

**Framing a Hot Issue: Print media coverage of climate change from
2006 to 2012 and the influence of issue framing**

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Climate change – also known as global warming, the climate crisis, the greenhouse effect, etc. – is an inherently multifaceted policy issue. It encompasses both issues of mitigation and adaptation, and touches a variety of areas including energy use, environmental protection, economic development, national security, public health, and scientific accuracy. Despite being on the public agenda since James Hansen’s testimony before Congress during the 1988 “Greenhouse Summer,” climate change fluctuates in salience on the public agenda (Trumbo, 1996). In the 25 years climate change has been on the agenda, the issue continues to have many competing frames without any clear dominant frame choices. However, as any issue evolves and the public and policymakers familiarize themselves with it, we expect to see the discourse to solidify and simplify: the political battle lines become clearer even as groups enter and exit the debate (Schattschneider, 1960).

Drawing on Matthew Nisbet’s work on scientific issue frames, this study seeks to understand *how climate change as a political issue has been framed since the recent spike in attention in 2006*. During this seven-year period, there have been a number of climate-related events in climate change politics including the release of the Intergovernmental Panel on Climate Change’s (IPCC) Fourth Assessment Report in February 2007, the House of Representatives passing the Waxman-Markey climate cap-and-trade bill in May 2009, the Climategate email scandal in November 2009, Hurricane Sandy’s landfall in New York City in November 2012 as well as non-climate-related events like the election of Barack Obama in 2008, the economic recession beginning in September 2008, and the rise of the Tea Party during the 2010 midterm Congressional elections. Therefore, this study also builds on Thomas Birkland’s work on focusing events to understand what types of events impact the overall framing of climate change (Birkland T. A., 1998; Birkland & Lawrence, 2009).

1. LITERATURE REVIEW

Building on the framing and focusing events literatures in public policy as well as the literature focused on climate change politics and policy, this paper seeks to contribute to our understanding of how framing of multifaceted policy areas evolves over time, what the role of focusing events is, and specifically how has the climate change debate in the United States evolved. First, I consider the literature on framing; second, I look at the focusing event literature (driven by Thomas Birkland's work); and third, I situate this work in the greater literature on climate change politics and policy in the United States.

1.1 Framing

Political scientists and communications scholars in the past four decades have worked to understand the construction of frames (Chong & Druckman, 2007; Gamson & Modigliani, 1989; Gamson & Modigliani, 1987; Scheufele, 1999), and the impact of framing on media, (Entman, 2007) on policymakers, (Callaghan & Schnell, 2005) and on public opinion (Nelson, Clawson, & Oxley, 1997; Druckman, Fein, & Leeper, 2012). The development of the framing literature generated many definitions of framing. At a basic level, frames suggest how the audience should approach understanding the issue: what is the problem, what are the potential solutions, what actors are affected by the problem, who is affected by the problem or solutions, and where the political battle lines are drawn. This study relies on the definition of framing in Gamson and Modigliani's classic 1987 study on affirmative action: "a central organizing idea or story line that provides meaning to an unfolding strip of events, weaving a connection among them. The frame suggests what the controversy is about, the essence of the issue" (p. 143).

Furthermore, frames do not necessarily imply a specific position on an issue; two actors can have conflicting positions on the same issue within the context of a single frame. For

example, climate change can be seen as either an economic hindrance (high costs of mitigation) or an economic opportunity (opening new markets in renewable energy) yet in both instances it is an economic framing of climate change.

Frames are typically studied as tools employed by political actors – policymakers, activists, and members of the media – to influence policy outcomes either by directly influencing decision-makers’ information contexts (Jones, 1994; Baumgartner, De Boeuf, & Boydston, 2008) or influencing public opinion in order to put pressure on decision-makers indirectly (Nelson & Kinder, 1996; Druckman, Fein, & Leeper, 2012; Lecheler & de Vreese, 2012; Nelson, Clawson, & Oxley, 1997; Scheufele, 1999). Frames and framing effects have been extensively studied in this literature; however this aspect of framing is beyond the scope of this study. Commonly, the media is used as a conduit for communicating between political actors and influencing the public simultaneously. Thus, media framing provides a useful lens for understanding the development of policy issue-area debates.

The line of scholarship on media framing focuses on elite media choices in the construction of news (Scheufele, 1999; Callaghan & Schnell, 2005). Media coverage shapes how public policy problems are understood (Bardwell, 1991; Entman, 2007). In this way, the media serves as an agenda-setter (Weaver, McCombs, & Shaw, 2004). However, media frames also react to events and activities of political actors. We can say, then, that the media has some agency but it is constrained by other factors. Toby Bolsen’s work on the construction of news demonstrates that media frames are largely driven by events (2010).¹

¹ Bolsen’s work looks at coverage of environmental news, which facilitates generalizing his findings to news coverage of climate change.

1.2 Focusing Events

Since events play an important role in media coverage, we can also expect to see a relationship between focusing events and media framing choices. Thomas Birkland's work defines a focusing event as "an event that is sudden; relatively uncommon; can be reasonably defined as harmful or revealing the possibility of potentially greater future harms; has harms that are concentrated in a particular geographic area or community of interest; and that is known to policy makers and the public simultaneously" (1998, p. 54). Focusing events have the ability to radically shift the political landscape, giving access to certain groups over others, bringing in new actors, and providing the potential for new frames/more prominent frames to emerge (Schattschneider, 1960; Birkland & Lawrence, 2009). Yet, other than Birkland's 2009 study on media framing after the Columbine High School shooting, the relationship between focusing events and issue framing is under studied. This study seeks to contribute to understanding this relationship.

1.3 Climate Change

The climate change issue is extensively addressed in the political science and policy studies literature. Those scholars studying climate change policy and politics in the United States mostly focus on the agenda-setting phase of policy-making (Trumbo, 1996; McCright & Dunlap, 2000; McCright & Dunlap, 2003; McCright & Dunlap, 2011; Antonio & Brulle, 2011) or subnational policies (see Rabe, 2004), as these are the stages where climate policy exists in the US. This paper contributes to the discussion of agenda-setting within the climate change issue.

One of the earliest studies examining climate change framing is Craig Trumbo's examination of framing and claims-making by scientists and politicians in the press (1996). Trumbo found that climate change was increasingly polarized through his examination of who

made public claims through the media. Following Trumbo are scholars like McCright and Dunlap (2000; 2003) and Antonio and Brulle (2011) who examine the role and influence of conservative actors in what is seen as a liberal-dominated issue. However, these studies overlook the role of the media as an actor contributing to the policy debate. Boykoff and Boykoff's work on media coverage of climate change begins to fill this gap. In 2004, Boykoff and Boykoff published a study examining the print media practice of presenting opposing points of view on an issue which actually perpetuates bias in climate change coverage. In 2008, Maxwell Boykoff examined television coverage of climate change and found the same 'balance as bias' present. These two studies indicate the media perpetuates bias in the climate change debate; thus we would also expect to see media influence framing.

In these studies, the multiple frames of climate change are not considered; Matthew Nisbet's work does. Nisbet's work on climate change framing serves as an important jumping off point for this study. He developed a typology of journalistic frames typically present in science policy debates: he identifies eight common frames found (see Table 1). Nisbet convincingly argues that employing a consistent typology for examining policy debates avoids reinventing the wheel and allow for cross-issue comparison. Therefore, by building on this body of scholarship, I seek to better understand the evolution of climate change framing in the United States between 2006 and 2012, paying specific attention to the role of events.

Frame	Definition (Nisbet, 2010 p. 52)
<i>social progress</i>	improving quality of life, or solution to problems. Alternative interpretation as harmony with nature instead of mastery, “sustainability.”
<i>economic development/ competitiveness</i>	economic investment, market benefits or risks; local, national or global competitiveness.
<i>morality/ ethics</i>	in terms of right or wrong; respecting or crossing limits, thresholds, or boundaries.
<i>scientific/ technical understanding</i>	a matter of expert understanding; what is known versus unknown; either invokes or undermines expert consensus, calls on the authority of “sound science”, falsifiability, or peer-review.
<i>Pandora’s Box/ Frankenstein’s Monster/ runaway science</i>	calls for precaution in face of possible impacts or catastrophe. Out-of-control, a Frankenstein’s monster, or as fatalism, i.e. action is futile, path is chosen, no turning back.
<i>public accountability/ governance</i>	research in the public good or serving private interests; a matter of ownership, control, and/or patenting of research, or responsible use or abuse of science in decision-making, “politicization.”
<i>middle way/ alternative path</i>	around finding a possible compromise position, or a third way between conflicting/ polarized views or opinions.
<i>conflict/ strategy</i>	as a game among elites; who’s ahead or behind in winning debate; battle of personalities; or groups; (usually a journalist-driven interpretation).

Table 1: Nisbet's Frames for Science Policy Debates (2010, p. 52)

2. METHODOLOGY

In order to understand the evolution of the media treatment of climate change, this study employs content analysis methods (Neuendorf, 2002) to identify frames from a structured random sample of *New York Times* articles between January 1, 2006 and December 31, 2012. The *New York Times* was selected because it is a national news leader – stories covered by the *New York Times* are commonly covered by other media outlets and the paper sets a high standard of quality for reporting. It is also accessible through *LexisNexis Academic* database, facilitating the study. All articles from the seven-year time period that mentioned “climate change”, “global warming”, “greenhouse effect” or some variation on those search terms were selected. A total of 9,260 articles in the *New York Times* fit this description².

² While this seems like a large volume, it is important to note that hundreds of articles are published weekly by the *New York Times* and environmental issues are a tiny fraction of their coverage.

However, many of these articles were unsuitable to include in this analysis. Therefore, all 9,260 articles were cursorily read and articles were removed if they fit any of the following categories: (a) advertising for stories within the paper, like “In this Issue of the Times”; (b) letters to the editor (this analysis examines elite frames rather than mass public frames); (c) articles not substantively addressing climate change but mentioning the issue like obituaries of climate scientists, wedding announcements, book lists, event calendars, lesson plans, poems, etc.; (d) articles that mentioned climate change in passing or as part of a metaphor but did not engage the issue substantively; and (e) reports about paleo-climate changes that are not linked to the modern phenomenon. Editorials were included in this study even though they are commonly written by non-reporters because these voices are important in the overall debate.

After removing these articles, I was left with about 5,400 articles that substantively addressed the issue of climate change. From these 5,400 articles, 302 were selected for inclusion in this analysis by selecting every 18th article starting on the 14th article (14 was selected through a random number generator). Next, the selected articles were manually content analyzed to determine the following: (a) how much of the article focuses on climate change – to use as a weighting variable³, (b) the frames mentioned using Nisbet’s typology, (c) the organizing frame⁴, and (d) if the article mentions or emphasizes action to address climate change through mitigation and/or adaptation. To ensure replicability, key words and phrases were identified for each frame before coding began to guide the coder⁵. See Table 2 for framing examples in the dataset.

³ Since the *LexisNexis* database pulls all articles that mention climate change, this study includes articles that mention climate change in a single paragraph and articles that discuss the issue for the entire article. Therefore, by including a weighting variable in the dataset, we give more credit to frames present in articles that devote more of the article to climate change. (See the codebook in Appendix A for more details on this weighting technique).

⁴ This is the organizing frame for the article, and is easily determined while reading the article.

⁵ See the codebook in Appendix A for these key words and phrases

Frame	Example
Social Progress	<p>"Before it Disappears" by Allen Salkin Dec. 16, 2007 (<i>sustainability</i>)</p> <p>"Almost all of these trips are marketed as environmentally aware and eco-sensitive -- they are, after all, a grand tour of the devastating effects of global warming. But the travel industry, some environmentalists say, is preying on the frenzy. This kind of travel, they argue, is hardly green. It's greedy, requiring airplanes and boats as well as new hotels."</p>
Economic Development	<p>"Emissions of CO2 Set For Best Drop in 40 Years" by Jad Mouawad Sept 22, 2009</p> <p>"The main factor behind this year's drop in emissions is the slowdown in industrial activity and trade around the world, according to a study due to be released in November by the International Energy Agency."</p>
Morality	<p>"Pastors in Northwest Find Focus in 'Green'" by William Yardley Jan 16, 2010</p> <p>"Religious leaders have been preaching environmentalism for years, and much attention has focused on politically powerful evangelical Christian leaders who have taken up climate change as a cause. Yet some smaller, older and often struggling mainline churches are also going greener, reducing their carbon footprint by upgrading basement boilers and streamlining the Sunday bulletin, swapping Styrofoam for ceramic mugs at coffee hour and tending jumbled vegetable gardens where lawns once were carefully cultivated."</p>
Scientific/ Technological Understanding	<p>"A Closer Look at CO2's Long Goodbye" by Andrew C. Revkin Dec 29, 2011</p> <p>"Thus, while the lifetime of a particular molecule is roughly 5 years (atmosphere loading of about 800 GtC divided by 60 plus 90 gross fluxes), the net effect is that only about half of the annual addition of fossil fuel CO2 is taken up, and the persistence time of a significant part of the perturbation is over 1,000 years."</p>
Pandora's Box	<p>"Nature Votes Last" by Timothy Egan Nov 1, 2012</p> <p>"Did global warming cause Sandy to be so massive, so destructive, so unfathomable? There's no consensus on this specific storm. But virtually every reputable atmospheric scientist who is not tied by money to an oil or coal company says that this week's storm is a picture of what's to come, if not already here."</p>
Public Accountability	<p>"Global Warming and Your Wallet" by the <i>New York Times</i> editorial board July 6, 2007</p> <p>"But for all the talk about warming, leading politicians have yet to educate their constituents (and their colleagues) about an unpleasant and inescapable truth: any serious effort to fight warming will require everyone to pay more for energy."</p>
Middle Way	<p>"Mixing in Some Carbon" by Claire Cain Miller March 22, 2010</p> <p>"It seems like alchemy: a Silicon Valley start-up says it has found a way to capture the carbon dioxide emissions from coal and gas power plants and lock them into cement."</p>
Conflict/Strategy	<p>"U.S. and China Narrow Differences at Climate Conference" by John M. Broder Dec 8, 2010</p> <p>"The United States and China have significantly narrowed their differences on the verification of reductions in greenhouse gas emissions, officials said, providing hope that a United Nations conference here on climate change can achieve some modest success."</p>

Table 2: Examples of Frame Codes

3. RESULTS

Between 2006 and 2012, there were 302 valid observations. See Table 3 for descriptive statistics of the frames present in each article.

Frame	Count	Percentage	Confidence Interval
Social progress frame	145	48.01	42.51 – 53.51
Economic development/competitiveness frame	124	41.06	35.56 – 46.56
Morality/ethics frame	26	8.61	3.11 – 14.11
Scientific/technical understanding	150	49.67	44.17 – 55.17
Pandora's Box frame	83	27.48	21.98 – 32.98
Public accountability/governance	112	37.09	31.59 – 42.59
Middle way/alternative path	45	14.90	9.40 – 20.40
Conflict/strategy	84	27.81	22.31 – 33.31

N = 302

Table 3: Descriptive Statistics: Frame Frequencies

As these data show, the social progress, economic development, scientific, and public accountability frames are prevalent in the sample. The confidence interval for these data is ± 5.5 percentage points, thus we can be 95% confident that each of these four frames is present in the climate change debate about 30 to 45% of the time. The Pandora's Box and conflict/strategy frames are present about 27% of the time, and the middle way frames are only present about 15% of the time. Surprisingly, the morality frames were present in the data less than 9% of the time. While all eight frames identified by Nisbet were present in *The New York Times* coverage of climate change, they were not equally represented. For each article, an organizing frame was also identified, see Table 4.

As Table 4 shows, there is no clear dominant organizing frame: economic development, scientific/technical understanding, and conflict/strategy are the modal leaders as each are organizing frames in about 15% of the articles. Next, social progress, Pandora's Box, and public accountability frames are organizing frames in about 13% of the articles. The morality frames

Frame	Count	Percentage	Confidence Interval
Social progress frame	39	12.91	7.41 – 18.41
Economic development/competiveness frame	50	16.56	11.06 – 22.06
Morality/ethics frame	5	1.66	-3.84 – 7.16
Scientific/technical understanding	61	20.2	14.70 – 25.70
Pandora’s Box frame	40	13.25	7.75 – 18.75
Public accountability/governance	39	12.91	7.41 – 18.41
Middle way/alternative path	12	3.97	-1.53 – 9.47
Conflict/strategy	47	15.56	10.06 – 21.06

N = 302

Table 4: Descriptive Statistics: Organizing Frames

and the middle way frames are organizing frames in less than 5% of the articles. The confidence intervals in Table 4 show that the morality and middle way frames range into the negative numbers, indicating that in the overall population of print media coverage, these frames are barely present as organizing frames.

While these figures show that there is no clear dominant frame, this study is also interested in how these frames change over time. Figure 1 shows a timeline of major climate change events and frames as the change over time. The frames in the graph are weighted by how much of the article addressed climate change: if only a small amount of the article was devoted to climate change it was coded 1, and if the entire article was devoted to climate change it was coded 4 (see Appendix A for more on coding choices). The frames were all coded as dummy variables, so 1 indicates the frame is present and 0 indicates it was absent. Using the weighting variable as a multiplier, an article completed about climate change with a frame present gets a value of 4 whereas an article that cursorily mentions climate change with a frame present gets a value of 1.

In order to make sense of these values, they were aggregated in three-month periods. These quarter-year groups yield 28 data points that are plotted in Figure 1. The frames were grouped into three categories: (1) frames for understanding the problem – morality, scientific,

and Pandora's Box frames, (2) frames for determining the best solutions – social progress, economic development, and scientific frames, and (3) frames for negotiating solutions – public accountability, middle way, and conflict frames. As the graphs indicate, these frames fluctuate over time with a few noticeable spikes.

In late 2007, there are spikes in the scientific, Pandora's Box, and social progress frames. This corresponds with Al Gore and the IPCC winning the Nobel Peace Prize (October 2007). In terms of proportions, during the October-December 2007 quarter, the social progress frame was present in 70% of stories, the scientific frame was present in 70% of stories, and the Pandora's Box frame was present in 54% of stories. Compared to the overall proportion of frames (see Table 3), these frames are more prevalent during this time than the overall average. While this does not serve as conclusive proof that the Nobel Prize award was a focusing event, it suggests that events during this time period influenced the frequency of these frames over other choices. The Copenhagen Summit – the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) 15 meeting – corresponds with a spike in the public accountability frame in October-December 2009. During this period, the proportion of public accountability frames is approximately 54% which is above the overall proportion of 38%. Even with a confidence interval of ± 5.5 percentage points, these two values are different. At this point, there was considerable hope that the Obama Administration would be able to negotiate a successor to the Kyoto Protocol during that meeting. However, that did not come to fruition.

The other noticeable spike occurs at the end of the seven-year period starting in April-June 2011 and continuing through October-December 2012 where the scientific, social progress, and economic development frames begin to rise. During this period, the proportion of scientific frames ranges between 45% and 80% of articles in those quarters, economic frames range

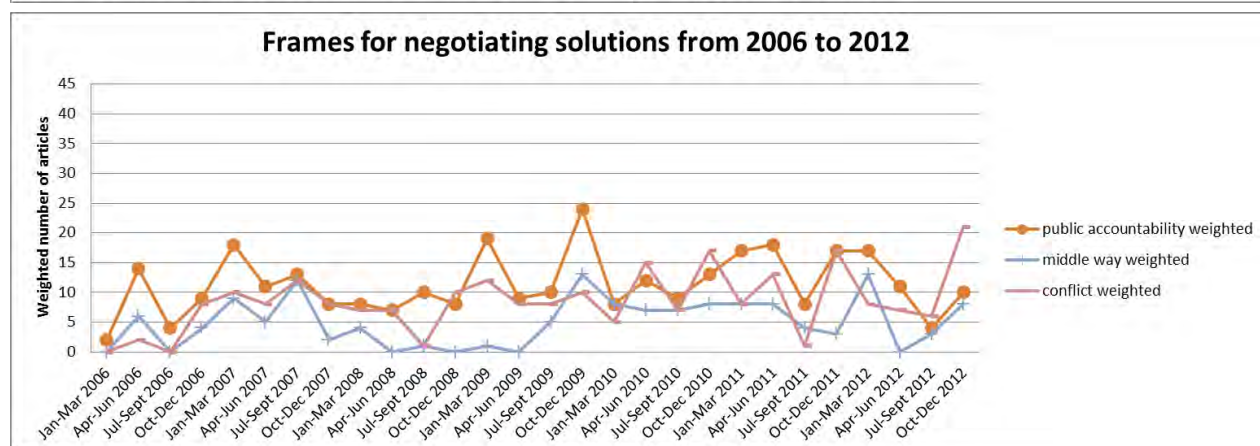
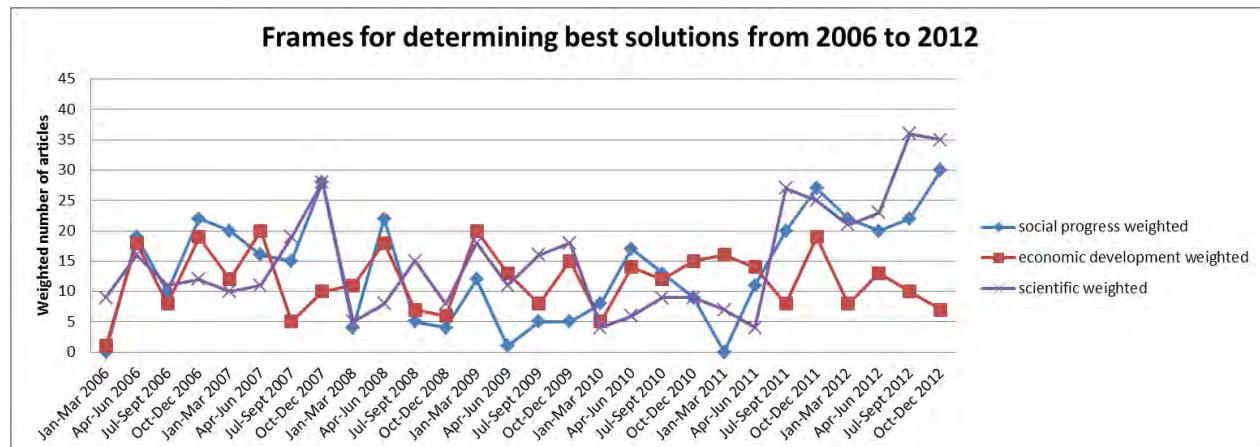
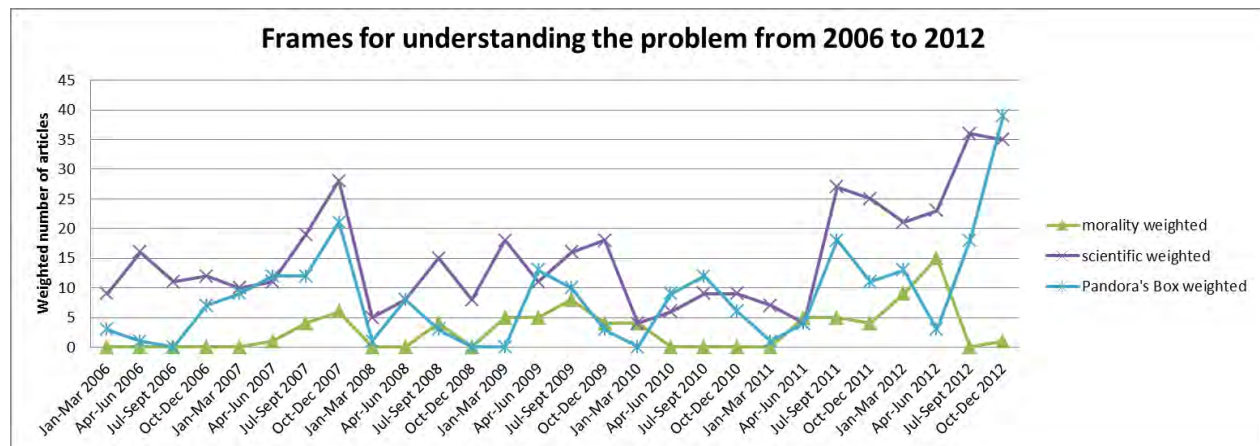
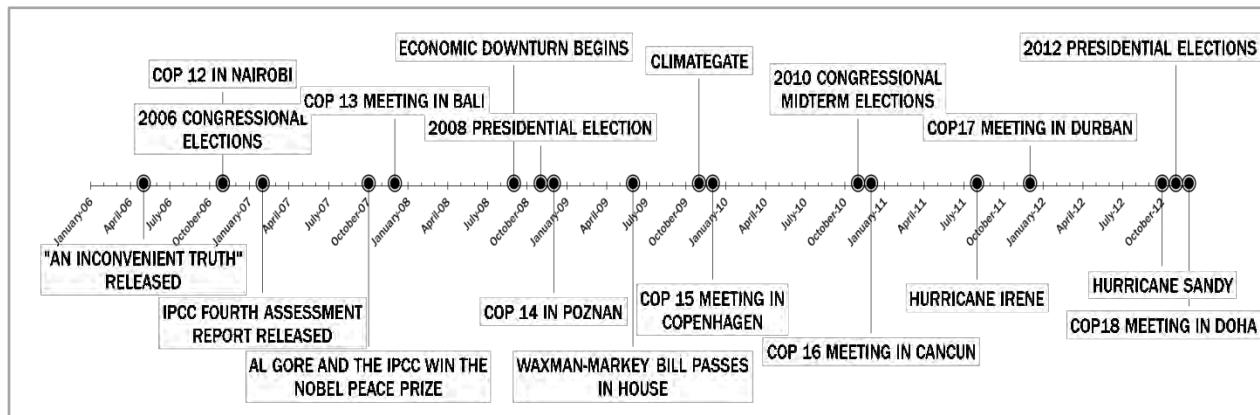


Figure 1: Framing of climate change over time

between 15% and 72%, and scientific frames range between 50% and 60%. Only the scientific frames during the whole period are above the overall proportion (see Table 3), but there are spikes in certain quarters for social progress and economic frames that do exceed the overall average. These patterns are not easily explained by any large events, but could be caused by actions by activists like Bill McKibben's 350.org group and more traditional environmental activist groups like the Sierra Club, Natural Resources Defense Council, or the Environmental Defense Fund. These groups have been organizing around fighting the KeystoneXL pipeline and lobbying government for climate change action more generally.

As Figure 1 also shows, there was a rise in all frame-types (except morality and economic development) in the last half of 2012. This can be attributed to two major events: (1) the 2012 Presidential election and (2) the landfall of Hurricane Sandy in New York City. While the major presidential candidates did not address climate change until after Hurricane Sandy hit New York City, other actors were actively working to include climate change in the electoral debate. Additionally, the landfall of Hurricane Sandy served as a focusing event for climate change. On November 1, 2012 Republican Mayor Michael Bloomberg made a public statement saying the hurricane caused him to rethink the importance of climate change (while also endorsing President Obama's re-election bid – an unusual move for the Republican mayor). This was the first time a major political actor connected a hurricane to climate change, and he was soon joined by New Jersey Governor Chris Christie in attributing events like Hurricane Sandy to climate change. It is important, however, to keep in mind that the *New York Times* is likely to have biased coverage of Hurricane Sandy because the storm devastated their home city. The reporting and editorial staffs of the *New York Times* are likely to be personally impacted by the storm and

more inclined to cover climate change as connected to the storm. Therefore, conclusions about the influence of Hurricane Sandy should be made cautiously at this time.

Simple bivariate regressions were run regressing each of the eight framing choices⁶ on coverage over time⁷ to determine if there was a statistically significant change in the proportion of articles with each frame over time.

Frames (weighted values)	Coefficients	R²
social progress	-0.629 (3.146)	0.0001
economic development	-7.196** (3.245)	0.0161
morality/ethics	8.183 (5.294)	0.0079
scientific/technological understanding	3.901 (3.057)	0.0054
Pandora's Box	7.851 (3.557)	0.0160
public accountability/governance	-2.849 (3.175)	0.0027
middle way/alternative path	0.491 (4.243)	0.0000
conflict/strategy	3.237 (3.503)	0.0028
Observations	302	

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 5: Regressions of frames on coverage over time

As these regressions show, only the coefficient for economic development is statistically significant and it has a negative value, indicating that as time goes on the number of economic frames declines. This is a surprising finding because we would expect economic framing to increase during the 2008 recession and continue as the economy continues to be most American's top priority. The (low) R² values are included, but they should be largely discounted because these regressions were created to understand the slope of the frames' change over time

⁶ This yields eight separate regression results.

⁷ expressed by the number of the article. As the sample was structured, this approach allows a rough equation between time and the article number. There are times when the coverage of the issue spikes (many articles in a single day or week), but each article is treated as another voice moving the debate forward, this unevenness in coverage is not problematic.

and these R^2 values only serve to tell us what the descriptive statistics in Table 3 show more clearly.

Data were also collected about each article measuring if it mentioned a pro-, neutral, or anti-action position on mitigation or adaption; 258 articles had a discernible position. The *New York Times* coverage of this issue has a bias towards promoting action on climate change, see Table 6.

Position	Count	Percentage	Confidence Interval
anti-action	9	3.49	-2.01 – 8.99
neutral	69	26.74	21.24 – 32.24
pro-action	180	69.77	64.26 – 75.27

N = 258

Table 6: Position on action on climate change

As the figures show, a large majority of articles (approximately 70%) promote action on climate change and a tiny percentage is anti-action (approximately 3.5%).

4. DISCUSSION

As these results show, climate change continues to be a multifaceted issue with four frame modes: social progress, economic development, scientific/technical understanding, and public accountability/governance. The social progress and economic development frames deal primarily with determining appropriate solutions to the problem. The scientific/technical understanding frame fits two roles: understanding the problem and determining solutions. The only modal frame concerned with negotiating solutions (policies) is the public accountability frame. These results imply that the climate change debate in the US is still stuck in the early phases of solution determination. While I do not claim that these framing patterns *cause* climate change policy to be stagnant, we can infer that the public debate is unmoving even in light of major events. The recent movement on climate change by the Obama Administration (i.e.

Obama's focus on climate change in his 2013 inaugural address and State of the Union address) might mean this is changing. However, these events are still unfolding and we cannot yet draw solid conclusions.

Pandora's Box frames and conflict/strategy frames were each present in about 28% of the articles. While this is a high proportion, it is a little surprising they were not more prevalent. Environmentalists are commonly charged with being 'alarmist' and claiming that human damage to the environment is opening a Pandora's Box (see Shellenberger & Nordhaus, 2007). Climate change activists are especially guilty of making these types of claims. So, while we see this message is clearly present in media debates, it does not dominate the *New York Times'* coverage of the issue. This might indicate that climate activists play a smaller role in shaping the debate compared to other actors like economic actors and policymakers.

Additionally, with the rise of the Tea Party in the 2010 Congressional elections, two Presidential elections captured within this time period, and the yearly UNFCCC COP meetings in December, it is surprising that conflict/strategy frames were not more prevalent. Possibly this is because the climate change debate is still considering solution possibilities, thus policy makers are not forced to take public positions. It could also be an effect of the successful conservative countermobilization (McCright & Dunlap, 2003; Antonio & Brulle, 2011) which largely kept climate change off the governmental agenda between 2010 and 2011.

It is also worth considering which frames were generally missing from the debate: morality/ethics and middle way/alternative path frames. Morality/ethics frames are essentially missing from the media coverage of climate change. This is an interesting finding because it is possible that the moral/ethical argument would benefit climate activists arguing that we have obligations to communities in danger of experiencing destructive impacts of climate change, to

future generations, and to the natural world. At best, the confidence interval implies the true frequency of morality frames in print media coverage is 14%; these data show it is present in only 8.6% of articles over a seven-year period. It is also the organizing frame in only 1.7% of articles. Possibly this is another reflection that climate activists play a smaller role in shaping the overall climate change debate than other actors.

While the frequency of middle way/alternative path frames is not as low as the morality/ethics frame, this frame is only present in about 15% of the articles and the organizing frame in 4% of articles. So, as the debate on climate change progresses, we find little ground for a way forward past the polarization identified by Antonio & Brulle (2011) and McCright & Dunlap (2000, 2003, 2011). This has important implications for the potential of climate change policy: if we are not discussing possible solutions we can agree on, it is unlikely we will see policy change anytime soon.

These data do not conclusively show that events influence the overall framing of climate change. There is an influence of Hurricane Sandy, the Copenhagen COP15 summit, and the Nobel Prize awarded to the IPCC and Al Gore, however other events like the 2008 economic downturn and the 2009 Climategate scandal do not appear to have any impact. While this is not explored in this paper, the events with an impact on framing saw the mobilization of climate-specific advocacy organizations (both those advocating for action and climate-skeptics in the case of Climategate). As Birkland's (1998) article on focusing events and group mobilization demonstrates, we would expect this type of focusing event to open political space for advocacy group action. However, it is not clear why these events and not other COP meetings or other events did not have a noticeable impact. Future research should examine these different types of

events in order to better understand why some events impact the overall debate while others do not.

Finally, it is interesting that the *New York Times* is biased towards publishing articles that promote action to address climate change. This bias is present throughout entire the seven-year period studied in this project. This finding confirms the conclusions drawn by Entman (2007) and Lecheler & de Vreese (2012) that the media introduce bias into public debates, yet it might also indicate that a respected newspaper like the *New York Times* limits skeptics' access.

5. CONCLUSION

As these data show, climate change continues to be a multi-faceted issue over this seven-year period. Some events seem to influence the overall framing of the issue, but not all of these focusing events and political events have the same impact. Therefore, we can conclude that in multifaceted issues like climate change, there is no straightforward connection between focusing events and framing. Additionally, these data demonstrate that there are no frames that emerge as the one or two dominant frames. In terms of our understanding of climate change politics, the many frames associated with the issue mean there are many potential access points for political actors, especially activists who are trying to influence policymakers. However, it also indicates that there are a lot of perspectives on the issue in the public discourse.

This paper cannot conclusively prove that this type of multiplicity prevents policy formulation; but these data do show that in the United States where there is no unified national climate change policy a multiplicity of frames persist over time. A useful future study in comparative politics could compare the US situation to another country where climate change policy has been established – like the United Kingdom – to try and determine if a similar multiplicity of frames exists in that policy debate.

The results from this study can serve as a foundation for other areas of research to understand (a) the specific issue of climate change framing, (b) framing of multifaceted issues more generally, and (c) the role of focusing events in influencing framing. By expanding the time-frame of analysis before 2006 and continuing to collect data past 2012, this type of study can examine the evolution of framing over a long period. Similar to the work completed by Baumgartner, De Boeuf, & Boydston on the Death Penalty (2008), this study could be expanded to help us understanding the evolution of the climate change issue area. Additionally, since there was a bias observed in the *New York Times*' coverage of the issue (both promoting action to address the issue and a potential bias because of Hurricane Sandy), it would be beneficial to add other newspaper sources to this analysis like the Washington Post, Chicago Tribune, LA Times, etc. The same method applied to these other news sources would greatly expand the sample and hopefully eliminate those biases (or confirm that they are true patterns and not biases).

Furthermore, these data can serve as a single case study in a future study looking at the framing of multifaceted issues. By treating climate change as one case, other policy issues like healthcare reform or public education could be added as cases and analyzed to determine what aspects of an issue lead to the different observed framing patterns. A study like this could also incorporate similar focusing events to help shed light on which characteristics of a focusing event cause it to have an impact on the overall framing pattern and which characteristics do not. Again, the database of framing choices over time produced in this work can serve as a basis for these studies.

Overall, we see that in the United States, climate change remains a complex issue with many framing choices. The role of focusing events is not clear, but we infer from these data that in the right conditions they influence the overall debate. Like much of the academic work on

framing, this study provides a few answers but raises even more questions worthy of consideration in future studies.

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6. APPENDIX A: CODEBOOK

Codebook for Climate Change Framing 2006 to 2012

DATA:

News media articles were collected from LexisNexis Academic for January 1, 2006 through December 31, 2012. Articles were selected using the following search terms: “climate change” or “global warming” or “greenhouse effect” and were in the *New York Times* (a news leader). By choosing these search filters, the researcher was able to eliminate articles which only casually mentioned climate change or global warming.

Next, articles were eliminated from the population of articles if they fit the following categories:

- Letters to the Editor
- Corrections
- Education lesson plans
- Wedding announcements
- Quizzes
- Book reviews or performance reviews
- “In This Issue” synopsis (part of the *New York Times* front page, advertising what is in the paper)
- Articles that were not substantively about the issue of climate change or not news articles, like obituaries, poetry and short stories, etc.
 - o Articles about ancient/ paleo-climate change
 - o Articles that use a candidate’s position about GCC as an example but do not indicate what that position is

Began with approximately **9200** articles, after eliminating these types of articles there are approximately **5400** articles for analysis.

Structured random sampling: A random number generator was used to pick a number between 1 and 18: it generated 14. Starting on the 14th number, every 18th article was selected. This will result in ~300 articles selected for the sample.

CODING:

Column	Coding	Notes
<i>Article Number</i>	1 to 302	reference
<i>Date published</i>	DD.MM.YY	
<i>Source</i>	Desk from NYT	
<i>Which key words</i>	“global warming” or “climate change” or “greenhouse effect”	GW = 1 CC = 2 GHE = 3 None explicitly mentioned = .
<i>How much of the article focuses on climate change</i>	1 = less than ¼ of article devoted issue 2 = ¼ to ½ of article devoted to issue 3 = ½ to ¾ of article devoted to issue 4 = ¾ to all of article devoted to issue	
<i>Nisbet’s frames mentioned</i>	Social progress Economic development/ competitiveness Morality/ ethics Scientific/ technical understanding Pandora’s Box/ Frankenstein’s monster/ runaway science Public accountability/ governance Middle way/ alternative path Conflict/ strategy Other (identify)	Multiple dummy variables created because there can be more than one frame in an article. See coding instructions below for how these are determined.
<i>Organizing frame</i>	1 = Social progress 2 = economic development/ competitiveness 3 = morality/ ethics 4 = scientific/ technical understanding 5 = Pandora’s Box/ Frankenstein’s Monster/ runaway science 6 = public accountability/ governance 7 = middle way/ alternative path 8 = conflict/ strategy 9 = other	Used for most of the analysis, and for determining the appropriate causal story. See coding instructions below for how these are determined.
<i>Pro-action for climate change mitigation or adaptation</i>	0 = article emphasizes/advocates against action 1 = article does not emphasizes/advocates for action to mitigate or adapt to climate change (neutral position) 2 = article emphasizes/advocates for action to mitigate or adapt to climate change . = no discernible position	

CODING INSTRUCTIONS:**Determining Frames from Nisbet's Typology:**

In order to select which frame is most appropriate, the researcher will look for key terms and phrases in the article. While these key terms and phrases are not all-encompassing, they will correctly identify the story as belonging to that frame. This is done to avoid subjectivity from the researcher. This frames the issue of climate change – not the news article itself. Climate change could be framed as a Pandora's Box but the article is mostly about international negotiations.

Frame	Definition (Nisbet, 2010 p. 52)	Key Words/ Phrases
social progress	improving quality of life, or solution to problems. Alternative interpretation as harmony with nature instead of mastery, "sustainability."	Sustainability, work with nature, harmony, environmentalism (describing individuals or groups), solving more than just GCC – solving societal ills
economic development/ competitiveness	economic investment, market benefits or risks; local, national or global competitiveness.	Economy, taxes, markets, subsidies, competitive, money, investment, fund, business/firms
morality/ ethics	in terms of right or wrong; respecting or crossing limits, thresholds, or boundaries.	Morals, ethics, right path, religion, spirituality, good v. bad, supreme being
scientific/ technical understanding	a matter of expert understanding; what is known versus unknown; either invokes or undermines expert consensus, calls on the authority of "sound science", falsifiability, or peer-review.	Technology, science, laboratory, findings, peer-review, new study, academic, determinism
Pandora's Box/ Frankenstein's Monster/ runaway science	calls for precaution in face of possible impacts or catastrophe. Out-of-control, a Frankenstein's monster, or as fatalism, i.e. action is futile, path is chosen, no turning back.	Unknown, catastrophe, disaster, out-of-control, precaution, mitigation (to prevent the worst)
public accountability/ governance	research in the public good or serving private interests; a matter of ownership, control, and/or patenting of research, or responsible use or abuse of science in decision-making, "politicization."	Public good, public service, accountability, governing, research, responsibility
middle way/ alternative path	around finding a possible compromise position, or a third way between conflicting/ polarized views or opinions.	Compromise, another/ third path, new way, new solutions, bipartisan
conflict/ strategy	as a game among elites; who's ahead or behind in winning debate; battle of personalities; or groups; (usually a journalist-driven interpretation).	Horse race articles, political strategy, polarization, divergent views
other	The eight frames identified by Nisbet cannot be all-inclusive. This coding space is left open for those occasions where none of the eight apply.	