingly positive, at 83.11% of all frames, or 251 frames. Figure 9 reflects these numbers.

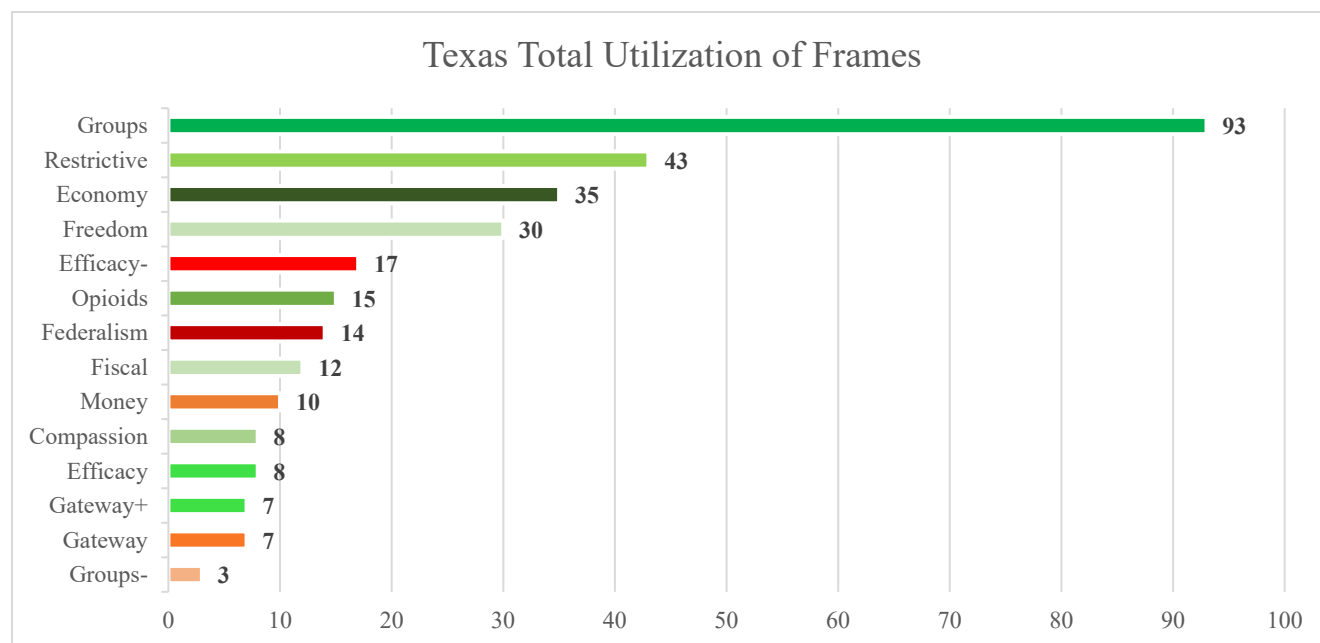


Figure 9: Texas Total Utilization of Frames

From the aggregate frame data, it makes sense that public support for medical marijuana legalization also increased in the aggregate polling data, since the frames utilized were heavily in support of legalization. However, the big picture data only shows a 3% shift in support, while the poll intervals include a 6% increase and a 4% reduction of support, along with two stagnant 1% shifts. As such, if this aggregate level trend of heavily positive framing were reflected in each polling interval, the most plausible conclusion would be that there is not a correlation between media framing and public opinion.

In the first interval, from the beginning of 2015 to the release of the 2015 poll, the groups frame dominated with 28.57% of all frames. While by far the most prevalent frame, this percentage is below the groups frame's average utilization (32.76%) and total utilization

percentage as a ratio to the total number of frames (30.79%). The freedom frame appeared half as often, 14.29%, but was the second most common frame in this interval. The efficacy and efficacy- frames cancelled each other out at 8.57%, and the restrictive and money frames each appeared in 7.14% of all frames. These frames are interesting in that the money frame's utilization was double its total utilization percentage, while restrictive was half its total utilization percentage. Next, the economy and gateway frames each totaled 5.71%, and the compassion and federalism frames each totaled 4.29%. Rounding out the list, the groups- frame appeared in 2.86% of all frames, while the fiscal and gateway+ frames appeared in only 1.43% of all frames. The opioids frame did not appear in this interval. This first interval is quite interesting, in that most frames were either substantially above or below their respective total utilization percentages and average percentages over all of the intervals. For the frames that are less prevalent in total and substantially above their percentages (gateway, groups-, money, efficacy), this means that they will be seldom utilized in the future intervals. For the frames substantially below their total and average percentages, predominantly restrictive, these frames are expected to become increasingly prevalent over time.

In the interval from the 2015 poll to the 2017 poll, the longest time interval, the groups frame again was most common, this time with an even bigger share at 38.18% of all frames. The only other frame to break double digits, the economy frame amounted to 18.18% of all frames. Efficacy-, freedom, and fiscal each were observed in 9.09% of all frames, while federalism, restrictive, and gateway+ scored 5.45%. No other frame was observed in this interval. This time period demonstrates domination by one frame and disregard for several previously utilized frames. The restrictive frame, again which is the second most utilized frame in total, was underemployed in this period. From the 2017 poll to the 2018 poll, the frames rediversify. Of

course, the groups frame again led with 28.29% of all frames, but this period was the groups frame's lowest utilization percentage. The restrictive frame finally reflected its total utilization at 18.42% of all frames, and the economy frame had another strong showing at 12.5%, also most accurately reflecting its total and average utilization percentages. The opioids frame had an abnormally large presence at 9.21%, nearly three times its average utilization percentage and the first period that it appears as a frame. The freedom frame accounted for 7.24% of all frames, and the federalism frame accounted for 5.26%. Efficacy- totaled 3.95%, and compassion and money came in just below it at 3.29%. Fiscal scored a 2.63%, while Gateway and gateway+ canceled out at 1.97% each. Rounding out the frames, efficacy was 1.32% of all frames, and groups- was .66%. In the final interval from the 2018 poll to the 2019 poll, the groups and restrictive frames accounted for nearly two-thirds of all frames, at 36% and 28%, respectively. The freedom frame had its highest showing at 16%, while the economy and fiscal frames both totaled 8%. The only other frame to appear was the opioids frame, at 4% of all frames. These percentages can be seen below in Figure 10.

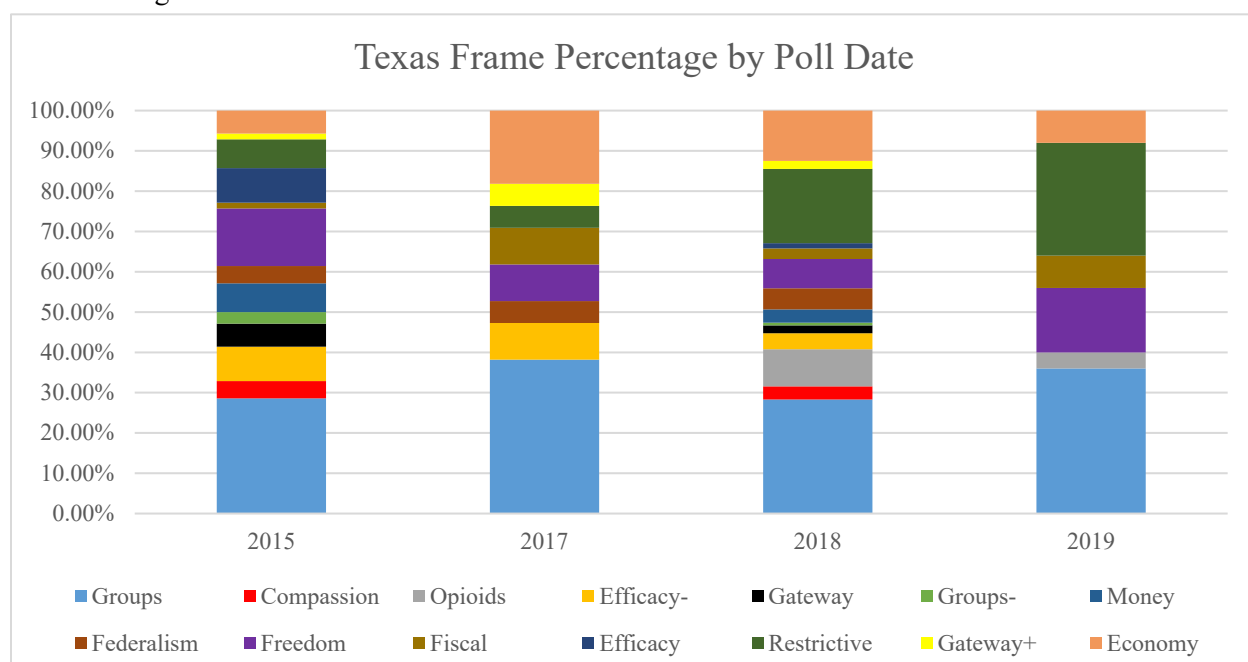


Figure 10: Texas Frame Percentage by Poll Date

Just considering the frames by their overall message of supporting (positive) or opposing (negative) legalization, each of the time intervals is overwhelmingly positive. The first interval included 71.43% positive frames, by far the least positive of all of the intervals. The post-poll 2015 to 2017 poll interval was 85.45% positive frames, and the following interval was just slightly less positive at 84.87%. In the last interval of post-poll 2018 to the 2019 poll, all of the observed frames were positive. The positive-negative split in each interval is shown below in Figure 11.

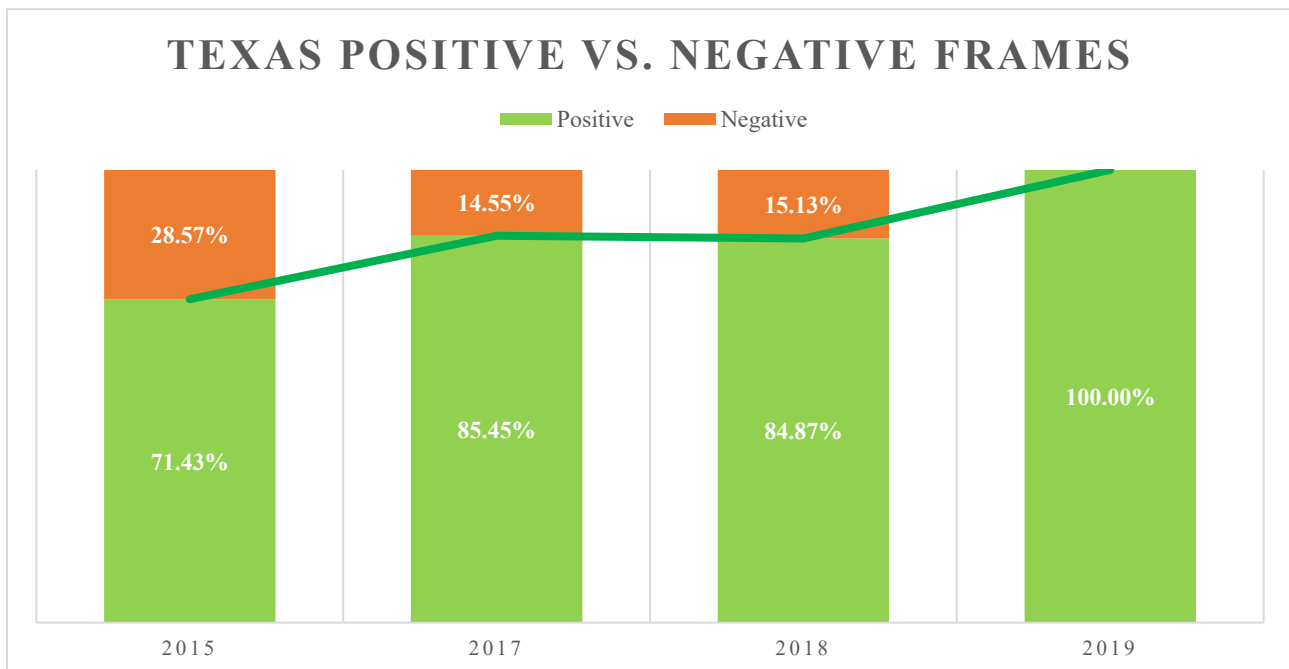


Figure 11: Texas Positive Vs. Negative Frames

Now to compare the frame percentages in each interval to the poll numbers for supporting and opposing medical marijuana legalization. Considering the high support in the polls and frames supporting legalization, one that didn't know any better would assume Texas to be a highly progressive state. With the baseline level of support from the 2014 poll at 76%, the highly positive coverage in 2015 seemingly did little to increase support for legalization, as it only increased by 1% in the 2015 poll. Immediately, this could be considered evidence against

media framing's having any correlation on Texan's views towards legalizing medical marijuana. This could be taken as framing being ineffective due to the declining influence of print media on the public's views, or it could also be that with such high support already in Texas, the positive frames are merely a source of confirmation bias, reaching mainly readers who already support legalization. However, since Texas is a conservative state, it could also be argued that frames need to be overwhelmingly positive, even higher than 71.43%, to push some of the 23% still in opposition to legalization to change their minds.

In the post-poll 2015 to 2017 poll interval, total frames were just over 14% more positive, and support for legalization flew up by 6%. This supports the argument that total percentage of positive frames needs to be higher to increase support. Again, in a state where the traditional conservative attitude is to oppose legalization, it takes a high ratio of opposing information and persuasion to change that view. The 2018 poll interval saw support again increase, but only by 1%. Total positive frames dipped slightly but by less than 1%, to just under 85%. This result could indicate a ceiling of support, at least for the level of positive frames. If the 1% increase from 2014 to 2015 indicated a ceiling of support at the lower ratio of positive to negative frames, this 1% increase could indicate the relative maximum increase in support at this higher ratio of positive to negative frames. This argument would follow that if the percentage of positive frames increased more, than support for legalization could also increase more. Unfortunately, the results from the post-poll 2018 to the 2019 poll interval do not support this argument, as every single observed frame was positive, but support for legalization dropped by 4%. This is a huge admission of evidence against framing effects on public opinion for medical marijuana legalization and will be a glaring hole in any potential correlation argued in this thesis. However, there are naturally a multitude of other factors that can influence the public's support for

legalization, all of which are not controlled for in this analysis. For example, the Trump administration in the end of 2018 legalized the cultivation of industrial hemp, which allowed for the sale of CBD products nationwide. As a conservative state with many supporters of the Trump administration, many Texans who may have believed previously that state action was needed for marijuana legalization may have shifted their attitude to oppose state legislation, seeing that the federal government was already taking some action on the issue. This factor, in addition to many others, could account for the 4% drop in support for medical marijuana legalization in the February 2019 poll. As such, the 2019 results while certainly not helpful to the argument for a correlation between framing and support for legalization, does not necessarily refute the case either. Based on these results and given the low number of dependent variable observations that make developing any robust correlation more difficult, this thesis can at best argue that a weak correlation exists between media framing of medical marijuana that is heavily in support of legalization and increasing public support for its legalization. Since three of the four intervals display increases in support for legalization and have large positive to negative frame ratios, the 2019 interval can best be described as a significant outlier and grounds to study this potential correlation further, especially as new polling information is released. These comparisons can be visualized in Figure 12 below.

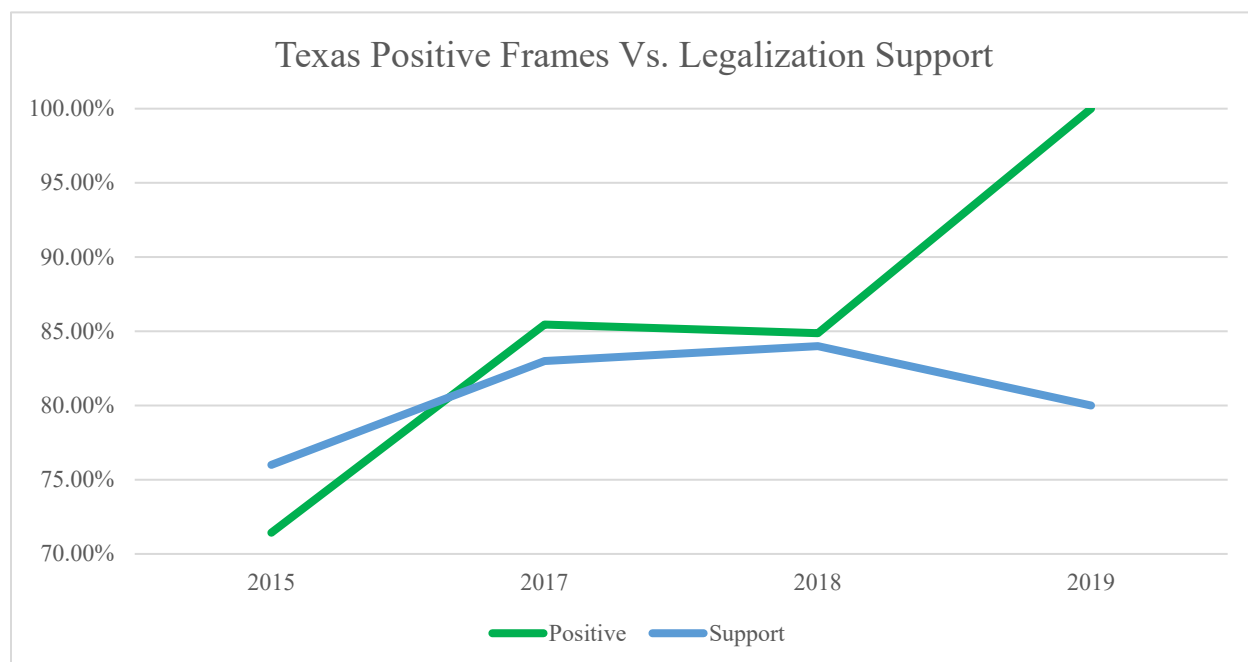


Figure 12: Texas Positive Frames Vs. Legalization Support

Looking at the specific frames, it is challenging to argue which frames are most effective at influencing support, especially if the 2019 interval is discounted as an outlier. However, it appears that the economy frame may be the most influential. The economy frame had its highest utilization percentage and was the second most prevalent frame in the period that support increased the most, and appeared well below its average utilization (11.1%) in the 2019 period where support decreased. In the first period where support only marginally increased, the economy frame also had a below average utilization, and in the period where support reached its peak, the economy frame was the third most prevalent frame and above its average utilization. And from a values perspective, the economy frame appeals to the Texas ideals of individualism and the free market. Another frame that could be influential is the restrictive frame. However, restrictive may have had the most negative effect on support for legalization, as its highest utilization (28%, nearly double its average utilization) was in the 2019 interval when support dropped, and its lowest utilization was when support increased by 6%, when its utilization was

only 5.45% (well below its 14.75% average). Restrictive is a pro-legalization frame meant to increase support, but perhaps readers wanted a more compelling argument than the current law simply just doesn't do enough. Since the utilization percentages are in terms of the other frames used, employing a positive frame more that is ineffective means less exposure for the other positive frames, creating a negative effect on support.

Of the negative frames, the gateway, groups-, and money frames are the most likely influential frames, in that none of them were observed in the 6% growth in support period, but they each appeared in both 1% support growth periods, meaning that they could have had some impact on reducing how much support grew. Since the efficacy- and federalism frames appeared in each of these three intervals and had their highest utilization during the 6% support growth interval, it appears that these negative frames are ineffective at reducing support for legalization. A positive frame that likely had minimal influence was the opioids frame, which was most prevalent during a 1% support growth period and only appeared again in the 4% support reduction period. Finally, the gateway+ frame could have been influential in increasing support for legalization, as it was not utilized in the support reduction period, and had a utilization rate (5.45%) more than double its average (2.21%) during the 6% support growth period. However, since this frame was never heavily prevalent, it is doubtful that it had as large an effect on the support level as more prevalent frames. The remaining frames are inconclusive and likely not influential given the data. For example, the groups frame, while the most prevalent frame by far, had a very similar utilization rate in the 6% growth period and the 4% reduction period. The percentages of each frame in each interval, along with their totals and averages, can be viewed in Appendix 1.

To project potential future trends in support for medical marijuana legalization in Texas, articles were analyzed until Texas expanded its medical marijuana law in June 2019. During this period, 34 articles were tabulated with 71 total frames. Of those frames, only 39 were positive and 32 were negative. While still a slight majority positive (54.93%), this reflects a stark shift from the previous periods of overwhelmingly positive framing of legalization and is perhaps more reflective of the drop in support for legalization. The groups frame again took the lead with 28.17% of all frames, its lowest utilization of any period. The gateway frame was just behind at 22.54%, by far its highest mark and way above its 2015-February 2019 average utilization of 1.92%. Fiscal-, a frame that was not observed until this point, suddenly also had a huge utilization at 18.31%. Restrictive appeared in 8.45% of all frames, while compassion, freedom, and efficacy each had 4.23%. Groups- and fiscal were observed in 2.82% of all frames, and opioids, money, and economy were a mere 1.41%. The remaining frames were not observed. Based on the above arguments that the groups frame is likely not influential, the restrictive frame could actually have a negative effect, and considering that the economy frame (influential positive frame) is tied for least prevalent frame, the positive frames in this period are not very effective at increasing support. Meanwhile, the gateway frame, which was determined to be a potentially influential negative frame, suddenly is all over the observed articles. Combined with the emergence of the fiscal- frame, this higher ratio of negative frames is likely to reduce support for legalization in the next poll, especially if this trend continues. Regardless, this trend towards more negative framing of medical marijuana was not enough to prevent lawmakers from expanding Texas' medical marijuana law, although it may slow down future legalization if support continues to decrease. Still, just like in Massachusetts, Texas experienced a four-year gap between expansionary measures to its marijuana legalization. This could either be a pattern

of how approximately long public opinion responds to new policies, and subsequently how long policy-makers respond to those shifts in public opinion. Or, these two examples could be mere coincidence. Either way, these two case studies present another avenue for future research that could look at other states to determine if marijuana legalization does in fact have a gateway effect of leading to future legalization, and to analyze how long policy and public opinion shifts take to respond to each other.

Chapter 6

Discussion

This thesis was substantially limited by the amount of available data. If more polling had been available, it would have been possible to create a regression or ANOVA model that could have determined the statistical and practical significance of each frame. For a regression or parametric ANOVA model to be created, this thesis would also have to have proven independence of observations, normality, and homoscedasticity. If these conditions were not met, it would be easiest for this thesis to instead take the non-parametric ANOVA shortcut and run the Kruskal-Wallis H test. Either method could have determined the frames that influenced public opinion, and how much of the variance in public opinion that media framing accounted for. Any of these models could also have controlled for ideological composition of the state, referendum/non-referendum, and any other non-frame factors that were believed to have an impact on the legalization of medical marijuana. However, this thesis recognizes that scientific polling can be an expensive process, especially at the state level, and most polling organizations are more concerned with horserace questions of who will win elections rather than on voter

attitudes to specific issues. Moreover, the states with robust internal polling may not overlap with the states that have medical marijuana legalization processes ideal for this analysis, in terms of timeline, ideological composition, and availability of media data. One of the largest pre-analysis challenges of this thesis was simply finding states that had enough available data that were worthwhile to study. Originally, California was meant to be the token case study for a liberal state, but its legalization process took place over a much larger time frame than Massachusetts, and public polling results were sparse. Pennsylvania was also originally planned for inclusion to analyze a moderate state, but again the timeframe of legalization spanned nearly a decade and polls were too infrequent.

While obtaining dependent variable data was a significant challenge and the reason for the lack of statistical modeling and hypothesis testing, the independent variable of media frames also suffers from only coming from newspaper sources. Frames from television and social media data would have aided the analysis but would have made the subjective human analysis conducted for this thesis much more time-consuming than it already was. Utilizing a computer program to analyze the frames could have alleviated this issue, but could have also created the additional problem of misdiagnosing and not recording frames. Of course, subjective analysis of the data also creates the issue of reducing the ability to replicate the study, as other human analysts could have different thresholds for what is considered a frame. Regardless of these shortcomings, newspaper stories and the frames they provide still largely serve as gatekeepers and leaders for other media sources, so the frames newspapers utilize and the frequency with which they are utilized are likely to also be reflected in television and social media clips.

Although having more data would have alleviated many of the shortcomings of this analysis, there is at least enough evidence to argue that there is a correlation between positive

framing of medical marijuana legalization in the state of Massachusetts, specifically through referencing the benefits to marginalized groups and by pointing out that legalization would be a compassionate act, and increasing public support for medical marijuana legalization. There can also be an argument made for a correlation between overwhelming (greater than 60% of all frames in a given interval) negative framing and a reduction in support for medical marijuana legalization, specifically through the frame that marijuana is a gateway drug and legalizing it for medical use will be a gateway to broader legalization of marijuana. In Texas, a similar but weaker argument can be made for a positive correlation between increasing positive framing of medical marijuana and increasing support for its legalization, especially when the benefits to job creation and economic investment in the state are referenced. However, the opposite effect may be true if the frame only makes the case that the current law is too restrictive to people that want to obtain medical marijuana. This thesis urges the further studying of these potential correlations, which could be statistically proven and quantified with additional data. Such results could then be applicable to media organizations and politicians seeking to further their messages and better understand what the public responds to.

Appendix

Link to raw data: https://drive.google.com/file/d/1AFNpSZCsbDxpIiy_74Rw14G-jfjwvxWU/view?usp=sharing

Link to list of all articles:

<https://drive.google.com/open?id=1pAXmhI1t29xlS5etD02xiA1F8wXfg9NO>

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Professional Experience

kglobal

Washington, D.C.

Research Associate

Jun 2019 – Aug 2019

- Worked with the crisis and government affairs teams to execute communications plans for a diverse array of clients such as Amazon, the University of South Carolina, and several green technology companies
- Acquired earned media in nationally circulated and industry respected publications through creating media lists of specialized reporters and drafting succinct and newsworthy pitches
- Monitored and reported on daily news coverage of client business and relevant topics to allow clients to serve as thought leaders and industry experts; managed social content for several clients

115th United States Congress

Norristown, PA

Congressman Brendan Boyle | Intern

May 2018 – Aug 2018

- Initiated casework and helped navigate constituents through the federal bureaucracy to procure needed services and assistance; worked closely with the VA, IRS, USCIS, and the Social Security Administration
- Managed legislative inquiries from constituents and maintained the constituent tracking database
- Conducted statistical research on business, non-profit, and constituent data in the wake of redistricting

Pennsylvania House of Representatives

King of Prussia, PA

Representative Tim Briggs | Intern

Jun 2017 – Aug 2017

- Coordinated with local governments to lead town hall meetings about the construction of multimodal trails
- Drafted letters, memos, and constituent correspondence; oversaw community outreach events

Leadership Experience

Boy Scout Troop 551

King of Prussia, PA

Assistant Scoutmaster | Merit Badge Counselor

Mar 2016 - Present | Jun 2017 - Present

- *As Assistant Scoutmaster:* improve strategies for retaining younger Scouts; serve as primary conduit between youth and adult leadership; strive towards reengaging high school age members
- *As Merit Badge Counselor:* trained and certified in the most important Eagle Scout required merit badges; teach classes to youth members across all of Scouting; effectively utilize Socratic, EDGE, and hands-on teaching methods; work with youth and parents to provide an individualized program for each Scout

Pennsylvania State University Club Tennis

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- Plan, coordinate, and lead all fundraising and family relations activities as a corollary for the largest student run philanthropy in the world; manage finances and lead practices for a club of over 200 members

Education

The Pennsylvania State University | Schreyer Honors College

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Smeal College of Business and College of the Liberal Arts | Class of 2020

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Awards and Skills

- Proficient knowledge in Excel, R, SPSS, Minitab, Qualtrics XM, Meltwater, Cision, Critical Mention, and C++
- Eagle Scout and recipient of the Honor Medal for Demonstrating Unusual Heroism in Saving Life
- Good Citizenship Award from both the United States Congress and the Union League of Philadelphia
- Avid pianist, tennis player, skier, backpacker, and adventurer